Reading Material
on
Telangana – Land and People
(from Stone Age to 1,323 CE)

CENTRE FOR PUBLIC ADMINISTRATION (CPA)

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FROM DIRECTOR GENERAL'S DESK

Telangana emerged as the twenty ninth state on the map of India in the year 2014 CE. Due to sustained and proactive efforts of the state government, an ever growing number of public servants are being recruited annually to serve around 40 million people across the state. The institutional mandate of Dr.MCR Human Resource Development includes to equip these young frontline public functionaries with relevant set of knowledge and skills coupled with positive attitude so as to serve the entire society of the newly formed Telangana state.

The Institute fulfils its mandate through a host of Centres. The Centre for Public Administration is one amongst them. To equip these young recruitees, a month long training capsule is developed. The centre has also developed a set of reading material. It consists of general and financial aspects of administration apart from behavioral and motivational aspects. The material has evolved over time due to constant interaction between expert resource persons and trainees.

After the realization of Telangana state, it was also considered necessary to sharpen the understanding about Telangana – Land and People amongst these fresh recruitees. In fact, relevant material has already been shared with several batches of trainees for last three to four years using E-learning as well as class room mode. The feedback has consistently been overwhelmingly positive - to say the least. Keeping their encouraging feedback in view, a set of reading material has been documented by taking inputs from resource persons and known authors.

This volume does not lay any claim to originality or research orientation. What it claims, in all its humility is an honest effort to capture factual narrative covering the vast canvas of Telangana – Land and People. A Telugu translation for this volume is under advanced stage of preparation. To err is human; to forgive divine. May I request the readers to be so kind and understanding as to bring any factual error, if any, to the Centre's notice for prompt correction.

(Harpreet Singh, IAS)

FROM CENTRE HEAD'S DESK

Dr MCR HRD Institute is the premier administrative training institute of Government of Telangana with the objective to create and sustain a dedicated work force for Government. Set up in 1976, it has evolved to suit the needs of changing times, as well as requirements of State and Central Government. The Institute specialises in conducting training using both in classroom and e-learning modes. The Institute has a well-qualified, experienced, hardworking and dedicated team. Its faculty resources include senior All India Service Officers and State officials and also eminent faculty drawn from various Institutes of higher learning like Indian School of Business, University of Hyderabad etc. The Institute has a sprawling 33 acre campus in the heart of Hyderabad. It is a lush green area which is fully WiFi enabled and buildings with roof top solar panels. It has well-furnished classrooms, auditoria, indoor and outdoor sports facilities including swimming pool, gymnasium and hostel blocks with capacity to accommodate 900 persons.

The Institute's mandate is carried out through the following Centres:

i) The Centre for Public Administration (CPA)
ii) The Centre for Financial Management (CFM)
iii) The Centre for Sustainable Development Goals (CSDG)
iv) The Centre for Telangana Studies (CTS)
v) The Centre for Information Technology (CIT)
vi) The Centre for Urban Development Studies (CUDS)
vii) The Management Development Centre (MDC)

CENTRE FOR PUBLIC ADMINISTRATION (CPA)

21st century greeted State Administration with new issues, implementation dilemmas and doubts resulting from the overarching processes of the globalization of market economies, the fast changing Socio, cultural and political scenario, information technology and finally with ethical and philosophical dilemmas. Accordingly, State Administrative authorities are obligated to balance the conflicting interests between development programmes, individual rights & conveniences, apart from divergent responsibilities.

These new situations or challenges require, consistent with personal integrity and professional expertise, an increased capacity to respond adequately and receptively to the emerging demands with efficiency and expediency.

The Centre for Public Administration endeavours to address all these issues by motivating building up of individual intellectual capacity, and promoting team spirit directed towards target achievement, and thus inculcating public spirited performance through articulated training programmes.

CPA is mandated to conduct the Foundation Courses to the entry level functionaries in the State Govt. It also caters to the training needs of government personnel to develop expertise in regulatory matters which include Revenue, Law and Order and General Administration sectors which will enable the Centre to give policy support to Government. Training of the Trainers programme, Training Programmes on various topics like - Office Management, Service Matters, Noting & Drafting and Disciplinary & Vigilance Procedures are also taken up by the Centre.

Mission: To empower the Government servants towards the realisation of Citizen Centric and Good Governance.

Vision: To be reckoned with as nationally reputed happening hub of excellence in various facets of Public Administration by building an ethical administrative culture in Govt. Personnel.

Focus Areas

We offer Foundation Courses, Induction Training Programmes, Refresher Courses and Training of the Trainer Courses. We also address the training needs of the Secretariat personnel. We focus on Office procedures, Noting and Drafting skills, Fundamental Rules, Service Rules, Disciplinary & Vigilance procedures, Pre-retirement counselling, Drafting Parawise Remarks in Court Cases, Revenue & Land Laws, Legal Issues, Executive Magistracy, Anti-Corruption Laws, Gender Related Laws, Handling Court Litigation, Right to Information Act, Sexual Harassment at work place etc for strengthening professional and functional knowledge of the personnel in various Departments

It is an honored privilege of Centre for Public Administration to bring out the material on Telangana – Land and People to facilitate the Telanganites to revisit the grandiose of Telangana History

R. Madhavi

(Dr. Madhavi Ravulapati)

TELANGANA – LAND AND PEOPLE

(FROM STONE AGE TO 1,323 CE)

I N D E X

1. THE UNIVERSE, SOLAR SYSTEM AND THE EARTH

1.1 THE BIG BANG

'In the beginning, all matter was confined in a huge sized super massive ball composed of hydrogen. Then the ball exploded, with a big bang, some 13.7 billion years ago. This cataclysmic explosion hurled the constituent material in all directions, thereby forming different stars and galaxies. These galaxies have been receding apart from each other at thousands to hundreds of thousand miles a second.'[1]

'Galaxies are formed of stars and nebulae made up of interstellar clouds of dust and gas. They are considered as the building blocks of the universe and are constantly moving away from each other. They appear in different sizes and can comprise between as many as one million to three billion stars. Because they rotate in space, many become spiral in form, with a dense oval centre and trailing gas clouds. They are grouped in clusters. For example, our own galaxy is called the Milky Way. It ranks amongst the larger galaxies of the universe. It appears as a band of faint light crossing the sky from horizon to horizon on a moonless clear night. It consists of around a hundred million stars, including the Sun.'[2]

These galaxies, like our mothers are always in a state of motion; never at rest. But unlike our mothers, they started reproducing right from their inception. Our own galaxy- the Milky Way, like a normal mom is giving birth to one star per year. But astronomers have recently found a super mom. It gives birth to a new star, undergoes celestial pregnancy soon and is ready to deliver a new star the very next day. In all, it spawns 740 stars in a year. Simultaneously, 240 stars are pushed out. The unusual high birth rate of this super mom is causing some anxiety among the scientists. This mature galaxy is some six billion years old and has come back to life. It is nicknamed Phoenix (the bird that rises from ashes).

The overall galactic productivity however, has been declining exponentially. Half the stars were born during the boom period that lasted from eleven billion years ago to nine billion years ago. Since then, it has taken four times longer to produce the rest. Universe is dominated by old stars. Cosmic GDP output is only 3% of what it used to be at its peak. Universe is suffering from a long term reproductive crisis; just like our global aging population.

'Stars, populating a galactic family, are essentially high temperature balls of hydrogen and helium. They are formed when nebulae begin to condense and coalesce. When the stellar core reaches a high enough temperature, it leads to a nuclear fusion reaction wherein hydrogen is steadily converted into helium. This process produces an enormous amount of energy that also accounts for the star's luminosity. Once the hydrogen at the core is exhausted, the stars begin to degenerate. Massive stars die in a spectacle of explosion called supernova. If the remnant of the star, after the explosion is more than three times the solar mass, the remnant undergoes further collapse and finally forms a Black Hole. If the remnant is less than three times the mass of the Sun, it will

form a Neutron star. When the Sun falls short of hydrogen at its core, it will swell to become a red giant for a billion years and eventually it will eject its outer layer and finally survive as a white dwarf for billions of years.'[3]

'Sun, formed around 4.5 billion years ago, as one of the stars comprises of around 74% hydrogen and 24% helium. There are traces of other elements like iron, nickel, oxygen, silicon, sulphur, magnesium, carbon, neon, calcium and chromium. Sun, a giant ball of hot gases is so hot as to ignite nuclear fusion reaction at its core. It fuses four million tonnes of hydrogen every second. Even so, it has enough fuel to keep it going for another five billion years.'[4]

In such a hugely populated universe, Sun is obviously not alone. It has its own big family of planets and other heavenly bodies. One of the planets is Earth, our own dear Earth. All these planets, including Earth revolve around Sun. This is called the Solar System, with Sun at its centre. All others including Earth, other planets, asteroids, meteoroids, comets and dust are revolving around it. The Solar System completes one revolution around the Milky Way galaxy in about 225 million years.

THE SOLAR SYSTEM

The Sun and planets were formed from a huge cloud of dust and gas produced due to big bang. Gravity caused the cloud to collapse towards its centre and the assorted mass began to rotate. At the centre of this spinning disc, temperatures rose to a point where hydrogen fused to form helium and our Sun was born. 'Situated at the centre of Solar System, it can be likened to an internal combustion engine generating energy with enough fuel to last for another five billion years.'[5] There are nine planets, including our own little Earth. As these planets orbit around the Sun, they are rounded off in shape by their own gravity. Their density is not enough to cause thermonuclear fusion. After all, there can be only one boss in the Solar System and that is Sun. Everyone else, including our little Earth has to not only revolve around it but also receive its entire power and energy from the 'big boss'. Lest we forget, the 'big boss' accounts for 99.8% of the solar mass. Further out, dust particles were drawn together by electrostatic and other forces. They gradually grew into larger rocks. Gravity drew these rocks together and slowly these bodies grew to form planets. The four planets near the Sun viz., Mercury, Venus, Earth and Mars were largely made up of solid material with high melting points. They are small, solid and rocky planets with metal cores. Further away from the Sun are the gas giants' viz., Jupiter, Saturn, Uranus and Neptune.

The cosmic journey of our planet Earth began like its other cousins. However, its evolutionary trajectory was destined to be lucky and hence quite different. Early in its history, it began to sort itself into a number of different layers. The natural decay of radioactive material at its centre generated enormous quantities of heat. It melted rocks, forming a liquid 'mantle'. It was enveloped by a cooler solid crust. Relatively speaking, the crust is no thicker than the skin on a peach. Then, as still today, the molten rock regularly erupted through the thin surface layer. This volcanic activity released gases like nitrogen and carbon dioxide. That formed the basis of our planet's atmosphere. With

gases came water vapours which precipated and formed oceans. And it was in these oceans, that the first stirrings of basic life evolved, some 3.5 billion years ago.

Volcanic eruptions along with gases and water vapour were also happening on other planets. But, no life to the best of our knowledge appears to have evolved over there. They either have no atmosphere or have extreme temperatures. For example, mercury has no atmosphere; Venus is too hot with average surface temperature at 480^0C. Mars is too cold with an average surface temperature of -50^0C. 'Therefore, our planet Earth appears to be the only place where we have right atmosphere and tolerable temperatures. It is 'just right' for life.'[6]

THE MOON

'Some 4.5 billion years ago, a planet about the size of mars collided with the early Earth. The massive impact ripped apart substantial Earth's crust. It started orbiting around the Earth, before gradually coalescing to form another body. We call it Moon. The hitting planet also had a liquid iron core. Due to heat of impact, this joined up Earth's existing liquid iron. Consequently, it ended up with a big iron core. It is this core which produces the Earth's magnetic field and acts as a defensive shield.'[7]

The impact was to have other profound influences. As 70% of earthen crust was removed which ultimately formed the Moon, the remaining 30% crust was too thin to hold together. Therefore, continental plates started moving around more easily. This movement eventually gave birth to continents. Without this collision that created the Moon, the plates would be locked together as they are on Venus. And, there would be far fewer habitats on Earth today. The collision had one other dramatic effect. It tilted our planet by 23.5 degree, and the tilt remains intact even today. Without the tilt, the seasons around the globe would remain rather fixated. That would have surely made life on our planet rather monotonous and boring.

Ours is the largest Moon relative to its mother planet. And, this gives it a powerful gravitational influence. Moon's gravity determines oceanic tidal cycle. It also acts as a stabilising gyro to the Earth's angle of tilt. Without this, Earth angle of tilt may vary as far as 90 degree. In that situation, North Pole would point towards Sun directly. Ice caps would melt flooding our planet. The Moon is a vital climate regulator on Earth, providing the stability for life to evolve. Therefore, if the Sun energises, then Moon surely stabilises our planet Earth.

FOUR SEASONS

'Why the Earth has different seasons? Well, as it revolves around the Sun, its axis of rotation keeps pointing in the same direction. Therefore, the solar angle at a given point on Earth varies throughout the year. This variation in the Sun angle is the prime cause of our seasons. The orientation of Earth with respect to Sun also determines the length of the day. Together, the Sun angle and day length determine the total amount of solar radiation incident on the Earth.'[8]

The chance collision that created the Moon and left the Earth spinning on a titled axis has shaped lives of wild life and flora more than any other factor. As the Earth orbits

around the Sun, different parts are tilted towards it at different times. In the northern hemisphere, the North Pole is tilted away from the Sun in December, producing the dark, cold winter. Precisely during this period, as South Pole is tilted towards the Sun, it experiences bright and warm summer. As the Earth continues its journey, the North Pole is gradually turning towards the Sun. It rises higher in the sky with day length stretching with every passing day. In March, the Sun is directly over the Equator. Lengths of day and night are exactly equal. It is called, Spring Equinox.

Sun's influence continues to increase in the northern hemisphere till June. Summer peaks with bright and warm days. Exactly at this juncture, southern hemisphere experiences dark and cold winter. From then on, the North Pole begins to tilt away from the Sun. The day length starts to decrease. Summer turns to autumn and by September, the Sun is directly over the Equator. Lengths of day and night are once again exactly equal. It is called Autumn Equinox. Tilting of North Pole away from the Sun continues till December. During the same period, the southern hemisphere tilts closer to the Sun. And we witness the height of northern winter and southern summer in December, yet again. This completes one full circulation of planet Earth around the Sun.

Seasonal shifts show wide variations on Earth. The transition from winter to summer at the poles is sudden and dramatic. Continental size of Antarctica simply doubles as the surrounding ocean freezes. Temperate regions witness four seasons. They lie between the polar circles and tropics. Oceans too experience four seasons, but none extreme. Tropical regions, witness only two seasons, wet and dry. When Sun is directly overhead, more water evaporates off the oceans and there is more rising hot air to carry it up in the atmosphere. This produces more clouds, storms and rains. During June, when Sun shines above northern tropics, rains pour. And during December, by the same logic, southern portion enjoy rains. In equatorial regions, where the Sun rises and sets at exactly the same time each day of the year, we have no seasonal cycles.

For billions of animals on our planet, seasonal changes imply continuous migration. Warming influence of the Sun and changing supplies of fresh water determine their locus. Butterflies cover 3200 kilometres from Europe to Africa to escape cold. Caribou migrate 3000 kilometres in search of fresh pasture every summer. European swifts following the Sun and their insect prey cover 18000 kilometres on their wings. Baleen whales, like modern day nuclear submarines travel huge distances in the oceans. In fact, all the animals and plants on Earth have lives dominated by a chance cosmic event, a collision that shifted our lucky planet by 23.5 degree and in the process, changed the whole history of life on planet Earth.

1.2 EARTH'S JOURNEY

The apparently stationery looking earth is, in fact quite a dynamic entity. Revolving around the Sun, once a year is one kind of movement. But why does it rotate around its own axis on a daily basis? One theory suggests that Solar System, in its primordial form was a massive cloud of dust and gases like hydrogen and helium

produced during the Big Bang. About 4.6 billion years ago, a nearby supernova explosion sent shock waves through solar nebula. It caused rotation. The increased angular momentum flattened dust clouds. The resultant clustering due to gravity eventually formed planets. Thus, current rotation period of the Earth, among other factors, is the result of this initial rotation. What was happening then is a matter of theories and conjectures. However, we know that without rotating once in 24 hours around its own axis, the Earth would not have known the phenomena of day and night. This rotation is as important a phenomenon as revolution of Earth around the Sun. The latter, as is well known is responsible for the phenomena of seasons.

With these initial conditions, our planet Earth commenced its evolutionary journey. A variety of forces are constantly engaged in transforming its surface, causing earthquakes and volcanic eruptions, creating oceans, mountain ranges and oceanic trenches. Two theories have been put forward to explain these phenomena. One of them is called the Continental Drift theory and the other is known as Plate Tectonics theory.

'In 1915, the Continental Drift theory was propounded by the German scientist, Alfred Wegner. It says that in the beginning, there was just one super continent, Pangaea. Some 200 million years ago, it broke up into two parts, the northern part called Angara land and the southern part called Gondwana land. The space in between was filled by the Tethys Sea. By the end of the cretaceous period, some 50 million years ago, the two parts were separating into land masses that looked like modern day continents. The theory appeals to our common senses. The bulge of Africa fits the shape of coast of North America. South America's Brazil protrusion fits along the coast of Africa beneath the bulge. The northward movement of the Indian peninsula led to the formation of Indian Ocean. The Atlantic Ocean was formed due to the westward movement of two Americas.'[9]

Wegner thought that continental drift is caused due to impact of centrifugal and tidal forces. Other geographers however thought that these forces are too weak to move continents. Therefore, a more sophisticated theory of plate tectonics was propounded. It states that our planet's crust, Lithosphere is made up of twenty or so separate and distinct tectonic plates. They are floating on the fluid-like – asthenosphere or the upper mantle of Earth. The major plates are the African, Antarctic, Australian, Indian, Eurasian, North American, South American and Pacific plates. There are minor plates like Arabian etc. Earth's continents are like ships drifting at sea too. As plates interact, the common boundary region undergoes earthquakes and volcanic eruptions. Consequently, mountains, mid oceanic ridges and oceanic trenches are formed. Two plates moving towards each other causes subduction of one plate beneath the other. The convergent boundary region undergoes massive convulsions. The curst is broken. Rocks get bent. Both are crumpled. And, massive layers of Earth's crust get uplifted, forming mountains. That is how, Himalayas have been formed. The process continues unabated even today. We are informed by experts that Himalayan ranges are still rising by around one inch per year.

This double movement of our planet Earth has been responsible for its continuous evolution ever since its birth. Thereafter, the entire Earth's surface broadly started coalescing around three continental bodies. North Atlantic and Angara land made up the northern body. They comprised the present day North America, Russia, Siberia and China. The large southern body was called Gondwanaland. It comprised peninsular India, Africa, South America, Australia and Antarctica. Separating and enveloping the two huge bodies was the Tethys Sea. The present day northern India, Iran, Middle East and Northern Africa were then safely buried in the depths of Tethys. That was the scenario some 70 million years ago. It is known as Triassic period. Imagine travelling from Hyderabad to Delhi in those days needing a submarine. The eventuality never arose as neither human nor submarines were around at that distant point in time.

FORCES SHAPING EARTH'S SURFACE

We have seen that tectonic plates floating on upper mantle over geological time frame determine the shape of Earth's surface. But subterranean events remain mystery to the naked eye. However, there are other equally powerful forces, quite visible which bring about changes in Earth's surface. They are running water, winds, waves and glaciers. These forces move enormous quantities of material from one place to another, ceaselessly. Under the constant onslaught of winds, water and ice, even the hardest of rocks crumble and decay in course of time. The disintegrated materials are then carried away and deposited afar. While, the river water shapes the land on its surface, the ground water works below the surface. Winds are mostly active in deserts while ice changes the face of mountains. Waves constantly hammer the coastline and bring about changes in its features.

The river in its upper course flows with great speed, piercing deep into the land. It produces V-shaped valleys and gorges as vertical corrosion is its main function in this phase. As gradients are more abrupt and frequent, rapids, contracts and waterfalls are common features during this journey. The river Ganga emerging from its source at Gomukhi till Rishikesh along several tributaries like Bhagirathi, Mandakini and Alaknanda abounds in such features. In its middle course, the gradient softens the speed moderates and the river span increases. Now, the rivers start meandering and swings from one side to another in loops. We can witness this phenomenon in the same Ganga from Kanpur to Patna. In the lower course, the river loses its speed substantially and is forced to offload the sediments it is carrying so far. It may split into multiple courses before merging into sea. Alluvial plains and deltas are formed at this stage. Gangetic delta in Sunderbans, Mahanadi delta beyond Cuttack, Godavari delta beyond Rajahmundry, Krishna delta beyond Vijayawada and Kaveri delta beyond Thanjavur are prime examples of this phenomenon in our own country.

1.3 LIFE SOURCES, SUN AND WATER

'All life on our planet ultimately depends upon two vital ingredients, energy from the Sun and liquid water. Amount of Sun's energy reaching the planet is not evenly spread. Sun's rays have to travel less through the Earth's atmosphere to hit the bulge

around the equator compared to the distant poles. Therefore, equatorial regions are sunnier. At higher latitudes, the lower angle of the Sun also means that energy is spread over a wider area than in the tropics.'[10]

The amount of water available to life on land is also largely influenced by the Sun. 90% of world's fresh water is created by evaporation from oceans and most of that occurs near the Equator in warm tropical seas. The other 10% comes from the surface of lakes and rivers or is released by evapo-transpiration by plants. The water vapour is carried high into the atmosphere on rising warm air. It cools at higher altitudes, forms clouds which are blown round the world through winds. Mountains intercept them, cool them and the bulging mass precipitates as rain. Because, most of the Sun's energy falls around the Equator, the moisture evaporates, rises, cools and produces terrestrial downpour. That multiplies forests, which act as lungs for our planet. They produce oxygen that we breathe and remove carbon dioxide from the air by locking it up in wood. They convert Sun's energy into a form which animals can eat. They also regulate the supply of fresh water by soaking up what falls as rain and releasing it back into the air slowly as vapour.

The journey of running water begins high up in mountains. Humble streams flow down to join and become big streams. As journey continues, the streams keep getting bigger as they climb down the mountain heights and become mighty rivers. They travel hundreds of miles to their ultimate destination, the ocean. Here the cycle begins again, as water evaporates, precipitates over the land and eventually returns to the sea through rivers. This is the global hydrological cycle. Rivers have worn down the mountains and carried parts of them to the sea. And, all along the way, their fresh water has brought life in abundance. Rivers provide drinking water, food, irrigation, transport and electricity to much of the world's population, though at a great cost to wildlife. Many voices across the globe are predicting that future world conflicts will be waged not over oil or even territory, but fresh water. It is arguably the world's most precious and finite resource.

GLOBAL BANDS OF SAND

'There is a marvellous symmetry in the distribution of world deserts. Most of them lie in two globe circling bands along the edges of the tropics. It is mainly because of the way the Earth's atmosphere circulates. The atmosphere operates as a kind of heat machine, kept in continuous motion by solar energy. At the Equator, the Sun is always vertically overhead. Therefore, the equatorial region absorbs the bulk of the solar radiation reaching the Earth. The air warms up, expands and rises, carrying with it the vast quantities of water vapours from the warm tropical oceans. As it raises, it cools, loses its buoyancy and spreads laterally north and south. Cooling reduces the air's ability to hold water. Therefore, moisture condenses to produce the enormous deluges typical of the equatorial regions.'[11]

Now, the moisture stripped air continues to travel north and south and begins to sink. As it sinks, the continuous flow of air starts to compress and warm up again. As a result, all along the Tropic of Cancer and Capricorn, we find parched, warm and high pressure air at the Earth's surface. This air and the wind associated with it explain

distribution of world's deserts along these two symmetrical bands, north and south. Nothing transforms a desert landscape as quickly as a massive sandstorm. Seasonal winds pick up huge clouds of sand and dust, blowing them across the desert, burying villages in a row and blocking out the sky. The few animals that can cope in these conditions have special adaptations. Camels have extra long eyelashes and long hair filled nostrils which can be closed to shut out sand particles. In the Sahara, walls of moving sand can reach more than a mile high and are clearly visible from space. Each year, some 300 million tons of airborne sand is generated there. This is the largest source of dust and plays a vital role in global ecology. It creates storm in Florida, travels as far as Greenland and even fertilises the Amazon in South America.

Even in the driest deserts, tiny amounts of water are present in rock. Wildly fluctuating desert temperatures continually freeze and thaw this water. After being baked and frozen like this for thousands of years, even huge rocks break down into smaller and smaller fragments until they eventually blow across the desert as grains of sand. Blasted by the power of winds, thrown against cliffs and rubbed against each other, grains become rounded and coated with a red polish of iron oxide. As the sand particles continue to hurl across the landscape, they gather in piles. That is how sand dunes are formed. Astronauts were deeply impressed and described them as the most beautiful sight visible from the space while returning to Earth after moon landing in 1969 CE.

The long story of the cosmic evolution has been narrated at a galactic speed. However, the short story of our planet Earth is the Big Bang, cosmic dust, gravity, nuclear fusion, electrostatic forces, liquid water, a collision in space, a moon, a tilted axis, and in the end, a world that is uniquely fit for life. It is due to series of events and consequences of plain good luck. Since its birth, as our dear Earth continues to hurl towards eternal journey, its surface is being shaped by various forces like wind, waves, water, volcanoes and earthquakes. It appears that when the cosmic dice was thrown by God, our planet Earth came out with a double six.

2. THE ORIGIN OF LIFE AND ITS EVOLUTION

2.1 FORMATION OF "CELL"

History of cosmic evolution is awesome. History of evolution of life is awesome too. Some 4.5 billion years ago, since its inception, the planet Earth started revolving around the Sun as well as commenced rotating about its axis. The material conditions on its surface as well as underneath were undergoing slow yet sure geological changes. Alongside, a totally new phenomenon unknown till now in cosmic history was to take shape. This is known as 'The Origin of Life'. Hitherto, everything was material based, be it gases, vapours, cosmic dust or whatever. But down the line, something totally new was to sprout on Earth. This is called 'cell', the basic unit of life on Earth. It happened some 3.5 billion years ago. It is also called 'Archean Era'. This cell had an inherent quality. It split into two, with each part retaining the original characteristics. That is what may be called the fundamental basis for life on Earth. Once a cell was formed, it split into two. Then, two become four and four become eight, then sixteen, then thirty two and so on and the process continued unabated. As cell split and multiplied, new forms of life appeared. This ever changing web of life is known as 'Evolution'. Thus, journey of life commenced some 3.5 billion years ago with the first formation of cell.

Since then till 1.5 billion years ago, as the planet Earth cooled, its crust and mountains were formed. Marine life also developed. This is called Precambrian Era. Thereafter, the period between 1500 million years and 286 million years ago is called 'Age of Ancient Life'. Sea covered continents. Continents were flat and merged as Pangaea. The climate oscillated between mild, warm, humid and then cooler. Coral swamps were formed, and then fish appeared followed by insects. Sharks were abundant. Thereafter, terrestrial plants appeared followed by forests. Amphibians appeared too. This is also known as Palaeozoic Era. It was followed by the 'Age of Reptiles', the period between 286 million years and 144 million years ago. Life continued to evolve on land and water and in between as well. Continental drift began and as they got separated, mountains and deserts were formed. This was followed bythe Cretaceous period that lasted from about 144 million years ago (MYA) to 66 MYA.Dinosaurs appeared, peaked and became extinct. Their skeletal remains have been discovered along the Godavari Pranahita Valley within the present day Telangana districts of Adilabad, Karimnagar and Warangal.

And lastly, we move on to the most important phase of evolution, the 'Age of Mammals'. It spanned from, 66 million years up till 5 million years ago. Firstly, continental seas disappeared. Then, warmer climate, flowering plants and birds appeared. This was followed by rise of Alps, Himalayas and forests. As climate became drier and cooler, plants continued to multiply. So did mammals. Then, forests declined and grasslands developed. That is when many grazing mammals and first human like primates showed up. This important period of evolution is also known as Tertiary. Strategic importance of this period is due to discovery of hydrocarbons. More than 50% of Earth's

hydrocarbons come from the tertiary rocks. It includes a good spread of coal mines in Telangana, along with gas reserves in Krishna-Godavari basin.

The evolutionary clock really accelerated after primates appeared some 60 million years ago. They were ancestors to monkeys, apes and humans. About 35 million years ago, monkeys and apes appeared. Ape like ancestors of humans appeared some 15 million years ago. About 5 million years ago, the first human like beings appeared. Now, with Himalayas, forests, grasslands, flowering plants and human like primates in place, we move onto the ultimate phase of evolution. Four Ice Ages cover northern hemisphere with glaciers. Many species including large mammals become extinct. And as Ice Age ends and warmer climate ensue, our ancestors known as 'homo sapiens' appeared on the planet Earth someone lakh years ago. It took some 3.5 billion years for a single 'cell' to evolve through fish, amphibian, terrestrial animal, dinosaur and primate to Homo sapiens. Evolution of life on the planet Earth had taken a long, long time indeed. To simplify the cosmic dimension, Carl Sagan has devised a calendar. It condenses the cosmic span into a single year. This special one year period would translate 24 days into one billion years and one second for every 475 years. Let us calibrate on this simplified scale of 'one year' right from 'Big Bang'.

On January 1, the universe comes into being with a 'Big Bang'. On May 1, Milky Way originates. September 11 (9/11) marks the beginning of our Solar System and September 25, the origin of life on Earth. On November 24, Earth's crust forms and fish appear on December 18. Amphibian, insects, coral swamps appear thereafter. On December 25, Continental Drift begins and in due course of time, continents are separated by December 27. By now, the mighty dinosaurs have risen, peaked and have become extinct. By noon of December 30, Himalayas appear. Our ancestors, the primates show up only at 10:30 in the evening of December 31. What a short span of just one and a half hour for human existence compared to the total time span of one full year of the universe?

We can now summarize the evolution story. Solar System forms, life originates in a cell. It splits and multiplies ever since. Then Earth's crust, fish, amphibians, insects, and coral swamps are followed by dinosaurs and primates. Monkeys and apes follow them. Eventually, the modern looking humans appear on Earth. When the evolutionary dice was thrown, only our human species came out with a double six. Our planet Earth had come into being due to series of events and consequences of plain good luck. It appears that we, the people on this planet, have been lucky to survive and witness the story of evolution. We are lucky people - on the lucky planet, indeed.

2.2 THE DAY THE DINOSAURS DIED

The Cretaceous is a geological period that lasted from about 144 million years ago (MYA) to 66 MYA. About sixty-six million years ago, an asteroid was headed towards the planet earth at about forty-five thousand miles an hour. As the Asteroid hit, the air in front was compressed and violently heated, and it blasted a hole through the atmosphere, generating a supersonic heat wave. The Asteroid struck a shallow sea where the Yukatan

peninsula near the gulf of Mexico is today. In that moment, the cretaceous period ended and the Palaeogene period began. The Cretaceous Palaeogene (K-Pg) extinction event is also known as Cretaceous Tertiary (K.T.) extinction.

A computer modelling by scientists has unfolded a frightening scenario. Within two minutes of slamming into earth, the asteroid, which was at least six to nine miles wide, had gouged a crater about eighteen miles deep and lofted about twenty five trillion metric tons of debris into the atmosphere. The impact due to collision with the earth released the equivalent energy of several million Hiroshima like nuclear weapons detonating simultaneously. When earth's crust rebounded, a peak higher than Mount Everest briefly rose-up. This line of thinking has been conclusively proved by the discovery of the 160 Kmtrs (112 miles) crater in the Gulf of Mexico's Yukatan Peninsula. The initial blowout formed a "rooster tail," a gigantic jet of molten material, which exited the atmosphere. Much of the material was several times hotter than the surface of the sun, and it set fire to everything within a thousand miles. In addition, an inverted cone of liquefied, superheated rock rose, spread outward as countless red-hot blobs of glass, called tektites blanketed the Western Hemisphere.

Some of the ejecta escaped Earth's gravitational pull and went into irregular orbits around the sun. Over millions of years, bits of this found their way to other planets like mars and moons in the solar system. Mathematical models indicate that at least some of this vagabond debris still harboured living microbes. If that is true, then asteroid may have sown life throughout the solar system, even as it ravaged life on Earth.

The asteroid was vaporized on impact. Its substance, mingling with vaporized earth rock, formed a fiery plume, which reached halfway to the moon before collapsing in a pillar of incandescent dust. Computer models suggest that the atmosphere within fifteen hundred miles of ground zero became red hot from the debris storm, triggering gigantic forest fires. As the earth rotated, the airborne material converged at the opposite side of the planet, where it fell and set fire to the entire Indian subcontinent. Fires consumed about seventy per cent of the world's forest. Meanwhile, giant tsunamis resulting from the impact churned across the Gulf of Mexico, tearing up coastlines, sometimes peeling off hundreds of feet of rock, pushing debris inlands and then sucking it back into deep water, leaving jumbled deposits that oilmen sometimes encounter in the course of deep-sea drilling.

This was only beginning of the damage. The dust and soot from the impact and the conflagrations prevented all sunlight from reaching the planet's surface for months. Photosynthesis all but stopped, killing most of the plant's life, extinguishing the phytoplankton in the oceans and causing the amount of oxygen in the atmosphere to plummet. After the fires died down, Earth plunged into a period of cold, perhaps even a deep freeze. Earth's two essential food chains, in the sea and on land, collapsed. About seventy-five per cent of all species went extinct. More than 99.9999 per cent of all living organisms on earth died and the carbon cycle came to a halt.With the exception of some species such as sea turtles and crocodilians, no tetrapod weighing more than 25 Kgs (55 pounds) survived.

Earth itself became toxic. When the asteroid struck, it vaporized layers of limestone, releasing into the atmosphere a trillion tons of carbon dioxide, ten billion tons of methane, and a billion tons of carbon monoxide; all three are powerful greenhouse gases. The impact also vaporized anhydrite rock, which blasted ten trillion tons of sulphur compounds aloft. The sulphur combined with water to form sulphuric acid, which then fell as an acid rain that may have been potent enough to strip the leaves from any surviving plants and to leach the nutrients from the soil.

Today, the layer of debris, ash, and soot deposited by the asteroid strike is preserved in the earth's sediment as a stripe of black about the thickness of a notebook. This is called the KT boundary. That is the dividing line between the Cretaceous period and the Tertiary period. Till date, no dinosaurs' remains have been found in the layers three meters, or about nine feet, below the KT boundary. This depth represents many thousands of years. Some Palaeontologists have argued that the dinosaurs were on their way to extinction long before the asteroid struck. The other causal or contributory factors to the extinction were the Deccan traps, other volcanic eruptions, climate change and sea level change. Others counter that the three-metre problem merely reflects how hard it is to find fossils. Sooner than later, they hope that scientists will discover dinosaurs much closer to the moment of destruction.

The K.Pg extinction event was severe, rapid and global. The event impacted all the continents at the same time. It is estimated that the entire dinosaurian population on the planet earth was eliminated in just one hour. In the geological records, K.Pg event is marked by a thin layer of sediment called the K.Pg boundary, which can be found throughout the world in marine and terrestrial rocks. The boundary clay shows unusually high levels of the metal iridium, which is more common in asteroids than in the earth crust.

The extinction of dinosaurs, of course was not the end of the planet, earth. The event provided evolutionary opportunities in its wake. Many groups underwent remarkable adaptive radiation. Life diverged into new forms and species within the disrupted and emptied ecological niches. Mammals diversified in the Palaeogene, thereby evolving into new forms such as horses, whales and primates. The surviving group of dinosaurs were avians, ground and water fowl, who radiated into modern species of birds, fish and perhaps lizards.

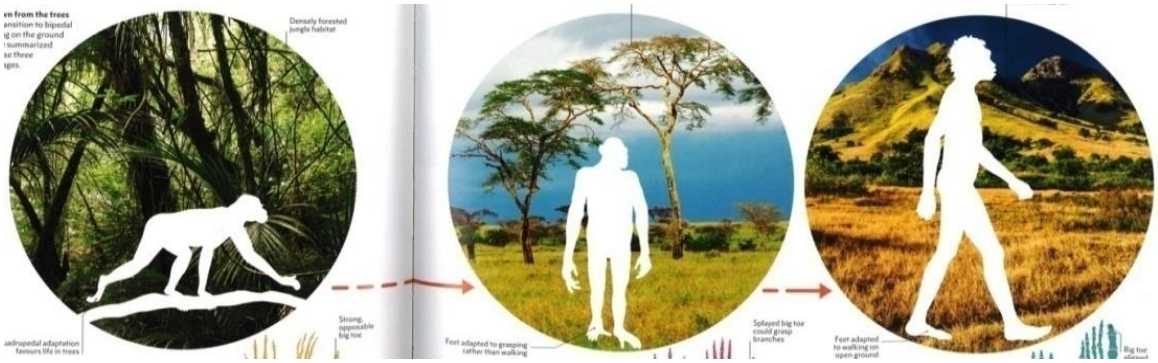
2.3 EVOLUTION OF PRIMATES, OUR ANCESTORS

If we think of cosmic history in terms of 12 months, the history of human like primates would occupy just about one and a half hours. But in terms of terrestrial history, the evolution of primates was epochal and decisive in shaping its future. But, when and where did the primates first emerge? To understand their evolutionary history, let us go back to the end of Cretaceous and beginning of Tertiary period, some 66 million years ago. It was the beginning of a major geological transition. About 75 percent of all animal and plant life that lived in the past had vanished. The extinction of dinosaurs, as already explained is the most famous of these disappearances. By then, Continental Drift had also

commenced. That affected the climate on a global scale. With climate change, came the changes in vegetation. The new kinds of plant life opened up sources of food and protection for new animal forms. Insects proliferated. That, in turn increased insectivores, the mammals that ate these insects. Some of these mammals lived above the ground, in the woody habitat of bushes, shrubs, vines and trees. Eventually, trees with large flowers and fruits evolved. These rich food resources in the woody habitat resulted in the emergence of tree living mammals, also called primates, some 60 million years ago.

About 43 million years ago (MYA), a species of amphibious four legged whale populated Fayum region (presently situated in South west area of Egypt). The species was more than three meters (10 feet) long and weighed about 600 kilograms (about 1320 pounds). It has been named 'Phiomicetus Anubis.'[1] It was the most ferocious and ancient in Africa. The whale had both the ability to walk on land and swim in the sea. The evidence points to the evolution of whales from land mammals to marine mammals. An anatomical study of the fossil shows that new species of the whale is completely different from the other hitherto known species. It was a large predator with large powerful jaws that allowed it to control the environment in which it lived.

Some 35 million years ago, the same Fayum region was a tropical rain forest area. It had many rivers and lakes. The climate was warm. Evidence of successful living primates, resembling monkey and apes has been unearthed. Over time, it turned into a complete desert. Thereafter, monkeys and apes started evolving on divergent lines. Some 24 million years ago, the apes diversified and spread geographically. It went on till 6 million years ago. Some five to ten million years ago, the area around Bilaspur district in Himachal Pradesh was a lake. The evidence suggests towards gorilla sized species which was well on its way towards further evolution. Hari ka Tibba, about 30 kilometres from present day Bilaspur is a veritable treasure house of primates. Today, the area is surrounded by Shivalik ranges in lower Himalayas. At this juncture, hominid-ape split occurred. This hominid, our closest looking ancestor till then, emerged in Africa some 4 million years ago. The climate change during the period also played an important role in evolutionary line leading to humans. The drying climate diminished forests giving rise to grasslands. The relatively more open country favoured ground living. Under these circumstances, emerged the most crucial development during evolution, Bipedalism.



Around 4.4 million years ago, bipedal locomotion or walking on two legs evolved. A brief background of this crucial development would be in order. Some 24 million years ago, forests were aplenty. Monkeys and apes were living on tree branches.

While swinging by the arms through these branches, they assumed upright position. So they did while climbing up and down the trees with use of grasping hand and feet. Around 16 million years ago, the climate started drying. Forests dwindled and country opened up with grasslands. More open country too favoured bipedalism. As hands were freed from locomotion, several other activities were taken up. Food could be carried from one location to another. Small seeds and nuts could be harvested by both hands and directly fed to mouth. Over time, tools were made and used. It enhanced the food supply as well as security. Long distance travel became possible because bipedal posture limits the area directly exposed to the Sun, thereby reducing heat stress.

The new way of life with erect posture called for shifts in both body and mind. The flat foot got rearranged and gave way to an elegant arc. The pelvis, spine, arms, chest and neck were accordingly modified. As skull, perched high reached for the sky, the eyes looked straight to search the horizon for food, sex or enemies. Standing erect, their world view underwent a complete transformation. Hitherto, while moving around on all the four, they could not look beyond 10 to 20 meters. But, as they stood tall on their two legs, overall vision suddenly reached beyond 100 to 200 meters. These distances have enormous security implications. Predators approaching our ancestors could be seen quite early before their charge. It would anyway take 5 to 10 seconds to close the gap. This crucial element provided enough lead time for our ancestors to protect and safeguard themselves. Security against predators was responsible not only for their survival but increasing population over time.

Our ancestors who stood up erect had to pay a price. Body balance and stability while walking became the first victim. Hitherto, like a log on a four wheeler, the body was carried on all the four. But now, it was carried on just two legs. The oblong straight spine had to bend backwards, therefore suffering more wear and tear, causing arthritis and slip disks. It made harder to overcome gravity to supply brain with sufficient blood. Body weight above the pelvis and lower limbs put greater stress on hips, knee and feet. Stress on the lower body of females, especially during pregnancy was even greater. The child delivery became more laboured. However, overall advantages of bipedalism must have been greater than a few disadvantages. Otherwise, our ancestors would never have become bipedal.

They had to change their feeding habits to include meat because vegetation had become sparse. Besides, meat provides a more concentrated protein diet. Hunting speeded up the development of the upright posture of the body, stimulated the growth of brain, coordinated and thereby strengthened all other functions. They developed into an omnivorous creature. Our ancestors were neither fast nor strong enough to overpower hunting animals easily or to catch up with them. They became cunning and used stones and clubs to kill animals. Both the hands became powerful instruments and moving in coordination with brain stimulated overall anatomy. Also called Hominids, they developed tools which would help them to control their surroundings. As tools improved, this bipedal hominid was well on his journey to eventually become the master of this world.

Changes in the body activity involved in the establishment of man as a species are summed up thus by Peake and Fleure: "Increase of the period of gestation; increase of brain-growth; reduction of jaw-growth and jaw muscle, following elaboration of the hands and perfecting of the thumbs; development of stereoscopic vision and of refinement of the ear, and of them memorization of sights and sounds; all accompanied by marked alterations towards a more erect posture, which was nevertheless still imperfectly attained in the case of many early men; reduction of hair on the body; and the differentiation of labour between sexes. The reduction of jaws, connected with the evolution of the hands and implements to share their work, carried with it especially the reduction of the canine teeth previously large and interlocking, and the lower jaw was thus enabled to move far more freely instead of simply up and down and from side to side obliquely as itseems to have done among the apes. It seems likely that this increased freedom of the jaws is a factor of the elaboration of speech. An increase of size, and with it probably an increase of the periods of life both before and after birth, may be assumed to have occurred in the common stock whence man and these apes have sprung, and the tendency seems to have continued to develop in man, for the period of gestation in the latter is 280 days as against 220 or less among ancestral apes. This lengthening of the embryonic period has carried with it delay in the hardening of the skull, and so increased growth of the brain, enabling it to register more and more delicate facts of vision and hearing. Not only has the pre-natal period been lengthened, but the human body has become increasingly dependent for a longer time; thus the scope of maternal devotion has increased."

Among females, oestrus was lost, and in its place they acquired menstruation. This led to frequent sexual intercourse, and a rapid rate of reproduction. Increase in the size of skull and the size of the brain and its complexity from an ancient lemur to man is a noteworthy phenomena.

2.4 HUMAN ORIGINS AND THEIR SPREAD

Where exactly did the modern humans originate? What is the location of their anthropological sprout? There is no consensus on this issue. Single origin theory suggests that modern humans emerged in just one part namely Africa and then spread to other parts of the old world. The second theory, the multiregional theory suggests that modern humans emerged in various parts of the world, and eventually became the varieties of humans we see today.

Global cooling between 6 MYA and 5 MYA saw Savannahs replace the tropical forests. The appearance of this new environment was in turn matched by an evolutionary pulse that gave rise to new carnivores and omnivores. Among them were the hominines, the ancestors of modern man.From 3 MYA to about 2 MYA, there is evidence of important evolutionary changes, so much so that by around 1.8 MYA, these hominids came closer to our genus, Homo. Brain expanded and to allow bigger brained babies to be born, the female pelvis modified accordingly. The species is called Homo erectus. Brains became much bigger and full bipedalism was attained. The problem was compounded

because hominines stayed the same size. Bigger brains could be achieved only by reducing the size of another organ, the stomach. The trade-off reduced the efficiency of the digestive tract, which in turn demanded a still better diet. Discovery of fire solved this problem to a certain extent because the cooked food was soft on digestive tract. The process of cooking could break down animal proteins before digestion takes place.

Between 1.5 MYA and 0.5 MYA, the humans had not only evolved but grew into a reasonable population, of say not less than 50,000 Nos. They were in Asia, including India (Asian Homo erectus), Africa (early Homo erogoster/rudiofensis) and Europe (Neanderthals). Some of them must have been occupying the Australian and the south Asian land masses (Australopithecines). By around 1,00,000 years ago, the human population of all species had grown into a substantial size, say not less than 5,00,000 Nos.

The growing brain of Hominines, in the midst of growing population developed that crucial mental faculty which we call 'memory'. Our ancestors could remember and thereby manipulate so as to support and to organize others in more complex ways. These 'groups' in due course of time evolved into more sophisticated social structures. Empowered technologically due to an ever growing 'tool kit', they were further reinforced by these evolving social structures due to the development of 'memory'.

The DNA studies have revealed that the first anatomically modern humans – Homo sapiens arose in Africa between 2,00,000 and 1,40,000 years ago. The earliest modern looking human skull yet found are about 1,30,000 years old and come from the Omo basin in Ethiopia and Klasies river mouth in Southern Africa. Perhaps, 1,00,000 years ago, some amongst these early people started migrating northwards out of Africa. Majority, of course stayed back. Population of these migratorylot remained small for millennia. Then, some 71,000 years ago, the eruption of Toba in northwest Sumatra caused an environmental catastrophe on an extraordinary scale; parts in Indian were covered with an ash upto 3 meters (10 feet) deep. Global temperatures were lowered for a millennium. These ecological disruptions, however, increased the pace of evolutionary change by developing new genetic structures.

Archaeological and genetic evidence points to a further rapid expansion of human population of not less than a million by about 50,000 years ago. New weapons came up; so did a mastery of a wide and increasing range of skills. Lighter and multi component weapons have been found; spears were made from skilfully made stone blades, fixed to wooden shafts and handles. There is evidence of textiles and baskets and more orderly layouts of camp sites, including dwellings and underground food stores. Trading networks also increased dramatically. Raw materials, particularly stone, which had previously been traded over a distance of 80 K.Mtrs. (50 miles) were now traded over hundreds of kilometres.

2.5 DOMESTICATION OF FIRE

Around one million years ago, discovery of fire was a major milestone during our evolutionary journey. By then, bipedalism was already in vogue. Free hands were shaping stone tools, which have been discovered dating from about 2.5 million years ago. The

growing stone tool kit included hand axe, scrapper and spear head. Skeletal remains of varied shapes enriched it further. Tools shaped wooden logs and branches. A simple wooden stick drilled quickly in a churning mode over a piece of dry wood produced enough heat to start fire. It could have been made by striking flints. Once ignited, the dried up biomass lying around kept it going.

By about 8,00,000 lakh years ago, some human species were making occasional use of fire. By about 3,00,000 lakh years ago, Home erectus, Neanderthals and the forefathers of Home sapiens were using fire on a regular basis. Humans had a dependable source of light, warmth and a deadly weapon against prowling predators. This security shield created by this new weapon made humans more secure than their surrounding flora and fauna. This was the breakpoint for the growing population of humans in whichever habitat they had evolved till then.

Now, the control and use of fire put enormous energy under human control. Fire was used for hunting and gathering people. It was lit to drive out animals from their hiding places. Confused animals running hither and thither were despatched by hunters positioned strategically at safe distance. Fire flares also kept predators away, a not inconsiderable advantage given that there were so many all around. Fire also provided warmth. It facilitated movement of population in cold climes of the world.

But the best thing fire did was to soften any edible item which humans consumed, be it flesh, roots or fruits. Fire changed not only food chemistry; it changed its biology as well. Cooking killed germs and parasites that infected food. Humans could now chew comfortably and digest the soft food easily. Whereas chimpanzees spend five hours a day chewing raw food, a single hour was sufficient for humans to eat cooked food. This weaning away from chewing did not require long and sharp teeth. Teeth became smaller; intestines became shorter. By shortening the intestines and decreasing their energy consumption, cooking inadvertently opened the way to the bigger brains of Neanderthals and sapiens. The domestication of fire was a major watershed unlocking several possibilities in future.

About 1,00,000 years ago, counting all its species together, the human population was not less than half a million. It consisted of Erectus, mostly in Asia; Sapiens, mostly in Africa; Neanderthals, mostly in southern Europe and Denisovan in Australia. A certain share in population must have been contributed by other species in Americas as well. However, we don't know their genetic makeup, yet.

Homo sapiens was by no means the only human species in the world some 50,000 years ago; there were Neanderthals, too. They adapted well to habitats and climates from arid Middle East to cold central Europe. They were effective hunters; their use of tools was sophisticated; their deads were buried with some elaboration; they probably had a language too. But, in the evolutionary race, they could not match their contemporary Homo sapiens. This could be due to lack of social flexibility and cultural traditions. Homo sapiens were able to overcome its environmental challenge to an unprecedented degree. The most striking evidence is provided by a wide variety of artefacts, engraved stones, ornaments, figurines, exotic shells, amber and ivory, and most famously, cave

paintings. The Neanderthals had almost no cultural tradition of this kind. By around 30,000 years ago, both Neanderthals and Homo erectus were extinct.

About 70,000 years ago, sapiens from East Africa spread into the Arabian Peninsula and from there, they quickly spread onto the entire Eurasian land mass. When Homo sapiens landed in other geographies, they found them already populated by other human species. Then what happened? There are two conflicting theories. The Inbreeding theory tells a story of attraction, sex and intermingling. As the African immigrants spread around, they bred with other human populations, and people today are the outcome of this interbreeding. The opposing view, called the Replacement theory tells a very different story; one of incompatibility, revulsion and perhaps even genocide. This theory holds that sapiens and other humans had different anatomies, different mating habits and even different body odours. They had little sexual interest in one another. The two populations remained completely distinct and according to this view, sapiens replaced all the previous populations without merging with them. If that is true, then the entire contemporary human population today can be traced back to East Africa, some 70,000 years ago. It therefore implies that we are all 'pure sapiens'.

Till the end of twentieth century, the Replacement theory had been the common wisdom as it had firmer archaeological backing. But that ended in the year 2010 when genetics jumped into the arena with their fresh insights. It turned out that 1-4 per cent of the unique human DNA of modern populations in the Middle East and Europe is Neanderthal DNA. That is not a huge percentage; yet in terms of absolute population, it is significant. Yet another finding was that upto 6 percent of the unique human DNA of modern Melanesians and aboriginal Australian is Denisovan DNA. Similarly, in our own Indian subcontinent, 92.7% human DNA belongs to south Asian erectus, 6.5% human DNA belongs to African sapiens and the rest to even middle east Neanderthals. It simply implies that a huge majority of human beings populating Indian sub-continent today have almost the same DNA. The contribution of immigrated 'DNA' either from Africa or Middle East is just marginal. More than a billion Indians today should draw comfort from the 'Genome' study that their ancestors, some 4.3 million years ago became bipedal; some 1 million years ago discovered fire and since then have been multiplying furiously, yet hanging together, by and large within the same ecological and familial ambience. Immigration of populations from other lands had been as common as the emigration of local populations to other lands. People of this land, by and large are essentially rooted in this soil. A great majority of Indians are basically, Mattibiddalu (sons of the soil).

3. THE INDIAN SUB-CONTINENTAL LAND MASS

3.1 THE GRAND FUSION

How old is the Indian landmass? Well, it is as old as the entire geological history. No wonder, the Indian landmass spans the entire spectrum spread over various geological periods. Some 65 million years ago, the Gondwanaland split into two land masses. The eastern one comprised peninsular India, Madagascar and Australia and the western one comprised Africa and South America. This period is called Jurassic period. 'Tethys Sea extended over wide areas covering Europe in the north and northern Africa in the south. Its eastern arm submerged Iran, Pakistan and northern India extending up to Assam.'[1]

Around these times, something unique happened. Stupendous volcanic outbursts overwhelmed a vast area in Gondwanaland. A huge geography was flooded by the outpourings of this extremely mobile lava from fissures. Hill ranges, as high as 1200 meters were formed. They are called Deccan traps. As river streams were blocked due to solidifying lava flow, lakes were formed. Fish and frogs flourished in these lakes. Plants grew and flowered in adjoining lands. Dinosaurs thrived in marshy lands and tortoises crawled on beaches. With the passage of time, these lakes were filled up with sediments washed down from the land. Then came another volcanic outburst with lava flowing solidifying and lakes forming, yet again. Old formations including plant and animals like tortoises, frogs and dinosaurs were submerged beneath this. And over time, fresh lakes were formed, new plants and animals reappeared and sediments filled up streams. It was the same cycle of events repeating all over again, like a cosmic clock. Thus, volcanism and sedimentation were repeated many times. This accumulated mass is called Inter trappeans. It embraces signatures of the flora and fauna existing then.

The huge outpouring of lava from the bowels of Gondwanaland did something more than creating Deccan trap. The centre of gravity of rotating Earth was slowly changing due to this massive lava flow. Marginal areas of Gondwanaland broke off and sank into Tethys. The mighty ocean became shallow. Gigantic mass of sediments kept accumulating upon the gradually sinking floor of Tethys. It upset the internal equilibrium of the planet Earth. The equilibrium got adjusted through most violent changes. Volcanism erupted at many centres and ended up in gigantic convulsions that upheaved the deposits of the Tethys into a great mountain system. Today, the mankind knows them as the Great Himalayas. Geologists estimate that some 16.66 lakh cubic kilometres of lava was poured out from the bowels of Gondwanaland which constitute these mountains. On the other side, as the sinking sea floor reached deep into the region of higher temperature and pressure, the lower layers of sediments were welded into magma.

With this uplift, all traces of Tethys in the mountainous region vanished. The Himalayan chain occurs as a huge arc from west to east with its convexity pointing towards Indian landmass. Below them are Shivalik hills, extending from Jammu in the west to Assam in the east. The Indo Gangetic plains, lying along its foothills from Hazara to Assam are a continuous deep basin with an estimated depth of 1050 to 6000 meters. It has been filled up with the alluvium of multiple river systems, mainly Indus, Ganga and

Brahmaputra. This alluvium is derived from the rising mountains as well as from the plateau on the south.

"In 11th century, Alberuni, a central Asian scholar, wrote, "If you have seen the soil of India with your own eyes and meditate on its nature, if you consider the rounded stones found in the Earth, however deeply you dig, stones that are of smaller size at greater distance from the mountains, and where the streams flow more slowly, stones that appear pulverized in the shape of sand where the streams begin to stagnate near their mouths and near the sea, if you consider all this, you could scarcely help thinking that India has once been a sea which by degrees has been filled up by the alluvium of the streams."[2]

Just imagine that Himalayan mountain system, the biggest and the most formidable today were once lying under the Tethys Sea. Indo Gangetic plains have been formed by the transportation of alluvium of streams through river. Peninsular India, of course is composed of the most ancient rocks which had never been submerged under the sea. These three segments namely Himalayas, Indo Gangetic plains and Peninsula put together constitute the physical geography of our country. Peninsular India which envelopes Deccan plateau, needless to say is the oldest amongst the lot.

INDIAN GEOLOGY

Broadly, Indian geology consists of three district physiographic units, namely Peninsula, the Himalayan regions and the Indo Gangetic alluvial plains. They radically differ from each other due to their origin during different era along geological history. Each one of them is as different as chalk from the cheese, literally.

First came the Peninsula, the oldest entity. It stands on the most ancient rocks of Archean and Pre Cambrian age i.e. right from Earth's formation, some 4.6 billion years till 600 million years ago. It has not been impacted by the tectonic revolution. It protrudes south into the Indian Ocean and has undergone some erosion, due to occasional advancement or retreat of the sea along the coasts. Various forces such as water, atmosphere, plants and animals have been acting upon these rocks all along the evolutionary process. These forces have metamorphosed these ancient rocks to varying degrees. The Peninsula also has the Deccan traps and the Rajmahal lava flows of Jurassic to Eocene age i.e. from some 200 million years till 40 million years. The Post Cambrian sedimentary rocks occur in Gondwana basin as well as parts of coastal tracks.

After Peninsula, came the ever rising Himalayan ranges. As they rose, the monsoon winds from south oceanic spread found the barrier ever more formidable. Overtime, it could not cross them. Consequently, the moisture precipitated and gurgled down the mountainous slopes through innumerable streams. They, sprouted in higher altitudes, carried sediments along with them and deposited the same during their course downstream. Overtime, this took the shape of Indo-Gangetic-Brahmaputra alluvial plains. They have come into being only since last one million years or so. Therefore, Indian land mass consists of the peninsula aged more than 600 million years, the Himalayas, aged some 50 million years, and the Indo-Gangetic-Brahmaputra plains, just as young as one million years only. To put it even more simply, peninsular rock, Himalaya chalk (both are

calcium carbonate, $CaCO_3$) and the Indo- Gangetic-Brahmaputra cheese (the soft alluvium) constitute our landmass. In other words, Indian geology is nothing but rock, chalk and cheese. So simple indeed.

3.2 FORMATION OF HIMALAYAS

'The Himalayas demand superlatives: the highest mountain, the highest pass, the deepest gorge, the highest living plants and animals. Other mountain ranges in the world are penetrated by roads and railways. But no railways and few roads cross the Himalaya. These mountains are so large that they can be flown over but never tunnelled into, climbed but never conquered, mapped but seldom inhabited. Kenneth Bason, formerly a Superintendent of the Survey of India, called them 'The greatest physical feature on Earth'. History of such mighty mountains would be in order.

When dinosaurs still dominated the planet, Gondwana plate had broken and its Indian component floated freely as a continent in the southern hemisphere. Around 70 million years ago, it crossed the Equator and eventually collided with the continental plate of Eurasia. As the Gondwana plate continued to push northwards, the edges of the two continents squashed and thickened. A buckled and jumbled mixture of ancient rocks from the two plates upheaved the sedimentary rocks from the floor of the ancient Tethys Sea that once separated India and Asia. The result was the Himalayas. The relentless push of the plate continues even today, which is why they are still growing and there are so many earthquakes in the adjoining region. In 1841, an earthquake triggered a huge landslide north of Nanga Parbat in Karakoram ranges. The entire side of the valley fell into the Indus, blocking its flow completely. A massive lake started building up and stretched 32 km (20 miles) long behind the obstruction. Eventually, the dam burst, drowning an entire Sikh army camped 480km (300 miles) downstream.

Geologists are of the opinion that the mountains are still rising. In the past, the passes were at lower altitude and migration across the mountains was easy. They indeed correspond to the most ancient routes trodden by the early man and animals. But, now they have risen appreciably in northern India and now have become a serious barrier between China, Central Asia and India. It is opined that since the advent of man, Himalayas have been thrown up by some 2440 to 3050 meters. They include a number of ranges, like Hindu Kush and Karakoram towards northwest. Karakoram range forms an arc across northern Pakistan and separates it from China. Karakoram means black gravel mountains. They indeed fill people with fear, just as Himalayas fill us with awe and inspiration. If Himalayan peaks around Everest are majestic, the Karakoram peaks, around K-2 are savage.

These mountains span the northern frontiers of India and separate it from China's mainland. These ranges neatly divide the two giant plains. Standing on the top of the Everest on a cloudless day, we can see towards north the dry, desolate Tibetan plateau. Also called roof of the world, it stretches far into the distance of Asia. To the south, we can see a lush, fertile low lying green expanse spreading across India. They are Indo-Gangetic-Brahmaputra plains, one of the most densely populated regions of the world.

Tibet is in the shadow of Himalayas and receives little rains while the Gangetic plains are soaked by the monsoon. The Tibetan plateau was the floor of an ancient sea. We can still find marine fossils there at more than 4000 meters (13,120 feet) above the sea level. Today, it is an immense barren plain nearly four times the size of France, most of it being higher than Europe's highest peaks. The Spartan plateau is incredibly dry and desolate. Scanty in vegetation and fresh water, it is deficient in oxygen too. However, this barren landscape, due it its enormous presence and position, exerts a huge influence on the rainfall and rivers across Asia. During summers, the sun warms the massive flat expanse of Tibet. The plateau heats up like a giant hotplate. As the warm air rises, humid air is sucked in from the Indian Ocean. Clouds build and as they hit the huge Himalayan wall, monsoon rains precipitate over the foothills and the riverine plains to the south. On exceptional occasions, the Tibetan plateau receives snow during summers. If this happens, the white blanket reflects the sun. It takes longer to heat up thereby delaying the onset of monsoon rains. Being the roof of the world, all the major Asian rivers, the Ganges, Brahmaputra, Yellow, Indus and Erawady begin their journeys in Tibet. Together, they provide water for nearly half the world's population.

Rivers are great levellers. They carve deep V-shaped valleys in mountainous regions, carrying away the eroded mountain material, which is finally deposited in the sea. The main rivers of the Himalayas, the Indus and the Ganges carry between them a billion tons of sediment per year. If trucks were to be loaded up with this material, the line of vehicles would stretch more than 40 times around the planet. This has created the largest body of sediment in the world, the 'Bengal fan' covers 56,980 square kilometres (22,000 square miles).'[3]

SHIVALIKS, THE POOR COUSIN

Some twenty million years ago, Shivalik systems came into being. The reason being, that as Himalayas were being formed, the Gondwanaland's northwards push continued. Shivalik hills extend for 1600 kilometres from Baluchistan to Assam. They rise to a height of 1600 meters. Younger, shorter and devoid of snow, Shivalik hills are just a poor cousin of Himalayan hills, always around but never as magnificent.

Nevertheless, the rising Shivaliks gave birth to a unique and mighty river. In geological history, it is known as Shivalik or Indo-Brahm river. 'Starting from north eastern corner of Assam, flowing in the western direction along the foot of Himalayas, it reached as far as Rawalpindi plateau in Pakistan. There, it joined Indus which emptied into the Arabian Sea. Along its course on its right bank, it received the rivers of Gangetic system as well as Punjab rivers of Indus system. On its left bank, it might have received Sone and Chambal from peninsular India. It was a mighty river which flourished from 25 million years to some 5 million years ago. Its basin, some 6000 meters deep was filled with mud, sand, gravel, boulders, logs of wood and skeletons of innumerable animals that herded in the neighbourhood. We may visualise the belts of luxuriant forest and open grass plains with the mighty river winding through one or the other. The presence of hippopotamus, antelopes and giraffes indicates a link between Asia and African continents where these animals still exist. Though extinct here, they have left enough

proof of effective land link between India and Africa in the tertiary period, some 60 million years ago.'[4]

Just imagine, Himalayas rising followed by Shivaliks, a mighty Indo-Brahma river flowing from Assam to Rawalpindi sweeping waters of Ganges, Indus and peninsular rivers along its course. Hippopotamus and giraffes moving freely on this landmass of India connected with Africa. And all this was happening since 40 million years till some 5 million years ago. It must have been a fantastic landscape and exciting time, indeed. The only missing link was that our ancestors were yet to comprehend the beautiful Earth around them.

SOILS

'How old are soils, especially in Indian subcontinent? Well, they are almost as old as the Indian landmass. Therefore, the history of soils as well as the underlying landmass spans the entire spectrum spread over various geological periods. And how were they formed? Well, it was the handiwork of multiple forces operating jointly upon underlying rocks spread over long periods that we got this crucial life giving medium called soil. From a limited agricultural perspective, soil may be defined as the material comprising weathered rock materials which, together with organic matter, water and air provide a medium for the growth of plants. This medium is the basic source of all human and plant food as well as many industrial raw materials. The process of breaking down of rock masses and their gradual development into soil is called weathering. Twin forces achieve this objective. Physical forces break the rock into smaller pieces. It is called disintegration. Then, chemical agencies change the composition of the minerals, forming the rock. It is called decomposition. Both these processes, namely disintegration and decomposition supplement and complement each other.

Four factors namely, water, atmospheric, physical and organic disintegrate rocks.'[5]

Water, in whatever form is the most powerful force amongst them. Rains dislocate mountain rocks. As they tumble down, the gushing streams push and shove them ahead. Frequent collisions and incessant rolling down the water course reduces rock size to boulders, pebbles and eventually sand. Fury of water along with sand in motion rounds up boulders and pebbles into gentler sizes and shapes. Water denudes rocks not only mechanically but acts a solvent too. Chemicals like potash, soda, silica and lime get dissolved in water. Along with these salts and gases in suspension, the rocks are denuded slowly yet surely due to solvent action of water. Along the coast, sea waves beating against the cliffs incessantly also help in soil formation. The action of glaciers in tearing down boulders and hydration of rocks in presence of water conclusively proves immense water power in disintegrating rocks.

Atmospheric forces act on rocks in a multiple manner. Firstly, the oxygen of the atmosphere oxidises and disintegrates its surface. Then, water vapour gets into the interstices of rocks. During cold, as the water freezes, it expands. The increased volume of ice exerts a force of 1640 tonnes per square metre. This implosive force shatters these massive looking formidable rocks into smithereens. Then, carbon dioxide gas in

atmosphere dissolves limestone and chalk and becomes available as plant food. The rain water charged with calcium carbonate flows into sea. Shell fish and corals feed on them and over time, settle in the form of dead shells and form new rocks. Also, strong current of winds carry sand and salts from the sea shore and the dry beds of the river and other water bodies into the interior.

Physical agents disintegrate rocks through periodic heating and cooling cycle. Rocks are very poor conductors of heat. Hence, impact of heat or cold extends only up to a slight depth from the surface. Repeated expansion and contraction produces a strain which peels its layers. Then earthquakes, hot springs and volcanoes are other factors which alter even physical surface of Earth.

Plants and animals act as organic agents towards soil formation. As solid rock disintegrates, fresh surfaces get exposed. Bacterial action causes blue green algae to appear on these exposed surfaces. As the quantity of soil on hard surface thickens, vegetation acts on rock like a mechanical hammer and chemical solvent. Roots get into the cleft of rocks and tear them asunder, silently. And roots due to formation of acids, then dissolve soil particles, just equally silently. The larger rodents like rats, squirrels and rabbits burrow into ground and expose rocks to the agencies of weathering. Small earthworms and even smaller ants help to decompose and disintegrate them. Earthworms pass large quantities of soil through their bodies. It amounts to a massive 22 tonnes of soil per hectare. The loosened soil facilitates penetration of roots, water and air. These worms drag down leaves and straws, thus incorporating organic matter into the soil and making light soils heavier. As the soil particles become smaller, their water holding capacity increases as each soil particle is surrounded by a film of capillary water. This water is very effective in decomposition of soil particles. Hydration, oxidation and carbonation processes are always accompanied with increase in bulk. The resultant forces disrupt and disintegrate the rocks further to ultimately reduce them to finer aggregates.

Therefore, the journey from solid rocks to humble soil is quite complex yet exciting. Moving water acting like a perpetual roller crusher smashes huge boulders into fine sand. Atmospheric oxygen oxidises rock surface and softens it. Thermal stress due to repeated hot and cold cycle peels its surface off. Bacterial action deposits a thin layer of soil. As vegetation sprouts and roots enter clefts, rocks are torn asunder. Humble earthworms literally eat soil and enrich it. With so many agencies at work, it is time to remember the invisible bacteria and the humble earthworm acting silently yet diligently to have given us one of the most precious gifts of nature, soil. No wonder, the emerging human society would consider it divine and worship it as such. The present day Telangana society considers soil as divine and worships it during ‘Boddemma’ followed by ‘Batukamma’ festivals.

PENINSULAR INDIA

Soils have undergone secondary modifications through climate, topography and organic agencies. However, the underlying rocks have given rise to certain definite types of soils. It is variation in the underlying rocks which is reflected in the overlying soils. The foundations of soils of India have been classified into six categories. Ancient

crystalline and metamorphic rocks form the first category. These are the oldest rocks constituting the basement of peninsular India. These rocks have give rise to red soils. Next comes Cuddapas and Vindhyans. Being an ancient formation, the soils derived are highly matured. Gondwana occurs in the chains like depressions in the table land of Peninsula filled with old river deposits, sands and silt. Gondwana rocks have produced comparatively immature soils of less variety and fertility. The Deccan trap comes in fourth category. It comprises volcanic lava rich in ferro-magnesium and alumina compounds. The typical soil derived is the black cotton soil. The fifth category relates to Tertiary and Mesozoic sedimentary rocks of extra-peninsular India. They occupy small areas of the hilly and mountainous ground in depressions and valley basins. Calcareous rocks belong to Mesozoic and Eocene period (240 million years to 65 million years) and sandy rocks belong to Tertiary period (65 million years to 5 million years). Recent and sub recent rocks constitute sixth and the last category. They have given rise to drift soil, entirely different in origin than the soils of peninsular India which are largely residual soils produced from the decomposition products of rocks. Indo Gangetic alluvium, Deltaic alluvium, laterite soils and desert belong to this category.

Therefore, soils in India are quite diverse. They differ from area to area. Alluviual soils, by far, is the most important soil groups in our country. Various river systems have transported a huge quantity of weathered rocks and deposited as silt along its course all the way up to oceans. Indo Gangetic alluvium has enriched Punjab, Haryana, Uttar Pradesh, Bihar, Bengal and Orissa. Brahmaputra has enriched Assam. Mahanadi, Godavari, Krishna and Kaveri have enriched coastal regions of Orissa, Andhra and Tamil Nadu. Black soils are mostly found atop the Deccan trap which substantially covers Maharashtra and also spills in adjoining Gujarat, Madhya Pradesh, Karnataka and Telangana. Red in general, the soil colour may be sometimes brown, chocolate, yellow, grey or even black. Soils get sticky when wet and crack up when dried. Red soils practically cover the whole archean basement of peninsular India. From Bundelkhand to extreme south, it embraces south Bengal, Orissa, parts of Madhya Pradesh and sweeps across major parts of Telangana, Karnataka and Tamil Nadu in a contiguous manner. These soils started developing around Mesozoic-Tertiary ages, some 240 million years ago. They are by far the oldest soil formations in India.

Peninsular Indian land mass resembles an inverted triangle. Vindhyan ranges sit atop its base, while the Indian Ocean touches its apex. Ranges of Eastern and Western Ghats flanked by thin coastal strips on either side constitute the other two sides. The Krishna-Tungabhadra river system bisects it horizontally almost through the middle. The land mass lying north of Tungabhadra river, south of Vindhyan ranges, and bound by sea is broadly understood as Deccan lands. Its eastern wing abuts Bay of Bengal, while its western wing abuts Arabian Sea. The in between lands sitting atop the Deccan plateau are bestowed with all kinds of soils, namely, alluvial, black cotton and red soils. Nestling in the heart of peninsular India, this diversified soil base enriched by plentiful flora and fauna was destined to be in the frontline of the earliest evolution of mankind from Caveman to modern man.

3.3 QUATERNARY PERIOD

About a million years ago, commenced the shortest of all the geological periods, called Quaternary period. It is subdivided into the Pleistocene (the glacial age) and the Holocene or Recent (the post-glacial age). The Holocene began about 10,000 years ago.

During the vast time stretch covering Pleistocene, there have been eight ice ages during the last 8,00,000 years, each interspersed with warmer periods of about 10,000 years known as interglacials, brief and extreme periods of this cycle.[6] The Ice Ages were periods of exceptional cold, away from the equator. Ice sheets advanced across the frozen wastes of the northern hemisphere as temperatures fell below 15^{o}Celsius. Substantial Earth surface in North America, northern Europe and Kashmir valley and its adjoining parts was squarely covered under snow. With so much of the earth's water locked up into the vast swathes of ice sheets, sea levels fell upto 150 mtrs., (500 feet). As they did so, land bridges appeared, linking many major land areas like the present day north eastern Russia with the north western America in Alaska. Many present day islands like British Island, Japan, Korea, Indonesia and Australia were connected to continental land masses.

With each advance of the ice, the plants and animals of the northern hemisphere withdrew to warmer latitudes. As the ice retreated, so they moved northwards again. Humans too, in all probabilities must have migrated with these changing climates. Yet despite the extremes of cold, the human species continued to evolve and expand. Equatorial regions were also affected as rainfall diminished; half the land area between the tropics (30^{o}north to 30^{o}southern latitude) became desert. The mastery of fire and invention of clothing were crucial to this achievement, as were improving took kit laced with new social and communication skills. The height of the last ice age or LGM (Last Glacial Maximum) was reached about 20,000 years ago.[7]From then onwards, as the ice sheets retreated, the whole of the Eurasian land mass between the ice to the north and deserts to the south, productive grass lands and steppes were created. Rich in seasonal grasses, they sustained large herds of mammoth, bison, horse and reindeer; all of them important food sources of Palaeolithic hunters.

What about the bigger land mass bound by tropics in Africa and Asia lying between 30^{o}N to 30^{o}S latitude around the equator. Half of this had become desert; but the other half had never been under glaciation. The bulk of Africa and the present day India (except its northern fringes) along with the present day Mexico and Brazil were blessed with perennial rivers systems like Nile, Amazon, Indo gangetic riverine system, Brahmaputra and Irrawaddy. Our ancestors had not only evolved but were expanding their population at an accelerated pace. It is estimated that about 0.5 million to 1 million population is the most conservative estimate of growth between 1,50,000 years B.P. to 1,00,000 years B.P. Bulk of these humans, undoubtedly were sustaining in this tropical band lying between 30^{o}N to 30^{o}S latitude. A vast majority of them evolved in-situ due to supportive factors like no glaciation, moderate climate, plentiful flowing water in perennial streams, coupled with plentiful of food provided by ever present flora and fauna. Peninsular India with rivers like Godavari and Krishna were an integral part of this evolutionary story.

Our ancestors lived in caves. They survived the storms of the Ice Ages. In fact, caves were refuges for the cave bear too. These animals were some 5 meters (16 feet) long and weighed some 400 kilo grams. Their size terrified opponents. Just imagine, entering a pitch dark cave chamber just to discover it being already occupied by a family of cave bears. Armed with superior tools, our ancestors wiped out cave bears by the end of last Ice Age. The competition for safe and cosy caves was won. But the fear of caves has not left us, even today.

'They left plenty of evidence of their cave life such as bones, hearths and weapons. But, our ancestors left something much more, the most incredible gallery of prehistoric art. Safely ensconced within cave premises, with enough leisure at their command, our ancestors turned creative artists. They sketched animals, painted them and thereby left an incredible gallery of prehistoric art. It is indeed amazing to think that, at one time, lions, panthers, bears, rhinos and mammoths roamed in jungles while our ancestors were busy in sketching these animal figures and painting them in the safe confines of their caves, a rare combination of home as well as the creative work place.'[8]

The Holocene began about 10,000 years ago. About a century ago, it was discovered that the Kashmir Valley and its adjoining northern parts were also heavily glaciated in the past prior to Holocene period. Evidence of Glaciation in the Himalayas has been found in the Jammu and Kashmir, in lesser Himalayas of the Punjab, Daula Dhar range, Siwalik foot hills and Beas valley. During the Pleistocene, there were four major glaciations, popularly known as Gunz, Mindel, Riss and Wurm. In addition to these four major glaciations, there were several periods of glacial advances and retreats and warm climate (inter-stadials) during the glacials.

Peninsular Indian land mass is the oldest of geological formation dating back to some 600 million years ago. The Himalayan formation is comparatively young, just 40 million years. Therefore, Peninsular India was never under glaciation, but in several of its river valleys, such as of the Narmada, the Godavari and Krishna, gravel beds or conglomerates are found intercalated with silts and clays. Constituting the river terraces, these alluvial deposits are believed to show events in the peninsular region corresponding to those in the glacial regions. Some of these deposits have been correlated with the glacial and interglacial phases on the testimony of animal fossils.

3.4 COGNITIVE REVOLUTION

Beginning about 70,000 years ago, the planet earth was populated by several species of the genus, Homo (man). It included Neanderthals, sapiens, erectus, denisovan and others. From around that date, sapiens started doing very special things. They started communicating among themselves. The appearance of this new faculty constitutes the 'Cognitive Revolution'. For an individual, it networked their own sensory organs, especially eyes and ears to brains resulting in appropriate vibration among vocal cords. Voice of sapiens was not just indicating pain, fear or laughter; it indicated something more. This constituted the primitive edifice of what is known as 'Information' in today's world. The ever increasing volume of new informations coupled with improvement in

communication skills evolved in what we call 'speech' (vak). Spoken words were soon garlanded together to form sentences and that is how the spoken language took birth. As the number of groups contributing to this new phenomena called 'speech' were so many and varied, the same diversity is visible in so many spoken languages. This Cognitive Revolution put sapiens in the driving seat and by around 30,000 years ago, all the other species like Neanderthals, Denisovan and others were left behind in the evolutionary race. Cognitive Revolution transformed our raw ancestors' called Homo (man) into something new called sapien (thinking), who were also conversing.

Following the Cognitive Revolution, sapiens acquired the technology and organising skills to break out of their Afro Asian land mass and settle in the outer world. The first proof that our ancestors crossed a substantial body of water apart from the normally understood image of their walking across vast stretches of lands comes from the presence of stone tools in Japan that dates back to 1,00,000 B.P.[9]The main land of Asia was inhabited by Homo erectus. Japan is today some 150 k.mtrs., away from Korea and there are several islands enroute. The earliest settlers in Japan must have travelled by raft or boat. Japan was separated from Asia by deep waters that would have persisted even when sea levels were lower. The situation in the present day British islands was different. At the height of recent Ice Age, these islands were connected to the Eurasian land mass. Their yet another achievement was to reach Australia, some 45,000 years ago. There are traces of human occupation in the desert of central Australia going back to 50,000 years B.P. They were living in the Indonesian archipelago (a group of islands separated from Asia and from each other by only narrow straits). Probably the first seafaring societies, they built and manoeuvred ocean going vessels and became long distance fishermen, traders and explorers. As they pushed on, they encountered a totally new universe of unknown creatures. It included a 200 Kilogram two metre kangaroo; a marsupial lion, as massive as a modern tiger, big kolas rustling in the trees; flightless birds twice the size of ostriches sprinting on the plains and dragon like lizards and snakes five metres long slithering around the tree-trunks and on ground under thick canopy.

Within a few thousand years, virtually all these species were eliminated by this new immigrant, Homo sapien. Food chains throughout the entire Australian ecosystem were broken and rearranged in favour of this thinking and talking invader.

The extinction of Australian megafauna was just the beginning. It was followed by an even larger ecological disaster in Americas. Some 18,000 years ago, a few immigrants arrived in American continent on foot. They could do so because sea levels were low enough that a land bridge connected north eastern Siberia with north western Alaska. During 18,000 years B.P., the ocean level was about 130 meters (425 feet) lower than the present. Climatic realities were much harsher compared to Australian journey. Extreme Arctic conditions where sun never showed up in winter, when temperatures can drop to minus fifty degrees Celsius only hardened the resolve of these new immigrants. They marched south from Alaska into the plains of Canada and the western United States. The rolling grassland, were teeming with animal life. It included giant bison with a six foot horn spread, towering bear like creatures called Casteroides, rodents the size of bears, herds of horses and camels, oversized lions, fearsome sabretooth cats and giant

ground sloths that weighed upto eight tons and reached a height of six meters, stage moose, two types of musk oxen, several varieties of large often lion sized cats, mastodons and three types of mammoth. South America hosted an even more exotic menagerie of large mammals, reptiles and birds. Within 2,000 years of sapiens' arrival, most of these unique species were gone. Thousands of species of smaller mammals, reptiles, birds and even insects and parasites became extinct. Some scholars try to blame climate change, but that might have been a marginal factor. The contribution of 'Homo sapiens', our ancestors was, no doubt, decisive and fatal.

The main islands of the Mediterranean including Sicily, Crete, Cyprus, Rhodes and many others were all settled in Neolithic times i.e., 10,000 years B.P., if not before. In subsequent times, islands like Crete and Cyclades witnessed advanced civilisations, based mainly on trade and shipping. Major expansion began into the Arctic about 4,500 years ago as the continental ice sheets retreated. Finally, some 2,000 years ago, humans began to settle the deep pacific islands from where they reached New Zealand around 1,200 years ago; some 1,000 years before the Iceland was discovered by Captain Cook. The question remains; who discovered New Zealand? Captain Cook or the nameless multitudes who set their foot for the first time there some 1200 years ago?

At the end of the Ice Age, around 14000 years ago climate became more temperate. Many large animals became extinct, yet new warmer climate adapted plants which provided a rich new food source and animals multiplied. This was the time when people began experimenting with domesticating animals, followed by domestication of plants. This is known as 'Agricultural Revolution', whose advancement pushed hunters and gatherers to the margins. Several important changes were taking place in the surrounding ambience as well. Man was making tools, improving upon them, painting, hunting, gathering, fishing and finally domesticating animals and plants. By 10,000 years ago, humans had occupied the whole of habitable worlds. Various estimates of population put the figure between 2 million to 4 million at that distant point in time. It can be said with reasonable certainty that about one-third of this population must have been occupying the Indian subcontinent.

Agriculture made possible not merely a phenomenal growth of human population, which is thought to have increased some 16-fold between 10,000 years ago and 6,000 years ago, but also gave rise to the familiar landscape of village communities which have remained intact, by and large in the countryside, even today. Nowhere are the continuities of history more visible. The enduring structure of human society, which transcend and outline the political change, carry us back to the end of Ice Age, to the changes which began when the shrinking Ice-cap left a new world to be explored and tamed.

NEANDERTHAL MAN (HOMO SAPIENS NEANDERTHALENSIS)

The earliest find of the Neanderthal skull is from the fortification of Gibraltar in 1848. Fragments of a skull and a skeleton were later discovered near Dusseldorf in Germany. Skulls and skeletons of the Neanderthal man were also discovered from various places in France, the Island of Jersey, Belgium, Spain, Yugoslavia, Hungary, Czechoslovakia, North Africa, Israel, Iran and Iraq.

From these discoveries, it appears that the Neanderthal man lived in Europe, Africa and western Asia some 72,000 years ago. He was short, had a low receding forehead, protuberant brows, long arms and bent thighs; he walked with a stoop, and had a matted coat of hair. His brain-case was large, but the brain was poorly developed. He must have been strong and well-built, about 1.55 to 1.65 metres tall. His lower limbs were shorter than those of the modern man and his thigh-bones were slightly arched. He hunted a variety of animals, including cave-bears and hairy mammoths. By then, he knew the use of fire whereby meat could be cooked and the softened stuff eaten and digested easily.

The Neanderthal men hunted mammoths, the woolly elephants of Europe. Their weapons were boulders, and spears of wood tipped with blades of flint. Hunting in a pack requires organization, planning and strategy. In this respect, they showed a great advance over Homo erectus, who probably relied on individual skill in hunting. The Neanderthal man also used stone-tipped arrows and buried his dead with great ceremony.

Gradually, however, he increased his stock of tools by adding knives, spearheads, awls, scrapers and the like, all made from chips struck from the original core of flint used in making the hand-axes. He also used the spear and the sling as his weapons. He also began to use bones and horns. To meet the growing demand for flint, he sank shafts to get at the subsurface deposits when those on the surface were exhausted. Such advances represented major steps towards a greater control over the physical environment. He made his clothing from the skins of animals, using bone needles and sinews for binding them. He could also make fire. He made the mouths of caves his permanent habitations.

In short, the Neanderthal man was able to provide for three basic needs to sustain life- namely food, clothing and shelter. He cared for the sick and disabled too, some 72,000 years ago. In material culture, the Neanderthal man was far ahead of the early stone-age man. The invention of fire-making gave him the most powerful weapon against wild animals. Clothing made from skins of hunted animals also symbolized advance. Progress was due largely to the challenge of the hostile environment he had to face in the last Glacial Age.

These Neanderthals were more like Homo sapiens in skeletal structure, and there was not much difference between them and the modern man. The discovery of the remains of lame and disabled persons from two of the caves indicates that they were kept alive by their fellows, till they met their death by an accidental rockfall. 'These were the first stirrings of the concept of man caring for his own, a sense of belonging and family,' observes Solecki. Pollen analysis of the soil samples around the skeletal remains of one person showed that it had pollen of eight species of flowers. This indicates that they buried their dead with flowers, and these Neanderthals were the first Flower People.

HOMO SAPIENS SAPIENS

Many skeletal remains of Neanderthals from the sites in Israel show clearly developed characteristics similar to those of the modern man. The thigh-bones are straight and quite long. The brow-ridge is still fairly prominent. The example of the Neanderthal man from Israel indicates how Homo sapiens neanderthalensis developed

into the present-day form of Homo sapiens sapiens, who first appeared about 30,000 to 40,000 years ago. This early type of man shows no marked differences in the skeleton, including the structure of the skull, from the modern man. Even the capacity of the skull had reached the same level as that of the modern man. The only difference was that the early man had a more robust body structure than the modern man.

About 25,000 years ago, the glacial climate in Europe improved slightly for a while. The Neanderthal man unaccountably passed out of the pictury and his place was taken by the modern species, Homo sapiens. His cranial capacity was equal to that of the present-day man. In the evolution of brain we notice the upward march of living matter from the scattered nerve cells of coelenterates to the highly complex human brain, which is one of nature's marvels and is the seat of soul or spirit of man. As Jacquetta Hawkes sums up, 'Throughout this vast stretch of time the increase in the size and complexity of the neo-pallium or New Brain makes the central theme; in the fossil skulls which are our principal record for the human epic we see the forehead and vault rising, their capacity swelling. Here, housed within the curved bone plates of the skull, is the most subtle and complex instrument in the world, which, at the command of the whole man, has created the rich and varied cultures, the superb individual works of art, the inspiring if never final systems of thought, that make the history of mankind.'

4. PRE HISTORIC TIMES

4.1 SCIENCE AND TECHNOLOGY IN PREHISTORIC TIMES

Advances in knowledge, skills and technology has been an integral part of human evolution, long before our ancestors developed the art of writing. Hominids in Africa manufactured simple stone implements some 2.6 million years[1] ago. The stone tool assembly or toolkit is called Oldowan after Olduvai George in Tanzania.Some archaeological sites in the same Olduvai George from around this time until about 1.6 million years ago are thought by some to be living floor, that is home bases or camp sites. At these sites, tools and hominid remains appear to be concentrated. Some paleoanthropolists believe that such concentrations may be caused by such agencies as river currents washing tools from several upstream sites to a single location and not from uses as home bases.

While talking about stone tools, it must be understood that wooden tools as well as bones preceded stones as tools by millions of years. But due to biodegradation, wood and bones could not survive the forces of nature acting relentlessly over such a vast stretch of times. As stones and stone tools survived, we have to begin with the 'Stone Age'.

The early tools were simple broken pebbles. They were improved by flaking pieces off a core, creating distinctive shapes with only a single cutting edge that we call hand axes (or bifaces) and scrapers or choppers. The hammer stone used to work the other tools could be likened to the first 'machinetool'. This toolkit industry continued for more than a million years before different stone tools emerged. Various types of points, spearheads, knives, arrowheads or teeth (such as saw's teeth) were developed. This toolkit was used by different societies of later species such as H.Neanderthatensis (6,00,000 years to 30,000 years ago) as well as our own species, H.Sapiens (which may be 2,00,000 lakh years old). Other stone tools from this period included needles as well as burins (engraving tools).

The New Stone Age or Neolithic occupies a much shorter time than the Old Stone Age. In terms of kinds of stone tools manufactured, such as ground stone axe or adze heads and small points called microliths, the period begins as early as 20,000 years ago and ended when metal came into common use, say about 5,000 years ago.

About 35,000 years[2] ago, people crossed a land bridge from Australia into Tasmania. Changing sea levels eventually made Tasmania as an isolated island, with its last land connection to Australia submerged by about 10,000 BCE.

By around 30,000 BCE, the modern Home Sapiens was the only member of the genus left, since the Neanderthals were no longer present in Europe. From this time, technological changes became quite swift.

About 28,000 BCE[3], in the region now known as Czech Republic, people built kilns and produced small ceramic figures and beads. Ceramics are produced by heating

natural earth until it changes form without melting. If heating continues further, earthen mass melts and after cooling, glasses are formed. Ceramics are different from merely dried up earth or clay, which softens when rewet. The high heat at which ceramics are produced drives off water, chemically bound to the earthen mass as well as any water that has soaked into it. Depending upon the type of clay or earth, the outcome of this heating can be terracotta, stoneware, China porcelain, brick or tile.

It must be understood that the first bricks were not ceramics or kiln fired. They were made of clay mud hardened by sundrying but without the chemically bound water driven off by heat. When kiln based bricks became available, the cost of making them reserved them for special monumental buildings. The common people however continued to build houses using sun dried bricks only.

The microlith industry is dated from about 11,500 years BP to around 9,000 years BP. There are clues that suggest that microlith technology was inspired, at least in parts by the growing human population and its drain upon local material resources including good stones for tools. Constant upgradation of technology to optimize the limited resources has been a consistent endeavour of mankind. It was evolution from old stone tools to microliths some 10,000 years ago. Now a days, it is evolution from canal flow irrigation to drip irrigation. Good stones were being put to optimal use then, just like limited water is being put to optimal use today.

Starting about 10,000 years ago, or about 8,000 BCE, people made the major technological advance of domesticating animals and plants, in that order. This is called 'Agricultural Revolution'. It must be understood that even during their nomadic phase, people knew how to raise crops and keep animals, even before Agricultural Revolution. But, they were reluctant to do until rising population or reduced natural food supply forced them into agriculture. There are archaeological records to show that rise in population preceded the adoption of Agriculture.

Another belief stands discarded that urban life began as a result of Agricultural revolution. Towns were forming even before farming became a way of life. The principle force behind pre-agricultural settlements was trade. Towns arose at the juncture of trade routes or near supplies of goods that could be traded. Jericho, for example was founded well before agriculture started. Major developments of the period following the agricultural revolution were largely in astronomy, mathematics and technology.

A significant development along the course of Agricultural revolution was the discovery of metals like copper, bronze and iron. Stone tools were soon replaced with the newly found solid metals with a sharp edge Copper was the first metal to be employed and it was in use as early as 6400 BCE. Some historians called it as 'Copper Age' or 'Chalcolithic Revolution'. The period from about 6400 BCE to about 1000 BCE could be thought about as Copper Age, followed by Bronze Age and finally Iron Age. We may also think about this time period as (Ceramic Age) since pottery, along with glass were dominant. During most of these times, metals were used by soldiers and specialized technicians such as carpenters and masons, while average persons were using ceramic items for their normal household purpose.

The same general time period encompassed the wheel revolution. It gave us the potter's wheel, the wheeled vehicles like bullock carts and horse chariots. The round, innocuous and an innocent looking object namely 'wheel' has powered the human civilization since time immemorial to the present day modern world. When it was invented is not known for sure. However, it is understood that someone from potter's society (kumhar or kummari) was the original innovator behind this revolutionary technology. We all know that potters make pots from mud. Initially, they were mixing soil with water, kneading it and shaping the dough with their bare hands. The smaller items like cups, glasses and saucers could be shaped by a pair of hands just sitting in one place and in one position. But, to make bigger items like water pots to store water and grains, he had to go around the big lump of mud several times to shape just one item. The process was laborious and tiring. In due course of time, potter may have thought that instead of him going around the lump of mud, why cannot the lump turn around while he shapes the required item sitting just at one place. This idea must have underwent a long process of trial and error, before evolving into a round wheel crafted from wood. Mounting this wheel on to a fulcrum made its revolution quite smooth. In due course of time, male in potter's society generated enough revolving momentum in the wheel by using a long wooden stick, while his better half was simultaneously busy in shaping the required items from cups, saucers and big water storage pots using her nimble hands and fingers. The 'wheel technology' was invented by potter's society with a complete gender balance in the production process.

In fact, this was also the time of another great advance in transportation, the sail. This was the first power source that did not depend upon biological input. It was to evolve in sailing ships in times to come. If potters were original inventors of wheel, it is fishermen who invented the concept of sailing. The ecosystem of a fishermen necessarily needed land for habitation but also nearby water body, be it tributary, river or seacoast for their livelihood. Catraman was the early invention crafted by hallowing trunk of a tree by using sharp bones and stone tools. It evolved into a boat over time. Addition of oars provided speed and manoeuvrability. Experience showed that speed and direction of natural wind was more powerful and decisive in determining the speed and direction of boat. In due course, sails were mounted, wherein the speed and direction of natural wind manoeuvred through oars could speed up the boat in a desired direction. Single sail, in due course of time, evolved into multi sails attached to bigger boats.Discovery of monsoon enabled those boats to evolve into ships that could be propelled across oceans to cover long continental journey. But, behind all the trans-oceanic journey of modern ships carrying goods, men, women and armaments along with soldiers, it would be appropriate to remember that an unknown fisherman living in some unknown coastal location at that distant point of time was the original inventor of this powerful technology.

After the momentous discovery of the wheel and the concept of sailing, finally, the period saw the dawn of history, as writing was developed.

4.2 THE PREHISTORY IN GODAVARI AND KRISHNA BASIN

THE FORMATION OF LATERITE

The pattern of wet and dry periods for a considerable part of India has been suggested by experts. It was noticed, by the study of stone implements, that the climatic changes that have taken place in Peninsular India are, to a large extent, linked up with the origin of the laterite, the peculiar sub-aerial alteration product and a widely occurring geological formation. The earliest relics of prehistoric man, in the shape of stone implements of Palaeolithic type, are found embedded, in large numbers, in the low lying laterites. The formation of laterite[4], a decayed clayey mass, consisting largely of hydrated silicate of alumina and iron, can only take place where there is considerable rainfall. In fact, it is only in tropical areas, and that too in the areas of very heavy rainfall, the laterite was formed. It would appear that the water logging of the soil is an important condition for its formation. It is likely that there might have been an alternation of distinct wet and dry seasons in south India. The presence of extensive deposits of laterite may indicate that the wet period must have been very protracted.

After the formation of the laterite, a dry spell seems to have set in, causing the breaking up and weathering of upper part of the laterite previously formed. It is in this or underneath decayed laterite, either in situ or washed down and re-deposited, the implements of the Early Stone Age (Lower Palaeolithic) occur. During the dry period, the surroundings have become more congenial and the earliest inhabitants lived on the laterite.

Again, during the period of torrential rains, the relics of ancient man were swept partly into the river gravels and partly into shallow detrital beds. When a second dry period followed, areas which were deserted earlier were repopulated. Finally, a wet phase deposited an alluvium, which covered the remains of the inhabitants of the preceding dry phase. During this and succeeding periods, in which rainfall decreased to the present day quantities, more advanced stone industries made their appearance. In general, it can be said that during dry periods aggradation or a general rise took place, and during wet ones weathering of surface or down-cutting of the rivers, flowing with greater force through a narrower channel, occurred.

The above phenomena are clearly noticeable along the right bank of river Krishna to the east of Bhimavaram village in the Alampur mandal of Gadwal District. It can be inferred that during the Pleistocene, the bed of the river was more than 3 to 4 km. wide. The present abandoned flood plain was made use of by the earliest inhabitants for making their tool kits.

The section at Bhavanasi[5], a tributary to river Krishna in Kurnool district, near a small village, Krishnapuram on the Nandikotkur-Atmakur road, gives an almost complete picture. There appears to have been an initial period of laterite formation, under the conditions of considerable humidity, which denotes the first wet period. During the succeeding dry period Palaeolithic Man of the Middle Pleistocene lived on the dried up laterite plain. Then there appears to have been a period of torrential rains, during which

artefacts, showing signs of laterite staining, were washed down and re-deposited in a pebble bed. As the downpour became less violent, but considerable yet, a red clay was deposited. We, therefore, get a double cycle of the wet followed by the dry and wet phases consecutively.

Pleistocene Fauna has been found in Krishna Godavari basin.

Bones of vertebrates of the middle Pleistocene age are found in the Godavari Valley. One of the species identified is the gigantic Elephasantiquus (namadicus) with thick and, long tusks. The circumference of a tusk measured 75 centimetres at its proximal end. The animal must have been about five metres in height. From the upper drainage area of the Krishna, teeth of Mastodon pandionis have been found. Portions of the cranium and the mandible of Rhinoceros deccanensis, and the remains of an undetermined bovine have been obtained from the bank of the Ghataprabha near the town of Gokak in Karnataka.

PALAEOLITHIC HUNTERS AND FOODGATHERERS

Scholars, of late, have split up the Stone Age into Palaeolithic, Mesolithic and Neolithic. Subsequently, Palaeolithic has been split into three phases – lower, middle and upper. The most striking feature of the Palaeolithic industries is their immense duration from about 500,000 to 10,000 years ago, the end of the last glaciation.

The surest way to distinguish the earliest men from fellow-animals was in the acquisition of intelligence and skill for making tools. With the capacity to manufacture stone tools, man stepped into a higher plane of concentration and manipulative skill.Evidence of Palaeolithic hunters and gatherers has been found in Siwaliks in Punjab, Jammu, Kargil, Zozilla pass, Sirsa, Kangra, Ropar and Chandigarh.It seems that the Palaeolithic hunters roamed along the river valleys in the hilly areas of India. Here, apart from game, they had plenty of pebbles from which they could fashion their stone tools. In Central India, Bhedaghat near Jabalpur in Madhya Pradesh apart from Orissa, Maharashtra, Gujarat and southern Rajasthan have also yielded plentiful evidence of that Age.In Peninsular India, the tool industry of that age has been found in Karnool, and along Kaveri and Vaigai rivers.

A striking feature of the distribution of Palaeolithic hand- tools in India is the predominance of chopper-type pebble tools in northern India, and of Acheulian hand-axes in Peninsular India. Outside India, the Anyathinian culture of Burma, the Choukoutienian culture of China, the Tampanian culture of Malaya and the Patjitanian culture of Java are dominated by chopper-chopping-tools. Pebble tools also occur in the pre-Stellenbosch, early Olduvan and Kafuan stages in South and East Africa. This distribution tends to suggest that even on a world-wide basis the chopper-chopping- tools on the one hand and hand-axes and cleavers on the other represent two different cultures. The chopper-type is more primitive and older than the Acheulian hand-axes.

Sites from where Palaeolithic tools have been discovered are near rivers, small streams or lakes. Wild animals that the stone-age man hunted lived in jungles along the rivers and lakes. When they came for drinking water, Palaeolithic hunters had an

opportunity to kill or trap them. Apart from wild animals, fish from lakes and rivers were also a source of food for them. These men moved in small bands and apart from hunting collected fruits, leaves of edible herbs and the roots and tubers of wild plants. For digging roots and tubers, pointed sticks and hand-axes of the Acheulian type were used.

KRISHNA VALLEY

In Amarabad village, Nagarkurnool district, the Early Stone Age site lies on the sloping mounds at the foot of the hill range to the west of the village. The above hill range, which is 749 metres high, is covered with thick jungle and scattered with quartzite pebbles. Almost these pebbles, the collection (of about 120 tools and flakes) exhibit excellent specimens of hand-axes, cleavers, chopping tools, scrapers, points, flakes, etc. This site must have been an undisturbed factory site of the Lower Palaeolithic period, and must have been inhabited by the Palaeolithic man for a considerably long period.

Nadimipalli village in Nagarkurnool district is yet another site. The road from Mannanur to Achampet, after descending from the Nallamalai range to the plains, runs parallel to the hills and crosses several nullahs of which the Chandravagu appears to be the oldest and the widest. It is a tributary to river Dindi. The Chandravagu had changed its course several times in the past. The area around the present road was once the bed of the rivulet. During the periods of aggradation, heaps of sand, silt and rubble have been deposited, while during denudation the river changed its course, cutting the softer bed deeper and deeper. Thus the previous bed of the river, which was about 8 to 9 m. higher than the present one, served the Early Palaeolithic man eminently in the supply of raw material for the manufacture of his implements. Exploration at the place, revealed hundreds of pebble choppers, a few cleavers, and protohand-axes. All these tools were worked out of the riverine pebble. The industry is definitely more primitive than the one noticed near Amarabad and technologically may be termed as true Abbevellian with a little mix-up of Early Acheulian. Thus both the industries noticed at Amarabad and Nadimipalli put together, will give a continuous sequence from Abbevellian to Late Acheulian.

Nagarjunakonda on the bank of river Krishna have revealed extensive sites of Early Stone Age (Lower Palaeolithic). On the one hand the Palaeolithic Man, who settled near river Krishna, had an access to a great supply of fine riverine shingle for making pebble tools, while on the other hand, the one, who settled along the nullah and near the hill saddles, applied himself to the Clactonion primitive core tools and rostroid, of Victoria-West types. In Nagarjunakonda valley, two industries of Early Stone Age and one of the Middle Stone Age have been found in clear and distinct horizons. The tools were manufactured from the riverine pebbles by detaching primary flakes by the block-on-block technique. The Nagarjunakonda industry consisted of more numbers of cleavers than any other type of tool.

Yeleswaram, yet another early stone age site is concentrated near the nullahs, extending from Mallannagutta towards west of Yeleswaram village.

GODAVARI VALLEY

Early and Middle Stone Age artefacts, like hand-axes and flake-scrapers, were reported from Allur and Jangoan villages in Peddapalli district. From Adilabad, Haimendorf collected a large number of scrapers and blades (now in London University). Flake artefacts were also noticed. The occurrence of Early Stone Age tools was reported in the Pranahita valley of the Komaram Bheem District. From Godavarikhani area in Peddapalli district, the Middle Stone Age artefacts too were found from factory or open air sites and eroded bed rock surfaces. The blade burin industry was noticed at Chittiyalpalli in Peddapalli taluk.

Recent Stone Age sites are found in between 450-500 contour lines along river Godavary from Dharmapuri in Jagtyal district to Khanapur in Manthani mandal. The hand-axes, cleavers and flake artefa.cts are found in between Anthergoan and Manthani (west to east) in the Peddapalli district; a stretch of 35 k.m. and Naspur of the Laxettipet mandal in Mancherial district to Ramagiri hills in the Peddapalli district (north to south), a stretch of 20 k.m.

In Europe, West Asia and North Africa the flake culture was replaced by Upper Palaeolithic Blade and Burin Industries. The situation in India was presumed to be different and it was concluded that no such blade and burin industry ever existed independently in India. It was also believed that the Late Stone Age had directly evolved from Middle Palaeolithic. But sustained studies by Indians have proved beyond doubt that the blade and burin industry did exist and was sandwiched between the Middle Palaeolithic and the Mesolithic in India.

The blade and burin industry was first noticed in Godavari Khani and Ramagundam in the Peddapalli district and later at Gullakota in the Laxettipet taluk. In 1976, Thakur Raja Ram Singh discovered two important sites near Pochera waterfalls and Chittiyalpalli, on river Suvarna in the Adilabad District. Here the blade-burin industry is associated with Middle Stone Age artefacts.

The Late Stone Age sites are noticed in Ramagundam and Godavarikhani and Manthani of Peddapalli district and also in Karimnagar, Jagtiyalof the Karimnagar district and Luxettipet mandal of the Adilabad district. Those people lived and worked not only on the height of red sandy soils but also on the top of the hills and foot hills, wherever a water source like rivulet, or spring was available in the vicinity. A few sites are also noticed over the rocky outcrops, in the midst of black soil. The important sites in the Peddapalli district are Bugga (around a spring) at the foot hills of Takkellapalli range, Devunipalli, Rangapur (foot hills), Gopaiahpalli, Kasulapalli (hamlet of Palthem), Sultanabad (among the rocky outcrops), Kadhom Kangarthy, out crops and foot hills in red or brown soils, around Peddapalli outcrops, Dharmabad (a springin the hills) and on top of the hills, Mutharam, near a rock shelter in Mallannagutta hill, Puligundam, Gudisalapet (foot hills), Rachapalli (foot hills), Vemnur (nullah) and Sabbitam village facing the Gourigundam waterfalls and also on the hill top. The site at Gaurigundam is unique and most prolific of all the sites so far discovered. The site, situated over a sandy

silt plateau and facing the Gaurigundam waterfalls, literally yielded hundreds of cores, blades, blade tools and waste flakes. No scrapers are noticed.

4.3 MESOLITHIC PERIOD

The transitional period between the end of the Palaeolithic and beginning of the Neolithic is called Mesolithic. It began about 10,000 BCE and ended with the rise of agriculture and polished stone tools in the Neolithic Age from 7500 BCE to 1710 BCE. It would be appropriate to have an estimate of substantially grown population at this civilizational juncture.

The estimates of the world population at this civilizational juncture are however not unanimous. Mc Evedy and Jones have estimated it to be 4 million while Thomlilison has estimated it to be 1 million on the lower side and 10 million on the higher side. Taking both the estimates together, we can say that the world population would have been between 1 million and 10 million at that remote juncture during 10,000 BCE.

With these limits for the world population, let us estimate the likely population of the Indian sub-continent and by the same logic, the likely population inhabiting the land demarcated as Telangana State, just recently during the twenty first century. Angus Madisson has estimated the Indian sub-continental share in the global population at the turn of the Christian era as 30%. Let us, reasonably presume that this share sustained during the preceding ten millennia. Therefore, we can safely say that the Indian sub-continental population during 10,000 BCE would not have been less than 3.3 lakhs. Hence, the likely population within the boundaries demarcated as the present day Telangana State would have been not less than 10,000 human beings at that distant point in time.

The Mesolithic Age is reckoned to have continued in the Indian sub-continent till 7500 BCE. The then world population, as estimated by Haub is 5 million. It would imply a population share of 1.7 million from the Indian sub-continent. Consequently, the size of the population inhabiting the presently demarcated Telangana State would have been around 50,000 human beings.

The Mesolithic age is characterized by tiny stone implements called microliths. Microliths are widespread throughout the Indian subcontinent. Gujarat (Langhnaj), Madhya Pradesh (Adamgarh, Barasimha, Nimkhera, Sakri, etc.), the region between the central Indian hills and the Gangetic plains (Barakaccha, Sidhpur, Lekhania in the Mirzapur District and Morhana Pahar), Birbhanpur on the Damodar in "West Bengal, Karnataka (Raichur, Jalahalli, Kibbanahalli and Belgaum), and Andhra Pradesh, Telangana (Nagarjunakonda) are particularly rich in Mesolithic sites. Mesolithic sites are common in Maharashtra. Microliths occur in the sands of the Godavari and the Wainganga rivers, on the hill surfaces at Ellora, and in the caves at Pachad and Hathkambha in Konkan. The tools comprise a large number of indeterminate flakes, blades, burins, geometric forms like the lunates, trapezes and triangles, scrapers and

discoids, and small chopping-tools, and points of various types, including a few pressure-flaked bifacial ones.

The Adamgarh Hill near Hoshangabad in Madhya Pradesh has rock-shelters and cave-paintings. It has yielded 25,000 microliths. The earliest finds were palaeoliths, comprising hand-axes, cleavers, ovates, discoids, scrapers, flakes and cores showing predominantly Acheulian characters. The occurrence of flakes and cores in the same deposit indicates that the tools were made on the spot. Carbon dating of shells from Adamgarh has placed the beginning of the Mesolithic age in that area at around 5500 BCE and it continued as late as 1710 BCE.

DOMESTICATION OF ANIMALS

About 15,000 years ago, the domestication of wild animals commencing with dog is the major achievement of the Mesolithic hunters. It was followed by the domestication of other animals like sheep, goat, horse and others.

How were the wild animals domesticated? Carl Sauer explains: 'Taming of the wild may be thought of as beginning by infant capture, nursing by a foster mother, and raising the young in close association with man. A plausible reconstruction is thus: man returning from the hills with a kid or Iamb, woman rearing it, and children growing up with the young animal and leading it out to browse. In such a gentle captivity, breeding might occur and thus domestication begin.'[6] The domestication of goat and sheep took place in the pre-agricultural phase. When the nomadic man with the aid of the dog brought sheep and goat under his control, it was the first step towards food production.

Wild wolves were the ancestors of the present day dog. Wolves often hang around human dwellings as scavengers, feeding upon bones and crumbs of flesh. They followed the Mesolithic hunters round the world, breeding with other local species, e.g., the wolf. That the dog entered into the ecological system of man very early is borne out by the fact that man and the dog are universally distributed together, even in remote regions like Australia, Greenland and Alaska.

In northern Europe the dog had become a companion of man by about 6000 BCE. The very fact that the Harappans had well-domesticated breeds of dogs indicates that domestication of these animals must have taken place at least two to three millennia earlier. In the Harappan period, the domesticated dog had already developed two distinct races. Marshall, who discovered terracotta figures of dogs from Mohenjo-daro, concluded that the cultivators of the Indus Valley had a dog resembling the pariah, another terrier, and yet another the modern mastiff. Baini Prashad identified the bones of a greyhound type of dog from Harappa, which he considers to be allied to Canistenggeranus, which was widely distributed in the Oriental Region in Diluvial times, and was the ancestor of the pariah-dog. The Harappa dog, according to Baini Prashad, shows distinct affinities in the shape of its skull with the Indian wolf. The Indian wolf, as Blanford relates, is rarely, if ever, heard to howl, and it sometimes barks like a pariah-dog. The young of the Indian wolf are born with drooping ears and are readily tamed. Moreover, all varieties of domesticated dogs have the wolf-type teeth. Studer derives the pariah from the dingo, which was widely distributed in southern Asia in former times.

The early men hunted wild horses, deer and wild cattle with the help of their rough traps, spears, bows and arrows. It is probable that wolves were their camp-followers and frequented the heaps of bones of wild animals which accumulated around the early Mesolithic camps. It is likely that out of fun the early men captured their cubs and tamed them. Young wolves captured in jungles were kept as pets and their utility as guardians of camps and hunters was the result of generations of enslavement and selective breeding. Women probably played an important role in developing the domesticated breeds of dogs on account of their inherent gentleness and patience. Very likely, these early animals became sufficiently tame to be harmless, but did not breed in captivity. In due course of time, they began to breed in captivity and yielded themselves to selective breeding. Only then, they became truly domesticated and developed in intelligence and utility.

These domesticated dogs were of great help to the Mesolithic hunters, and fleet-footed animals, such as deer, antelopes, foxes, jackals, and rabbits, were more easily available for the camp pot. Thus the food supply available greatly increased, and this might have led to an increase in the population of the early man. The domestication of dogs was a revolutionary advance in the life of the hunters and food-gatherers and opened out new possibilities of living with abundant and more variable dietary.

Apart from hunting wild animals, the domestication of the dog led to still more useful results. As Zeuner observes, 'Once the dog had become a member of the human society, the control and later domestication became possible of certain small ruminants which had always constituted an important part of the diet of the dog's ancestors'. These are the goat and the sheep.

The goat was the earliest ruminant to be domesticated. The domesticated goat existed in Iran about 6000 B.C. In the fourth millennium, goats with twisted horn appear, and gradually become dominant. This change may have coincided with the Chalcolithic stage. By Bronze Age times the twisted horn had become the fashion.

Regarding sheep, all varieties of domestic sheep have descended from the mountainous regions at Asia and Europe. The earliest to be domesticated was in south-west Asia. The Descendants are found in Sicily, Corsica, Sardinia, Cyprus, Anatolia and northern Iran. Other descendants are found in the mountainous regions of Soviet Central Asia, ranging from Bokhara through the Altai Mountains and Tibet to northern China. According to Zeuner, it has certainly contributed to the domesticated stock of India and the Far East.

The wild variety of sheep found in mountains from Afghanistan to Armenia, is probably the ancestor of domesticated sheep in India as well as in Arabia. The people of Turkistan domesticated a variety of sheep. It is generally believed that all domesticated sheep have been derived by selective breeding and crossing from the varieties found in Turkestan. The inhabitants of Mohenjo-Daro and Harappa had domesticated sheep with them, Toys showing a ram’s head have been recovered from Mohenjo-daro.

'Before domestication began, fat had to be obtained from game animals. With the domestication of the sheep it became available in practically any quantity required. Sheep fat was in due course replaced by vegetable oils in the Neolithic, though for culinary purposes it continued in esteem among eastern peoples. Nevertheless, the numerous technological uses of fat almost certainly were greatly developed as a result of the domestication of the sheep.

'The use of wool was probably discovered when the peculiar mode of moulting in large coherent patches was observed by the first domesticators. It would have been easy to make sheets of felt from such material, and felt-making has remained an important industry in many parts of central Asia, where it is even today associated with nomadic culture. Spinning and weaving were probably first practiced with vegetable materials.

'Woven cloth made of wool was not readily accepted in areas where good plant fiber, mainly flax, was available and where the climate was sufficiently mild. It, therefore, developed mainly in climates with a cold winter, and its subsequent spread to warmer zones was probably due to the development of finer qualities of wool.

'It thus appears that the domestication of the sheep, apart from ensuring a permanent meat supply, also improved greatly the supply of raw materials, of skins, hair, fat and bones. All these became, in due course, available from other sources, namely other domesticated ruminants. But the production of wool has almost entirely remained a monopoly of the sheep.'[7]

The true asses are of purely African origin. They are derived front North African wild race, now extinct. According to Zeuner, the ass was first domesticated in the Valley of the Nile or in Libya. The bones of the ass have been recovered in Baluchistan. The remains of the ass have also been reported from Harappa, Kalibangan (Rajasthan), and Rangpur (Gujarat), Period III (1000-800 B.C.).

For patient hard work, no animal can match the donkey. In construction work and in the digging of canals, loads are carried by donkeys. After the day's hard work, they are just let loose to eat whatever they can find. However, the donkey's greatest contribution to animal husbandry is as progenitor of the mule. The hybrid between the male as and the female horse is the mule, a sure-footed animal, so useful in carrying loads on narrow mountain paths.

4.4 ROCK PAINTINGS

The best evidence of the life and activities of the Mesolithic man lies in the paintings in cave-shelters. Numerous painted cave-shelters have been located in India. Haematite paintings on rock-shelters situated near Singanpur, in the Raigarh District, Orissa, represent hunting-scenes and dances with masked figures, resembling those at Cogul in Spain. One of them depicts kangaroos, animals now restricted to Australia. Representations of horse and deer in Singanpur cave-shelters are very much like the Spanish drawings of the same age. Rock engravings at Ghatsila, in the Singhbhum District, Bihar, are remarkable for their Australian character. According to Mitra, these

facts point to the existence of an ancient Indo-Australian culture extending from the upper Palaeolithic to the Neolithic.

Cockburn discovered numerous painted cave-shelters in the Kaimur ranges in the Mirzapur District in Uttar Pradesh. Here, hunting scenes show men, armed with harpoons having stone shaft-heads, attacking rhinoceroses. These paintings may be attributed to the end of the Palaeolithic period. In the Bellary District, more than 20 groups, of animal drawings and huntings-scenes with men armed with javelins and shields are painted in cave-shelters.

The, most exciting discoveries of the Stone Age paintings are from Madhya Pradesh, and the scholar who discovered them is V.S.Wakankar. A group of fantastic rocks on the northern fringe of the Vindhyas facing the plains of Malwa could be seen from Obaidulla ganj, about 42 kilometres from Bhopal, in the Raisen District of Madhya Pradesh. They are called Bhimbetaka, or the seat of Bhima. Wakankar first saw them in 1957, but started the study of their paintings and stone tools in 1972. There are 754 rock-shelters, out of which more than 500 have paintings. Apart from Bhimbetaka, there are cave paintings at Bhopal, Jaora, Raisen, Kharwai, Narwar, Chhoti-Badi Dant, Pachmarhi, and Modi in the Mandsaur District, in Madhya Pradesh.

The floor of one of the caves at Bhimbetaka was dug. At the lowest level, pebble tools along with hand axes were found. Above them were middle Paleolithic (30,000 B.P. to 10,000 B.P.) cherts and jaspers followed by upper Paleolithic microlithes wherein blades and burins were prominent. The next layer relates to the Mesolithic period (10,000 B.P. to 7,000 B.P.) in which geometrical microlithes and bone tools were found.[8]

ICE AGE HUMANS

The oldest cave paintings in Europe is found to be 14,000 years old. At Altamira near Santander in northern Spain, a near life sized bison is painted in the ceiling of a cave chamber. The unknown painter used several colours and exploited the natural contours of the ceiling to create a three dimensional impact.

What is the purpose of this art in which animals figure so prominently? It seems it was magico-religious to ensure good hunting. Representations of large animals in strategically situated rock-shelters, such as the horned bull of Kanwala, boar, tiger, rhinoceros, fish, tortoise and mythical bull from Bhimbetaka, buffalo and elephant of Adamgarh, bull from RamgudiwarTalkoli of Badami, and elephant of Edakal caves, do indicate that these animals were deified and were painted oversize to create a feeling of awe in the spectators.

The Mesolithic paintings are red. They depict hunting-scenes and are marked by vigour. The human figures are elongated and are shown holding bows, arrows and barbed harpoons, surrounding their quarry, deer in this case. In a corner, a group of men are shown fleeing from an attacking rhinoceros, while one of them is climbing a tree. Men are naked or wear a Skirt of leaves or bark. Resemblance with the Spanish cave paintings from Cueva de Val del Gharco del Agua Amarga is obvious.

A cave painting from Bhimbetaka shows a device which the cave- dwellers adopted for hunting. They used to scare herds of deer standing on rocks, with a steep fall below. In a painting deer are shown falling into a chasm from a ledge. The carcasses of dead or wounded deer were collected and eaten after roasting on fire.

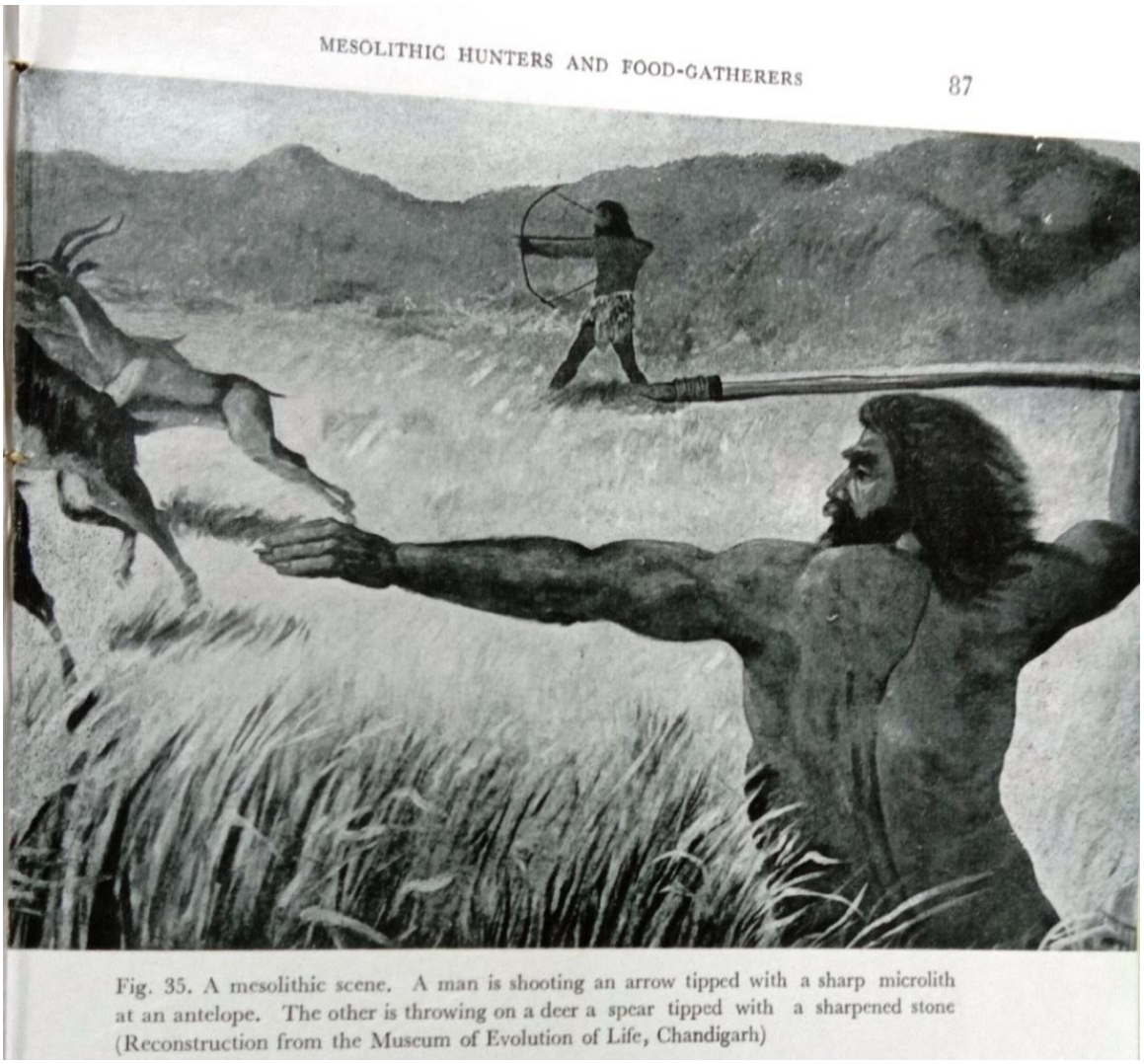


Fig. 35. A mesolithic scene. A man is shooting an arrow tipped with a sharp microlith at an antelope. The other is throwing on a deer a spear tipped with a sharpened stone (Reconstruction from the Museum of Evolution of Life, Chandigarh)

A group of paintings from Bhimbetaka were published which depict the activities and the social life of these hunters and food-gatherers. Two paintings depict love-making. Another shows a pregnant woman, and yet another, the birth of a child, who is depicted between the legs of the mother. There is a charming group of children frolicking. There are paintings showing the agony of the family members for the dead. The last one depicts the burial ceremony of a dead child and the grief of the parents. The brevity of expression is truly modern in spirit. With a few lines, so much is conveyed.

Most interesting are the paintings of wild animals. It is the roofs of rock-shelters which' have such paintings in white paint. The animals depicted are herds of deer, neelgai, sambhar, gaur, buffalo, wild boar, rhinoceros, tiger and elephant. The gaur-bull with its enormous horns is shown charging and the buffalo-bull with its uplifted tail seems to be in a fighting mood. These paintings show many features in common with rock paintings in the Tassili-n' Ajjer mountains in the Sahara. Not that there is any

genetic relationship between the painters. The paintings show how the human mind works in parallel lines in a particular period of human development.

There are some extraordinary paintings from the cave-shelters of Madhya Pradesh. In the Bazar Cave at Pachmarhi, ostriches are depicted. They relate to the discovery of decorated ostrich egg-shells from Maharashtra. It is interesting to see these birds, now restricted to Africa, depicted in a cave-shelter in India. Giraffes, whose fossils have been recovered from the Pleistocene deposits in the Siwalik Hills, are also depicted in cave-shelters at Bhimbetaka and Adamgarh. A man with a bow is shooting an arrow at a giraffe.

A word about the age of the rock paintings would be appropriate. Potteries can be dated by carbon method. In some cases, the designs on Chalcolithic-Neolithic pots closely resemble those in some cave paintings. From Modi in the Mandsaur District, a site which had 60 painted rock-shelters, the majority of which have been submerged under the waters of the Gandhi Sagar Dam, Wakankar discovered a painted stone piece and a heap of haematite granules from Mesolithic levels. Thus the date of the painting was established to be that of the Mesolithic period.

There is another significant discovery from Patne in the Ajanta Hill range of Maharashtra. There, S.L. Sali found decorated ostrich egg-shells. The shells were decorated with parallel cross-hatching and concentric circle engravings. At Bhimbetaka, bone engravings of similar designs as well as of bone tools have been obtained from the upper Palaeolithic and Mesolithic levels.

The rock-paintings at Bhimbetaka, which are green, are earliest on the basis of superimposition and can be attributed to the upper Palaeolithic period. After this period, the green colour has never been used, though there are a few exceptions, such as a group of flower-vase paintings in one cave, which belong to the Gupta period. The green in these later-period drawings is quite different from the earliest group in which it is much darker and tallies with the green nodules found in the upper Palaeolithic levels at Bhimbetaka.

Apart from the colour of the paints, it is the style which is the surest guide to the age of paintings. In the case of cave paintings, some difficulty arises, as the paintings of the living tribal's also resemble them. However, this resemblance is only superficial. An expert eye can easily distinguish the recent from the ancient. The Palaeolithic and the Mesolithic paintings have a vigour and verve which is not matched by the present-day tribal painting. One has to be careful to avoid this confusion.

4.5 ROCK PAINTINGS IN TELANGANA

Discovery of Pre-historic rock paintings in the sand stone rock shelters of Pandavulagutta near Ravulapally H/o Tirumalagiri village in Regondamandal has put Telangana State in the map of Rock art sites of the world. These rock paintings demonstrate the extent to which the pre-historic man has developed the aesthetic urge in him inspire of his pre-occupations in the fight against the nature during the day to day

struggle for existence. The rock art paintings consists of hunting, fighting scenes, honey collection, dancing, music, riding and other ritual representations. The animals depicted in rock painting are bison, buffalo, antelope, deer, elephant, rhinoceros, wild goat, tiger, horse, leopard, giraffe, hyena, cheetah, crocodile, scorpion, porcupine, crab, frog, crawling insects, fish, tortoise, lizard, langur, monkey, bear and dog, birds like eagle, vulture, crane, peacock, crow, beehives, butterfly. The Symbols depicted are such as honeycombs, cross, circle, swastika, but like, fence like, trap like geometric designs, symbolic representations of sun, human figures both stick type and triangular bodies and anthropomorphic figures. Weapons such as bow, arrow, sword, and lancer are also seen.

The rock art sites reported from Telangana are located in Warangal (Pandavulagutta in Ravulapalli, Devarlagutta in Bandala and Kossyagutta in Narsapur villages), Khammam (Neeladri hillocks in Ramachandrapur village), Mahabubnagar (Durgam, Dhupadugattu, Mudumala villages), Medak (Edithanur, Wargal, Sivar-Venkatapur villages), Karimnagar (Regonda), Rangareddy (Kokapet Village).

After the formation of the Telangana State, several new sites have been explored belonging to Mesolithic period. Some of them located in Mahboobnagar and Mancherial districts are described as follows:

The rock art site is in Mannemkonda hillocks and is located at a distance of 20 km from Mahaboobnagar town. Approaching from Raichur road, one finds a heap of boulders called Podupurayigattu in front of Bodagattu Hill. There is serpent hood like rock shelter on the bottom fringes of the hillock. On the roof of the rock shelter there is a rare and one of the earliest rock-art of Telangana.

There are two groups of paintings - one is on the roof of the cave and the other is on the eastern wall of the cave looking towards west side plain areas. Both are in red ochre colour. The roof painting is beautiful and intact even today undisturbed for thousands of years. The measurements of the painting are about 3 feet X 1 foot. A series of four creepers with one to three buds each are painted.

The wall painting has been eroded by the leakage of rain water through the ages and hence we can see now only the southern and northern parts of the painting, not the central portion in between the two sides. The measurements of the painting are about 3 feet x 1 foot. It looks like a carnivore - either a bison or an elephant with head down and trunk up. The thick ochre colour of this painting appears to be older than the roof painting. The artist of the two paintings appears to be professional since the curves in the paintings are drawn with ease at a stretch, not drawing inch by inch.

To know the age of the paintings, supporting material remains were searched. The author picked up two pottery pieces and a finely ground stone in the loose debris of the cave. The close observation of the pottery pieces reveals that they were hand-made and baked red. This indicates that by the time of their production pottery wheel was not invented or not brought in touch with the people of this area. But the finely ground stone utilized for grinding food grains and vegetables indicates the next age of the pottery.

In view of these material evidences and the paintings which have similarities with their counterparts in the nearby rock shelters of Sanganonipalli, Potanpalli and Dupadgattu, some 5 - 10 km radius from this site, it can be said that these paintings of Mannemkonda were drawn by the people of Mesolithic Age and its succeeding Neolithic Age which existed in Telangana in between 10,000 years and 3000 years before present.

Two new prehistoric painting sites have been explored in the Buggagattu forests located at a distance of some 10 km from the district headquarters Mancherial. This cave locally called Chittarayya Gundu is oriented towards northward and located at a distance of one kilo meter from the Buggagattu Anjaneyaswami temple in its north western corner. The prehistoric paintings were drawn at five places on the sand rock walls of the 50 yard long cave. The first space has only one petroglyph of an ox engraved in one foot length. The second and third spaces are the main chittaruvulu on which several tens of red ocher paintings were drawn. The most important paintings of the spaces include the animals - horned bulls in rows, deers, antelopes, porcupine and monitor lizard.

Some men were depicted as controlling the oxen with weapons. The paintings also include a priest with thick red ochre halo around his head. Similar painting is also found nearby but in fainted red colour. The Naikpodtribals of the region, who invoke the deity Chittarayya for three days in every three years, call the priests as tappetagoollu (big dappulu in Telugu). The fourth and fifth spaces are expressing only fainted red ochre oxen.

With regard to the corroborative evidences of the paintings fortunately one can find hundreds of microliths in front of the cave. The Mesolithic Age people inserted the small chips of chert stone (one-inch long and centimetre width) in the full cleavage of fist fit logs to make knives, sickles, etc. sharp implements, in between 8,500 B.C. to 3,000 B.C. It also appears that the cave continued to be inhabited by the people during the subsequent ages — Neolithic and Megalithic — as it is revealed by the human paintings with metal weapons and physical grinding stones.

Paatha Chittarayya Gundu is located in the deep forests at a distance of 2 kilometers from the first cave. Its projection towards northward is more than the cave of Kottha Chitthaarayya and hence it seems to have provided more safe accommodation to the humans. But unfortunately most of the prehistoric paintings depicted on its wall spaces have been dimmed due to the recent distilleries cooked here for illegal liquor. Only a half-foot long ox figure in red ochre colour at one place and a foot-long ox in white colour at another place are clearly visible on the 30 feet-long wall space of the cave. But there appears every possibility to retrieve several paintings by way of scientific / expert chemical cleaning of the cave wall.

Since the similar material evidences found at the Kottha Chitthaarayya Cave are also attested in front of this site too the age of this Cave also might belong to the Mesolithic age or it might have existed a bit earlier too as its name Paatha (meaning old) sounds.

5. AGRICULTURAL REVOLUTION

5.1 DOMESTICATION OF ANIMALS AND PLANTS

While people were hunting wild animals and subsisting on leaves and fruits of the jungle trees in most of the world, a remarkable development took place in Asia, particularly western Asia, viz. the discovery of agriculture. The birthplace of the Neolithic agricultural revolution was the hilly region embracing Israel, Jordan, Anatolia, Iraq, the Caspian 'Basin and the adjoining Iranian plateau. It is in this region that wild ancestors of two major cereals, wheat and barley, and of domesticated animals like goat, sheep, pig, and cattle, are found. Thus, apart from the fertile soil, all the requirements of mixed farming, which include agriculture and stock-raising, were present in this region. From this region, Neolithic culture diffused in a series of waves to Aegean and Levant, Egypt, Southern Russia, the Balkans and the Danube Valley, Italy, France, Spain, the British Isles and the Indian sub-continent.

A reconstruction of a harvesting scene from the Fertile Crescent, two men and a woman are shown harvesting wheat with stone sickles. In the background is a cluster of hub.

Fig. 48. A Neolithic rural scene, depicting the harvesting of wheat and barley with stone sickles, with clusters of huts in the background
(Reconstruction from the Museum of Evolution of Life, Chandigarh)

It is the animals that live in herds that are more amenable to domestication. The herd is usually led by a leader whom the herd follows. If the leader is captured, the rest of the herd cask easily be caught. Sheep, goats, cattle and pigs, which are the main domestic animals, come under this category and no wonder that they were the first to be

domesticated. Similarly, among plants, it is the grasses which tend to grow densely, and are most amenable to control by man. Most of our cereals, e.g., wheat, barley, oats and rice, are grasses.

POLISHED STONE-AXES

Perished stone-axe or celt, with its edge carefully ground, was an important tool which enabled the Neolithic man to obtain a foothold in the forests. In the forest clearings, these farmers started the cultivation of crops. Very often, fire was used for burning forests, and grains of cereals were dibbled with the aid of pointed sticks. Later on, stone-hoes with wooden handles were invented. The sowing of crops was largely the work of women, who are credited with the discovery of agriculture. It was only after the domestication of cattle and the invention of the plough, which came much later, that woman was liberated from the toll of cultivation. In most states in India, during twentieth century whereas ploughing was done by man, it was the woman who followed the plough and dropped the seed in the furrows.

It is the cereals - wheat, barley, rice, millets and maze - which have contributed most to the building up of the Neolithic culture. Yield nutritious food and the grains can be easily stored for a number of years. All the cereals have arisen from wild grasses, and wild ancestor of a number of them are known. The wild varieties of wheat, after domestication and mutation evolved into what is generally known as bread-wheat. It constitutes, 'the major wheat species of the world, and the one that contributes most to the annual harvest.[1]The wild ancestor of barley is found in Palestine, Arabia, Asia Minor, Transcaucasia, Iran and Afghanistan, and in eastern Tibet. The earliest find of barley is from Jarmo.

During the Neolithic times, along with the cultivation of cereals, the domestication of animals was also canted on. This became possible because the habits and habitats of animals and plants and their reproduction and growth came under keen observation. Domestic animals like sheep, goats and cattle are movable sources of food, and their dung is used as manure. Goats and cattle also supply milk. The hair of sheep and goats can be woven into cloth or beaten Into felt. The use or animals to carry loads or draw ploughs and vehicles is a later adaptation.

Changes in climate and the advent of aridity are regarded as important factors favouring the domestication of wild animals. With the decline of food and water supplies, the wild animals herded hungrily round the scattered oases around which human settlements had already been stabilized. The close contact of wild animals with man paved the way for their domestication.

The time sequence in which wild animals were domesticated is as follows: Firstly, goat and sheep; secondly, cattle and pigs; and lastly, draught and transport animals such as the horse and the ass. This sequence is borne out by the excavations carried out in the Belt Cave, where the remains of domesticated sheep and goats are found in the earliest pre-pottery horizon dated to the first half of the sixth millennium, whereas the remains of pigs and cattle are found in the second half of the same millennium.

HOUSING, POTTERY, BASKETRY, AND LOOM

A distinctive feature of the Neolithic culture was the development of houses built of locally available materials. Walls made of stones and **sun-dried bricks** were popular. The walls were lined with lime-plaster, and the floors were plastered and burnished with smooth stones. The wooden door frames were possibly provided with skin curtains.

The development of agriculture and the production of food-grains in sizeable quantities led to the problem of storage. Pots were required not only for storing food-grains but also for cocking. The first pots were hand-made from clay, and the use of the wheel in pottery came much later. The baking of pots is of significance for the beginning of science. As Gordon Childe observes, "It Is the earliest conscious utilisation by man of a chemical change." The use of pottery extended the range of cocking operations and improved the diet of man.

Basketry was first developed in Iraq, Iran, Palestine and Egypt. Coiled basketry was popular In Egypt. Weaving was made possible by abundant supplies of flax and wool. Flax was the material used for textile in the early Neolithic times in Egypt, Asia and Europe. According to Jacquetta Hawkes, the Danubians, the windmill people of England, and the Scandinavian settlers had no textile garments, but relied entirely on skins and furs. Spinning, weaving and making of pots is again credited to women.

The invention of weaving had deeper implication. As per Bernal cleave, "Weaving is clearly a further adaptation of basket-making, and both of them involve regularities, first of all actually practised and then thought about, which are at the basis of geometry and arithmetic. The forms of patterns produced in weaving and the number of threads involved in producing them are essentially of a geometrical nature, leading to a deeper understanding of the relations between form and number."

Saddle-querns were used for grinding grain. Possibly, parched grains were used, and the grinding operation may not have been so arduous. Techniques of baking and brewing were also developed.

During the Neolithic or the Polished Stone Age, man acquired the skill of grinding and polishing stone implements like Celt, axe or adze, and invented the sickle for harvesting crops. He began to control his food supply by cultivating plants and domesticating animals. Bernal regards the Invention of the technique of agriculture, ranking with the utilization of fire and of power, as one of the three most momentous inventions in human history. Like all great transformations, it was not a single act but a process including numerous observations and inventions, all subservient to the essential achievement - the cultivation of seed-giving grasses. Apart from the discovery of agriculture and animal husbandry, other achievements of the Neolithic revolution were wood-working, and manufacture of pottery and textiles. Thus when we speak of the Neolithic revolution, what it implied is not a catastrophe but a major change in the techniques of food production which gave man control over his environment and saved him from the precarious existence of a mere hunter and gatherer of wild berries and roots. For the first time, he lived in settled villages, and apart from security from hunger, he had leisure to think and contemplate.

From the Fertile Crescent area, agriculture and animal husbandry slowly diffused into adjoining lands. It reached the valleys of the Tigris and the Euphrates, Asia Minor, Egypt, Greece, the Danubian area in Europe, Italy, southern France, Iberia and Iran before 3300 B.C. along with the Indian sub-continent.

5.2 SITES AND SETTLEMENTS

For a very long time archaeologists have been puzzled by the presence of a great number of stone-axes among the surface finds. The recent explorations and excavations have brought to light many Neolithic settlements, throughout the sub-continent. The habitations of the Neolithic man in Europe were of three kinds viz. (1) cave, (2) land, and (3) lake dwellings. In the Indian context so far no Neolithic lake habitation has been noticed, though occasionally some caves as at Bethamcherla in Kurnool district have traces of Neolithic habitation. In India the Neolithic Man preferred two types of dwellings-firstly the pits as noticed at Burzahom in Kashmir valley and Nagarjunakonda in Guntur district and secondly over the high lands, adjoining the hills. In central Deccan, especially in the upper courses of the Krishna, Bhima and Thungabhadra rivers, a remarkable series of archaeological studies have been carried out.

THE SITES AND THEIR DISTRIBUTION

In 1860 Le Mosurier discovered the first Neolithic tool in India; and drew attention to his discovery of ground and polished stone - implements in the valley of river East Tons in the United Provinces (now Uttar Pradesh). The evidence of the earliest Neolithic period in Andhra was discovered in 1876 by Robert Bruce Foote in the form of an adze of sandstone, at a place called Vaddamanu in the Guntur district. In the neighbouring state of Karnataka, the first ground stone-axe was recorded by Col. Meadows Taylor, in 1852 itself, at Lingsugur in Raichur district. Robert Bruce Foote, between 1885 and 1891, discovered more than 50 sites, which are geographically located in the present districts of Hyderabad, Krishna, Guntur, Nellore, Kurnool, Cuddapah and Anantapur. For well over half a century, no new investigations have come to light. However considerable evidence of the Neolithic farming communities was recorded in the excavations, conducted by the Nizam's State Department of Archaeology, at Maski, (Nagarjunakonda and Sanganakallu).

During the year 1976, Polakonda in the Warangal district was excavated, in 1977 a minor excavation was conducted Budigapalli, a Neolithic-Chalcolithic site. In 1978, Chagatur in the Mahboobnagar district, another Neolithic-Charcolithic site. The distribution pattern of the sites, as outlined above, shows that the Neolithic farmers had settlements in almost all parts of Telangana and Andhra Pradesh. Arid and dry climatic conditions during the Neolithic period was evidenced by the presence of some plant remains, such as acacia (thumma in Telugu) or Dalbergia and Zizyphus (ber or regi in Telugu) species from the site of Palavoy[2]. The animal species included cattle, sheep, goat, swine, antelope, possibly horse[3], gastropoda, common Indian rat, domestic humped cattle, deer, hog, wild elephant, tortoise and squirrel, etc.

SETTLEMENT PATTERN

As in other parts of India the Karimnagar region was also a favourite haunt of the Neolithic Man. Occasionally Neolithic axes were collected around Late Stone Age sites and sometimes in the vicinity of Megalithic burials but permanent settlements are very few. The recently discovered settlements are Thogarrai on the banks of river Maneru, Kadambapur, also on the Maneru, and Peddabankur, all of which are in the Peddapalli district, Budigapalli on the banks of the Peddavagu, in the Husnabad mandal of Karimnagar district, Polakonda, Kolakonda and Deveruppula in Jangoan district. In Thogarrai, aNeolithic factory site was discovered over a granitic outcrop. The collection included a large number of unfinished tools, besides a good number of finished adzes and axes.

Kadambapuris mainly a Megalithic burial site, where a number of Neolithic stone-axes were collected over the sloping plains of the hills, abutting river Maneru. Many rock shelters and caverns, noticed in the hills, must have been occupied by the Early Neolithic man. In Peddabankur, many Neolithic stone-axes were collected on the surface and in the unrelated cultural strata. The entire historical site was covered by a deposit of black soil, not more than 2 m. in thickness at any spot. There are neither granite hills nearby for his shelter nor the dykes of dolerite for making his tool-kit. Apparently the tools must have been imported from places like Kadambapur or Thogarrai, etc. Peddabankur is an example where the Neolithic man, instead of selecting a hilly region, settled over plains, possibly to serve his farming needs.

BUDIGAPALLI

The entire Husnabad mandal and the adjoining Huzurabad mandal in Karimnagar district are studded with large number of megalithic burials. Budigapalli, a small village at about 6 km. from Husnabad, is encompassed by a ring of hills, locally known as Valasagattu, Sanjivarayanigattu, Venkayagattu, etc. The granitic hills, the rock shelters and a nullah emanate from the hills.Kolakonda village, on river Peddavagu in the Jangoandistrict, is another important Neolithic settlement. In Devaruppala, the Neolithic settlement is situated at about 2 km. south of the village. In the vicinity of Neolithic settlement there is an extensive Megalithic cemetery consisting mostly of pit circles and a few cist burials. In Polakonda, a small village on the road from Jangoan to Suryapet in the Jangoan district, a good number of polished stone-axes was observed over the early historical site.

CHRONOLOGY

So far we have nine sites in the peninsular areas with radio-carbon dates. Of these Palavoy and Utnoor are in Andhra Pradesh, Hallur, Kodekal, Sanganakallu, T'Narsipur, Tekkalakota and Terdal in Karnataka State, and Payampalli in the North Arcot district of Tamilnadu. Of these two, the earliest date comes from Kodekal (the Gulbarga district of Karnataka) and Utnoor in the Mahboobnagar district of Telangana. The radio-carbon date for the ash mound at Kodekal is 2365 BCE. and for Utnoor is 2138 BCE. The results of radio-carbon analysis of the charcoal samples, collected from late Neolithic level at Polakonda, gave a date of 1300 B.C. If we take the last Neolithic phase into

consideration, as suggested by Dr. Allchin, who compared it with that of Jorwe in Maharashtra, it is possible to presume that the Neolithic period had a total lease of nearly 1500 years, possibly twice affected by outside influences, once by the Chalcolithic and later by the Megalithic.

Out of the material remains of the Neolithic people, which survived the ravages of time, was the stone-axe, made out of igneous or metamorphic rocks, such as diorite, dolerite and basalt. The other less common varieties are small tools either hafted or used as adzes, small chisels, picks, fabricators, hammer-stones and sling stones, etc.

5.3 THE ECONOMY, HOUSING, POTTERY AND PAINTINGS

The economic life of the Neolithic man was a combination of agriculture, animal husbandry and hunting. The clearing of natural plateau and construction of rocky platforms is a distinct characteristic of the Neolithic sites. Most of the Neolithic settlements are found to coincide with these terrace-complexes.

Self-protection was the main preoccupation of the Neolithic man, which made him sometimes seek his habitation over these terraces for tile protection from wild animals. The terracing system must have served the primary need of self-protection and secondly, to some extent, the cultivation. With a sparse population and plenty of food in the form of fruits, tuber and wild grains available, his needs of the cultivation might not be so pressing. The Neolithic man depended, besides cultivation, upon hunting, fishing and on whatever items were naturally available to him such as fruits, vegetables and edible grasses or tubers. However the general occurrence of domestic implements, such as querns and grinders, may suggest some practice of agriculture. The evidence of grains such as horse-gram, green, gram and ragi from Paimpalli in Tamilnadu, horsegram from Tekkalakota and ragi from Hallur, which are not far removed geographically or culturally from Telangana and Andhra Pradesh indicates that similar grains were grown or procured during the Neolithic period here too. The jungles and shrubs were cleared and land made suitable for farming with the help of stone-axes and also by putting fire to the thorny shrubs.

Cattle served his cultivation and food needs. The animal remains from various excavations reveal that he thrived on short-horned and humpless cattle, sheep, goat, deer, wild dog, wolf, antelope, spotted deer, tortoise, swan and fowl. Horse was attested to for the first time at Hallur.

HOUSING PATTERN

The physiographical and geological features have greatly influenced the establishment of the Neolithic settlements in Telangana. The earliest settlements were usually made on the top of the granite hills or on the levelled terrace on the hill sides or on the saddles or the plateaux between two or more such hills. It appears that the Neolithic folk also chose open terraces at the foot-hills, wherever the natural rock shelters were available. Sometimes they selected black-soil plains as at Peddabankur. They also

lived near the river banks at places like Kadambapur, Thogarrai and Kolakonda in north-western Telangana.

Several circular and rectangular floors of various sizes, enclosed by huge granite boulders, were noticed on the slope and top of the Palavoy hill. Similar feature was also noticed at Piklihal[4], Tekkalakota[5], etc. The presence of several rock shelters, found at Budigapalli and Kadambapur in the vicinity of the find-spots of the Neolithic celts or rock paintings, may indicate that these were occupied by the Neolithic man. The house plans in Karimnagar region may, more or less, agree with those noticed at other excavated sites such as Brahmagiri, Maski, Piklihal, Hallur, etc. At Piklihal and Tekkalakota there was evidence of walls of split bamboo-matting, plastered with mud and supported by wooden posts. The roofs of these houses were built of some perishable material and the floors daubed with red morrum-silt, rubble and occasional boulders. Plastering with lime or clay and dung was also noticed.

Regarding disposal of the dead**, t**he most important evidence comes from Nagarjunakonda[6] in the Guntur district. The funerary remains of the Neolithic people, inhabiting the valley, belong to three categories.

a) a cemetery for adults and children ;
b) urns for infants within the habitation area; and
c) a pit of an adult male.

THE POTTERY, ORNAMENTS, ART AND PAINTINGS

The excavation at Polakondain the Janagoan Taluka of Warangal district gave an idea of the Neolithic pottery in this region. The pottery generally consists of crude and coarse hand-made wares with a few burnished types. The clay is not fine. Coarse sand was often used as degraissant. The pottery was well-burnt to a grey, dull brown, or black colour, often with an unburnt core in the fabric. The pottery is mostly plain and no decorations of any sort, either combed, incised or painted, are noticed.

At Polakonda we have some evidence of the type of a kiln in which the pots were baked. It appears that the kiln, though a small one, comprised thick walls of clay in which the pots were kept and probably burnt by applying indirect heat.

There was no evidence of ornaments in the early Neolithic settlements in Telangana. But in the Neolithic-Chalcolithic sites at Budigapalli and Chagatoor, many steatite disc beads, terracotta beads and a few shell objects came to light. In the late Neolithic phase at Polakonda, single copper spiralled ring, which must have been used as a finger ornament, was recovered.

The works of art of the Neolithic people, depicting the socio-cultural life, have survived in the form of rock-paintings and decorations on the pottery and brushings on the rocks and terracotta objects. Recently, some rock paintings gave been found at Regonda and Budigapalli in the Karimnagar district, Kokapet in the Hyderabad district and Mundamala in the Mahboobnagar district. At Regonda, the paintings are of red ochre and consist of a group of tall men, some vertical lines intersected or by short horizontal lines at the top, indicating head and hands of humans, among others.

The paintings at Budigapalli are found at the top of the hill, inside a rock shelter under the ceiling, hardly about 1.50 metres in height. Here are found two horses with riders possibly holding spears and another horse with a rider on the back. The most notable of all from Budigapalli is a standing bull in a waking gait with the tail dangling away from the body. The bovine animal was fully painted, with a., hefty body, short stumpy horn and a prominent hump.

In Mudumala village in Makthal mandal of Mahboobnagar district groups of avenues and alignments of the Megalithic origin are noticed. On the south-west of the village there are some proto-historic roc* brusings, containing a crudely incised humped bull with an upraised tail, the horns curving forward and genitals prominently shown. There is also a human figure, possibly Mother Goddess, with out-stretched and upraised hands and legs apart. The breasts are shown hanging sideways.

6. METAL AGE AND MEGALITHIC CULTURE

6.1 ENTRY OF METALS AND EARLY CIVILIZATIONS

After stone came something more solid yet malleable, metal. With this discovery, began the Chalcolithic Revolution. It is applied to communities using stone implements along with copper or bronze ones. It began in Mesopotamia in the fourth millennium BC. Thereafter, it spread in the belt of countries between the river Nile and Ganges. Copper was not found in Mesopotamia. It was imported from Oman on the Persian Gulf. Hence, it was with the imported copper that Mesopotamians mastered technique of bronze manufacture. This new discovery substantially sharpened the stone tools, literally. Palaeolithic man was using big but crude stone tools to hack trees. The smart, sharp, metal tipped axe could slay the same tree quickly. Men could thus penetrate deeper into thick forests, clear them and use it for growing crops. The same metal cutting tools was to provide the cutting edge during harvest time.

One of the major events in the Bronze Age was shifting of crops from mountains to plains. The system of nomadic shifting cultivation gave way to cereal-fallow system. The invention of the plough, which was first only a forked branch of a tree, brought about major changes. About 2900 BC, it was developed by Sumerians, and Harappans were using it around the same time. All primitive ploughs were made of wood and being perishable, there is no possibility of finding an actual wooden plough from those sites. However, a terracotta model of a plough has been discovered from Mohenjodaro. Discovery of plough had actually marked agricultural revolution. Very soon, bullocks were drawing the wooden plough. The rich alluvial soil started yielding bumper crops of wheat. After sometime, a tube was attached through which sees could be dropped. This became the earliest seed drill.

The wheeled cart was another great innovation. Around 4000 BC, ox drawn sledges came first. They were used to convey royal corpses to their final resting place. But, very soon, the locomotion on land was going to be revolutionised. It was indeed crowning achievement of prehistoric carpentry, the invention of wheel. Applied to transport, it converted the sledge into a cart or wagon. By 3500 BC, wheeled vehicles are represented in the Sumerian art. By 3000 BC, carts, wagons and chariots were in general use in Mesopotamia, Syria and Harappan civilisations. Now, the wheeled cart was hitched on to the bullocks. The new technology combined two critically important ideas, the use animal power and wheel. Bernal states that, “These inventions were to have enormous material and scientific consequences. The cart and the plough enabled agriculture to be spread over all open plains and so far beyond the limits of the old civilisations. The increased possibilities and speed of transport by cart and even more by ship, together with the need to know the sources of valuable materials, led to deliberate exploration and to the beginnings of geography”.

Simultaneously, irrigated farming also developed. Flood waters were stored in reservoirs for irrigation and canals were dug. Therefore, Chalcolithic is also called the age of irrigated farming.

Therefore, metal axe, bullock drawn plough and irrigated agriculture are the three crucial developments powering Chalcolithic Revolution. Metal axe cleared more forests. The area thus cleared was sown and cultivated. As bullocks pulled, the plough sunk deeper and upturned the soft alluvium underneath. Application of water stored nearby and conveyed through a canal saw a bumper harvest which was cut by using metal tipped sickles. Wheeled cart was in place for local transportation. Secured by a bumper crop, season after season, the Chalcolithic man was absolutely free to pursue other non agricultural hobbies. It accelerated his future evolution.

Braidwood, thus sums up the achievements of the Bronze Age: "In 3000 to 4000 years, the life of man changed more radically than in all of the preceding 230,000 years. Before the agricultural revolution, man spent their working moments seeking their next meal, except when they could gorge following a great kill. As man learned to produce food, instead of gathering, hunting or collecting it, and to store in the grain bin and on the roof, he was compelled as well as enabled to settle in larger communities. With human energy released for a whole spectrum of new activities, there came the development of specialised non agricultural crafts. It is no accident that such innovations as the discovery of basic mechanical principles like weaving, plough, wheel and metallurgy soon appeared".

METAL AGE IN INDIA

In India, the transition from stone to metal was slow but a gradual process. This is proved by the fact that stone and metallic implements are found side by side. There is some similarity in their shapes too. However, there is no uniformity regarding use of metals in different parts of India. In Northern India, copper replaced stones as the ordinary material for tools and weapons. Axes, swords, spearheads and various other objects have been discovered in Northern geographies. Only after several centuries, iron came to be known and used as a substitute for copper. Therefore, we can make a distinction between the Copper Age and Iron Age in northern India. However, in peninsular India, Iron Age immediately succeeded the Stone Age.

Bronze is an alloy made up of nine parts of copper and one part of tin. It is very suitable for the manufacturing of tools and sharp edged weapons. Bronze implements of early date have been found in India along with those of copper. The copper age probably started around 4000 BC. The introduction of Iron in geographical south of Vindhyas may have occurred later and quite independently.

Invention of Iron technology was an outstanding achievement of mankind. Iron ores are well widespread compared with copper. Mixing carbon to this new metal provided its characteristic hardness. Socketed iron axe gave an efficient tool to man to clear jungles for cultivation. It was with the use of fire and iron axe that Indus valley people migrated eastwards into Gangetic valley clearing thick jungles. The hard clayey soil of Uttar Pradesh and Bihar could not be cultivated easily with wooden ploughs. But,

once fitted with iron ploughshare, the efficiency took a quantum leap. Virgin lands, already rich in humus and cultivated with iron plough led to bumper crops, season after season. It must have been the 'Green Revolution' of that millennium. In due course, small tools like sickles and hoes were also manufactured from iron.

Sailing by hugging the coast line was another important development. Sailors in those days sailed slowly, hugging the coast line. They carried shore sighting birds i.e. crows, doves and shallows. When the ship went out of land sight, they would set the bird free. It would go the east, to the south, to the west and to the north and to the intermediate points and rise aloft. If on the horizon, it caught sight of land, thither it would go. But, if not, it would return to the ship.

Harappans and their contemporaries not only grew cotton, but also devised methods of ginning, spinning and weaving it into cloth. It was a great technological advance for that age from Indus valley to Kathiawar, Gujarat, Khandesh and Deccan. Cotton cloth was exported to Mesopotamia. In exchange came woollen garments and silver.

Technological innovations which led to an increase in food production and its secure supply also resulted in an increase in population. More people are required for agriculture than for hunting and fishing. Kosambi estimates that most efficient hunting and food can hardly support one person per square kilometre; pastoral life can support three, but agriculture about a hundred. Therefore, the new techniques of plough cultivation, irrigated farming and domestication of animals led to a substantial increase in population in Indus valley during third millennia. Thereafter, it spread to lands afar and covered other river valleys too.

EARLY CIVILIZATIONS

From 10,000 BC to 5,000 BC, animals were domesticated, cultivation began and nomadic hordes settled down. Clusters grew into a village. Around this time, someone discovered the magic of 'irrigation'. It meant that application of water could enhance the crop yield out of the same land. This attracted population along the river valleys. Dykes were erected and ditches were dug along the riverine course. During floods, water was stored. When dry, the same water was used to irrigate crops. The rich and moist alluvium brought down along with the water flow was also deposited along its banks. People farmed. Crops grew luxuriantly. Food assured security. That attracted more people along the riverine. Then, settlements grew from village to small town. This was the first revolution on land brought about by this new activity called 'Irrigated Agriculture'.

As labour bore fruits, surplus food liberated a few people from the rigour of farming. Farming itself had liberated their ancestors from the rigour of hunting with inbuilt insecurity from menacing animals. A settled village ensured security. Assured food enhanced it. And that in turn ignited hunger for other kinds of securities. Some people became merchants, some craftsmen and a miniscule proportion turned to priesthood. As the population grew further, settlements grew into towns and then cities. People had never experienced this kind of life, ever before.

These cities needed food. It came from surplus of river valley cultivation. But they needed something more, an organization, a system which could control, and if necessary, command the ever rising population all around. That is when laws were made. To impose laws, the institution of kingship came along. Thus, territory defined by settled farms, population, laws and kingship combined into the concept of State. Agriculture was discovered on land. Polity was forged by people.

Between 5000 BC and 1500 BC, four great civilizations grew along the banks of great rivers. Nile in Egypt, Euphrates and Tigris in Mesopotamia, Saraswati and Indus in India and the yellow river in China were the civilizational jugulars during those times. A fertile valley along with substantial cities inhabited by several thousand people containing imposing buildings, such as temples, palaces, public baths etc., were common to them. Each civilization also evolved a form of writing. And each one of them had a strong central administration. Pharaohs in Egypt, Hammurabi in Mesopotamia, Aryans in India and Shangs in China are well known names in the ancient history of these countries. Then, the Saraswati dried up as its main feeders, Sutlej and Yamuna changed courses. Aryans, the Saraswati dwellers migrated west towards Indus and south towards the Gangetic valley. They carried their culture along with them. The Saraswati became 'invisible'. What is left today is its heritage, reflected in the ruins of Mohenjo-Daro, Harappa, Lothal, Kishangarh and hundreds of archaeological sites strewn along the long stretch. The mighty Saraswati, had been gurgling down the Himalayas, traversing more than 1000 miles before merging with the mighty sea. As the river went out of sight, the people kept its memory alive and named it 'Invisible'. As historians were trying to erase its memory by projecting fancy theories like Aryan 'Invasion', the 'Saraswati showed up on the satellite maps towards the end of the 20th century. Saraswati never went out of India. It just became 'Invisible' for around four millennia.

SARASWATHI INDUS VALLEY CIVILISATION

The Saras Indus valley civilization was stumbled upon in the early 20th century. It spread across parts of Punjab, Uttar Pradesh, Gujarat, Baluchistan and Sind. Some of the main centres of the civilization have been discovered at Harappa, Mohenjodaro, Lothal, Ropar and Kalibangan.

It was a town-based urban civilization. Peasantry produced enough grains. Wooden carts pulled by a pair of oxen brought them to store in granaries. Deep groves made by heavily laden carts have been found in the excavated streets of Mohenjodaro. Each city had a huge granary stocked with grains. City dwellers were traders and artisans. Art and culture were fairly well developed as may be judged from the exquisite sculpture of the bronze dancing girl of Mohenjodaro.

Town planning was one of the key achievements of those people. Roads were straight, always intersecting at right angles. City planning provided for residential, governmental and public spaces with clear demarcation. All buildings, be it multilevel houses, offices or granaries, were built with baked bricks of exactly the same size. A sophisticated sewage system was in place. The elaborate network of drains was fully

covered. Public utilities like bath houses were there. In fact, this civilization was home to the world's first urban settlement equipped with a complete sanitation system.

A second aspect of the Indus civilization was the standardization of weights and measures. Seals unearthed in plenty suggest that each merchant or mercantile family owned its own seal. Goods were authenticated. Trade was brisk and extensive. Food was their main export. Trade was carried on by ship with copper producers from Persian Gulf. Caravans from north brought silver from Afghanistan and lead from Rajasthan. Indus seals have been found in the Persian Gulf and Suez. There was trade with Sumer and similarities in art suggest that the two cultures copied each other's fashions.

This was a mature, prosperous and urban civilization. Archaeologists, through carbon-dating have established the excavated recoveries belonging to 3500 BC. Based on scientific methodology, we can safely say that 3500 BC was the point of maturity of Harappan civilization.

SARASWATI RIVER DRIES UP

Around 4000 BC, a mighty river called Saraswati originating from the non glacial part of the Himalayas was flowing as a copious river. It was fed by Sutlej and Yamuna. It was a sea going river, traversing more than a thousand miles. A tectonic shift diverted the course of Yamuna toward the south and Sutlej toward the west. Denied of adequate water, the flow of Saraswati towards southwest gradually dwindled. This caused partial drying up of the river. In due course of time, it ceased to be a seagoing river by around 3000 BC. That was followed by a period of global aridity between 2000 BC and 1800 BC. During that phase, the Saraswati river dried up completely.

As the mighty river dried up, the entire population along its banks migrated to greener pastures. Those who followed the Sutlej route towards the northwest relocated along the Indus river system. Others followed the Yamuna route towards the southeast and found shelter along the Ganges river system. Our ancestors who relocated along the Indus valley gave us the Harappan civilization. Those who found shelter along the Gangetic valley gave us the Vedic Civilization. What about those in the lower reaches? They may have sought shelter in Tapti and Godavari valley in southerly direction. Route leading to south was known as Dakshin Path in our ancient literature. Over time, it had evolved into Deccan. The word Deccan is defined by a pathway leading towards south; it should not be confined to a limited territory.

The Saraswati river dried up during the past of Indian history. Technically speaking, it went out of site. But today, based on space imagery using satellite technology, we can safely say that a huge water body as broad as 3 kilometres to 12 kilometres meandered its way from the non glacial Shivalik hills of Himalayas covering present day Punjab, Haryana, Rajasthan, Sind of Pakistan and Gujarat before eventually merging with the Arabian sea, a good distance of more than 1000 miles.

6.2 ORIGIN OF MEGALITHS IN PENINSULAR INDIA

The Megalithic period of Peninsular India represents a distinctive culture, which succeeded the primitive Neolithic-Chalcolithic culture. Important distinctions are noticed between the two cultures. There was a sudden jump from the crude stone-axe blade culture to a vigorous and dynamic iron culture, with an array of weapons, tools and finely-polished wheel-made pottery. Whether it was a sudden cultural conquest or a slow evolution, the distinction is clearly perceptible. The new culture spread rapidly and extensively in the peninsular India, particularly in the Deccan including the present day Telangana and blossomed into a mode of life with basic unity.

SITES ANDSETTLEMENT PATTERN

The location of the Megaliths could be traced in the areas of certain geological and climatic conditions. The burials are invariably noticed over rocky high-grounds, unfit for cultivation and in close proximity of hillocks or a source-like irrigation tank. The needs of cultivation might not alone have dictated the situation of the burials, but the availability of raw material at hand for building such elaborate monuments might be the other inspiration. Nowhere in the vicinity of the burials or the irrigation tanks, their habitations were noticed. They lived far away from the burials but carried their dead to a place where plenty of stone was available. There is no evidence to show that they have cultivated the arable plains in the vicinity of their burials. Besides the raw materials for the tombs, the availability of iron ore and other geological factors might have had a definite bearing on the location of Megalithic colonies.

In many cases no habitation was found near the burial site. The burials at Kanukula near Sultanabad were situated over plains of red sandy silt. The passage chamber tombs at Peddamarur, lying over a rocky mound, are 3 km. away from the habitation. There is no irrigation tank nearby, but the river Krishna is about a kilometre away. Even at Uppalapadu, where many hundreds of Megalithic tombs exist, no habitation was noticed. At Kolakonda in Warangal district, the cemetery is situated over fertile plains of red soil, which is now under active cultivation. The habitation pertaining to these burials is traced about 3 km. away, situated between a granite hill and a rivulet. At Polakondain Warangal district, the burials are situated over plains of sandy silt and about 1 km. away from the habitation.

ECONOMY

Agriculture and, to a lesser extent, hunting formed the main basis of their economy as attested by sickles and ploughshares. Various scholars have suggested that the Megalithic folk were responsible for the introduction of advanced methods of agriculture, based on irrigation. Most of the burial sites are noticed in the proximity of large irrigation tanks as at Budigapalli, Torruru, Kanukula, Kadambapur, Polakonda, Rajagopalpeta, Ramunipatla, Kethireddy palli, etc. These tanks must have supplied drinking water to their household and as well for sustaining their crops, It appears that rice and ragi served as their staple food, as noticed at Hallur[1], Coorg[2] and Kunnatur[3]. Hunting supplemented their food supply as indicated by the equipment such as the arrow-heads, spears, lances, javelins, etc. They domesticated a variety of animals such as sheep,

goat, swine, fowl, tortoise, cattle, etc. They resorted to roasting of animals for consumption. The carcass was thrown into open fire which cooked the flesh and roasted the bones. Sometimes the cattle and the sheep were probably killed as offerings. In Pochampad[4] and Yeleswaram[5] many bones of the above species were found in the burials.

The food habits of the Megalithic folk at Peddabankur demonstrated that cattle mainly formed part of their diet. The dog, wolf, hyena and horse were known to them. Their knowledge of horse and its use are attested. The skeletons of horse, found in their burials at Pochampad and Muktyala, may indicate that the animal had a special place in their daily life. Many contemporary paintings depict the horse with riders. In a painting from Budigapalli the figure of a horse depicted with stripes over its body like a zebra. The figures of bull in paintings, in terracotta figurines (Pochampad) and its skeletal remains in habitational sites are proofs that it was regarded as a sacred animal. Bison or buffalo was possibly used as draught animal besides as a source of milk.

Pottery was the other important adjunct in their daily life. It comprised red, and matt red or coarse red. The vessels of these fabrics are mainly most of the pottery was wheel-made, while the sarchophagi were hand-made.

Some post-firing scratches of linear designs called graffiti are found in the exterior of the pottery. They were probably incised with a pointed instrument on the pot surface after the pots were fired. They occur on different varieties of the pots, associated with burials or habitation. It is suggested that they represented the ownership marks. The practice of scratching the individual graffiti on the pots to be suspended to the palmyra trees for drawing out toddy is still in vogue in the Gouda community in Telugu states. The megalithic graffiti included some alphabets and auspicious symbols such as Swastika, the endless loop, square with loops at the four corners and endless triangles. Most of the auspicious symbols continued in the Satavahana and later periods.

IRON OBJECTS AND TECHNOLOGY

The iron objects were used for agriculture, hunting and day to day household needs. The evidence of iron smelting is provided by enormous deposits of iron slags. Number of ancient iron working spots were located in Karimnagar region at Regonda, Tellakunta, etc. At Tellakunta in Peddapalli district, structures found in plan with plenty of slag and nodules of calcium carbonate, noticed at the top of some hills, is a clear proof of ancient iron smelting. The entire hill range is scattered with iron ore. Below the hills is a huge tank bunded up for storing water to be used for iron smelting. At Yapaldevpadu in Mehaboobnagar district there are several clay furnaces to a height of one to one and half metres having blast holes with diameters ranging from 15 to 20 cm. These were noticed all along the bank of the river Krishna at the water edge. A thick layer of calcium carbonate, deposited over some of these furnaces and iron slag nearby, may indicate that these were used as blast furnaces.

It is suggested that the prehistoric man in peninsular India had no alternative, but to use fairly high grade iron ore for his hearth-stones. It is believed that iron technology had developed indigenously but was not transmitted to India from Egypt or elsewhere.

Iron ore is extensively found in various parts of the state in almost all the formations from Dharwar upto the Deccan trap laterites, The local iron and steel industry of Nirmal district assumed importance even during the proto-historic times. The iron stone found in Armoor[6] is of high grade and the blades made of Konasamudram steel were once famous for their strength. The Kariinnagar region was probably, visited by the Persian traders at the time of Voysay for this steel as the Indian 'Wootz' was known throughout the world. Iron ore extensively occur in the ferruginous quartzite's in Armoor in Nizamabad district; Nirmal and Laxettipet mandal of Mancherial district and broad stretches of Chikiyala bed in Sirpur taluk of Adilabad district constitute an extensive source of iron ore. Local smelting of iron is still carried on in the villages in the neighbourhood of Chitiyala iron hills.

IRON IN PENINSULA

Megalithic tombs have been found in large numbers in Peninsular India to the South of Godavari. The region is marked by outcrop of granites of which megaliths are constructed. Studded with rocks of all conceivable sizes and shapes, a casual visitor is left awestruck after seeing these formations even today. Modern civilisation has devoured a fairly large number of megalithic sites. Even then, quite a large number of such sites survive across Telangana lands.

All megalithic graves contain iron implements. Axes, spears, swords and sickles have been unearthed. It appears that a liberal and developed iron industry is the outstanding feature of grave goods discovered from megaliths. By the sixth century BC, the Iron Age was well established here like rest of the country. Spear heads, arrow heads, axes, daggers and knives of iron were manufactured in substantial numbers. Iron plough shares and sickles made farming more efficient. Iron was also used for making chisels and drills, the primary tools of the carpenter and for manufacturing nails. A large production of iron went to manufacture axes which enabled people to cut down forests and lay roads to connect unexplored territories.

Regarding worship, none of the sites excavated or exposed gave evidence of Brahminical religion. The religious beliefs of those early inhabitants, perhaps centred around the local form of worship and rituals. They believed in village Gods and Goddesses, tree and serpent cults and probably practised the worship of spirits. The cult of mother Goddess was quite prevalent. The excavations have yielded several archaic terracotta female figurines. Goddess standing naked in a lotus pool and being bathed by two elephants with pails in the trunk, a nude Goddess sitting with legs apart, with protruded and pointed breasts, another figurine without stretched hands and arms lifted, another one holding a bunch of fruits in her right hand and a parrot perching in her right hand nudging at her breast with its beak and yet another Goddess holding her prominent breasts with her hands from below are some of the archaeological findings. A bronze sculpture of mother goddess unearthed in Dhulikatta is holding a baby in her left hand while right hand is resting on her knees. She is seated on a pedestal. It distinctly proved that people were solid worshippers and had faith in fertility cult during those distant

historical times. [People were solid worshippers of mother Goddess, even prior to any religious order.]

With the expansion of cultivation, animals' utility was becoming paramount and therefore, cattle became sacred. The rise of new religions namely Buddhism and Jainism also discouraged Vedic practice of animal sacrifices. Now, the bullock and cow became the companion of man and farmers regarded them as members of their own social group. But before such refinement, animals, especially small ones constituted the essential diet of our ancestors during Mesolithic times.

6.3 SITES AND SETTLEMENTS

In archaeology, the term 'megalith' denotes a tomb, built of huge stones, either dressed or undressed.

The Megalithic structures in Peninsular India represents a distinctive cultural phase, which succeeded the primitive Neolithic culture. The succession from the Neolithic to the Megalithic appears to be sudden and peaceful. Whether the new culture entered Peninsular India along the west coast or by sea, it spread rapidly far and wide into the peninsula and became characteristic of the region.

Besides Peninsular India, these Megalithic structures are found in Makran, Baluchistan, Mesopotamia, Egypt, North Africa, Spain, Brittany to Carnwall, Wales, Northumberland, Scotland and Ireland. In North India, the burials are found over an extensive area from Sind in the west to the Assam hills in the east and from Kashmir to Vidarbha.

DISTRIBUTION PATTERNIN TELANGANA : AMARABAD

Around Amarabad, a huge complex of dolmens has been discovered near Rayalagandi, on the road to Padara from Amarabad. This complex is situated on a granitic outcrop extending over an area of more than 300 sq.m. A nullah, locally known as Manda Vagu, bisects the complex. On the north about 200 m. away is Rayalagandi, a hiatus, between the hills. On one of the hills is a temple, dedicated to Channakesava, constructed during the mediaeval period. The area at the foot of the hills is now under dry cultivation, in which a few nullahs, originating from the hills, flow towards south and merge into the Manda vagu.

GONDIMALLA

The village is about 6 km. from Alampur and in between the rivers Tungabhadra and Krishna. The doab, between the two rivers from Alampur to Sangameswaram, is studded with prehistoric and historical sites. Middle Stone Age and Neolithic stone tools are noticed at many places. Due to the periodic flooding of the rivers no chipping floors of the stone ages were noticed. Gondimalla is a small hamlet with an extensive Megalithic burial complex. The Megalithic types found here are similar to those found in Raichur, Bijapur, Dharwar, Bellari, Bidar and Belgaum districts of north Karnataka region.

It is interesting to note that the Megalithic burials at Gondimalla have architectural similarities with the Buddhist stupas. The circle of horizontally paved shale slabs around some of the cists is similar to the one found around the Buddhist stupa at Kesanapalli[7]. The circular dry wall of horizontally piled-up shale slabs around the cist and vertically planted casing slab for the dry wall is another similarity. Thirdly the projections at the cardinal points in the shape of *ayaka* platforms[8] is another feature. The construction of *ayaka* platforms at the four cardinal directions is a characteristic feature of Buddhish stupas.

MUDUMALA

A large number of stone circles, huge stone alignments were previously reported along the north bank of river Krishna from Thengady[9]. From the Krishna-Bhima confluence to beyond Mudumala and Angunda, numerous stone circles were noticed to the west of Thengady-south of Gudabelur, one mile north of Muraridoddi. The surrounding area is associated with stone alignments, measuring 14 to 16 ft. high and 6 to 11 feet in girth; there were 31 of them it was visited. In 1977, it was reported that at Mudumalain the Maktal mandal of Mahboobnagar district, the alignments are locally known as 'Banthirallu' (ball-like stones) and 'Niluvurallu' (standing stones), which consist of blocks of stone of 14 to 16 feet in height, without any marks of chisel or drill.

About a kilometre west of the village of Chagatur, there is a cluster of Megalithic port-hole cist burials with passage chambers.Peddamarur[10] is a small village in the Kolhapur mandal of Gadwala district and situated on the left bank of river Krishna.

The pottery from the Megalithic levels included black polished dishes, tan ware (dark brown) bowls, sometimes decorated with concentric lines over the shoulder. The collection also included hat-shaped lids, which have exact proto-types in Megs - I and II. The pottery also consisted of red polished, black and red and black polished wares. There are also a few sherds of buff ware. The common types are vases with beaded and flanged rims, sometimes grooved at the top. Most of the deep bowls are red polished, some of which have soot stains. Besides the black and red ware dishes, there are black polished and black and tan ware dishes. Dark brown or tan ware jars were common during the Megalithic period. Another common type is a narrow-necked vase with a flanged rim, possibly used as a lota.

6.4 BURIALS AND THEIR CONTENTS

The Megalithic burials at Hashmatpet, about 8 km. from Hyderabad, have been first noticed during the 19th century. The iron implements included a knife or dagger, a sickle, the ring of an axe and the prong of a hayfork (flail) or ploughing implement. Three bronze ferrules of walking-stick-like objects were also found. Fragments of human skulls, four teeth of a middle-aged man and leg bones of a calf were found in a highly disintegrated condition. Again in 1971,excavations were done. The pottery consisted of black and red, polished black, bright red and dull red wares. The chief types are the

funnel- shaped lids, bowls, dishes, pots with sagger base and ring-stands, etc. The iron objects recovered were a sickle and an iron stirrup.

At Moula Ali[11], which is 8 km. to north-east of Secunderabad, was found to be a. very extensive field of cairn circles and dolmenoid cists, occurring in groups. At Janampet[12], 42 some 32 km. south-east of Mangapet in Kothagudem district, there existed an extensive burial ground, extending over several kilometres and locally known as the burial ground of 'Rakshasas'. At Dongatogu[13], 11 km. west of Janampet, was located an extensive cemetery with more than 1500 dolmenoid cists, out of which one was excavated. The above burials appeared to be family vaults.

EXPLORATION IN THE KARIMNAGAR REGION

Singapur[14] is situated at a distance of 6 km from Huzurabad in the Karimnagar district. The Megalithic site lies at the foot of the hillock, abutting a huge tank. There were about 50 stone circles, found in groups of small and big circles by the road side.

Kolakonda, possibly a shortened form of Kolanukonda, derived from the Ramasamudram tank, abutting a range of hills. A Megalithic burial complex, consisting of more than 200 graves, lies in an area of one square kilometre near the hill, Peddagutta. Polakonda, in the Jangoan taluk of Warangal district, can be approached from Mondrai, a small village on the road from Jangoan to Suryapet. Polakonda, about 14 km. from Mondrai, is a small hamlet under the revenue jurisdiction of Ramavaram. A huge Megalithic complex, consisting of 60 to 70 burials, is located on the south-east of the tank.

At the southern face of the Peddagutta hill and about 200 m. away is a sprawling Megalithic cist-burial complex. There are more than 100 burials. Most of which are boulder circles. The orthostats of many burials are missing but a few burials still retain their identity, jutting out of the sandy soil.

Budigapalliis a small village about 6 km from Husnabad. The village is surrounded by a ring of hills, locally known as Valasagattu, Sanjivarayanigattu and Venkayagattu. At the base of Sanjivarayanigattu is a huge Megalithic burial complex, consisting only of cist burials. The cist complex at the foot of Sanjivarayanigattu consisted of more than 50 burials. About a kilometre away from the burial complex towards north is a tank in the vicinity of a village, known as Regonda. On the western bank of tank Regonda and inside the fields many ancient iron-smelting spots were noticed, iron slag has been found scattered all over the fields.

Chinna Torruru is situated at 7 km. from Palakurthi village in the Jangoan taluk of Warangal district. There is a large Megalithic complex consisting of 40 to 50 burials, lying on the road side and on the southern slopes of a huge tank. There is a hillock known as Bodagutta, about 200 m. south of the Megalithic complex. Bommerais a small village in the Jangoan district. To the east of the village is a Megalithic cist complex.

The village Ramunipatla[15] is 8 km. away from Siddipet in Medak district. Towards south of the village and half a km. away from there is a Megalithic burial complex, which consisted of 50 burials of pit-circle type, having single and double

boulder circles. The village Thummannapalli is 4 km. to south of Huzurabad on the Karimnagar - Warangal high way. There are traces of Megalithic circles with scattered boulders and rubble packing. Chilpur village lies 10 km. away from Huzurabad. On the outskirts of the village is a small group of Megalithic burials. Sirisipalli is about 7 km. from Chilpur in Huzurabad taluk. A huge burial complex, with 49 numbers, lies towards north-west.

Mandapalli in Medak district is situated at a kilometre away on the east of Siddipet-Karimnagar road. There are about 45 Megalithic circles here. Palamakula is situated on the Siddipet-Husnabad road, about 14 km from Siddipet. To the north-east of the village there is an extensive megalithic complex, with only 30 burials remaining intact.

Pulluris a small village about 6 km away from the Siddipet-Kamareddi road. At present there are about 40 Megalithic burials on either side of the Siddipet-Kamareddi road, many of them disturbed by the local people.

The excavations were conducted at Pochampad[16], on the right bank of river Godavari in Nizamabad district on an extensive Megalithic burial site. The three km. long stretch, along the bank of river Godavari, is marked by several Megalithic burials in the form of single and multiple cairn circles.

At Kadambapur exactly to the north of Peddabankur in Peddapalli district and at a distance of 8 km a huge burial complex, consisting of more than 500 burials, perched on the western and eastern slopes of the hills, is found.

The Megalithic burials contained a large variety of pottery, iron objects, a few stone objects and ornaments such as beads of terracotta, semi-precious stones, gold or copper, shell, etc. Sometimes ear or nose ornaments, armlets or bracelets, and diadems were noticed. Very often grains of paddy and other cereals were offered. Some burials also contain skeletons of domesticated animals such as horse, etc. The most important among the burial furnishings is the pottery, which consisted mainly of the black and red, the black polished, and red polished, coarse red wares, etc.

In Peninsular India iron objects constitute, besides pottery, one of the important features of the Megalithic burials. The repertoire of iron objects found in the Megaliths displays a wide variety pertaining to the house- hold, agriculture, and war. They include daggers, knives, wedge-shaped blades, lances or javelins, spear -heads often with barbs on one or both sides, arrow-heads both socketed and tanged and swords of single or double edge. Besides, there are objects of house-hold utility and agricultural implements such as flat-axes, often with ring fasteners, hatchets, chisels, tripods to support pointed based vessels, lamps, hooks, knives, sickles, bill-hooks, spades, hanging saucer lamps, rods with rounded heads, resembling the beams of weighing scales, hoe-blades, horse-bits, ferrules, bangles, nails, frying pans (sthali), ladles with long handle and bells, etc. The other objects to mention are horse-bits and stirrups. Copper or bronze objects are rather rare in the Megalithic burials of the Telangana region.

Gold objects were found in a few of the Megalithic burials. A pit burial at Kadambapur contained two spiralled ear-rings. At Nagarjunakonda two spiralled ear-rings and 53 small cylindrical beads, 35 gold and 18 silver spacers were recovered. At Polichetty Cheruguda near Janampet a gold ear-ring, probably spiralled, was found from Cromlech-B, excavated by Kwaja Mohammad Ahmed in 1940-41. At Brahmagiri gold beads of disc and long cylindrical form, were recorded from pit-circles.

A variety of beads was noticed from the burials and habitational sites. These include beads of gold, silver, copper, semi-precious stones such as carnelian, jasper, agate, onyx, serpentine. lapis-lazuli, milky quartz, amethyst, glass, terracotta, shell, bone, etc.

6.5 ARCHITECTURE, ORNAMENTS, ART, COINS AND RELIGION

Our knowledge of their domestic architecture is restricted to the evidence unravelled by the excavations at a few habitation sites, Mention may be made of Brahmagiri, Sanganakallu, Maski and Kunattur. In the Karimnagar region, we have evidences from sites like Peddabankur, Kolakonda, Polakonda, Budigapalli etc. In Krishna valley, we come across sites like Yeleswaram and Peddamarur. Nowhere permanent structures were noticed.

In Hallur[17], a part of lime-plastered floor was discovered. Occasional post-holes indicated timber construction for domestic buildings. The floor of a house was made up of stone chips, covered with morrum and plastered with lime. Occasionally a rubble flooring was also provided at the periphery of the house. The plans of the buildings wore either circular, oval or oblong and the house consisted of a single room, but occasionally two rooms. A number of elliptical structures exposed in the lowest strata, are assigned to the Megalithic period in view of the associated characteristic finds such as pottery, beads, iron objects, etc. Many such elliptical buildings were discovered in the course of excavation at Peddabankur which must have been used for bath religious and habitation purposes.

SEPULCHRAL ARCHITECTURE

As in all the early cultural contexts, the geological factor has a definite bearing on the Megalithic constructions. With the knowledge of iron technology and its functional application for all diurnal activities quarrying of stone was a recurrent activity. The Megaliths were invariably built of locally available stone and sometimes transported from far off tracts. When granite was not available for the erection of boulder circles, they made use of conglomerate or shale slabs. In the lateritic regions, they carved underground cells for burying their dead. When no suitable stone was available, they made use of terracotta urns. The ornament repository of the period includes beads, bangles, rings, ear ornaments, and diadems of various metals. The artistic skill of the Megalithic people is well displayed in many of the rock paintings. The recently discovered paintings at Budigapalli, Regonda, and Kethavaram and the rock brusings at Mudumala might be the works of these people.

COINS OF MEGALITHIC PERIOD UPTO SATAVAHANA TIMES

A mention, here may not be out of place, of the coins found in Wheeler's Chandravali[18] excavations. Two of them are of silver, of which one is a Roman Denarius and the other a rectangular punch- marked coin. Out of the remaining coins 43 were attributed to the Satavahana dynasty, while the 10 remaining coins to the feudatories of the same dynasty.

RELIGION

We are still in a lurch regarding the religious beliefs and objects of worship of the Megalithic period. It is suggested that the occurrence of trident or trisula and the sulam, the spike-like object in the Megaliths have acquired a religious significance among the Hindus of Peninsular India. The trident is invariably associated with Siva and other deities like Durga, etc. The single pronged spike, or javelin is very similar to the 'Vel' the favourite weapon of Muruga or Skandha, another popular Dravidian deity.

In the rock brusings at Mudumala, there is a figure of probably Mother Goddess with hands outstretched and upraised and the legs stretched apart. This figure may be the forerunner of the Mother Goddess figurines of terracotta found in the Satavahana and later levels. The Mother Goddess figurines of the Ikshvaku period, at Nagarjunakonda and Yeleswaram are similar to the above. Many Mother Goddess figurines found at Peddabankur are also ascribed to the Megalithic period. Interestingly, none of the excavations in South India at the early historical sites yielded any object comparable to that of a Sivalinga which obviously lead to the surmise that the worship of Siva in the form of Linga was a late practice.

The orientation of the Megalithic burials either in the north-south direction or east-west direction is a positive indication that the people were sentimental about the directions and they must be worshipping the Ashtadikpalas. This view is corroborated by the occurrence of a terracotta buffalo figurine luted to a sarcophagus at Peddamarur, where all the cists with passages were oriented towards south. Buffalo is considered to be the vehicle of Yama, the God of Death whose antiquity can be traced to the Rigvedic times.

It has been suggested that the Pasupathi seal of Mohenjodaro is the embodiment of the Mahisha[19] as well as of Mahadeva. In Rigvedic times the Mahisha was considered to be, the most superior of all the animals but later displaced by the lion in the Puranic age. The horse skeletons found in the Megalithic burials may indicate the prevalence of Vedic sacrifices such as Asvamedha, etc. At Muktyala near Jaggayyapet, the skeleton of a horse was found buried in a passage chamber and its master in the main chamber. It was suggested that it may be a case of Aswamedha sacrifice.

In one of the cist burials at Peddamarur, an all black ware dish has a stamp of a solar disc with a radiating circle in the middle and enclosed by tongues of flame inside two concentric bands. This may indicate that, they worshipped the Sun. The sarcophagus at Sankhavaram in Kurnool district resembled a ram which was considered to be the vehicle of Agni, the guardian of south-east. In Meg.III at Peddamarur a red ware

medium-sized vase was placed exactly at the north-east corner. The pot has three perforations, one at the top and two below, and in inverted position it resembles the visage urns noticed in Swat (Gandhara) Valley graves. The north-east corner, presided over by Isana, is considered to be the place where Lakshmi resides (Lakshmisthana). As such the visage urn in the burial may symbolise a Mother Goddess.

CHRONOLOGY

It has been suggested that the Megalithic culture could be dated to between 2000 BCE to 300 CE.

We also have a set of Radio-carbon dates as follows:

Sl. No.	**Name of the site**	**T.F.No.**	**Age (half value 5370)**		**Dates**
1.	Hallur[20]	573	2905	100	955 B.C.
2.	Hallur[20]	570	3055	105	1105 B.C.
3.	Payampalli[21]	350	2350	105	380 B.C.
4.	Kotia[22]	319	2200	105	250 B.C.
5.	Halingali[23]	685	2030	100	80 B.C.

The Vidarbha and Telangana region was under the cultural sway of the Megalithic people in the first millennium B.C. Analysing the above information, we may conclude that the Megalithism had a lease of more or less a thousand years.

7. BUDDHA TIMES

7.1 PRE BUDDHA SCENARIO

During the sixth century BCE, when Buddha appeared on the scene, there was no paramount power in the subcontinent. India was a congeries of states. Rulers and heads were sometimes aligning but more often asserting among themselves for supremacy. There were monarchies as well as republics. Professor Rhys Davids, in his remarkable work 'Buddhist India' has given a list of sixteen Mahajanapads or major states during those times. They were Kasi, Kosala, Anga, Magadha, Vajji, Malla, Chedi, Vatsa, Kuru, Panchal, Matsya, Surasena, Gandhara, Kamboja, Avanti and Asaka or Asmaka. Apart from these sixteen Mahajanpads, there is mention of seventy five ordinary Janapads. The administrative unit at the district level was called Janapada.

Among Mahajanapadas, Magadha, Kosala, Vatsa and Videha in eastern India were powerful States. Kosala had its capital at SravastI, which has been identified as the present Sahet-mahet on the borders of Gonda and Bahraich districts in the present day eastern Uttar Pradesh. Ayodhya, which has deep association with the Ramayana, was the capital of Kosala. Kosala also included the territory of Sakyas of Kapilavastu, where the Buddha was born. In the west was the state of Avanti with its capital at Ujjain. In western Uttar Pradesh and the adjoining areas of Rajasthan and Haryana were the States of Panchala, Surasena, Matsya and Kuru.

The Punjab was no longer as important, and eastern Uttar Pradesh and Bihar, where forests were cleared and the land was colonized under the patronage of the ruling monarchs, occupied the stage during those times. Wild elephants also abounded in jungles of eastern India. Once trapped, tamed and trained, they were a source of military power to the Nanda and Maurya Kings, who used them in warfare. They had the same role in wars then as tanks in the present age.

The Kasis were the people who had settled around Benares. Kosala corresponded to modern Ayodha in Uttar Pradesh. Anga corresponded to the district of Bhagalpur; Magadha corresponded to the modern Patna and Gaya while Vajji included present day Janakapur and Muzzafarpur district of Bihar, Mallas ruled from Kushinagar near present day Gorakhpur, Chedi corresponded to modern Bundelkhand. Vatsa's capital was Kosambi near modern day Allahabad, Kuru corresponded to modern day Delhi and Meerut and Panchala corresponded to Rohilkhand division in western UP. Matsya corresponded to former state of Jaipur in Rajasthan, the land due south of Kurus and west of Yamuna river. Surasena country was due south of the Matsyas with capital at Mathura, Gandhara included Kashmir and Taxila. Kamboja was up in the extreme northwest with Dwaraka as its capital. Avanti corresponded to Malwa, its capital being Ujjain. All these fifteen Mahajanpads were located in the river basins of northern, western and eastern Indian geography. None was abutting any sea coast.

The sixteenth Mahajanpad was Asaka or Asmaka lying in the neighbourhood of Avanti. Its settlements were on the banks of river Godavari. Its capital was Patlia or

Podhana, the present day pratishtan town in the Aurangabad district of Maharashtra state. In Vayu purana, Asmaka and Mulaka are mentioned as the scions of the Ikshvaku family. Mahabharatha speaks of the royal sage Asmaka as having founded the city of Podana. Panini makes a mention of Asmaka which was in the interior of the Deccan and watered by the river Godavari. The Buddhist *Suttanipatha* refers to Asmaka lying on the banks of the Godavari. It was the only Mahajanpad located on the plateau lands between Godavari and Krishna rivers. All the sixteen Mahajanpads were confined to landlocked geographies. Seventy five other Janapads had limited territories, quite a few of them bordering sea. They included Kalinga, Andhra, Chola and Madhura among others. All these janapadas abutting sea coasts were confined to deltaic geographies lying in lower reaches of rivers like Mahanadi, Godavari, Krishna, Kavery and Vaigai.

What was the socioeconomic scenario like in those days? Well, people lived in villages with population ranging from thirty to one thousand families. Animal husbandry and agriculture were their main occupations. They lived in huts around clusters. Plentiful land with forest around provided enough fodder and firewood. Every village was practically self-sufficient. With minimum crime and maximum contentment, everybody took interest in the affairs of their village. *Even women considered it a matter of honour to participate in village affairs.* Jowar, ragi and rice were the staple food and sugarcane, fruits, vegetables and flowers were also cultivated. There is mention of eighteen guilds. It included workers in wood, metal, stone, ivory and leather, apart from weavers, potters, dyers, fishermen, jewellers, hunters and trappers, butchers, cooks and confectioners and barbers, garland makers and flower sellers, rush-workers, basket-makers and printers.

Trade was brisk. Inland trade routes were busy as merchants took their goods up and down the great rivers and along the coast in boats. They also went in big caravans. Cities like Kaushambi, Ajodhya, Sravasthi, Kasi, Mathura and Podana were great centres of trade and passenger traffic. It is quite understandable. Strategic location of these cities acted as a nodal point, thereby facilitating trade on surface as well as water. Export to other countries was mainly through caravans trudging long distances across inhospitable land mass. Monsoon was yet to be discovered. Therefore, the trade on sea was done by boats which sailed by hugging the coast.

MONEY

Instead of barter, a cumbrous system, the need of coins was felt. Punch-marked coins became the medium of exchange. The earliest punch-marked coins belonged to the fifth century B.C.E. and circulated in eastern Uttar Pradesh and Bihar. With the development of trade and commerce, the members of the Vaisya community, who were traders and merchants, became important.

RURAL ECONOMY

The rural economy of India on the eve of Buddhism was based chiefly as a system of village communities or peasant proprietors with plentiful of land all around, there were no landlords; nor there were landless agricultural labourers. The Jataka bears very clear testimony to this. The king had a right to a tithe on raw produce, collected as a yearly tax; and only to this extent could he be considered the ultimate owner of the soil. All

abandoned, all forest land the king might dispose of; and under this right was included the reversion to the crown of all property left intestate ‘ownerless'. The sovereign was moreover entitled to 'milk money', a perquisite paid by the subjects when an heir was born to him. Beside these privileges he could impose forced labour or rajakaria on the people, limited to the confines of his own estates. Thus the peasant proprietors enclose a deer-reserve for their king, so that they might not be summoned to leave their tillage to beat up game for him. The tithe on produce was levied in kind, measured out either by the village headman (gamabhojaka), or by an official (a mahamatta) at the barn dams, or by survey of the crops. Some of the rice and other grain term stored in the special granaries kept filled for urgency, in war or famine. The amount levied seems to have varied from 1/6 to 1/12, according to the decision of the ruling power or other circumstances. And the contributions raised at one or more gamas (villages), rural or suburban, could be made over by a monarch to anyone be wished to endow, e g. to a daughter on her marriage, a minister, a Brahman, a merchant. Again, the king, could remit the tithe to any person or group.

The land might, at least in the kingdom of Magadha could be given away, and in that of Kosala, be sold. In the former case, a Brahman landowner offers a thousand karisas of his estate as a gift; in the latter, a merchant entangles an unwilling noble in the sale of a part. And in the law-books we read that land might be let against a certain share of the produce. The holdings too in the arable land, called the khetta, of each village would be subject to redistribution and re-division among a family, as one generation succeeded another. It is not clear whether any member of a village community could give or sell any of the khetta to an outsider. It is just possible that the old tradition expressed in the Brahmanas when a piece of land was given as a sacrificial fee—'And the Earth said: Let no mortal give me away"—may have survived in the village; at a communal, level to avoid any disintegration of their social and economic unity. It will be seen that conditions regarding land-holding were similar to those prevailing now in the Punjab, which is the land of peasant proprietors par excellence.

VILLAGE

'A grama might mean anything from a group of two or three houses to an indefinite number. It was the generic, inclusive term for an inhabited settlement, not possessing the fortifications of a nagara or the ruler's palace of a Rajadhani. The number of inhabitants in the gamas of the Jataka tales varied from 30 to 1,000 families. The houses were all together, in a group, separated by narrow lanes. Immediately adjoining was the sacred grove of trees of the primeval forests left standing when the forest clearing had been done. Beyond this was the wide expanse of a cultivated field, usually a rice field.

'Around the gama, which appears to have been classed as of the country (janapada) of the border (paccanta) or as suburban, lay In khetta, or pastures, and its woodland or un-cleared jungle: primeval forest like the Andhavana of Kosala, the Sitavana of Magadha, the Pacinavamsadaya of the Sakiya Territory. Different from these were such suburban groves as the Bamboo Grove belonging to Magadha's king, the

Anjanavana of Saketa, the Jetavana of Savatthi. Through those other un-cleared woodland where the folk went to gather food, firewood and litter, ran caravan routes that were at times difficult because of swampy passages after rain, and dangerous on account of wild animals and brigands.

'Adjoining or merged into these wilder tracts were supplementary grazing pasture of herds of cattle and goats, herds belonging to the king or commoner. Commoners customarily entrusted their flocks to a gopalaka. We find him either, penning his herds at night in sheds, or, more often, bringing them back every evening and counting them out to the several owners, varying the pasturage from day to day.

The arable ground of the gama lay without the clustered dwellings, since these were apparently enclosed by a wall or stockade with gates gamadwara. Fences, snares, and field watchmen guarded the khetta or gamakhetta from intrusive beasts and birds, whereas the internal boundaries of each householder's plot were apparently made by channels dug for co-operative irrigation. These dividing ditches, rectangular and curvilinear, were likened, at least in the Magadha khettas, to a patchwork robe of a mendicant called gudri in Punjabi. The limits of the whole khettas might be extended by the fresh clearing a forest land. And whereas, the majority of holdings were probably small, manageable single-handed or with sons and perhaps with a hired man, estates of 1,000 kasrisas (acres?) and more occur in the Jatakas, farmed by Brahmans. In the Suttas, again the Brahman Kasibharadvajias employed 500 ploughs and bind men (bhatika) to guide the plough and oxen.

'We hear no instance of a shareholder selling or mortgaging his share of the village field to an outsider; and it was impossible for him to do so, at least without the consent of the village council. We have three instances of sales of land in the books. But in one case it was the forest land cleared by the proprietor or his ancestors. A very old test apparently implies that a piece of ground was given as a sacrificial fee. But it is at once added that the earth itself said - and Mother Earth was a most dread divinity - "No mortal must give me away".

HEADMAN

Instances of collectivist initiative reveal advanced sense of citizenship in the gamas. The peasant proprietors had a nominal head in the bhojaka or headman, who was paid by certain dues and fines. But all the village residents met to confer with him and each other on civic and political matters. And carrying the upshot of the counsels into effect, they built new mote-halls and rest-houses, constructed reservoirs and parks, and look turns at a voluntary work in keeping their roads in repair. 'Women too considered is a civic honour to bear their own in common work. A further glimpse into the sturdy spirit in gama-life is caught in the Jataka sentiment that for peasants, to leave their tillage and work for impoverished kings.

USE OF IRON FOR AGRICULTURAL IMPLEMENTS

By the sixth century B.C. the iron-age was well established in Uttar Pradesh and Bihar. Spear-heads, arrow-heads, axes, daggers and knives of iron were manufactured in substantial numbers. Iron ploughshares and sickles of iron made farming more efficient.

Iron was also used for making chisels and drills - the primary tools of the carpenter – andfor manufacturing nails. A larger production of iron and the manufacture of iron axes enabled the people to cut down forests and to lay roads through unexplored parts of the country. Apart from the felling of trees, skilful cutting of hard wood at Ujjain suggests the use of improved iron implements, such as saw.

With the expansion of cultivation, the usefulness of cattle was fully realized, and cattle became sacred. The Vedic practice of animal sacrifices was given up under the influence of Jainism and Buddhism, and the bullocks became the companion of man in the conquest of virgin lands. Henceforth Indian famers regarded them as helpmates and as members of their own social group.

What about the remains of that civilization? According to Dr.A.L.Basham, "With the exception of the walls of Rajagriha, which have no artistic value, we have no significant architectural remains between the Harappa period and that of the Mauryas. This was due to the fact that few of any buildings were made of stone at that time. Most of the buildings were made of earth, wood and bamboo and no wonder, those have been destroyed during the course of time."

7.2 BIRTH OF BUDDHISM AND JAINISM

Sixth century BC was indeed a socio-cultural watershed across the globe. Around those times, profound philosophers namely Zoroaster in Persia, Mahavira and Buddha in India, closely followed by Confucius and Lao Tse in China were born. Their teachings evolved into new religions, each attracting an ever larger following. It preached truthfulness, purity of heart, non-violence and kindness to all living beings. It taught people to avoid greed, falsehood, fault-finding, hatred and anger. As it was a revolt against Brahmanical ritualism and caste-system, it appealed to a large number of people, belonging to various castes. The founder of Jainism, Vardhamana Mahavira, and of Buddhism, Gautama the Buddha, belonged to the Kshatriya caste. They used Prakrit, the language of the masses, for their teaching rather than Sanskrit, the language of aristocracy. As such, their message reached the masses and made a deep impact on their lives. Buddha's name has a special significance for India. The reason is simple; ordinary mortals apart, mighty Kings and Emperors across the subcontinent embraced Buddhism in due course of time. Asoka of Mauryan fame and Nagarjuna in Deccan are two such examples that substantially impacted the polity of those times.

SACRED TREES

Gautama was born under an asoka-tree, received enlightenment under a pipal-tree, preached his new gospel in mango groves, and under shady banyans, and died in a sal grove. Never before or after has a religionbeen so much associated with vegetation.

Buddhism adopted the cult of tree-worship from the older religions which prevailed in the country. The trees which are associated with the birth of the Buddha are sal, asoka and plaksha, and hence they were regarded as sacred by the Buddhists.

To understand the association of trees with the Buddha, it is necessary to know the facts regarding his life. Gautama belonged to the Sakya Tribe of the Aryans. His father was Suddodhana, the Raja of Kapilavastu, a petty principality on the border of Nepal. Green rice fields surrounded by sal forest with the backdrop of the snow-covered peaks of the Himalayas provided an inspiring environment to Kapilavastu. Here, Gautama was born in 563 B.C. The birth of the Buddha has been thus described: Queen Mahamaya bearing the Bodhisattva for ten months like oil in a bowl, when her time has come, desired to go to her relatives' house, and addressed king Suddodhana, "I wish, O king, to go to the Devadaha, the city of my family". The king approved, and caused the road from Kapilavastu to Devadaha to be made smooth and adorned with vessels filled with plantains, flags, and banners and seating her in a golden palanquin, borne by a thousand couriers seat her with a great retinue. Between the two cities and belonging to the inhabitants of both is a pleasure grove ofsal-trees named the Lumbini grove. At that time from the roots to the tips of the branches it was one mass of flowers, and from within the branches and flowers, hosts of bees and flocks of birds sported, singing sweetly.

'When the queen saw it, a desire to sport in the grove arose. The courtiers brought the queen and entered the grove. She went to the foot of a great sal-tree, and desired to seize a branch. The branch like the tip of supple reed bent down and came within reach of her hand. Stretching out her hands she seized the branch. Thereupon she was shaken with the throes of birth. So the multitude set up a curtain for her and retired. Holding the branches and even while standing she was delivered.'[1]

The Lumbini garden was visited by the Chinese traveller Hiuen Tsang. He came to India in 630 CE and stayed until 645 CE. He mentions an asoka-tree under which the Buddha was born. "To the north-east of the arrow well about 80 or 90 Li, we come to the Lumbini (Lavani) garden. Here is the bathing tank of the Sakyas, the water of which is bright and clear as a minor, and the surface covered with a mixture of flowers. To the north of this 24 or 25 paces there is an asoka-flower tree, which is now decayed; this is the place where Bodhisattva was born."

Gautama was married to Yasodhara, by whom he had a son, Rahula. Apart from his wife, the palace was full of beautiful women who served as cooks and servants. When Gautama realized, that life was not merely a cycle of pleasures, but also had its miseries, like disease, old age, and death, the idea of renunciation of worldly life came to him. The Buddhacharitra mentions a garden full of beautiful women to which King Suddodhana sent him. "Behold the god of love, says the Buddhacharita, 'behold Kama, they murmured on seeing his arrival. Curious and with wide-eyed admiration they gathered round him, and saluted him with their smooth hands, like the cups of the lotus-flower. By the King's instructions, Udayin, a friend of his childhood, encouraged them to exert all their fascinations. Some, wreathing their arms round Siddhartha like twining plants, sought to

hold him by force; others, whether carelessly or feigning to be almost carried away by their transports, allowed the gauzy draperies which veiled their youthful forms to slip aside; others swung their tempting forms on the branches of the mango-trees; and, lastly, yet another sang in the prince's ear the song of the forest, full of furtive desires and of the emanations of the spring. But his consciousness of the vanity of all things now rendered him insensible to these blandishments, and he returned to the palace, resolved to abandon the world."[2] Accompanied by his groom Chandaka, and riding his favourite horse Kanthaka, he left the palace. This sculpture from Sanchi also depicts domestic architecture during the Buddhist period. The lower part of the house was built of stones and bricks, and the balconies and upper storeys were made of wood.

It was under a pipal-tree at the place, now known as Bodh Gaya, that Gautama received enlightenment. This tree was also seen by Hiuen Tsang, who has given the following account - "From this south-west 14 or 15 li, not far from the place of penance, there is a Pippala (Pi-po-lo) tree under which is a 'diamond throne'. All the past Buddhas seated on this throne have obtained true enlightenment, and so will those yet to come. Pray, then, proceed to that spot. The Bodhi tree above the diamond throne is the same as the Pippala tree. In old days, when Buddha was alive, it was several hundred feet high. Although it has often been injured by cutting, it still is 40 or 50 feet (12 to 15 metres) in height. Buddha sitting under this tree reached perfect wisdom, and therefore it is called the Samyak Sambodhi, tree of knowledge. The bark is of a yellowish-white colour, the leaves and twigs of a dark green. The leaves wither not either in winter or summer, but they remain shining and glistening all the year round without change. But at every successive Nirvana-day (of the Buddhas) leaves wither and fall, and then in a moment revive as before. On this day (of the Nirvana) the princes of different countries and the religious multitudes from different quarters assemble by thousands and ten thousands unbidden, and bathe the roots with scented water and perfumed milk; whilst they raise the sounds of music and scatter flowers and perfumes, and whilst the light of day is continued by the burning torches, they offer their religious gifts.

"On the left side of the road, to the north of the place where the Buddha walked, is a large stone, on the top of which, as it stands in a great vihara, is a figure of the Buddha with his eyes raised and looking up. Here in former times Buddha sat for seven days contemplating the Bodhi tree; he did not remove his gaze from it during this period, desiring thereby to indicate his grateful feelings towards the tree by so looking at it with fixed eye."[3]

'A sapling of the Bodhi-tree was taken by prince Mahindra, son of Asoka, to Ceylon, about 250 BCE and was planted at Anuradhapura. Its great branches are supported by pillars. It is the oldest historical tree in the world.'[4]

The banyan, together with the Ganges and the Himalayas, completes the picture of India. "It is probably the most astounding piece of vegetation on the face of the earth", observes Lassen. "From one single root, it produces a vast green temple of many halls, with cool, shady bowers impervious to the light, and seems created expressly and exclusively for the purpose of supplying shelterless primeval humanity with ready-made

dwellings. For neither is its wood of much use, nor are its fruits eatable for man, and if it inspires the Hindus and their neighhours with profound veneration, it is owing to the surpassing marvel of its well-nigh preternatural growth, its Indestructible duration and everlasting self-renewal: to which traits and mysterious gloom of its galleries and avenues adds not a little, yielding a most grateful retreat from the torrid summer heat. The trunk of the tree, at a moderate height from the ground, branches out into several stout limbs which swath from it horizontally; from these, slender shoots - the so-called "air-roots" - grow downwards until they reach the ground, where they take root, whereupon they increase in thickness and become strong support for the mother-limb. The central trunk repeats the branching out process at a greater height, and the second circle of limbs in its turn sends down a number of air-roots which form an outer circle of props or pillars. As the central trunk increases in height, it goes on producing tier upon tier of horizontal limbs, and these add row after row to the outer circle of pillars, not indeed with perfect regularity, but so as to form a grove of leafy halls and verdant galleries multiplying ad infinitum. For this evolution is carried on a gigantic scale. The highest tier of horizontal limbs is said to grow sometimes at an elevation of two hundred feet [61 meters] from the ground and the whole structure is crowned with the dome of verdure in which the central trunk finally culminates. The leaves, which grow very close together, are five inches long by three and a half broad [12 x9 cm], and their fine green color pleasantly contrasts with the small red figs."[5]

In every village, the planting of banyan- and pipal-trees was enjoined. Apart from shade, it was also a measure for saving crops and fruits from destructive birds. Banyan- and pipal-trees, when covered with figs, provide food for thousands of birds. Thus, indirectly they save crops and fruit-trees from damage by birds which are kept busy eating their figs for weeks. They also provide a home for birds and to preserve a tree is to save a large number of them that find shelter in it.

The remains of the Buddha were enshrined in a number of stupas by Asoka. The famous Stupaof Bharhut, discovered by Cunningham in 1873, was situated in the State of Nagod, now merged in Madhya Pradesh. Bharhut is the site of an old city called Bhaironpur, which extended for 12 kos. Cunningham dated the Stupa between 200 and 250 BCE. Later research has assigned 184-72 BCE as its probable period. The discovery of Bharhut Stupa is a landmark in the history of India. Its sculptures provide us with a glimpse of religion, manners, customs, dress, fashions as well as the architecture of India during those times.

Gautam, the Buddha faced many trials. Devadatta, a jealous kinsman, let loose a dangerous elephant to destroy him. In his mad onslaught, the elephant trampled a man, but when he faced the Buddha, he knelt down at his feet. This medallion from Amaravathi shows the mastery of Indian sculptors in depicting elephants. Incidentally, it also conveys to us an idea of architecture during the Buddhist period. The lower parts of houses were made of stones or brick,. Multi-storeyed houses were common in towns, and they had beautifully carved wooden balconies from which women watched royal processions and sweet scenes.

With the arrival of Buddhism, status of women underwent a change. It is well known that Buddha did not admit women into his Sangha. Later, they were admitted with certain conditions, which denied equality to Buddhist nuns with the Buddhist monks. A nun even of hundred years had first to greet a monk. She was to rise up before him, salute him with folded hands and make obeisance even if he had been ordained only then. The utterance of the nuns to the monks was excluded but not vice versa. Buddha was not happy about the admission of women into the Sangha. Buddha told Ananda, "But as women have gone forth, now, Ananda, the religious life will not last long… just as houses where there are many women and few men, are broken into by burglars, even so, in that doctrine and discipline in which women receive the going forth from a house to a houseless life. The religious life will not last long. Just as when the kind of disease called white boned (mildew) falls upon a field of rice, the field of rice will not last long… just as when the disease called crimson falls upon a field of sugarcane, that field will not last long, even so Ananda, in that doctrine and discipline in which women receive the going forth from a house to houseless life, the religious life will not last long. Just as a man, Ananda, might in anticipation make a dyke for a great reservoir, so that water should not overflow, even so, Ananda, I have in anticipation prescribed these eight strict rules for the nuns, not to be transgressed while life shall last". Eloquence of the Enlightened needs no elaboration.

JAINISM

Vardhamana Mahavira was born in 540 B.C. in a village near Vaisali in northern Bihar. His father was head of a Kshatriya clan and his mother was a Lichchhavi princes. Mahavira became an ascetic at the age of thirty and wandered from place to place preaching his doctrine of non-violence. He died at the age of seventy-two in 468 B.C. at Pavapuri near modern Rajgir. Bimbisara was the ruler of Magadha during the lifetime of the Buddha and Mahavira.

As the cultivation of soil, according to Jainism, caused violence to living beings, the Jainas adopted the profession of trade and commerce and money-lending. Even at present, Jainas are mostly merchants and money-lenders. Jainas adopted Prakrit language in preference to Sanskrit, and this promoted the growth or Prakrit language and its literature.

Buddhism and Jainism easily penetrated into Telangana. A king named Sujathudu, a contemporary of Buddha is known to have ruled from Bodhan. Excavations reveal thin evidence about Brahminical temples but are quite heavy with Buddhist footprints. Newly excavated sites of stupas at Dhulikatta and Pashigaon in Karimnagar district, Phanigiri and Gajulabanda in Nalgona district, Kondapur in Medak district and Nelakondapalle in Khammam district are standing proof. The Jain Tirthankaras like Neminatha and others had spread Jainism in Telangana. Bahubali, the son of Rishaba, the first Tirthankara is known to have made Bodhan his capital where very tall Jain images were profusely carved with native skill and craftsmanship and exported to other regions.

As a result of the influence of Buddhism and Jainism, there was a trend in favour of vegetarianism. The killing of animals was looked down upon. The vegetarian food was

becoming popular even among the Kshatriyas. The cow was regarded as sacred and not killed at all. Instead of killing living animals at the time of sacrifice, their images were placed there. Asceticism became popular too. People sick of life on account of old age left the world. Even Kings who were in undisputed possession of sovereignty renounced it. Young princes, trade men, etc. preferred the life of ascetics. Takshila was the spiritual centre of India.

7.3 PERCOLATION OF BUDDHISM IN THE PRESENT DAY TELANGANA LANDS

The year 261 BCE marks an important watershed in the ancient Indian history when the Mauryan ruler, Ashoka registered his emphatic victory over the Kalinga rulers. The consequent destruction with around two lakh deaths coupled with the human misery appeared to have transformed the Shiva bhakta Emperor into a Buddhist crusader. Recent research is pointing to the conversion of Ashoka to Buddhism prior to Kalinga war. He despatched various ambassadors, including his own children to spread this new faith to various nooks and corners of Asia in general and Indian sub-continent in particular.

However, the present day Telangana lands did not witness any such penetration of Buddhism ideology during the third century BCE. The reason was simple. Buddhism had already percolated in these lands much earlier during the lifetime of Lord Buddha himself during the fifth century BCE. In Suttanipata, "a book in the Buddhist Tripitikas, it is related that a Brahman by name Bavari lived at Potali on the banks of the river Godavari between the Janapadas, Assaka and Mulaka (the present day Nizamabad district). He despatched his disciples by names Ajita, TissaMettaya, Punnaka,Mettagu, Upasiva, Nanda, Dotaka, Hemaka, Todayya, Kappa, Jarukarni, Udaya, Bhadravudha, Posala, Mogharaja and Pingiya to the holy presence of Buddha at Sravasti. The enlightened at that time was delivering a discourse under rocky shelter, known as Pasanaka-chetiya (Pashanakaka Chitya or Chitya cut into rock). It appears that out of the sixteen disciples despatched to Buddha, Pingiya alone returned to Bavari at Potali."[6]

'ROUTES OF BUDDHIST PILGRIMS TO SOUTH

The routes taken by Ajita and his companions must have been one of the ancient routes connecting north and south. From Potali in Assaka, they travelled through Mahishmati, an island in the Narmada river to Ujjeni, the capita of Avanti, then to Konardha which might have been situated near Bhopal. From there they proceeded to vidisa, near Sanchi, which became one of the greatest Buddhist centre later.

From Vidisha, they took a north eastern route to reach Kosambi or Kosam, the capital of Vatsas situated on the Jamuna river towards Allahabad or Prayag. It was an important halting place for traffic arriving to Magadha from south. From Kosambi, Ajita's companions reached Saketapura or Ayodhya which is due north of Kosambi. Instead of proceeding straight to Sravasti where Buddha was sojourning at that time, they preferred a circuitous route by reaching Kapilavastu, the birthplace of Buddha. From Kapilavastu they might have travelled along the Gandakriver to reach Vaisali situated on the bank of

the same river. From Vaisali, after passing through Kusinara and Pava they trekked all the way back to Sravasti, on the Raptiriver, a tributary of Ghaghara which is again a major tributary of the Ganges.

Pingiya, the only one to have returned to Potali had become the disciple of Buddha. Several Andhra converts proceeded to north and settled there. These were known as Andhakas. According to Mahavagga,'there was one Andhaka vana near Sravasti and Andhaka-vinda near Rajagiriha, probably established by Andhras.'

On the basis of a string of Buddhist sites situated in Karimnagar, Warangal, Khammam and Nalgonda district, it may be presumed that there might be another route which the Buddhist pilgrims took between north and south. All the pilgrims desirous of entering Mulaka in Maharastra or Assaka in Andhra reached Vidisa. Those travelling towards south east from Vidisa passed through the Pauni-Paunar Buddhist sites near Nagpur in Madhya Bharat, to reach Chandrapur, a district headquarters in Vidarbha. Then they crossed the river Godavari at Lakkisettipet to reach Kotilingala-Pashigoan. They moved on to Dhulikatta, Phanigiri, Gajulabanda, Tirumalagiri, Nelakondapalli, to Jaggayyapet. From there, they crossed the river Krishna from Ravirela near Vedadri (Paleru-Krishna confluence) or Vadapalli (Musi-Krishna confluence) to reach either Dhanyakataka or Sriparvat Vijayapuri.'[7]

CONDITION IN THE PRESENT DAY TELANGANA LANDS PRIOR TO AND DURING THE ARRIVAL OF BUDDHISM

At least half a millennia before the birth of Buddha, the present day Telangana land and people had already come under the influence of Vedic ideology, say by the beginning of the first millennium BCE. The majority population practiced Megalithic culture. It involved the exposure of dead bodies, collecting the important bones later and bury them in deep pits or cist. Then a circle of boulders was erected around the pit or cist. This method of disposing the dead had been just the same as was adopted for disposing the corporeal remains of Buddha later. 'The consecration of mortal remains in a tumulus as practiced by the Buddhists was not altogether a novelty in peninsular India during the pre-Christian times. The Buddhist stupa and the megalithic burial contain the remains of the dead and are intended for offering homage to the departed. Both were enclosed by circumambulatory passages.

LANGUAGE AND SCRIPT

All the earlier Hindu scriptures, that included the Vedas, Brahmanas, Upanishads, Sutras and Puranas were composed in Sanskrit which was a rather difficult medium for understanding and communication by the common folk.

For the first time in India, the Mauryan Emperor, Asoka ushered a revolution, during third century B.C. He standardized the Brahmi script and popularized the same in Prakrit or Pali languages throughout the length and breadth of India. The entire literary output of the Buddhists was originally compiled in Prakrit, a language of the people, that was easy for communication. Prakrit assimilated as much vocabulary as possible from the vernaculars and it established a close rapport with the local languages. In the 6th century

BCE, the Mahaveera and Buddha preferred to preach in the local Prakrits. During the 3rd century B.C. The Mauryan Emperor, Asoka and two centuries later, Kharavela addressed their subjects in Prakrit. Buddha spent most of his time in Magadha and preached his doctrine in the dialect of that region. It is but natural that the early Buddhist scriptures were composed in Magadhi Prakrit in which Buddha spoke to the people.'[8]

'SPREAD OF BUDDHIS DURING MAURYAN TIMES

After the Kalinga war, a major part of Andhra came under the suzerainty of Asoka. The thirteenth rock-edict of Asoka informs that Andhras along with Daradas, Vishavrajas, Yavanas, Kambhojas, Nabhakas, Nabhapaniktis, Bhojas, Paithanikas, and Pulindas, were following the Dharma enunciated by Asoka.

Mahavamsa recorded that at the conclusion of the third Buddhist Council, Buddhist monks were selected and deputed as missionaries to various regions. Among so many of them, Mahadeva was despatched to Mahisama mandala, the region between Godavari and Krishna rivers.

While proceeding to their respective regions, the religious missionaries sent by Ashoka must have carried the sacred relics of Buddha for enshrining them in stupas. It is not quite clear as to the place in Mahisha mandala where Mahadeva got the stupa erected over the relics. It is most likely Amaravati or Dhanakataka where the Chaityaka sect founded by Mahadeva had its base.

We have clear information from the writings of Hieun Tsang regarding the stupas erected during the Asokan times. At the time of Hieun Tsang's visit, the Buddhist Andhra may said to have been comprised five regions, namely, (1) the Kalinga or the North Coastal Andhra; (2) Mahishaka, the South Coastal Andhra; (3) Chuliya or the Rayalasima; (4) Kosala or South Kosala or the North Telingana comprising Adilabad, Khammam, Nizamabad and Karimnagar districts adjoining the south bank of the river Godavary and (5) Andhra or the southern Telingana.

BUDDHISM AFTER ASOKA

During the post Mauryan times, the Satavahanas at the height of their ascendency were in control of the whole Dakshina patha from sea to sea and this extensive territory was perfectly administered by a magnificent system of roads criss-crossing the territory under their control. The surface communication was supplemented by a brisk maritime traffic between the ports on the east and west coasts of India. The sea-ports thus became busy with the indigenous traffic as also with that arriving from Middle East and Roman Empire. The maritime trade brought unprecedented prosperity to peninsular India, as the balance of trade was in its favour it resulted in the importation of large numbers of Roman gold and silver coins found in thousands.

The rock-cut Buddhist caves at Nasik, Naneghat, Junar, Kuda, Kanheri, Kondavite, Kondane, Karle, Mahad, Pithalkora, Bhaja, Bedsa, were executed during the Satavahana times. Similarly, the brick-built stupas at Amaravati,Jaggayyapet, Ghantasala, Chandavaram, Bavikonda, Totlakona and various other places were rebuilt or renovated and embellished with carved sculptures of great elegance. The artistic production was so

prolific, magnificent and vigorous that it became popular as the Amaravati style and exclusively became the archetype of not only south Indian but south east Asian art as well.'[9]

'BUDDHISM DURING THE VISHNUKUNDIN TIMES

The Vishnukundins succeeded the Satavahanas in the Telingana region with Keesara, (Kesarigutta or the hill of lion) in Medchal taluq of Rangareddi district, or Indrapala nagara in Nalgonda district, as their capital. They were contemporarily with the Ikshvakus of Nagarjunakonda. Govinda varma, the grandson of Maha rajendra varma and son of Madhavavarma-I was the first known king of the line. He married Parama bhattaraka Mahadevi, daughter of Prithvimula raja. He appears to be a great philanthropist who claimed to have gifted away countless villages, lands, gold, elephants, horses, cows, bulls,beds, seats, vehicles, houses, clothing, jewelry, maids, maid-servants, male servants, etc. He constructed temples, viharas, congregation halls, wells, tanks, monasteries, gardens, a great benefactor of sramanas, brahmanas, orphans, beggars, the sick, and those in pitiable condition etc.

Recently an inscription was found at Chaitanyapuri, a modern suberb of Hyderabad. It recorded a gift of a residential cell built with stone for the use of persons in charge of incense and clothing or for storing them attached to Govindaraja Vihara, evidently of the first king of the Vishnukundin line, Govindavarma, the ruler of the Telingana region. The gift was made over by Bhadanta Sangha Deva,the disciple of Vasudeva Siri Dama (Vasudea Sri Dharma) samaha (collate or collect) vitaraga of the parampara (tradition) of the Pindapatika Dharmadhara, Brahmadeva Stavira. Stavira Brahmadeva belonged to the Pindapatika sect that had its own Dharrna or Vinaya of Buddhism.

One of the Copper plate inscription found at Tummalagudem informs that Govindaraja gifted away two villages by name Enamadala and Penakaparru to the Buddhist vihara, in all probability situated at Tummalagudem. The village was known in the earlier times as Indupuraia or Indrapuri. The vihara was named after Parama mahadevi, the chief queen of Govindavarma. The gift was intended for lighting lamps, incense, sandal paste, flowers, dhvaja (flagstaff), drinking water, food, beds, seats, treatment of sickly people, provision of medicines, and repairing the dilapidated structures. Another set of copper plate inscription found at Tummalagudem recorded the gift of a village by name Vikramendra Bhattaraka, great-great grandson of Govinda varma. To the Mahavihara built earlier by Parama bhattarika Mahadevi, the chief queen of Govinda varma. The gift was intended for the enjoyment of Aryabhikshu Sangha. Thus the same vihara received patronage from several generations of the Vishnukundin family.

'CAUSES OF DECLINE OF BUDDHISM IN TELINGANA

Before considering the causes for the decline of Buddhism in Andhra, the patronage of Vedic or Brahmanical religion liberty extended by the royalty during the post-Asokan times should be taken notice. The Satavahana Emperors have zealously adhered to Brahmanism probably till the time of Yajnasri Satakarni. The Ikshvakus of Vijayapuri though eclectic to permit their female members to go all out to patronise

Buddhism, were ardent followers of Hinduism. Several temples dedicated to Push-pabhadra (Siva),Skandha, Devasena and Sarvadeva were built by them. The founder member of the Vishnukundin dynasty claimed to have established a number of Buddhist viharas. Various successors until the last powerful king Madhavavarma-III, being adherents of Hinduism were no less liberal to Buddhism.

The belief by some historians that the Buddhist centers were plundered and devastated by the Hindus is totally unfounded.

Their decay and disappearance may have to be attributed to lack of royal and societal patronage and repairs from time to time. In fact, many of the Buddhist stupas as witnessed at Chandavaram, Nandalur, Nagarjunakonda, Nelakondapalli, Jaggayyapet, Ghantasala, Salihundam, Guntupalli, Ramatirtham, Sankaram, Bavikonda, Totlakonda etc. quite well-preserved.

The animosity towards the age old beliefs of Hindus by such eminent Buddhist Acharyas like Arya Deva, the disciple of Nagarjuna, who hailed during 3rd century CE and another Acharya, Dharmakirti's dialectical debates with AdiSankara, as recorded by Taranatha are but a few examples.

When Buddhism was reaching its zenith, the great Hindu epics like Mahabharata, Ramayana and Puranas like Matsya, Vayu, Brahmanda, Kurma, and others were already compiled and some others were being compiled. These puranas deal with such sophisticated topics like architecture, sculpture, painting, dance, sciences as Ayurveda (medicine), Vriksh-ayurveda, Astrology, Gaja sastra, Aswa sastra, Khadgan sastra and prescribed Vratas, for the alleviation of untoward happenings and sufferings. They became extremely popular among the public.

The endearing episodes pertaining to Vasudeva Krishna, such as his childish pranks in a typical pastoral environment, his ability even as a child to vanquish monsters, demons, evil spirits, venomous serpents; his feats as a savior of people, animals against wrath of wind and rain; as a divine musician lulling the world with his flute; his romantic adventures with Gopis; puritanical love towards Radha; liberating his parents from bondage, as an unrelenting warrior, shrewd politician, outstanding statesman, divine preacher, savior of righteousness, have had the capacity to captivate the hearts of millions of pastoral Indians even from the pre-Christian times. The contribution of Krishna cult towards the Hindu religion, philosophy, and culture is enormous. Similarly the unbounded compassion, unswerving truthfulness, and indomitable gallantry of Dasaratha Rama endeared him in millions of Hindu hearts throughout the length and breadth of India.

In brief, these Puranas are encyclopedic in importing spiritual and material knowledge. While the vedic sacrifices, which involved huge expenditure and were mainly confined to the princely classes, the daily worship in the temples, Vratas and Nomus were universally favoured the task of resurgence of Hinduism which the Vedic sacrifices could not accomplish was successfully executed by the Puranas.'[10]

NAGARJUNA – FROM ACHARYA TO AN INSTITUITION

Acharya Nagarjuna, the fourteenth in the line of Buddhist Acharyas, who propounded the Madhyamika schoolor the Sunyavada of the Buddhist philosophy became popular not only in the Indian sub-continent but also in East Asia. He spent the last part of his life at Nagarjunakonda (Sriparvata). In Chinese literature, it was predicted that a Buddha mendicant by the name Nagarjuna would take birth in a village by name Bedali in peninsular India and that he would establish a new Buddhist order by name, Maharani. The Tibetan writer Taranatha informs us that there lived a Nagarjuna at Sriparvat near Dhanyakataka or Amaravathi. He was born in a Brahmin family. Experts' opinion regarding his native place range from Amaravathi to Nagarjunakonda or Bapatla taluka of Guntur district. The Chinese traveller Hieun Tsang opined that he was born in South Kosala which included the districts of Adilabad, Medak and Karimnagar. About the birth date, he was born four hundred years after Buddha, most probably during the first century BCE.

His great work Madhyamika Karika provides the edifice for the Madhyamika school. Nagarjuna shines in the solitary splendour amongst the institutional galaxy of this country. He is said to have recovered several Mahayana texts from Nagaloka. One amongst them is Sidhaharma Pandavika or the 'Lotus of the good Religion'. It is considered as 'A tank for the Thirsty, a fire for the naked, a caravan leader for the merchants, a mother for the children, a boat for those who ferry over, like a torch for dispelling darkness'. He authored several works, of which 24 are available.

In fact, he was considered to be a second Buddha, who gave a new direction and thrust to the Buddhist faith that survived till the modern times. Variously known as an Acharya, Bodhisattra, he was an extraordinary person, not one individual but an institution, a revolutionary, an eminent scholar, a great author, a crowning philosopher, a reputed speaker and an unparalleled dialectician.

Nagarjuna has been described, as the Aristotle of the Buddha lore, the Christ of Madhyamika, St.Paul of Mahayana, a magical name baffling the most-brainy in sheer intellectual power and moral force. Hieun Tsang liken him to one of the four suns, which illuminated the world. Taranatha described him as one amongst the six jewels of Jambudwipa.

In the year 405 CE, Kumarajiva authored a biography of Acharya Nagarjuna. Accordingly, he was born under an Arjuna tree and got his earlier instructions from serpents. For that reason, his mother named him Nagarjuna. According to various sources, his life span varied from 60 years to 600 years. The long span might have been computed by adding the total period in which several Nagarjunas lived.

About the first Nagarjuna, it has been estimated that he lived between 140 CE to 200 CE during the times of Satavahanas. The reigning rulers were either Gautamiputra Satakarni or Yagnasri Satakarini, the last great rulers of the dynasty.

Hiuen Tsang narrates, 'the king of the country then called Sadvaha or Satavahana greatly respected and provided Nagarjuna, a hut by the side of the city gate. Nagarjuna

was well practiced in the art of compounding medicines, by himself consuming a preparation he extended his life span for many hundreds of years. Satavahana raja had partaken of this potion and his longevity was already several hundred years. On the request of the king's son, Nagarjuna put an end to his own life and later the king also died.'[11]

At least two centuries later, probably during the last quarter of the fifth century CE lived Bhadanta Nagarjuna. His disciples caused an idol of Lord Buddha to be installed for attaining Buddhahood. Siddha Nagarjuna was the inventor of the process of distillation and calcination and an authority on minerals. He describes the process of roasting iron and to prepare black sulphide mercury.

The Third and the last Nagarjuna was the Prince Siddha Nagarjuna. He was disciple of Gorakhnath and learnt various sciences. The prince Nagarjuna subsequently trained a disciple named after himself (Fourth Nagarjuna?) and taught him fabrication of various medicines. That apart, Yogasastras and other secret deeds along with nine siddhis and science of alchemy were also taught to the disciple.

This unique alchemist named Siddha Nagarjuna became universally famous as the one who could produce gold. 'He proceeded to Sriparvata with a retinue of disciples in search of a convenient spot to set up a laboratory for his researches in alchemy. Finally, he found Yelleswaram, having the nine forts, nine bathing places, nine Bhairavas, nine Nandis situated on the left bank of the river Krishna and enclosed by a luxuriant forest, as the most suitable place for his researches. He established a laboratory and started making medicines and converting mercury into gold with the assistance of a host of disciples.

Once, while Siddha Nagarjuna was moving around the hills, he happened to see a king with a downcast face. He informed that he lost his kingdom in a fierce battle with an enemy and prostrated before Nagarjuna for help. Accordingly, Nagarjuna provided the kind sufficient money with instruction to build a fort on a hill situated on the other side of the river Krishna, name it after Nagarjuna and live there to accord protection to Nagarjuna and his establishment. The king then crossed the river Krishna and built a fort with nine entrances over a hill situated towards north of Yeleswaram and north-west of the Aswamedha hill. The present hill fort of Nagarjunakonda thus came up in the name of Siddha Nagarjuna, a contemporary of Gorakhnath.'[12]

'Thus it is clear that there were three Nagarjunas, the first one being the founder of the *Madhyamika* School of Buddhist philosophy who lived during 1st century BCE, the second one, a Bhadanta Nagarjuna of the *Bahusrutiya* school who lived in the fifth century as mentioned in the Jaggayapet inscription, the third one being the Siddha Nagarjuna, the great alchemist who lived at Yelleswaram in Nalgonda district.'[13]

8. THE FIRST INDIAN IMPERIUM

8.1 EMPIRE BUILDERS AND THE FIRST INDIAN IMPERIUM

Amongst Empire builders, names of Alexander and Asoka dazzle the brightest on the ancient historical horizon. A brief background of circumstances in which each one of them evolved and showed up would be in order.

ALEXANDER, THE GREAT

Around 6000 BC, metal working was discovered in Turkey and Iran. By 3000 BC, it was a flourishing craft in Mesopotamia. Craftsmen were smelting copper and lead, and by mixing bits of tin and copper, they could produce bronze. It was a hardened metal which could be used for stronger, sharper and deadlier weapons. Tin was a vital ingredient and was mainly found along the Atlantic coast of Europe. The continent was still thickly forested. People lived in sparsely populated geography.

By now, agricultural revolution had reached Europe. The mobile hordes were settling down around their farms with cattle in small habitations. As population grew, there was conflict among groups for limited resources. Villages were fortified and fortresses were built to defend against groups of marauders. Cities rose and fell but as population continued to grow, small city states consisting of a city surrounded by towns, villages and agricultural lands began to evolve. By around 500 BC, Athens had become the intellectual, cultural and the political centre of the Greek world. A totally new concept of controlling or ruling people was evolving. It was called democracy. Athenian citizens had the freedom to vote on all matters of Government. Any citizen could serve as a city Magistrate for a year and paid by the state. In 404 BC, Athens was crushed by Sparta, their rival city state. The feat was achieved by a small elite ruling over their subject people with the help of well trained army. The lesson and humiliation sunk deep into the Greek psyche.

Bronze had already sharpened and hardened the armoury of Greeks, Spartans and Persians alike. Growth of population in Europe intensified the conflict for limited resources at home. The Athenian citizens were looking towards an outlet for their brimming energy. Democracy had provided Athenians the elixir of freedom. After their humiliation by Spartans, the Greeks were awaiting a commander to lead them. Alexander, the son of King Philip of Macedonia appeared on the horizon and the rest, as they say, is history. His blitzkrieg lasted for just eleven years, from 334 BC to 323 BC. He captured Thebes, crossed into Asia, defeated Persians, conquered Lydia, defeated Darius, entered Egypt, founded Alexandria, defeated Darius again, moved on and conquered Bactria, entered India, crossed Indus near Attock and humbled Punjab in the 'Battle of the Hydaspes'. This was the first example of a global warrior, who crossed three continents and was victorious, everywhere. Alexander meant victory, then.

The sharp edge of Bronze Age technology, the fury of a humbled democracy and the power of organization were amply demonstrated by Alexander. The power of an extremely mobile cavalry was proven beyond doubt as well. He had all his equipment,

tents, armament and what not carried by a massive army of thirty thousand foot soldiers and five thousand horsemen all the way from Athens to Punjab. He covered more than thirty eight hundred miles, fought innumerable battles and registered unprecedented victories, unknown to mankind till then.

By now, the longest march by Greek army was taking its toll. As troops were reluctant to proceed further, Alexander made a stirring appeal. But the Greeks had tasted democracy at home. Koinos, a cavalry general rose up and spoke thus, "From our ranks you sent away home the Thessalians as soon as you saw they had no stomach for further toils…of the other Greeks some have been settled in the cities founded by you where all of them are not willing residents; others still share our toils and dangers. They and the Macedonian army have lost some of their numbers in the fields of battle, others have been disabled by wounds, others have been left behind in different parts of Asia, but the majority has perished by disease. A few only out of many survive and these few possess no longer the same bodily strength as before, while their spirits are still more depressed. You see yourself how many Macedonians and Greeks started with you and how few of us are left." He concluded his oration with the following words: "Moderation in the midst of success, 'O' king! Is the noblest of virtues, for although being at the head of so brave an army, you have fought to dread from mortal foes, yet the visitations of the Deity cannot be foreseen or guarded against by man."

The stirring speech of Koinos was greeted with loud applause. Alexander ordered a retreat after building twelve huge altars on the river Beas. A major portion of his army was sent by sea as he marched for Persia through Baluchistan. Marrying a Persian princess, hiring soldiers of all nationalities, Alexander decided to make Babylon as the capital of his new world Empire. Everywhere he went, Greek ideas went too. But alas, in 323 BC, he died in Babylonia near Baghdad, at a rather young age of thirty three years. Buried in Alexandria, the city he founded, he could never reach his motherland. But he had become Alexander, the Great, well before that.

THE FIRST INDIAN IMPERIUM

Alexander was in India for nineteen months. He carried his victory flag wherever he went. What was the reason for his victories? The question can be asked conversely as well. What were the reasons for defeats of each one of the Indian states in spite of massive size of their armies, their bravery and heroism? The simple answer is, "lack of unifying leadership". Let us look at the sequence of events. Alexander crossed Indus river at Ohind and rested his army for thirty days. Thereafter, marching towards Takshila, the present day Rawalpindi in Pakistan when he was still about four or five miles away from the capital, its ruler Ambhi came out and surrendered. When the convoy reached Taxila, the ruler of Abhisara tribe also surrendered. Kings and rulers of Indian states surrendered without even thinking to fight. Only Porus, the king of Jhelum near the present day Jullendhar in Indian state Punjab territory, fought. He lost the battle, but kept his head and honour intact. Thereafter, various tribes and rulers lying between Chenab, Ravi and Beas rivers were subdued, one at a time.

If only, all these small republican states were united and organized as one single force, the results could have been different. That idea was captured by a mendicant teacher, Chanakya. And it was put into practice by a young dreamer, Chandragupta. The duo, within a short period of less than a decade, was to mould the warring states into a single Indian Imperium. This unified state, having a centralized authority with a pan Indian dimension was a unique experience for its rulers and people.

MAURYANS

The Mauryan dynasty ruled for one hundred forty years from 325 BC to 185 BC. Founded by the great Chandragupta, it eventually was extinguished when its last ruler, Brihadratha was killed by his army general, Pushyamitra. Chandragupta duly mentored by Chanakya, climbed from obscurity to power, expelled the Macedonian garrison, repelled subsequent attack by Seleucus, effected a revolution to unify warring rulers and established a dynasty at Patliputra, annexed a large part of Ariana, extended his dominion from Bay of Bengal to Arabian Sea and finally subdued Deccan plateau right up to Mysore in the deep south. India had never been welded into such a huge frame work with centralized authority from Patliputra ever before. The advent of the Mauryan dynasty is regarded as a passage from darkness to light by historians as chronology had become definite and precise. It also dispelled the darkness of disunity and distraction and brought the pan Indian geography under a single Imperial Sun.

Chandragupta's son Bindusaar succeeded him. He was rather given to pleasure. As provinces revolted, he sent Asoka, his son, to put them down. He naturally succeeded Bindusaar and reigned from 273 BCE to 232 BCE. Asoka has become a part of folklore of ancient Indian history.

He is considered a great king, not only in the history of India but also of the whole world. Recent historians regard him as 'Not so Great'. He was a Shiva worshipper. Then came the famous Kalinga war which he won. It also overwhelmed him with its enormous destruction and all round death. Recent research holds that Ashoka embraced Buddhist before kalinga war. Thereafter, he embraced Buddhism and became a staunch pacifist. State officers were turned into religious propagandists. Provinces were entrusted to preachers of morality. Royal hunts and jousts of arms were abolished. War drums were hushed and the only sound that was heard was that of religious discourses. As the king got enlightened and followed Buddha's path, the people took to Sanghas in large numbers.

But, as everyone was getting enlightened, who would fight and rule? The state of kingdom was too idyllic to last for long. Asoka's successors were neither strong enough to win a war like Kalinga nor were enlightened enough to be worthy followers of Buddha. They were pygmies whose shoulders were unfit to bear the weight of mighty Imperium. The Mauryan Empire had peaked during Asoka's time. In 232 BCE, he died and the decline commenced. He was followed by a number of weak successors. Their grip weakened over the vast empire and it eventually split. As their authority weakened, the provinces became loose and eventually detached themselves. There was no one to

pursue the policy of blood and iron of its founder, Chandragupta. The master strategist, Chanakya too was gone.

In 187 BCE, Brihadratha was the Emperor of this splendid Mauryan dynasty. But he was a gullible and feckless young man. Pushyamitra, the commander of imperial army invited him to review the military parade. He readily agreed and right in front of arrayed army, the ambitious general, Pushyamitra, bludgeoned his Lord, Brihadratha to death. It was a pitiful, whimpering end to a great Empire.

8.2 RURAL ECONOMY AND ADMINISTRATION

The Mauryan Government had a well-organized revenue administration, bureaucracy, army and police. There were superintendents for various departments. Among them were superintendents of agriculture, forest produce, pasture lands, cows, horses and elephants. The Artha shastra thus enumerates the qualifications and duties of the superintendent of agriculture.

'Possessed of the knowledge of the science of agriculture dealing with the plantation of bushes and trees or assisted by those who are trained in such sciences, the superintendent of agriculture shall in time collect the seeds of all kinds of grains, flowers, fruits, vegetables, bulbous roots, fibre-producing plants, and cotton. He shall employ slaves, labourers, and prisoners to sow the seeds on crown lands which have been often and satisfactorily ploughed. The work of the above men shall not suffer on account of any want in ploughs and other necessary implements or of bullocks. Nor shall there be any delay in procuring for them the assistance of blacksmiths, carpenters, borers, rope-makers, as well as those who catch snakes, and similar persons.'

All these duties were enjoined upon the superintendents of agriculture because the Magadhan state started the clearance of jungles on a large scale. The king was the biggest land-owner. Land farmed directly under the crown supervision was called sita lands. The state derived substantial income from sita lands, which were settled with shudras. They gave one-fourth of the produce to the State warehouses.

FORMATION OF VILLAGES

How the villages were settled is thus described by the author of the Artha's hastra.

'Either by Inducing foreigners to immigrate or by causing the thickly- populated centres of his own kingdom to send forth the excessive population, the king may construct villages either on new sites or on old ruins. Villages consisting each of not less than a hundred families and of not more than five hundred families of agricultural people of shudra caste, or agricultural people, with boundaries extending as far as a krosa (2,250 yards; 2,057 metres) or two, and capable of protecting each other, shall be formed. Boundaries shall be denoted by a river, a mountain, forests, or by trees such as salmali (silk-cotton tree), sami, and kshira-vriksha (milky trees).

There shall be set up a sthaniya (a fortress) in the centre of eight hundred villages, a drone mukha in the centre of four hundred villages, a khar vatika in the centre of two

hundred villages, and a sangrahana in the midst of a group of ten villages. There shall be constructed in the extremities of the kingdom forts manned by boundary guards, whose duty shall be to guard the entrance into the kingdom. The interior of the kingdom shall be watched by trap keepers, archers, hunters, chandalas, and wild tribes. Those who perform sacrifices, spiritual guides, priests, and those learned in the Vedas shall be granted brahmadeya lands yielding sufficient produce and exempted from taxes and fines.

Superintendents, accountants, gopas, sthanikas, veterinary surgeons, physicians, horse trainers, and messengers shall also be endowed with lands, which they shall have no right to alienate by sale or mortgage. Lands prepared for cultivation shall be given to taxpayers only for life. Unprepared lands shall not be taken away from those who are preparing them for cultivation. Lands may be confiscated from those who do not cultivate them, and given to others; or they may be cultivated by village labourers and traders, lest those owners who do not properly cultivate them might pay less to the government. Cultivators may be supplied with grains, cattle, and money, which they may return at their convenience.

The king shall bestow on cultivators only such favour and remission as will tend to swell die treasury, and shall avoid such favour which deplete it. Either on the occasion of opening new settlements or on any other emergent occasion, remission of taxes shall be made. He shall regard with fatherly kindness those who have passed the period of remission of taxes.

He shall exploit timber and elephant forests, offer facilities for cattle- breeding and commerce, construct roads for traffic both by land and water, and set up market towns. He shall also construct reservoirs, filled with water either perennial or drawn from some other source. Or he may provide sites, roads, timber, and other necessary things to those who construct reservoirs of their own accord. Whoever stays away from any kind of co-operative construction shall send his servants and bullocks to carry on work on his behalf, and shall have a share in the expenditure, but shall have no claim to the profit. The king shall exercise his right of ownership with regard to fishing, ferrying and trading in vegetables, in reservoirs or lakes. Those who do not heed the claim of their slaves, hirelings, and relatives shall be taught their duty.

CLASSIFICATION OF VILLAGES

The Mauryan government made a two-fold classification of the villages for the purpose of fiscal administration. The villages were grouped according to the number of tax-paying inhabitants, the caste of the people, the size and the commercial and industrial value.

The villages enjoying remission of taxes. These included certain newly founded villages and villages granted as Brahmadeyas and the like. This group included villages granted "to royal servants, such as superintendents, accountants, gopas, sthanikas, veterinary surgeons, physicians, horse- trainers and messengers, without the right of alienation by sale or mortgage.

The villages supplying soldiers or weapons of war. Villages that paid grains, cattle, gold and raw produce as tax, and supplied free labour instead of taxes, included the purely agricultural type as well as villages of low caste people. The Maurya government pursued a policy of setting up villages tenanted solely by the people of the shudra caste. Says Kautilya, 'Villages should be formed, each consisting of from 100 to 500 agricultural families of shudra caste.' Men of low caste for such work were preferred on the ground that they were more efficient in manual labour than men of the high castes. Stringent measures were adopted to protect agricultural interests in these villages by way of forbidding impediments of different kinds. 'No ascetic other than one who was taken to the fourth stage of life, no association other than one of the same origin (i.e. of agricultural caste), no guild devoted to a different object other than a guild of the same nature shall colonize a village. On account of the isolation of the villagers, and devotion of the people to cultivation there will be growth of wealth, labour, minerals, grains and drinks.'

The seclusion of the villages belonging to the shudra families was a Mauryan innovation. It gave a distinct stamp to the farmers as a whole. Megasthenes was thus led to believe that husbandmen formed a distinct caste. He says, 'The second caste consists of the husbandmen, who appear to be far more numerous than the others. As they were exempted from fighting and other public services, they devoted the whole of their time to tillage. Nor would an enemy, coming upon a husbandman at work on his land, do him any harm, for farmers were regarded as public benefactors and were protected. The land thus remaining unravaged, and producing heavy crops, supplies the inhabitants with all that is requisite to make life enjoyable. The husbandmen themselves, with their wives and children, live in the country and avoid going into town.'

THE DIFFERENT PARTS OF A VILLAGE

During the Mauryan administration, an account of the different parts of a village was kept by the local officers for the purpose of assessment of taxes. They comprised cultivated plots of land, uncultivated fields, wet lands, gardens, vegetable gardens, fenced plots, forests, altars, temples, irrigation works, cremation-grounds, feeding-houses, piaos where water was supplied to travellers, places of pilgrimage, pasture ground, roads, boundary plots, threshing floors, house sites and stables of domestic animals.

The division of land for various purposes, and the duties of the king towards farmers are thus described in Artha shastra.

'The king shall make provision for pasture grounds on uncultivable tracts. Brahmans shall be provided with forests for soma plantation, for religious learning, and for the performance of penance, such forests being granted with safety for animate or inanimate objects, and being named after the tribal name (gotra) of the Brahmans resident therein.

A forest provided with only one entrance, rendered inaccessible by the construction of ditches all round, with plantations of delicious fruit trees, bushes, bowers, and thornless trees, with an expansive lake of water, full of harmless animals, and with tigers, beasts of prey deprived of their claws and teeth, male and female elephants, young

elephants and bisons, shall be formed for the king's sports.On the extreme limit of the country or in any other suitable locality, another game forest with game beasts, open to all, shall also be made.

The king shall protect farmers from the molestation of oppressive fines, forced labour and taxes, herds of cattle from thieves, tigers, poisonous creatures and cattle disease. The king shall keep roads clear for traffic, and protect travellers from molestation by the officials, robbers, and boundary-guards. He should also protect the roads from being destroyed by herds of cattle.

THE HEADMAN

The Jatakas refer to the headman generally under the designation 'gamabhojaka'. The Kulavaka Jataka refers to gama bhojaka who used to make money in sinful ways and who tried to harass innocent men. The appointment of the headman was either hereditary or was conferred by the village council itself. The villages of the industrial type appears to have had an elderman as the head. The Suchi Jataka tells us that there was a 'jetthaka' at the head of the village of 1,000 blacksmiths. It indicates extensive use of iron for fabrication of agricultural implements. The headman appears also to have been sometimes a nominee of the king even during the Jataka period. According to the Kharassara Jataka, the king appointed an 'amachcha' (minister) as the headman of a village and he collected the revenue from the village on behalf of the king. In the Gamani Chanda Jatakas we are told that an officer named Chanda after retiring in old age from service took to farming in a village. The king made a grant of this village to him as a brahmadeyya (full gift). Chandathus became the headman of the village.

The Kulavaka Jataka tells us that the members of the thirty families of a village met in the village to consider the common problems of the village community. We further learn that they kept the roads in repair, cut down trees that obstructed traffic, constructed cause-ways, dug water- reservoirs and built a hall.

Kautilya refers to the headman (gramika) as well as to the village- elders (grama-vriddhah), who constituted the local assembly. The headman co-operated with the gopa, a royal official, in maintaining the village register, which contained a full description of the tax-paying and non-tax- paying parts of the village, a record of gifts, sales, charities and remission of taxes. The Gopa attended to the accounts of five or ten villages. Villages were divided into the following categories: villages exempted from taxation, those that supply soldiers, those that pay their taxes in the form of grains, cattle, gold or raw material, and those that supply free labour and dairy produce in lieu of taxes. Kautilya enjoins: 'When the headman of the village has to travel on account of any business of the whole village, the villagers shall by turn accompany him: those who cannot do this shall pay 1½ panas for every Yojana.' This shows that the headman was assisted by the villagers in matters relating to the whole village. The village elders, with the gramika at the head, looked after the local administration. So far as affairs touching land were concerned, we notice them, in the first place, taking charge of property of the infants or minors and improving it. They looked after the temple-property (deva-dravyam). 'In the absence of claimants to dilapidated religious buildings, villagers or charitable people may

repair them. They also conducted the sale of buildings of different kinds, fields, gardens, lakes or tanks, etc. The property on sale was accurately; described, so that the buyer could know exactly what he was going to buy and the sale was by auction. They decided disputes concerning boundaries of land within a village as well as those between two or more villages in consultation with the elders of other village. They also punished those who made encroachments upon the boundary-areas or destroyed the boundary-marks.

The Prakrit inscriptions refer to the headman under the designations 'gramika, ‘gamabhojaka', and ‘gamani', and to a committee under the name 'gotthi' or ‘gotti' which corresponded to the village assembly.’[1]

‘CULTIVATION AND REVENUE

Fields that are left unsown may be brought under cultivation by employing those who cultivate for half the share in the produce (ardhasitika); or those who live by their own physical exertion may cultivate such fields for 1/4 or 1/5 of the produce grown; or they may pay to the king as much as they can without entailing any hardship upon themselves with the exception of their own private lands that are difficult to cultivate.

The waste land probably belonged to the Grown, but in the Artha shastra, Bk. II, ch, I, we find the injunction that the king shall not take away unprepared lands from those who are preparing them for cultivation. Proprietary right thus obviously lay with those who cultivated the land. The owner was, however, responsible to the king, if he failed to sow his land or if the crops were damaged due to his own neglect or that of his servants. This meant only an economic benefit both from the standpoint of the owner of the land and of the state; and it would certainly be a mistake to try to assert anything more than that the king had no proprietary right on land with this qualification that no land was allowed to lie fallow permanently, and that he was entitled only to a defined portion of the gross produce as tax. Manu allows 1/12, 1/8 or 1/6 part.’[2] It was usually one-sixth; but made variable up to one-twelfth to ensure against over-taxation. In the time of Chandra gupta Maurya, the rate was one-fourth with an additional water rate of one-fourth.

CROP-SHARING SYSTEM OF CULTIVATION

From the Mahavagga we learn that the Buddhist Sanghas sometimes cultivated lands belonging to private persons and used to get half of the produce as their share, or sometimes let out their own lands in lieu of half the produce. 'Of the paddy seedlings belonging to the Sangha, grown upon private ground, half the produce, O Bhikku, you may have, when you have given a part to the private owner. Of seedlings belonging to private persons grown upon the land of the Sangha, you may have the use, when you have given a part to the owner.'[3]

Regarding payment to workers, the Artha shastra enjoins that provisions shall be supplied to watch- men, gardeners, slaves and labourers, in proportion to the amount of work done by them. 'They shall be paid a pana and a quarter per mensem. Artisans shall be provided with wages and provision in proportion to the amount of work done by them. Those that are learned in the Vedas and those that are engaged in making penance may take from the fields flowers and fruits for the purpose of worshipping their gods, and rice

and barley for the purpose of performing agrayana, a sacrificial performance at the commencement of harvest season; also, those who live by gleaning grains in fields may gather grains where grains had been accumulated and removed from.'

SOCIAL SECURITY

The king provided social security for the aged, infirm helpless women, pregnant women and helpless minors, etc. The Artha shastra states. 'The king shall provide the orphans, the aged, the infirm, the afflicted, and the helpless with maintenance. He shall also provide subsistence to helpless women when they are pregnant and also to the children they give birth to. Elders among the villagers shall improve the property of bereaved minors till the latter attain their age; so also the property of gods. When a capable person other than an apostate or mother neglects to maintain his or her child, wife, mother, father, minor brothers, sisters, or widowed girls, he or she shall be punished with a fine of twelve panas. When, without making provision for the maintenance of his wife and sons, any person embraces asceticism, he shall be punished with the first amercement; likewise any person who converts a woman to asceticism. Whoever has passed the age of copulation may become an ascetic after distributing the properties of his own acquisition among his sons, other- wise he will be punished.'

As the economy depended upon the work of the farmers, they were protected from intruders. The Artha shastra declares that, 'No ascetic other than a vanaprastha, no company other than the one of local birth and no guilds of any kind other than local co-operative guilds shall find entrance into the villages of the kingdom. Nor shall there be in villages buildings intended for sports and plays. Nor, in view of procuring money, free labour, commodities, grains, and liquids in plenty, shall actors, dancers, singers, drummers, buffoons and bards make any disturbance to the work of the villagers; for helpless villagers are always dependent and bent upon their fields.'[4]

8.3 AGRICULTURE

The Greeks noticed in India two annual harvests; the winter and the summer ones and the sign of an astonishing soil fertility. They knew that rice and millets were sown in summer, and wheat and barley in winter, Aristobulus described the cultivation of rice in enclosed sheets of water. They saw trees, which the generative power of the Indian soil endowed with a strange capacity of self-propagation; the branches curving to the ground to become themselves new trunks, till a single tree became a pillared tent, under whose roof of broad leaves a troop of horsemen could find shade from the noon day heat. The reference is obviously to the banyan-tree and its pillar like aerial roots. Among the plants, two species especially interested them. One was sugarcane, 'the reeds that make honey without the agency of bees. Megasthenes seems to have attempted a scientific explanation of its sweet juice. It was due to the water which it absorbed from the soil being so warmed by the sun's heat that the plant was virtually cooked as it grew. The other plant was the cotton plant, yielding vegetable wool. Some of it the Macedonians used uncarded as stuffing for saddles and such like. Spices were also associated in the Greek mind with India.[5]

In the Artha shastra, we find a mention of the suitability of different lands for the cultivation of different crops, viz. lands that are beaten by foam, e.g. river banks, etc., are suitable for growing pumpkin) gourd and the like. Lands that are frequently flooded with water for long are suitable for pepper, grapes and sugarcane; those in the vicinity of wells for vegetables and root crops; moist beds of lakes, etc., for green crops; and the marginal furrows between any two rows of crops are suitable for the plantation of fragrant plants, medicinal herbs, khus-khus roots, and the like.

'The Artha shastra mentions the following crops: Sali (a kind of rice), vrihi (rice), kodrava, tila (sesamum), priyangu, daraka and varaka are to be sown at the commencement of the rainy season.Mudga, masha and saibya are to be sown in the middle of the season.Kusumbha, masura, kuluttha, yava (barley), godhuma (wheat), kalaya (leguminous seeds), atasi (linseed), and sarshapa (mustard) are to be sown last.'[6]

Regarding implements, Srni (sickle), khanitra (hoe), musala (pestle), udukhala (mortar), surpa (winnowing-basket), dhanyakrt (winnowing-fan), chalani (sieve), sthivi (granary), methi (the post of the threshing-floor round which cattle turn to thresh out the grains), are mentioned as tools of agriculture.

CYCLE OF FARMING OPERATIONS

In the Kullavagga, Mahanama the Sakyan, while telling Aniruddha what is incident to a household life, gives a short list of farming operations. "First you have to get your fields ploughed. When that is done, you have to get them sown. When that is done, you have to get the water led down over them. When that is done, you have to get the water let off again. When that is done, you have to get the weeds pulled up. When that is done, you have to get crops reaped. When that is done, you have to get the crop carried away. When that is done, you have to get it arranged in bundles; when that is done, you have to get it trodden out. When that is done, you have to get the straw picked out. When that is done, you have to get all the chaff removed. When that is done, you have to get it winnowed. When that is done, you have to get the harvest garnered. When that is done, you have to do just the same the next year and the same all over again the year after."

'According to the Jatakas, the agriculturists sowed different kinds of grains, planted sugarcane, cotton, different kinds of vegetables, such as pumpkins, gourds and cucumbers. To scare away birds, they made use of scare crows and towards the harvest time, when crops stood thick in the fields, the peasant anxious to kill the creatures that devoured crops used to dig pitfalls, set traps, fix stakes and snares. At the sight of coming rains, they would hurry to the fields with spade and basket in hands to bank the dikes, and the women of the house make haste to carry indoors rice and crops that were spread in the sun to dry, lest the harvest should get wet. A picture shows a female slave dozing in her watch over rice spread out in the sun to dry, and of a goat waiting for a chance to eat it.

When crops were ripe, the threshing-floor was made ready and methi (the post of the threshing-floor round which cattle turn and thresh out grains) was planted with care on an auspicious day. The harvest was then thrashed, winnowed and garnered after setting aside the rice of the king's tax that was measured with grain basket.'[7]

Even as late as a century ago, the threshing of wheat was being carried on in the same manner as in the Buddhist period. A number of bullocks are tied with a rope to a wooden post (methi) fixed in the centre of the threshing-floor. They go round and round and thresh out the grain. After that, the threshed wheat straw and grain are thrown from a basket by a farmer standing on a wooden stool, and is assisted by his wife. The grain falls near the stool while the dust is blown away by the wind, and the bhoosa falls near the heap of grain.

The Artha shastra gives the following directions for the threshing of crops. 'Grains and other crops shall be collected as often as they are harvested. No wise man shall leave anything in the fields, not even chaff". Crops, when reaped, shall be heaped up in high piles or in the form of turrets. The piles of crops shall not be kept close, nor shall their tops be small or low. The threshing-floors of different fields shall be situated close to each other. Workmen in the fields shall always have water but no fire.'[8]

GROWING OF CROPS

According to the Artha shastra, rice crops and the like are the best; vegetables are of intermediate nature; and sugarcane crops are the worst, very difficult to grow, for they are subject to various pests and require much care and expenditure to reap.

The seeds of grains are to be exposed to mist and heat for seven nights; the seeds of host are treated similarly for three nights; the cuttings of sugarcane and the like are plastered at the cut ends with the mixture of honey, clarified butter, the fat of hogs, and cow-dung; the seeds of bulbous roots with honey and clarified butter; cotton seeds with cow-dung; and water pits at the root of trees are to be burnt and manured with the bones and dung of cows on proper occasions.

The sprouts of seeds, when grown, are to be manured with a fresh haul of minute fishes and irrigated with the milk of snuhi.

Where there is the smoke caused by burning the essence of cotton seeds and the slough of a snake, there snakes will not stay.

IRRIGATION

The Kama Jataka speaks of a brahmana clearing the jungle for cultivation and making little embanked squares for water. We also hear of the rivers being dammed for the purpose of irrigation. Says the Kunala Jataka, 'The Sakiya and the Koliya tribes had the river Rohini, which flows between the cities of Kapila vasthu and Kolia, confined by a single dam, and by means of it cultivated their crops. In the month of Jetthamula when crops began to droop, the labourers from both the cities assembled. Then the Koliyans said, "Should this water be drawn off of both sides, it will not prove sufficient for both of us. But our crops will thrive with a single watering; give us then the water."[9]

Kautilya also refers to sluice-gates of tanks and enjoins that 'persons letting out the water of tanks at any other place than their sluice-gate shall pay a fine of six panas; and persons who obstruct the flow of water from the sluice-gate of tanks shall also pay the same fine.' It is further laid down that the water of a lower tank, excavated later on, shall not irrigate the field already irrigated by a higher tank and the natural flow of water

from a higher to a lower tank shall not be stopped, unless the lower tank has ceased to be useful for three consecutive years.'

The Junagadh rock inscription of Rudradaman records that the Sudarshana lake was constructed by Pushya gupta, the provincial governor of Chandra gupta Maurya; it was subsequently provided with conduits by the Yavana king Thushaspha for Asoka Maurya. It suffered a breach (420 cubits long and 75 cubits deep) in the second century of the Christian Era, owing to heavy flood in the rivers Suvarna rekha and Palasini. It was repaired by the Parthian amatya Suvisakha, who was the governor of Rudradaman, the Saka ruler of that time. In western India, the successors of Rudradaman continued the tradition of constructing tanks.

The Artha shastra enjoins, "Those who irrigate land by manual labour shall pay 1/5th of the produce as water rate (udakabhagam); by carrying water on shoulders, 1/4th of the produce; by water lifts of the produce; and by raising water from rivers, lakes, tanks, and wells, 1/4th of the produce.

The Superintendent of Agriculture shall grow wet crops, winter crops or summer crops according to the supply of workmen and water."

'In the Kallavagga, we find the Buddha pointing out that when the disease called 'mildew' falls upon a field of rice, that field of rice cannot last long; neither does a field of sugarcane continue long if the disease called 'blight' falls upon it.'[10]

'As at present, the farmers in India ran the risk of being bitten by snakes. There is a story of a farmer's family consisting of man and wife, two children - a son and a daughter - a daughter-in-law and a maid- servant of the house. They lived happily together. One day, the farmer, along with his son, was ploughing a field. The son collected dry leaves scattered over the field and set fire to them. The smoke hurt the eyes of a snake, who lived in a termite-hill close by. In a rage, the snake bit the farmer's son and he fell down dead.'

8.4 ANIMAL HUSBANDRY

The term animal husbandry during those times should be used in a broader sense. Apart from cattle, buffaloes, sheep, and goats, it should include asses, horses, mules and elephants. Animal husbandry made great progress in the Mauryan age. As Sharma states, 'With its emphasis on non-violence and the sanctity of animal life, Buddhism boosted the cattle wealth of the country. The earliest Buddhist text Suttanipata declares the cattle to be givers of food, beauty and happiness {armada, vannada, sukhada), and thus pleads for their protection.'[11]

There was a superintendent of cows, whose duty was to supervise herds of milch cattle as well as to look after the stored milk and ghee. He also supervised the work of cowherds, buffalo herdsmen, milkers, churners and hunters. He took care that calves were not starved and were given adequate milk. The herds included equal numbers of milch

cows, pregnant cows, aged cows, heifers and calves. There were special herds which included crippled cattle and cows difficult to milk.

'The cattle and buffaloes were classified as calves, steers, tameable ones, draught oxen, bulls that are to be trained for the yoke, bulls kept for crossing cows, cattle that are fit only for the supply of flesh, buffaloes and draught buffaloes; female calves, steers, heifers, pregnant cows, milch cattle, barren cattle (either cows or buffaloes); calves that are month or two old as well as those which are still younger.'[12]

The superintendent of cows branded them all, including their calves over two months old, and stray cattle which had remained unclaimed for two months. Then he registered them, also noting the natural marks, colour, and distance between the horns.

The cattle belonged severally to the residents of the village. After the crop was cut, the cattle were let loose and roamed over the fields. When the crops were growing they were sent under the charge of a herdsman, hired by the village collectively, to the grazing grounds. The herds-man was an important personage,

'Knowing the general appearance of each one of his charge and the marks upon it, skilled to remove flies' eggs from their hide, to heal sores, accustomed to keep a good fire going with smoke to keep the rats away, knowing the fords and the drinking places, clever in choosing pasture, leaving some milk in the udders, and with respect for the leaders of the herd.'

THE HOLY COW

According to the Artha shastra, 'The killing of the cow was a deadly- sin. All that kill, eat and permit the slaughter of the cow rot in hell for as many years as there were hairs on the body of the cow so slain.' The worship of the cow is one of the first among the daily duties prescribed for kings. Thus, 'during the eighth division of the night, i.e. the very early morning, he (the king) shall receive benedictions from sacrificial priests, teachers and the high priest and having seen his physician, chief cook and astrologer, and having saluted both a cow with her calf and a bull, by circum ambulating round them, he shall get into his court.'

The buffalo, in the Mauryan age, had become a recognized dairy animal. Among the animals to be classified by the superintendent of cows, before forming them into herds, were buffaloes. The rations for buffaloes are mentioned, and the out turn of butter from buffalo's milk is compared with that from cow's milk.

In a Sanchi sculpture, which illustrates a Jataka story, two buffaloes are depicted swimming in a pool in front of a hermitage. In the back- ground are the circular huts of the rishis which resemble the Navdatoli huts in their design.

The goat, as a milch animal, is mentioned in the Artha shastra and seems to have become fairly important also, as the outturn of butter from her milk has been considered worthy of being reckoned in comparison with that of the cow or the buffalo. The sheep were shorn of their wool once in six months.

About breeding bulls, in the Artha shastra, it is prescribed that should be provided for the herds at the rate of four for every ten animals, whether cows or buffaloes. The bull capital at Rampurva in Tirhut depicts a vigorous zebu bull. It is symbolic of the importance of Mauryan India. A fragment of a torana architrave from Kausambi (first century B.C.) shows Gajalakshmi and a bull. The Gajalakshmi is surrounded by lotuses and a pair of elephants. The bull, which is a symbol of male fertility, resembles the Nagori breed.

About pastures, it was enjoined upon kings that ample provision should be made for pastures by setting apart suitable land of sufficient extent, when forming villages. The gopa or village accountant was to note the boundaries of such pastures, number and register them. They were protected from thieves, tigers and other carnivores by hunters aided by their hounds. Herds were moved from one pasture to another according to the season.

The duty of Graziers have been elaborated. The cattle when out grazing were exposed to many dangers. They could get stuck in a quagmire or fall from a precipice. They might get drowned in a river or be struck by lightning. They might get devoured by tigers, or bitten by snakes, or dragged into water by crocodiles. They might also perish in a forest fire. It was the duty of the graziers to save them from such dangers.

The Artha shastra defines, among the duties of the graziers, caution in watering cows, "They shall allow their cattle to enter only into such rivers or lakes as are of equal depth all around, broad and free from mire and crocodiles". Cows should be guarded at home behind walled enclosures, if necessary, and protected when out grazing. Graziers were enjoined to group their animals into tens of each kind, according to their colour, and take them out for grazing. They were also to attach bells to the necks of their cattle, so as to scare away snakes and tigers and as a means of knowing the whereabouts of the herds. All animals possessed brand marks, which were stamped on them at the musters.

There was capital punishment for stealing a cow or hurting one. The Artha shastra ordains, "Whoever hurts or causes another to hurt, or steals or causes another to steal a cow, should be slain."[13]When a person caused a bull attached to a herd to fight with another bull, he was fined. If a bull got injured, that person was heavily fined. It is the usefulness which determines whether an animal is sacred or otherwise. Cattle had fully proved their usefulness in the Mauryan age by the milk they provided to the people and their draught power in cultivation.

Regarding feed and fodder, the Artha shastra recognizes the difference between straw and grass and the two are separately specified in the feed to be given to cattle, as yavasa (meadow or green grass) and trina (ordinary dry straw). The feeding of oilcake is a definite recommendation in the Artha shastra. Detailed rations are prescribed for cows, buffaloes, mules, camels, etc., severally. Thus:

'Bulls which are provided with nose strings and which equal horses in speed and carrying loads, are to be given half a bhara of meadow grass, twice the above quantity of ordinary grass (trina), one tula of oilcakes, ten adhikas of bran, five palas of salt, one

kudumba of oil for rubbing over the nose, one prastha of drink, one tula of flesh, one adhika of curds, one drona of barley or of cooked urd, one drona of milk; or half an adhika of sura, one prastha of oil or ghee, ten palas of sugar or jaggery. One pala of fruit of ginger may be substituted for milk. For cows, mules and asses, the diet was of the same commodities less by one quarter each. For buffaloes and camels, it was twice the quantity. Buttermilk (lassi) was given as a drink to dogs and hogs. Moreover, all cattle were supplied with abundance of fodder and water. The quantity of the feed to be given was in proportion to the quantity of milk yielded by the cows or the duration of work in the case of bullocks.'[14]

MILKING AND MILK

In the Artha shastra, graziers are directed to milk their animals twice a day in some seasons, viz. the rainy, autumn and the first part of winter, and only once a day, i.e. in the morning, during the whole of spring and summer. This was done because there was plenty of grass in the pastures in the rainy season and early winter, and in summer the pastures dried up.

The difference between the cow's milk and the buffalo's milk was well recognized in respect of their outturn of butter (fat content). 'One drona of cow's milk when churned will yield one prastha of butter; the same quantity of buffalo milk will yield one-seventh prastha more; and the same quantity of goats and sheep milk will produce one-half more,' states the Arthashastra. It was in the form of ghee that the butterfat in the milk was largely made use of ghee was included even in the rations of cattle. Elephants were given ghee as part of the ration at the rate of three prasthas per day, along with many other articles.

'Ghee was the best form in which butter-fat could be preserved for long periods. This knowledge has been made use of not only in domestic life but also in storing supplies in forts against a siege. Huge stone cisterns were used as receptacles for storing ghee. Lumps of gur were placed as a preservative at the bottom of cisterns while storing ghee in them. This practice prevails even now in some rural families in India.'[15] The best ghee was made from butter which was melted the same day. This was the kind of ghee used by kings and wealthy people.

ASSES AND HORSES

In the Mauryan age, asses were used as beasts of burden. In a Bharhut sculpture which illustrates a Jataka story, two asses are shown in front of a cottage.

Horses were used for riding and for war. In war, they were yoked to chariots. The chariots were of various types, viz. festal chariots, battle chariots, and travelling-chariots. Horses were also yoked to carriages. The royal horses were under the charge of a superintendent of horses, who registered the breed, age, colour and their place of origin. The Arthashastra states, 'The breed of Kambhoja, Sindhu, Aratta, and Vanayu countries are the best; those of Bahlika, Papeya, Sauvira, and Taitala are of middle quality; and the rest ordinary.'

Steeds, stallions and colts were kept separately in the stables. As regards the construction of stables, the Artha shastra gives the following directions. The superintendent shall have a stable constructed as spacious as required by the number of horses to be kept there in, twice as broad as the length of a horse, with four doors facing the four quarters, with its central floor suited for the rolling of horses, with projected front provided with wooden seats at the entrance, and containing monkeys, peacocks, red spotted deer, mongoose, chakora, parrots, and myna birds; the room for every horse shall be four times as broad or long as the length of a horse, with its central floor paved with smoothened wooden planks, with separate compartments for fodder, with passages for the removal of urine and dung, and with a door facing either the north or the east.'

Horses were given regular training for warfare, viz. circular movement, slow movement, jumping, galloping, and several forms of riding. Horses are also mentioned in the Jatakas. 'Sindh horses are milk-white and thorough-bred. They are white as lilies, swift as the wind and well trained. Thorough-bred horses are fed on parched rice, drippings, minced meat and grass and red rice-powder. Thorough-bred Sindh horses sheathed in mail were used for war purposes. The Valaha and Sindhu are the horses of superior breed.'[16]

Horse-dealers figure prominently among the Gandhara trades and we learn from the Vayu purana that the Gandhara horses were considered the best of all. Horse-dealers from northern districts used to bring horses to Benares for sale. Sindh horses were available in Benares and were used on ceremonials by the king.

Mules are also mentioned in the Artha shastra.

ELEPHANTS

Magadha was the first state in India which used elephants on a large scale in warfare. For traversing jungles and marshy areas, elephants are very useful. Moreover, they had their use in storming fortresses and breaking open massive doors. According to Greek sources, the Nanclas maintained 6,000 elephants and Chandragupta Maurya had 9,000 elephants. On account of its usefulness in warfare, the elephant was a protected animal, and special forests were reserved for it. The Artha shastra states, 'The victory of kings in battles depends mainly upon elephants; for elephants, being of large bodily frame, are capable not only to destroy the arrayed army of an enemy, his fortifications and encampments, but also to undertake works that arc dangerous to life.'

War elephants and riding elephants were kept inside the foil., whereas those with bad temper were kept outside. Only twenty-year-old male elephants were captured. Female elephants and young elephants were not captured.

As regards the quality of elephants, the Artha shastra states, 'Elephants bred in countries such as Kalinga, Anga, Karusa, and the East are the best; those of the Dasarna and western countries arc of middle quality; and those of Saurashtra and Panchajana countries are of low quality. The might and energy of all can, however, be improved by suitable training.'

In the extreme limit of the country, elephant forests, separated from wild tracts, shall be formed.

The superintendent of elephant forests with his retinue of forest guards shall not only maintain the forests, but also acquaint himself with all passages for entrance into, or exit from, such of them as arc mountainous or boggy or contain rivers or lakes. Whoever kills an elephant shall be put to death.

Whoever brings in the pair of tusks of an elephant, dead from natural causes, shall receive a reward of four-and-a-half panas.

How elephants were captured is described as follows: 'Guards of elephant forests, assisted by those who rear elephants, those who enchain the legs of elephants, those who guard the boundaries, those who live in forests, as well as by those who nurse elephants, shall, with the help of five or seven female elephants to help in tethering wild ones, trace the where abouts of herds of elephants by following the course of urine and dung left by elephants, and along forest tracts covered over with branches of Bhallataki , and by observing the spots where elephants slept or sat before or left dung, or where they had just destroyed the banks of rivers or lakes. They shall also precisely ascertain whether any mark is due to the movements of elephants in herds, of an elephant roaming single, of a stray elephant, of a leader of herds, of a tusker, of a rogue elephant, of an elephant in rut, of a young elephant, or of an elephant that has escaped from the cage.

'Experts in catching elephants shall follow the instructions given to them by the elephant doctor, and catch such elephants as are possessed of auspicious characteristics and good character.'

The captured elephants were given military training of seven kinds, viz. drill, turning, advancing, trampling down and killing, fighting with other elephants, attacking forts and cities and warfare. The elephants under training were provided with collars and were made to work in company with trained elephants.'[17]

VETERINARY SERVICES

Veterinary service was considered essential to the community and veterinary doctors were assigned free endowments of land, in the same way as the village accountants, physicians and horse trainers. Medicinal herbs were collected from places where they were growing naturally. They were also grown in fields like other crops.

Slaughter houses were regulated by a superintendent of slaughter houses. This arrangement afforded opportunities to the veterinarians to study and make observations on the internal organs of the animals.

During the reign of Asoka, veterinary hospitals were State institutions and were functioning all over the Empire. In a rock edict it is stated, "Everywhere in the dominions of His Majesty King Priyadarsi, and likewise in the neighbouring realms…..everywhere on behalf of His Majesty have two kinds of hospitals been established, hospitals for men and hospitals for beasts. Healing herbs medicinal for man and medicinal for beasts,

wherever they were lacking, have been imported and planted." Thus it is evident that provision was made for the care and treatment of sick cattle, horses and elephants.

8.5 ARBORI CULTURE AND HORTICULTURE

The extent of Asoka's empire can be judged from his rock and pillar edicts. The Kandahar rock edict has an inscription in Greek and Aramaic which shows that among his subjects were Greeks as well as Iranians. There are rock edicts at Mansehra and Shahbaz garhi in the North- West Frontier Province (Pakistan). Along the western coast are edicts at Girnar, Junagadh and Sopara. There is a replica of rock edict of Girnar placed in front of the building of the National Museum, New Delhi. In the south are rock edicts at Siddapura and Maski. In the east are the rock edicts at Dhauli and Jaugada.

In his sixth major rock edict, Asoka says: 'I have now arranged it thus. At all times; whether I am eating, or in the women's apartments, or in my inner apartments, or at the cattle-shed, or in my carriage, or in my gardens — wherever I may be, my informants should keep me in touch with public business.'[18] This edict indicates his interest in animal husbandry and gardens. Asoka also prohibited the burning of forests for driving out game.

Asoka actively promoted arboriculture and horticulture. This was partly due to reasons of religion. The worship of the papal tree was specially enjoined by Sakya Muni himself, who directed Ananda to obtain a branch of the tree under which he had obtained Buddhahood, and to plant it in the court of the Vihara at Sravasti, adding, 'He who worships it will receive the same reward as if he worshipped me in person.' Such being the recorded origin of the reverence paid to the pipal-trees of the last Buddha Sakya Sinha, it is not surprising that tree worship was generally popular. In the Divya Avadana, it is related that the Bodhi-text was the favourite object of Asoka's worship.

For the first time in Indian history we hear of a monarch who encouraged arboriculture and adopted it as a state policy. Asoka encouraged the planting of trees in gardens and along roads in the form of avenues. Rest houses were made; many watering-stations also were made for the comfort of cattle and men, One of the Asoka pillars bears the following inscription: 'On the roads I have had banyan trees planted, which will give shade to beasts and men. I have had mango graves, planted and have had wells dug and rest houses built every nine miles... And I have had many watering places made everywhere for the use of beasts and men. But this benefit is important, and indeed the world has enjoyed attention in many ways from former kings as well from me. But I have done these things in order that my people might conform to Dhamma.'[19]

The Artha shastra also mentions the superintendent of pasture lands. He supervised the construction of tanks, wells, buildings for shelter and flower gardens and fruit gardens. There is every likelihood that this type of administrative arrangement for planting gardens continued under Asoka.

Sanchi provides us with a glimpse of arboriculture in the reign of Asoka. Sanchi is about eight kilometres from Bhilsa, the modern successor of the ancient town of Vidisa.

Vidisa was the junction of two great trade routes, one of which ran west to east from the busy sea-ports of the western coast of India through Ujjain, Kausambi and Benares to Pataliputra and the other south to north-west from Pratisthana, the Andhra capital, to Sravasti. Vidisa was the home of Devi, the wife of Asoka. Sanchi became an important Buddhist centre in the third century B.C. The famous stupa in which the remains of the Buddha were enshrined was built by Asoka in 225 BCE.

As Sir John Marshall remarks: "Asoka himself founded the Sangharama and built this stupa where not only because Vidisa was one of the greatest cities of his empire, but because he wished to honour it as the birth-place of the beautiful Devi and a spot invested with specially happy memories for himself."[20] The stupa was made of bricks, and about the middle of the second century B.C., during the reign of Sunga king Agnimitra, it was encased in stone and the procession path was paved with stones. The stupa was surrounded by a balustrade which reminds one of the wooden palisades and enclosures. The balustrade was pierced by four gate-ways or toranas, which are richly carved. The stupas are covered with sculpture reliefs, showing the Buddha's life and previous incarnations, were added in the period from 72 to 25 BCE. The stones of the procession path, balustrade, and the gateways are gifts from devotees whose names are written in Brahmi characters. Each gateway is composed of two square pillars surmounted by capitals supported by a structure of three architraves with volute ends.

FRUIT-PLANTS

A number of fruit-plants are shown in sculptures from Bharhut. They include plantain, mango, jack-fruit and grape vines. Mango seems to be the favourite fruit and, apart from trees, the fruit-bearing branches are also depicted both at Bharhut and Sanchi. The Yakshi standing under a fruiting mango-tree which decorates a gateway to Stupa at Sanchi is a masterpiece of Indian sculpture. 'Swaying gracefully from a branch of a mango-tree, the vrikshaka is singularly beautiful', says Marshall. 'Holding with both hands to the arching bough of a mango-tree, the salabhanjika "curves the woodbine of her body" in an attitude which brings out her breasts "like urns of gold". Her locks spread out over her back and are brought up on the crown of her head into a curious top-knot, which may be compared to the coiffure of the female servants and jungle-dwellers. Her transparent dhoti is only betrayed by the pleated folds falling at the sides and drawn up at the back between the legs. Her big earrings are broken, but the bangles, which load her forearms almost up to the elbow and her legs almost to the knees and her bead necklace and her girdle of trinketslend themselves to detailed study. The type presents a pleasing compromise between the court lady and the woman of the woods.'[21]

The mango frequently occurs among the sculptures of Bharhut. In the relief showing presentation of the Jetavana monastery, a mango-tree is shown. According to the Buddhist legend, the Buddha, when he was living in Magadha, received a visit from Anatha pindaka, a rich merchant, who offered the Park of Jetavana to him. It had limpid pools, luxuriant verdure and countless flowers. In this park, the Buddha gave discourses to the people.

Grapes are also depicted both in Sanchi and Bharhut. In a sculpture from Sanchi, a parrot is shown carrying a bunch of grapes in its beak , On a fragment of a railing post from Bharhut, now in the Allahabad Museum, a grapevine is carved, and both the leaves and bunches of grapes are shown. The grapevine was growing wild in Kashmir, North-West Frontier Province and northern Punjab.

PALMS

Different types of palms are depicted in Bharhut and Sanchi. Palmyra palm is shown on a medallion from Bharhut. It is a common tree in southern and eastern India, and the accuracy with which it is carved shows that the sculptors were acquainted with it. Wild date-palm is shown in a Sanchi sculpture. A palm, with a man standing below, is depicted at Besnagar.

Buddhism spread rapidly in India under the patronage of Asoka. In due course, it reached Ceylon, Burma, Thailand, Sumatra, Java, Viet Nam, China, Korea, Japan, Central Asia, Mongolia and Afghanistan. It had a humanizing influence on the barbarous tribes in Afghanistan, Central Asia and Mongolia. It gave them a new philosophy of life and developed their moral character. It inspired the great art of Ajanta, whose influence reached Khotan in Central Asia, and Tun Huang in China. It inspired the world's greatest monument at Borobudur in Java, which is still admired for its noble sculpture. Above all, it propagated agriculture and love for trees and gardens.

The political history of India, from the collapse of the Mauryan Empire till the rise of the Guptas about five centuries later, is sketchy and chaotic. Those times witnessed five overlapping but distinct arenas of political action in India. After Mauryans came the Shungas. Pushyamitra, founder of this new dynasty shifted the capital from Patliputra to Madhura. In Gangetic plains, Sungas and Kanvas, successors of the Mauryas, held sway over a truncated and progressively dwindling kingdom. Kalinga became independent under Kharavela, invaded Magadha and captured Patliputra. The northwest India in upper Indus Plain witnessed a succession of invaders; Greeks, Pahlavas (Parthians), Sakas (Scythians) and Kushanas (Yueh chi), who established their rule and sought to extend their power further into India. Sakas reigned in western India for many centuries.

Peninsular India witnessed two sets of rulers. The northern half in Deccan plateau was ruled by Satavahanas, Vakatakas, Vishnukundis and Ikshvakus. The southern half was ruled by Cholas, Pandyas and Cheras, forever grappling with each other for dominance. The Krishna river, bisecting the peninsular landmass, broadly served as a boundary between the two. Of these two regions, it is the Deccan that first emerged into history.

From second century BC to third century AD, when northern India was ruled by Indo Greeks, followed by the Kushans, the Deccan was ruled by a Brahmin Dynasty of Satavahanas. Kotilingala in Karimnagar district in Telangana, followed by Paithan in Aurangabad district in Maharashtra was their capital. Commencing from Telangana, gradually, their power extended over present day Karnataka and Maharashtra, mostly sweeping the plateau lands lying between Godavari and Krishna rivers.

9. SATAVAHANA TIMES

9.1 MAURYANS COLLAPSE, SATAVAHANAS EMERGE

The Original homeland of Satavahanas was along Vindhyan mountains in north western Deccan. Later on, they migrated towards south east around present day Marathawada Telangana lands lying between Godavari and Krishna rivers. Aitareya Brahmana, a text of around fifth century BCE, speaks of them as non-Aryan people living on the periphery of the Aryan lands. Manu describes them as the offsprings of Nishadas (outcast tribal hunters of the Vindhyan mountains) 'who dwell outside the village' and are 'slaughterers of wild animals'. They are also mentioned in the inscriptions of Asoka.

Whatever had been their social background; Satavahanas leaned heavily on Brahminical support and were among the first rulers in Indian history to make land grants to Brahmins. In fact, Satavahanas claimed Brahmana descent and anchored themselves in the Brahamanical vedic tradition. The Prakrit Nashik inscription of Gautami Balasri describes Gautamiputra Satakarni as Ekabamhana (a peerless Brahmana) and Khatiya-dapa-manmadha (one who destroyed the haughtiness and pride of Kshatriyas). References to the performance of the great vedic sacrifices by Satakarni I in the inscription of Naganika at Naneghat suggest that this was an important means of acquiring political legitimacy. The use of matronyms by the Satavahana kings is significant from the point of view of honour and respect accorded to the mother. But, this does not imply that it was a matriarchal or matrilineal system.

Satavahana was a feudatory of the great Mauryan Emperor, Asoka. After Kalinga war, as Mauryans became pacifist, their grip on distant provinces slipped. Satavahana consolidated his position in Deccan and after the death of Asoka in 232 BC, paved the way for independence of his son Simukha. In 221 BC, the latter assumed power, declared his independence from Mauryan tutelage, and named the dynasty after his father, Satavahana.

The new kingdom was to last long, for around four to five centuries. In all, the dynasty saw twenty rulers. At its peak, their rule controlled lands between Narmada and Krishna rivers and stretched from the Bay of Bengal to the Arabian Sea. They rightfully prided themselves as Dakshina path-pati (Lords of the Deccan). According to Pliny, the King had 30 fortified towns and an army of 1,00,000 infantry, 2000 cavalry and 1000 elephants. Sakas in the West, Kushanas in the North and Satavahanas in the Deccan were the three major powers in India during that age.

For a while, they controlled Patliputra too. The imperial Mauryans had ruled from there for hundred and forty years. After a gap of five centuries, the golden Guptas were to rule from there again for another two hundred years. The India they controlled substantially covered northern lands right up to Afghanistan. But, Satavahanas straddled the time zone between the two great empires of Mauryas and Guptas known to ancient Indian history.

Safely ensconced between Godavari and Krishna rivers, the area around Marathwada - Telangana was the nucleus of Satavahana power. For nearly five centuries, they were indeed the Lords of Deccan.

SIMUKHA

'If Satavahana was the dreamer, his son Simukha was founder of the new dynasty. He rallied various clans, invaded and occupied western Deccan.'[1] Due to its strategic location, Pratishthan, on the banks of Godavari was made the capital. His brother Kanha (198 BC – 180 BC) succeeded. Pushyamitra Shunga had captured Magadha by killing Brihadratha, the last Mauryan Emperor, in 185 BC. Around the same time, Kharavela of Chedi dynasty rose to power in Kalinga. In spite of twin upheavals in north and east, Kanha extended his empire towards west as far as Nashik.

Satakarni succeeded Kanha. Pushyamitra in the north and Kharavela in the east were his peer rivals. He continued to push boundaries. Western Malwa, Narmada valley and a part of Vidarbha were annexed, but northern Vidarbha was taken by Pushyamitra. To celebrate his victory, Ashwamedha Yagna was performed. Now, Kharavela attempted to annex eastern territories. His armies reached as far as Kannabenna (Krishna river) and threatened Musikanagar. Satakarni repulsed the attack. His authority being reestablished, he performed another Yagna. After his death at a rather young age, his remarkable widow, Naganika (Naga-annika, a tribal obviously), took control and left her impression upon the administration. She recorded the achievements of her husband in the Naneghat inscriptions in Nashik. After her regency, the empire was divided among her four sons. Division weakened the kingdom and Kharavela armies attacked it, yet again. They destroyed Pratipalapura (Bhattiprolu) and reached as far as Medak and Dharwad. But destiny intervened. In 149 BC, both Pushyamitra and Kharavela died. Suddenly, the shadow of peer rivalry from north as well as east was removed. The incumbent ruler, Satakarni-II was quite lucky.

His long rule extended for fifty six years and became memorable for a variety of reasons. After Kharavela's death, Kalinga had come under the control of Sakas. Satakarni advanced, humbled Vidisha and uprooted Sakas from Kalinga. He moved on to Patliputra, the metropolis and power centre of ancient India. After Pushyamitra Shunga, the Magadha kingdom was full of dissention and Patliputra was easily conquered by Satakarni-II. For the first time in Indian history, a Deccan dynasty had established its sway over northern plains. Satakarni is mentioned in an inscription on the gateway of Sanchi. The successors of Satakarni-II include Lambodara, Ambalika and MeghaSwathi. Very little is known about them.

From 38 BCE to 24 CE, Kuntala Satakarni, Pulumavi and Hala ruled. The dominions included Dakshinapatha and parts of north India. Overall, territories remained intact. But fun and pleasure engaged these rulers more than warfare. Kuntala caused accidental death to his queen Malayavati during love play. Hala married Lilavati, a princess from Sri Lanka and the love story became legendary. Hala himself was known as 'Kavivatsala' or the patron of poets. It did not take long for dominion to weaken. After

Hala, the Satavahanas lost provinces of central and western India and also Magadha. They were confined to their core territories in and around Telangana.

GAUTAMI PUTRA, THE PHOENIX

Gautami Putra Satakarni arose in this gloomy scenario like a phoenix. The kingdom had shrunk to its core. Kushanas, a new force had penetrated the Indo Gangetic plains from the northwest, and were progressing fast. Western Deccan was in the hands of Kshartas. The foreign tribes, Sakas, Yavanas and Pahalavas had embraced Hinduism, settled in India and were busy unsettling Deccan. In such a gloomy scenario, Satakarni defeated his enemies all around. He conquered Anupa, Aparantha, Saurashtra, Kukura and Avanti. He conquered Vidharba, Asmaka and Muluka. As boundaries were pushed, his empire extended from eastern Rajasthan to Cuddalore in Tamil Nadu and from Rishikulya in Orissa to Vaijayanthi in Karnataka. His horses drank water of the three oceans indicating that his armies touched Bay of Bengal, the Arabian Sea and the Indian Ocean. Once again, the glory of the Satavahanas was established.

How did Gautami Satakarni rule his kingdom? Let us see from the eyes of his doting mother, Gautami Balasri, as inscribed in Nashik in Maharashtra, "The King was in strength equal to Mount Himavat, Mount Meru, Mount Mandara … [and was] obeyed by the circle of all Kings on earth; whose face was beautiful and pure like the lotus opened by the rays of the sun; whose chargers had drunk the waters of three oceans; whose face was lovely and radiant like the orb of the full moon; whose gait was beautiful like the gait of a choice elephant; whose arms were as muscular and rounded, broad and long as the coil of the lord of serpents… [who] was unfailing [in his] obedience to his mother; who properly devised time and place for the pursuit of the triple goals [of life: dharma, artha and kama]; who sympathized fully with the weal and woe of the citizens; who crushed the pride and conceit of Kshatriyas; who destroyed the Sakas, the Yavanas and the Pahalvas; who never levied… taxes but in conformity to justice; [whose nature was] alien to hurting the life of even an offending enemy; who promoted the homesteads of the low as well as of the twice-born… who restored the glory of the Satavahana family; whose feet were saluted by all provinces; who stopped the intermixing of the four Varnas, who conquered multitudes of enemies in many battles; whose victorious banner was unvanquished; whose capital was unassailable to his foes; who had inherited from a long line of ancestors the privilege of royal music; [who was] the abode of traditional lore; the refuge of the virtuous; the asylum of fortune; the fountain of good manners; the unique controller; the unique archer; the unique hero; the pre-eminent Brahmin; in prowess equal to Rama, Kesava, Arjuna and Bhimsena…"[2] and so on.

A mother's pride in her son is boundless, especially when he happens to be the King. Gautami Balasri was no exception. It was indeed the high noon of the Satavahana Empire. Gautamiputra was succeeded by his son Pulumavi-II. As he concentrated on his eastern possessions, Sakas asserted their supremacy in the northwest. His brother succeeded him but twice lost to Rudradaman, the Saka ruler and his father in law.

Gautami Putra Yagnasri, like the last flicker of a glowing candle, was the last great King of Satavahana dynasty. After the death of Rudradaman, the indomitable Saka

ruler, he invaded and reestablished his lost authority in north Deccan and central India. Nagarjuna, the famous Buddhist philosopher, adored his court and lived at Sriparvata (Nagarjuna Konda). Nagarjuna was a reputed chemist and was murdered at the behest of the crown prince. The Amaravathi Stupa was enlarged during the regime. Satavahana's decline commenced after Yagnasri's death. His three successors, viz., Vijay Satakarni, Chandrasri and Pulumavi III lost control as feudatories asserted their independence. Trikutakas became independent in western Deccan and Ikshvakus consolidated around NagarjunaKonda in eastern Deccan.

Satavahana's rule, after extending for nearly five centuries came to an end in the early decades of the third century.

9.2 SITES AND SETTLEMENTS

The region spread over Telangana is studded with a large number of early historical sites. Intensive explorations carried out during the last century have revealed early historical maunds in almost at every alternate village. The region, especially lying in the Godavari valley comprising the districts of Nizamabad, Medak, Karimnagar and Warangal was thickly populated during the Satavahana period. This view is reinforced by the account rendered by Yuan Che wang who had travelled southwards from Kosala for about 900 Li (240 Kms) to An-to-lo[3], the modern Karimnagar region with its capital Ping-ki-lo. Alexander Cunningham identified it with Elegandal, about 8 Kms from the present day Karimnagar. Presently, Elangandal[4] has a late medieval fort at the top of a precipitous hill.

The name Dakshinapatha occurs for the first time in the Rigveda where it is referred to as the home for the exiled. It also finds mention in Boudhayana. In Mahabharata, Dikshinapatha is placed beyond Avanti (Ujjain) and Vindhyas and towards south of Vidarbha and Kosala.

The Janapadas, situated to the south of Vidharbha and south Kosala were known as Assaka and Mulaka. We find from Assaka Jataka[5] that a king by name Assaka was ruling from Potali under the kingdom of Kasi. According to Sattanipatha[6], Assaka was situated on the banks of the river Godavari. In Chulia Kalinga Jataka[7], it is stated that Assaka was the king of Potali in Assaka country, when Kalinga was ruling over the city of Dantapura in Kalinga country. Evidently, both Kalinga and Assaka regions were contiguous. Satabhu, the king of Kalinga and Brahamdatta, the king of Assaka were contemporary. Other contemporary rulers were Vessabhu, the king of Avanthi; Bharata, the king of Sonvira; Renu, the king of Videha; and Dhatratta, the king of Kasi. The Mahabharata speaks of the royal sage Asmaka as having founded the city of Podana. Panini[8] mentions of Asmaka in the interior of the Deccan and watered by the Godavari. The commentator Bhatbreshamin identifies Asmaka with Maharastra. All the available evidence points that the present day Pratishthan (also called Paithan) was exactly Potali or Podana; the capital of Asmaka country. Most probably, the region of Nizamabad and Karimnagar was known as Mulaka nadu.

What was the total duration of the Satavahanas rule? In the midst of different opinions, there is a general agreement among the Puranas of the fact that there were 30 kings in all, who ruled for 456 years. It includes 19 kings of the main branch who ruled for 300 years while the remaining kings belonged to the branch line. Simuka was the first ruler of the dynasty, who flourished during the 1st century BCE, over the Deccan lands.

The population during the Satavahana period increased manifold. Agriculture undoubtedly was the main occupation of the people but the growing population did not particularly select sites in the vicinity of major rivers only. With the advent of iron and its various implements, they spread far and wide into the interior inquest of arable lands, preferring alluvial black soil in plain geographies. Most probably, dry crops such as maize, jowar and ragi besides rice formed their staple diet which was supplemented by plenty of fauna and domestic cattle. They had perfected the manufacture and usage of well burnt bricks, too well burnt to have fused by intense heat of the kiln and are as hard as a stone.

Excavations during the last century have brought to light so many sites bearing distinct signatures of Satavahana times. Kondapur in Medak district was the earliest site excavated in 1940 CE during Nizam's times. Subsequently, after independence, the departmental excavations threw open a remarkable treasure trove. Peddabankur, Dhulikatta, Chinnabankur, Venuru, Kapparnapeta, Kotilingala, Kachapur, Bodagattu, Bompalli, Rachapalli, Paidichintalapalli and Khadeem Kanagarthi are situated in Karimnagar district. Karnamannidi is in Adilabad district. Bodhan, Vadluru, Kolakonda and Polakonda are in Nizamabad district. It would appear that river Godavari provided the jugular of population settlements with high density in Karimnagar – Nizamabad region.

9.3 THE CIVILIZATIONAL CHARACTERISM

The early historical settlers in Telangana, especially along Godavari valley had attained a very high degree of civilizational characteristics. Fortified towns with meticulous planning were adorned with gateways, forts, and ramparts in Kotilingala, Budigapalli and Dhulikatta, etc. Innumerable villages were settled for sheltering ever growing population whose boundaries were denoted by a river, mountain, forest or caves.

Town planning was done with appropriate space allocated for worship, statecraft, commerce and defense. Different occupational groups were accommodated in different zones. The fundamental need of supplying water was ensured by the proximity of a perennial river, lake, pond or tanks. The most potent factor giving rise to towns and villages in ancient times was the presence of water in abundance. The water reservoirs were given a special treatment and the contemporary literature is replete with design, repair and maintenance along with dredging details of various structures. The settlements away from the main river were having wells maintained by a householder. At Peddabankur, as many as 22 wells were exposed during excavation. A few were lined with terracotta rings with a square brick casing enclosing the rings at the top course.

Some wells have squarish plan while others are constructed using wedged shape bricks. The antiquity of bricks can be traced back to the Harappan period. Water drawing facility was such as to avoid damage to brick lining. Later on, when the wells dried up, they were used as refuse pits for garbage consisting of pottery, animal bones, ash and charcoal.

Covered drains have also been found along with some of the wells. These drains were paved with bricks and at regular intervals, vents were provided on both the sides to let out excess water. The drain was covered with brick to the full length. None of the wells were found with washing platform around. However, the sewage was allowed to percolate in a pit nearby.

Brick cisterns or troughs formed an essential feature of civic life during the early historical period. Many such cisterns excavated at Peddabankur were constructed of well burnt bricks. Adjoining this cistern was a washing floor bordered with brick. Some cisterns, located at a higher level and adjoined with a brick platform are found studded with fragments of iron slag. This could have been remnants of a blacksmiths workshop.

The towns were inhabited mostly by the king and his appurtenances, traders and service providers. However, the majority population was living in villages and their economic life was a combination of agriculture, animal husbandry and hunting. Many of the towns and villages were raised in the arable plains of black cotton soil. Some of the lands on the outskirts of Kotilingala mud fort had a fencing of stone slabs. Some of the slabs were inscribed with Brahmi characters of the 2^{nd} century BCE.

The clearing operation of the jungles for making the land suitable for cultivation was carried out with the help of flat celts of iron, wafted with wooden handles. The weeds were removed with weeders. A large numbers of sickles found in excavations, most probably were used for harvesting. A spade with a scrapper must have been used for levelling the fields.

The astrological studies about bones of cattle's found testify to the extensive use of oxen in agricultural operations. This apart, many varieties of animals were domesticated for food requirements. They consisted of cattle, buffalo, sheep, goat, dog, swan and rodent. There is also a skeleton of a horse dumped in a historical brick well. The swine population, however was rather low at Peddabankur.

Besides domestication of animals, some people practiced hunting of wild animals, as indicated by a large number of iron arrow heads, lances and spear heads. Game shooting was done with arrows provided with barbs. Among the hunted animals were included deer, pig, turtle and a large variety of birds.

The carpenter enjoyed an important position in the society. Panini mentions three important village artisans known as gramsilpins i.e., the village carpenter, potter and barber. Pathanjali expands the list to five artisans in each village i.e., the potter, blacksmith, carpenter, barber and washerman.

The chief concern of a carpenter was the selection of trees for the suitable wood to be employed for fabrication. Varahimihira throws ample light on this aspect. The timber trees near cremation grounds, the river confluences, in the vicinity of a temple, by the

road side, of those withered at the top, entwined by creepers, thorny, those possessing nests and beehives and those that collapsed due to thunder storm or by elephant or had fallen down in a southerly or westerly direction are prohibited.

The criterion in the selection of appropriate tree is that they should have sufficient strength for bearing the load of the structure and super structure of the building. The architecture in the ancient times mainly related to pillars, beams, lintels and door frames of timber. The entire structure of the roof was made of timber.

Excavations have brought to light a rather huge toolkit used by a carpenter. Various tools include axe, adze, chisel and saw blades. Many kinds of iron nails such as flat headed, bent headed and round topped also include unusually long nails with a length from 20 cm to 25 cm. It is indicative of utilization of that much thick plank of wood. There are also a good number of rivets. These rivets consist of nails of square cross section riveted to squarish plate on either side. Some of the rivets are 12 cm to 15 cm long. There are also many staples.

MINING AND METTALURGY

Metal industry had reached a high water-mark of development during the early historical period in this region. The commonly worked metals were iron (loha), copper (tamra), gold (survarna), lead (sisaka), bell metal (kamsya and glass (kacha).

The knowledge of iron smelting and its forging was known in the peninsular India from the beginning of the first millennium B.C., if not earlier. There are many references in the literature to numerous iron ore producing centres throughout the Deccan, which yielded high grade iron. 'The iron ore was found and smelted at Warangal, Konasamudram, Dindurti, Komarapalli, Brahmanapalli, Mulkanir, Nirmal, Gudkole, Mylavaram, Jagtyal, Yelchel, Rangapet, Konapuram, Kallur, Anantagiri, Lingampalli, Nizamabad'[10], etc. 'The iron ores were collected from the above places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, Yelgandal, Ibrahimpatnam, Kanapur, Chintalpet and Gudkole. The steel produced at Konasamudram was of a very high quality, which attracted traders not only from the different parts of India but also from far off countries like Persia.'[11]

SMELTING OF IRON

'Interestingly a crucible of iron, 15 cm. in diameter, was found at Dhulikatta excavations. Considerable amount of charred wood, leafy material and mud, besides a big well-burnt terracotta cake were found adhered to the concave crucible. The incrustation outside and inside may suggest that it was burnt under a huge pile of wood. In the vicinity of the crucible a squarish cake, with a middle core of solid iron, overlaid with quartz (crystals) pellets, and burnt clay may go to prove that iron and steel metallurgy was practiced as a home industry.'[12]

'The other method of producing stee'[13] was to cut out blocks of iron obtained in a malleable state into cubes, each about one pound in weight. These small cubes were put in crucibles of various sizes according to the purpose for which the steel was to be employed. The fire was then kept up for more than 24 hours, with dried branches of teak,

bamboo and green leaves (cactus) of various shrubs. It is then allowed to subside and the crucible is placed on the ground to cool off. When it is opened a cake of great hardness is found weighing about a pound and a half which is half a pound more than the original cube placed in the crucible. The cakes thus prepared were used for the manufacture of Damascus sword-blades, daggers, knives, spears, arrow-heads, and such others.

FORGING

'Suggestive of the method of forging, adopted in the early historical period, the excavation at Peddabankur yielded a terracotta forge slightly ovoid in shape, measuring 20 cm. in diameter at the broader axis and 12 cm. at the shorter. The uneven wall is of 19 cm. height and of 2 to 2.5 cm. thickness. It has an oblique hole for the introduction of a nozzle of bellows. The inner surface of the wall around the nozzle hole has a lot of incrustation of slag. Associated with the forge there is a rectangular brick cistern (2.37 x 1.42 m.) of four courses, the lowest one projecting outside and the corners on the exterior rounded. Two small brick steps adjoined the cistern. The floor of the cistern was packed with morrum and sealed with a veneer of tiles. In juxtaposition to the main cistern are two more smaller troughs of brick (0.80 x 0.80 m.). The working floor near the forge was thickly embedded with fragments of iron slag. The associated antiquities included an iron ring, a rivet, iron nails, a sickle, an iron knife, constituting the finished products of the blacksmith.'[14]

9.4 THE MATERIAL LIFE POSSESSIONS

IRON OBJECTS

A vast assemblage of iron objects found in early historical sites, particularly in Peddabankur and Dhulikatta is categorized mainly into weapons of war or defense, tools and implements for agricultural purposes, carpentry and household.

WEAPONS OF WAR AND CHASE FROM LITERATURE:

Various kinds of weapons and missiles were in actual usage even from the Vedic period, predating the Satavahana times by at least a couple of millennia. The Attereya Brahmana[15] speaks of 'chariots, yoked with horses, armours, bows and arrows.' In Satpatha Brahmana, we find reference to a thousand spiked, hundred edged thunder bolt. The same authority states that an arrow measured five span in length. Another tool mentioned as Swadhithi may refer to a carpenter's chisel, the chopping knife and razor. For slaughtering a horse during Aswamedha sacrifice, the knives were made of gold, iron and copper, respectively to serve different purposes. A crooked knife, a sword, scimitar, staves, sharp shovel, bows and armours were mentioned in the Brahmanas. The axe was used to cut firewood and in battles as well. In the Shukla Yajurveda[16], God Rudra carries fine weapon, bow, arrow, thunderbolt, scimitar, sabre, quiver and thin arrow, etc.

In Artha Sastra[17], it is ordained that canals should be constructed inside forts for hiding weapons. In those canals, there should be collected staves, spades, axes, staffs, cudgels, hammers, clubs, discus machines and such other weapons which could destroy hundred persons at once, together with spears, tridents, bamboo-sticks with pointed edges

made of iron and explosives, etc. In Buddhist sculptures[18] from Amravati, Sanchi and Mathura etc, we notice mace, club, hammer, spear, lance, trident, bow, arrow, sword, shield, battle, axe, thunderbolt, dagger and chakra.

The weapons of war or chase in Peddabankur included spearheads, lance heads and arrow heads, long spikes, most probably were hafted to a long wooden shaft to be used by horsemen. Arrow heads found in Peddabankur bear similarity to the many historical sites elsewhere like Maski, Nashik, Taxila, Navadatoli and Sisupalgarh.

The agricultural implements included sickle, hoe and the spade. The sickles are most commonly noticed in Hastinapur, Taxila, Kaushambi, Piklihal, Maski and Pauni. The hoe is similarly found in the same locations. The same holds good for the spade.

Blacksmith occupied an important place in the village economy. Panini enumerates his tools as a sledge hammer, axe and tongs. The Peddabankur excavations have yielded a terracotta forge, adzes and tongs.

The carpenter was yet another important artisan those days. His tools included axes, adzes, chisel, drills, saw-blades, etc. Most of these tools along with plenty of nails, rivets and staples have been found in Peddabankur and Dhulikatta excavations. They have also yielded a rich crop of domestic implements consisting of choppers, knifes, razors, tongs, fork, lamps, ladles, domestic trowels, balancing rod, keys, stylus, engraver, antimony rod, toe-ring and ferrules.

The find is not confined to iron objects. There is a considerable number of copper objects too from these excavations. It includes sewing needle, tooth-pick, ear cleaner, finger rings, bangles and anklets, amulets, ear-studs, spoon, stylished palm, jewel box and copper rattle. A bronze or copper figurine of the mother with a child in her arms may probably represent a fertility cult.

LEAD OBJECTS

Pliny[19] says that India had neither brass nor lead but exchanged precious stones and pearls for those metals. According to Periplus[20], lead, copper and tin were imported into Barygaza, Muziris and Nelcynda. We may therefore infer that Telangana, like other parts of India was not producing enough quantities of these metals in the early historical period but depended on the imports from Rome and other western countries[21] like Spain and Britain.

Lead, together with copper was mainly imported for coinage. It was also used to make into thin sheets for providing foils in the manufacture of mirrors[22]. Many coiled strips of lead have been excavated in Peddabankur. There are very few objects made of thin foil of gold. There is a necklace with majority beads of amethyst, lapis lazuli and just a few of gold and jasper. The Kotilingala excavation however yielded a beautiful gold headed necklace. The heads are in the shape of gadroon, vajra, sundisc, nandipada, frog and tortoise.

Silver objects were also rare and represented by just a waist-band of beads. The heads are 21 in number and are hollow from inside and made of this sheet of silver.

BONE, SHELL AND HORN CRAFTS:

Besides metal smiths, the artisans of bone, shell and horn led a very flourishing profession. The horn objects mainly consisted of arrow heads and beads. The bone objects of game dice and the shell objects of ornaments such as earrings, finger rings, beads and bangles, while the rich people were wearing bangles and other ornaments of gold, the common folk resorted to shell ornaments such as bangles, finger rings and earrings etc. Gem industry with a multitude of colours was also a prosperous industry. The common semi precious stones used for beads are carnelian, agate, garnet, bloodstone, beryl, jasper, amethyst, quartz crystal, lapis lazuli besides glass, terracotta and shells.

9.5 DRESS AND ORNAMENTS

We have the evidence of dress during Satavahana period from various sculptural representations and terracotta's, etc. Whether it is a male or female, the upper garment was shown in most artistic representations. Uttariya or upper garment was a kind of scarf thrown around the shoulders. It was worn by men, especially while performing a religious duty. The lower garment, or antariya corresponding to the dhoti was held in position by a waist band (kamar bandha). The upper and lower garments were known as 'Satakas'.

In Dhulikatta, many of the Yaksha and Yakshi adorn a pair of Satakas arranged in a variety of ways. Curtius Rufus stated that the Indians covered their persons down to their feet with fine muslin, shed with sandals and coiled cloths of linen around their head. Arrian also recorded that the dress worn by the Indians was made of cotton. They wore an undergarment of cotton which reached beyond their knees, half-way down to ankles and an upper garment which they threw partly over their shoulders and partly twisted in folds round their heads.

However, if we look at art, paintings or sculptures, both males and females are dressed scantily. The subtleties of art would cover the body so profusely as to conceal the exposure of female body in an appropriate manner. There were a variety of ornaments worn from head to toe. A few of them are described as follows:

The head ornaments (Mastaka Sabhana) consist of a jewel of the forehead and a decorative piece over the hair-knot.

A fan strapped hair-dress made into a Makarika (Mythical Crocodile) adorns mother Goddess. Chandrakarnika is an ear ornament made of terracotta, glass, rock crystal, lead and copper. Chandrakundalas with pulley and grove structure adorned ears. Pendants, nose ornaments and necklaces were available in countless varieties and sizes. Bangles were worn both on hands and feet. Similarly, rings with certain inscriptions were also in use. Girdles or Mekhala were worn to keep the lower garment in right position. A girdle had multiple strands. Nagarjuna Konda sculptures are excellent examples of Mekhala with circular elapse over the waist of two ladies.

Anklets are equipped with small metallic rattles so as to produce rhythmic sound along with the movement of a lady.

It is, therefore, quite evident that a host of ornaments, literally meant for every part of the body were in use in those times. It did not require much effect for an artist to literally cover a human body, including female from head to toe in a cascade of ornaments.

FOOD HABITS

Agriculture, hunting and domestication of animals were the main basis of subsistence. Cultivation was on dry as well as on wet lands. The later was made possible due to low lying topography or tank irrigation. Dry lands yielded ragi and jowar while the wet lands yielded rice. That must have been the staple diet of the population.

The hunting of wild animals and the consumption of domesticated animals, particularly sheep and goat supplemented their food requirements. The other domesticated animals included cattle, buffalo, horse, dog and swine etc. rodents were also captured for food. The food habits of Peddabankur dwellers are amply demonstrated by a large collection of bones from the excavations. The astrological study revealed that the cattle flesh mainly formed part of their diet. Sometimes, the bones are also found to be charred.

The study of animal bones at Yeleshwaram reveal the presence of sheep, goat, swine, fowl, rat, tortoise, fish and crocodile. The site is located on the banks of Krishna, at which crocodiles were commonly seen. It is not known whether the flesh of crocodile was also consumed along with those of the other species mentioned above.

RELIGION

During the early historical period, the religious beliefs centered around the local primitive forms of worship and rituals. The early inhabitants believed in village Gods and Goddess, trees and serpent cults and probably practiced the worship of spirit. The figure of mother Goddess dominates the metal or terracotta figurines. It also points towards the dominant mode of worship during those times.

In the early levels at Dhulikatta, the Mother Goddess is seated on a pedestal with legs dangling and holding a baby on the left hand, while the right hand is resting on her knees. The figurine, dated 2nd to 3rd century BCE represents the fertility cult.

A similar figure of the mother and child in Yeleshwaram is flanked by a humped bull. In the rock bruisings at Mudumala, we find a humped bull and a mother Goddess with hands upraised. Whether the humped bull is just an animal, who ploughed the fields or represented early forms of Puranic Siva is not clear.

In Peddbankur, we have two types of Mother Goddesses. One is there with the upraised hands and the other holding a bunch of fruits, while a parrot is nudging her breasts. The third comes from Dulikatta, where the Goddess holds her prominent breasts upright with her hands from below.

There is also a terracotta sealing of Gajalakshmi dateable to around 1st century BCE. The Goddess is shown standing naked in a lotus pool and being bathed by two elephants with pails in their trunk. The elephants are standing over the lotus leaves

supported by long stalks. Goddess Lakshmi is probably the earliest among the deities to be represented in clay. She also appears in a variety of forms at Barhut, Sanchi, Bodhgaya, Manwada and Nandasur, etc.

Peddabankur and Dhulikatta have also yielded a good number of archaic terracottas of human and animal figurines. The Mother Goddess are hand made with the hands depicted like pointed masses with protruded and pointed breasts. The alienated waist line broadens towards the hip. The face is featureless mass sometimes with a halo. Coomaraswamy wrote, "A nude and steatopygous type occurs throughout the most ancient world, from the Central Europe in the Neolithic times to the Gangetic valley. Quoting Coltz, he said, "She is the great mother and it is she who makes all nature being forth. All the existing things are emanations from her. She is, 'Madonna' carrying the holy child or watching over him. She is the mother of men and animals too. She even makes the plants grow by her universal fecundity, perpetuating the vegetative force of which she is the fountain head."

The worship of serpent is attested by figure of a snake made from iron from Peddabankur. The worship of snake or Naga is as old as the Vedic times. One of the principle Nagas is known as Takshaka. The Vedic hold continued unabated right up to Satavahana times. The Naneghat inscription records a number of sacrifices by Gautamiputra Satakarni. His gift of cows, elephants, money and dakshina to Brahmins prove the great hold of the Vedic rituals on their courts and entourage. The mention of various deities such as Dhamma, Indra, Shankarshava, Vasudeva, Chandra and the four lokapolas i.e., Yama, Varuna, Kubera and Vasara (Indra) show that the Deccan was passing through a transition phase from Vedic to Pauranic pantheon. The invocation of Dhamma in precedence to Indra and Shankar shava etc., is also an indication of Buddhist learnings and its equation with the existing Vedic and Brahminical faith. Shaivism was still evolving but by the time of Gatha Sapthasati, Pasupati, Gauri, Rudra and Parvati, Lakshmi, and Narayana have arrived on the scenes and preceded all others.

The present day Telangana lands and its people were influenced by Buddhism long before the times of Ashoka. For the same reason, this land was not mentioned among the countries to which monks were sent by Tissa, after the third Council during the third century BCE. It can be reasonably deducted that Buddhism percolated in Telangana lands due to the initiative taken by Baveri, a Brahmin on the banks of Podana as early during the last quarter of fifth Century BCE; sometimes around 487 BCE.

GAMES AND AMUSEMENTS

The people relaxed themselves from the drudgery of routine chores by indulging themselves in various sports and pastimes, which included indoor and outdoor games and other recreations.

The game of dice has been a very ancient pastime. From the earliest known prehistoric times, it is known as *akshadyuta*. As the dice are marked with circles and pellets in the shape of an eye, it is likely the game assumed the above name. It may be similar to the present day *chaupara*. It was participated by both women and men. The

game board *(dyuta phalaka)* is represented in many sculptures of the early historical periods, such as Bharhut, Bodhgaya, Nagarjunakonda, etc.

From Peddabankur we have two varieties of dice: one is an oblong prism and the other is a square cubical. Majority of the dice are oblong. Each consists of four edges marked with circles with a middle dot. The dice are made of bone and horn.

'The other favourite pastime was hunting which is mentioned as lubdhayoga by Panini.'[23] It is also known as *akhetaka* or *mrgaya*. The weapons employed for hunting mainly consisted of bow and arrow. Sometimes hunting dogs *(visva-kadru)* accompanied the party for frightening away the animals out of their hideouts. *Lubdhayoga* may possibly mean hunting as an occupation and *mrgaya* is a sport. The various merits and demerits of hunting have been discussed by 'Kautilya'[24]. The animals chased included deer, hare, boar[25], bison, fowl, tortoise[26], etc. We find in the Bharhut sculptures a set of boars being attacked by with a short spear and two hounds pouncing upon it. Hunting with long spears was common from the proto- history period.

BIRDS AND ANIMALS

In the terracotta figurines, we find many figurines of birds such as sparrow, kokila (Indian cuckoo), cock, parrot, etc. which were domesticated in the early periods to convey messages between lovers. In one of the figurines of Mother Goddess, made of kaolin, a parrot is on the right arm of the Goddess. In a panel of a railing pillar at Mathura, a woman is seen with a parrot. In the words of Agrawala, "the pillar shows a female figure, dancing in one of her love ecstasies, after she has received the message of love conveyed to her by a parrot which is the vehicle of the God of Love". The bird is perched on her girdle and nibbles at the binding knot. Peacock was also possibly domesticated as represented in an amulet plaque from Dhulikatta.

Animal fights were popular from a very ancient period. These included fights of ram, cock, bull, etc. The figures of ram are of very common occurrence in terracotta. Vatsyayana mentions the quail-fight (partridge), cock-fight, and ram-fight, the talk of parrots and mainas and dramatic performances as pretexts to bring a client to the residence of a courtesan. It appears that buffalo and elephant fights were also common.

GAMES OF WOMEN

The games for women are mostly of indoor variety which included the game with the ball (kanduka krida). This game was mainly intended for physical exercise. The girls who liked the gaming played it so much till they were completely exhausted and their palms became red and swollen. It is not clear as to the material with which the balls were made of. It is possible that balls of wood, wool or flowers might have been made use of. In the Karimnagar region, the practice of playing with balls of leaves of various species is in vogue. The girls collect leaves and make them into balls and secure the ball by tying strings. The other method is to fill-up a small sack of cloth of tamarind and custard apple and then close its mouth tightly. The other type is a dried fruit of kapitha or wood apple or bilva and custard apple. The girls used to play a number of other indoor games such as hide-and-seek and run- and-catch which are graphically described in the Kamasutra. The

game of hop-scotch appears to be also popular a attested by a number of rounded potsherds in the excavations. Similar pottery discs are commonly found in almost all the early historical and proto-historic sites. Peddabankur excavation has recorded a good number of such pottery discs.

BURIAL PRACTICES

The excavations at Peddabankur and Dhulikatta have not yielded any human remains in and around the sites. One of the possibilities could have been that the dead bodies were carried to far off places for disposal at a common burial ground. The another possibility, perhaps more plausible was that the dead were cremated and therefore no semblance of human remains was left behind. The charred bones from the pyre were collected to be immersed in the waters of the rivers, especially at the place of confluence.

Some Megalithic burials consisted of post cremation charred bones besides past excavated remains. The post cremation bones are dated later than the excavated ones. The transition from excavation to cremation and subsequent immersion in river confluence clearly points to Vedic influence.

An extensive cremation ground during the Ikshavaku period at Nagarjunakonda is a decisive proof that the people had forgotten Megalithism long back. Some memorial pillars eulogizing the merits of the dead were erected at the cremation ground. Some of the hero stones, carved the figure of the dead, such as Sirichantamala, the Ikshvaku king, with an epitaph containing a long account of the great deeds of the dead. Megalithism may have continued, not among the general public of the age but it retreated to the hilly region or forest, where such primitive rites are still continued among some tribal people.

The antiquarian remains and the structural remains at Peddabankur and Dhulikatta pertains to two phases i.e. the pre-Satavahana and Satavahana. Based on various sources like pottery, iron, coins, inscriptions and most conclusively radio carbon dating, we arrive at a chronology ranging from 3rd Century BCE to the 2nd Century BCE.

WEIGHTS AND MEASURES

In Satapatha Brahmana, the word prasrita has the meaning 'handful'. It literally means stretched-out or expanded. Similarly the term 'anjali' is also a measure which is two handfuls. It is still known as 'dosili' in Telugu. The pana, a handful was derived from pani the hand. The Indian pana was a handful of cowrie shells reckoned as 80 raktika seeds in weight (144 grains).

The weights (pratimand) were usually made of iron or locally available stone or of such material which neither contracted when wetted nor expanded when heated. A balance is called samavritta when its lever measures 72 angulas long and weighs 53 palas. The balance is sometimes graduated. The scale pans, according to Varaha Mihira, should be 6 angulas in diameter and be fashioned from linen cloth. Each of them connected to the balancing rod by means of four strings.

There are a good number of balancing rods of iron from Peddabankur excavations. The bigger rods measured 40 cm., and the smaller ones 30 cm. The rods are thickened in the middle and taper off to either end. Many of them being incrassated, it is

difficult to find out the marks of graduation. The centrally thickened rods may indicate that they were of double panned balances.

The excavation yielded two recognizable weights: one is a cubical, made of black basalt and the other is a perfect sphere of black granite. The basaltic weight measured 120 grains and is hexagonal. The base is flat and the top is convex. The second weight, which is a sphere, appears to be made on a lathe and weighed 70 grams. Interestingly, it was stamped with the Ujjain symbol, four circles connected by a cross. Evidently, it was issued under the royal authority. It may prove that the weights and measures were standardized. Kautilya.' prescribed that the weights and measures should be manufactured under royal authority. Common people must have used riverine shingle as weights - a large number of which have been found in the excavations.

The earthen pot was used as a measure of grain. Kautilya, mentions that two hundred palas of grain (masha) make one drona, 16 dronas make one vari or 20 dronas make one kumbha and 10 kumbhas make one vaha.

Interestingly, the excavation at Dhulikatta yielded a large number of saravas or kumbhas, half-kumbhas and quarter-kumbhas. They were found inside a brick granary within the palace complex. The sarava, with a narrow mouth and everted rim, has a globular body. The half-sarava has a bevelled rim. The red slip of the vessels is much abraded and now visible in patches.

The straight-sided vessels, slightly tapering to the mouth with featureless rim and rounded base, from Peddabankur excavation, may also have served as cubic measures (parimana). One pot has three incised grooves at the top, 2 cm. below the rim, the second in the middle; 8 cm. below and the third at the base, about 17.5 cm. below. The mouth has a diameter of 13 cm. and the total height is 24 cm. Similarly cylindrical vessels, made of sheet iron, are commonly known as addas or manikas. Forty such addas make one goni or sackful.

Half of one adda is a thavva, half of thavva is a sola and half of sola is a gidda.

Many pots from Peddabankur and Dhulikatta were stamped with nandipada or trident. If the symbol is only of ritualistic purport, it would not occur so commonly. It is likely that the nandipada was another royal standard mark. The symbol may represent the Mother Goddess and in this context Dhanya Lakshmi; the stamp of the same over is quite appropriate.

9.6 URBANIZATION

There are clear evidences of urbanization during the early historical period. Like India of the present day, the Telangana region, during Satavahana times, was marked by both the urban and rural areas. Politically and commercially important towns, such as Dhulikatta, Kotilingala, Vadloor and Budigapalli etc., were surrounded by mud fortifications with gate- ways at the cardinal points. Kautilya, states that on all the four quarters of the boundaries of the kingdom, defensive fortifications, against an enemy at war, should be constructed. The fortifications were of four kinds; a water fortification

(audaka jaladurga) such as an island in the midst of a river; a mountainous fortification (parvatha durga); a desert (dhanvana durga) such as a wild tract, devoid of water and overgrown with thicket; a forest fortification (vanadurgd) full of wagtail, water and thickets. Many of the fortifications in this region were found on the plains and it is beyond our knowledge whether some of these forts, to be designated as vanadurga, were surrounded by forests as most of which is now denuded.

However, we have evidence of a jaladurga at Kotilingala, where the mud fort is situated at the confluence of the Kapparaopeta vagu and the river Godavari. The 50 hectares extensive historical site is encompassed by a mud fortification with gate-ways at the cardinal points.

The mud ramparts were raised with the earth dug out from outside the settlements and the trenches thus excavated simultaneously served as moats. It appears that these moats were full of lotus flowers, as found in the sculptural representation at Sanchi. According to Pliny, the cities were defended by marshes, which served as ditches wherein crocodiles were kept. They are known to have a great avidity for human flesh and prevent all access to the city except by a bridge. At Dhulikatta, there are traces of a moat around the ramparts. Unlike the Kotilingala, Dhulikatta fortification was raised in the midst of arable plains and provided with four gate-houses and the guard-rooms- The gate-house, with sufficient space in the middle for a pathway, was provided with casemates or ambush niches, on either side. The gate-way must have had one or many storeys with a terraced roof, railings and pillars. The middle path-way was paved with rubble and veneered with a thick layer of sand and morrum.

Wheeler's excavation at Brahmagiri also brought out a 5.30 m. broad street as at the Isila town site. It is paved with rubble and the boundaries are marked by flat slabs. Similar may be the case with the important roads inside the towns of this region. However, it appears that the national highways were not paved.

As many of the settlements have grown up on the banks of major and minor rivers, people might have covered distances by boats, as the journey by water was safer and far cheaper than by roadways. The un-paved roads would not be of much use during the rainy season. Further, the larger quantity of internal trade and commerce used to be carried by the rivers due to lack of all-seasonal roads. Even the existing ones passed through thick jungles, infested by wild animals and highway robbers. The goods had to be transported by carts, drawn by oxen or buffaloes. Horses were very few and practically monopolised by the kings for use at times of war. An inscribed terracotta-seal from Peddabankur reads as "Mahatalavarasa Vajasamikasa Seva Sabha." In the middle of the inscribed seal is the figure of a horse. Here the Mahatalavara calls himself Vajasasri or 'the lord of horses.'

Elephants were also used for the movement of cargo but it was a slow mode. The region has a net-work of perennial and navigable rivers. The rivers were crossed by boats. They were made of wattle and covered with animal skin for making it water-borne. These were known as bhastra. Even horses were transported from bank to bank by these puttis during times of war. In Periplus 288 it was mentioned that the bigger vessels, known as

sangara, were made of logs bound together, but those which made the voyage to the Chrys and to the Ganges were called Colandi which were very large.

ROAD-WAYS

The planning of roads and their construction formed an important part of town-planning. According to Aitareya Brahmana, the royal thoroughfare was known as rajapatha and the national highway as mahapatha. The mahapathas were connected by numerous feeder roads, leading to different parts of the country. The rajapatha was well constructed and comparatively free from the dangers than mahapatha. The rajapathas and roads of important towns were paved with rubble Arthasastra mentions chariot roads, royal roads, and roads leading to minor forts, to countryside and pasture-grounds, etc. But it appears that the condition of the national highways was bad. In the Periplus, it is mentioned that the cargo is brought to Barygaza from these places, by wagons and over great tracts without roads.

The Telangana region was traversed by highways from the North to the South and from the East to the West. The caravans travelled from Vidarbha region to Andhra, from there to Dhanakataka towards south-east and to Govardhana country (Nasik region) towards west. The northern route from Akara Avanthi (Ujjain), after crossing Narmada and proceeding to the ancient town of Bahal (district East Khandesh) from where the caravan either went south to Prathisthanapura or west to Nasik. When Hiuen Tsang travelled from Kalinga to Kosala, which is about 1800 Li, the country was surrounded by mountains and a succession of woods and marshes. The route through this region to Paithan was covered with thick jungle, infested with savage beasts of prey. The ox-carts would be used near each end of the journey. Much of the goods must have been carried by caravan of pack animals. Daurte Barbosa 292 (1500 A.D.) reports: "They bring their goods-laden on great droves of trained oxen with pack saddles, like those of Castillo, and over these long sacks thrown across, in which they pack their goods and behind them goes a driver who drives twenty or thirty oxen before him".

DRAINAGE AND WATER-WAYS

The sewage from the houses and wells was led out through covered or subterranean drainage. This was evidenced by a drain of bricks at Peddabankur placed in three courses with an intervening of 12 cm. for the drain. The floor of the drain was also paved with brick. Much care was bestowed on to see that no breakage occurs. It was provided with a series of side-vents at regular intervals at both the lateral sides for letting out water to percolate into the earth, so that the drain till the end need not carry the entire sewage. At the end of the drain, a deep 'V'-shaped pit excavated to let the drain water fall into it. In another case a terracotta soak-well was provided to let out waste water from a brick well. But it appears none of the wells have washing platforms around. The sewage was allowed to percolate through or led out to a pit in the vicinity but care was taken that the percolated water did not enter again into the well by steening the wells with brick and the gap between the brick lining and the trench wall dug cut for the construction of the well was packed with morrum and hard earth. At Dhulikatta, it was noticed that a drainage was lined with a series of terracotta pipes by inserting one into the other. In

other case a well inside the palace complex had a long covered drain which was led out to a soakage-pit.

The fundamental necessity for a town or a village was a good natural supply of water. Most of the towns and villages were situated on the banks of rivers or nullahs with plentiful supply of water all throughout the year. The Kotilingala mud fort is situated on the banks of river Godavari. Likewise the township of Dhulikatta is on the right bank of Hussainivagu and Peddabankur is situated about 10km down-stream, on the same nullah. The nullah used to dry up during the summer which necessitated the construction of several brick wells at Dhulikatta as well as Peddabankur. Peddabankur excavation exposed as many as 22 wells; most of them steened with wedge-shaped bricks. There is only one well steened with terracotta rings. Even these wells dried up in the course of years and later used as refuse pits into which garbage, such as animal bones, broken potsherds, charcoal and ash, etc., was thrown in. In one of the wells at Peddabankur a complete skeleton of a horse was found. Many other wells contained a large collection of animal bones.

Water was mainly stored in huge earthen ware jars and brick cisterns. Some of the cisterns at Peddabankur were paved with bricks over the floor but some had a flooring of hardened morrum by ramming us.

INDUSTRIES

Unlike the present day, industries were not monopolized by a few individuals during those times. There is no evidence of the existence of either big industries or big business. The settlements were concentrated at the places where raw material was abundantly available. But industries were of cottage type.

They were scattered from village to village and every village or town was self-sufficient. Iron ore was collected and brought to the towns or villages where it was smelted and forged. The smelting furnaces consisted of simple terracotta or brick kilns. Even in some cases it consisted of a heap of cow-dung, covered with green leaves, cactus, etc. The crucible in which steel was produced is only 10 cm. in diameter. The occurrence of large quantities of iron slag, at almost all the settlements, is a proof that iron-smelting was practiced as a home industry. Iron ore was found at Warangal, Konasamudram in Nizamabad district, Dindurthi, Jagtial, etc. The entire hill range from Tellakunta to Dongathurthi, about 5 km. from Dhulikatta, is full of iron ore. Ancient iron-working spots were noticed over a series of hills near Tellakunta. The iron ore was collected from the places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, etc., which attracted traders not only from different parts of India but also from abroad. The swords made of fine Indian steel have been very famous since the time of Ctesiss and the Roman trade in the Indian iron and steel was a very important one. It appears the Indians sent their steel in their own ships, probably to keep the secret of its production.

Next to iron, copper was an important metal required for coinage, ornaments, etc. In fact, most of early coinage was in copper. According to Periplus copper was exported from Barygaza to Oman and the Persian Gulf. Pliny too mentions that copper, iron and

red lead were shipped from India to the Persian Gulf and the ports of Red Sea for marketing. Cosmos attested that copper was found at Kalyan and even Ptolemy speaks of numerous copper mines in India. However, the evidence of either smelting or forging of the metal is not clear. The entire coinage and many of the ornaments were made of copper.

It is certain that lead was a rare metal which must have been imported from the Roman Empire through the western ports of India. It appears that lead was imported in the form of strips as attested by a large number of coiled strips at Peddabankur. Lead was also used for making thin foils for the manufacture of mirrors. There are also some ornaments such as bangles, beads, etc., besides coins.

Indians have, from a very early period, an excellent knowledge of gems. According to Arthasastra experts were stationed at the royal treasuries for acquiring gems to the royal household. The practice of collecting gems was common during the early historical period. The gem cabinet was an essential part of every rich home, but the ordinary people used glass imitations. The gems were used in several ways such as stones for finger rings, necklace, diadem, bracelet, etc. The gems included the diamond, opal or agate, carnelian, sard, onyx, emerald, bloodstone, jasper, cat's eye. amethyst, rock-crystal, sapphire, beryl, lapislazuli garnet, etc. It appears that the rivers and their basins formed the chief sources of the gems. The Indian rivers were popularly known as gem-bearing. .

COMMERCE, MARKET TOWNS AND PORTS

Commerce occupied an important place in the life of the people. We find several cases of workers prominently figuring in the contemporary records, such as Kularikas (potters), Udayantrikas (hydraulic engineers), Tilapisakas (oil millers), Dhannikas (corn-dealers), Kolikas (weavers), Vasakaras (bamboo workers), Kasakams (brasiers), etc. Each of those artisans had a guild or Sreni of their own. The Srenis were corporate bodies wielding great influence in the state. Sreni-dharma had the force of law. The special feature of these associations was the banking facilities provided by them. An epigraph of Usavadata speaks of the craftsmen who were organized into powerful guilds "as those kahapanas have been invested in guilds dwelling at Govardhana (as follows) 2000 at a (monthly) rate of one padika per hundred with a guild of weavers (Kolikanikaya) and one thousand in another guild of weavers at the interest of 3/4 padika per hundred (9 per cent). And those kahapanas are not to be repaid their interest only to be enjoyed".

The kahapana of the time was of good silver as proved by some of the silver coinage issued by the Satavahana kings. Most of the crafts and trades were organised into guilds. We hear of a Dhamnika Senni, a Kasakarasem (Kamsyakara sreni) and a Tesakaraseni in Junnar inscription. Each guild had an elder man called sethin (sresthin). There were nigama sabhas or town halls for congregation and business by the guilds.

The market towns in the interior were Paithan, Sagara, Junnar, Kashakata, Nasika, Govardhana and Vejayanti. According to Periplus , Barygaza or Bharukacha (modern Broach) was the northern most port in the Dakshinapatha. The imports and exports were graphically described by the author of the Periplus. They are the Italian, Laodecian and Arabian wine, copper, tin, lead, coral, topaz, fine and coarse cloth, storax, sweet clover,

flint-glass, realgar, antimony, gold and silver coins. The exports were spikenard, costus bedellium, ivory, agate, carnelian, lycium, silk cloth, mallow cloth, long pepper, etc.

The Satavahana port town of Sopara or Soparaka is a few miles to the north of Bombay but the greatest port in western Deccan was Kalyan which is the 'Calliene' of the 'Periplus'. In the eastern Deccan the important market town was Danakataka, and the port towns were Kantakossyla, Kodura and Allosygne in the Maisoliya region, which according to the Periplus stretched a great way along the coast, before the island country.

ART

During Satavahana times, the sculpture, just like architecture had reached a very high degree of consummation. The Buddhist Stupa at Dhulikatta was decorated with forty seven curved ayaka slabs, found mostly intact during excavation. The curved slabs on the northern ayaka platform consisted of five hooded Machilinda Naga, protecting the feet of lord Buddha. On both the flanking slabs are two ladies standing; the lady on the left holds a lotus bouquet in her raised left hand while her right one is dangling. She wears a cubical ear ornament stamped with a beautiful lotus medallion; the profuse hair made into a side knot, a broad necklace of several strings, a broad waist belt, she also wears series of bangles and a beaded wristlet with a jewel in the middle and massive anklets.

The lady on the right has more suggestive figure. Her right hand holds a flower but left hand rests over the left hip. Her ear ornaments, necklace, armlets, bangles and mekhla are similar but the diaphanous undergarment secured by a knot below the navel is quite distinct. She stands in a graceful feminine gait with her upper body slightly bending forward, her left leg firmly placed on the ground while her right one is loosely resting on the toe.

There is another figure of a Yaksha represented as lifting, with his two upraised hands, a slab on which an ardha-padma is depicted. His ears hands and legs are similar to those of an elephant. He squats on the ground and the loin cloth covering his genitals, shown in incised vertical lines, flows downwards. It may be personification of Indra's elephant, Airavat. The slab on which the Yaksha is depicted aptly faces east.

Another pilaster at Dhulikatta has a relic carving of the miracle of Sravasti in which Buddha is shown as a pillar of fire, basing over a heap like mass of water and lounges of flame. This is possibly an early representation of the Nandipada datable to 2nd Century BCE.

Besides the solemn religious scenes, there is display wherein body parts are displayed with sportive themes. In one panel, a man, with his genitals prominently shown, hold the tail of a fleeing tiger. Behind is the confirmation of the scene in which a man is urging an elephant with his right hand while his left hand is stretched out. He may be chasing an elephant.

The artistic representation at Phanigiri is qualitatively less yet quantitatively numerous. During scraping operation, a beautiful limestone sculpture of Yaksha came to light. He is shown with bulbous eyes and an aquiline nose. His elongated earlobes adorn ornaments while he wears a turban around his head. Yet another dwarfish Yaksha,

probably a Kubera has a protuberant belly. He also wears Chandra kundalas, broad bangles and a turban. He also holds a long staff in his left hand. Yet another panel represents a fleeing bull chased by an elephant. The elephant is thwarted by a man standing between the two animals by showing his outstretched hand towards an elephant.

"The third type of Mother Goddess is found at Dhulikatta (Plate 95V. It is made of finely levigated clay. The back portion and body below the breasts are missing. The Goddess holds her prominent breasts with her hands from below. She wears a beaded yajnopavita passing over her left shoulder through the middle of the breasts, a torque (kanthi or griveyaka) around the neck, crescentic ear-ornament (chandra karnika), a beaded fillet over the forehead with a crest jewel and beautifully combed hairs towards right (probably made into a side-knot). The ornaments such as the kankanas, keyuras and the lalatika (crest jewel) are in a pleasing harmony with the smiling expression of the benign Goddess, depicted with parted lips, narrow eyes and bulbous cheeks.

We find similar Mother Goddesses from Babylonian, Elamite and Neo-Babylonian civilizations, dated from 2nd millennium B.C. Where the Goddesses hold their breasts with hands, It may possibly represent Goddess as giving milk or life juice. These figures have been ascribed to the Bronze Age and dated to circa 2500 to 1200 B.C. 1 R4 The Babylonian Mother Goddess, Nana or Ishtar, is not only the source of Fertility but also the Gracious Mother of Mankind and the Goddess of Love. In that aspect she is the Aphrodite of Babylonia. The Goddess Ishtar was sometimes identified with Venus, 'the daughter of Sin'.

On one of the ivory mirror handles from a tomb on the hill of Juno, Carthage, a Phoenician Goddess, is represented as holding her two breasts from below. The Goddess is shown standing and has a long decorated girdled robe which reaches to the feet.

This type is very similar to the nude female figure with hands doubled up to touch the breasts, as cited by Ananda Coomaraswamy, which is said to have come from Peshawar district. The figure of Mother Goddess from Mathura of the Kushana period, dated to 2nd century A.D., now displayed in the National Museum, New Delhi, is identified as Sri Lakshmi. The Goddess holds her right breast with her left hand, while her right hand points the sex.

"Among the other Peddabankur figures there is a kaolin figure of a boy with a turban-like head-dress. He wears heavy kundalas resting over the shoulders and his right hand simply kept over the thigh. The figure is devoid of other ornamentation. As such, it may be the representation of a commoner boy of the early historical period."

POTTERS AND POTTERIES

Pottery had formed one of the most essential necessities in the daily life of all the people. Metals had always been scarce and therefore, the pottery objects filled in the gap of a myriad needs of the society.

The entire range of pottery, recovered from the early historical age was mostly wheel made. Broadly, the pottery may be classified as utilitarian and ritualistic, the former being more numerous. This type include storage jars, water vessels, carivated

bowls, bowls with lid, deep bowls, dishes, globular vessels, lotas, wine vessels, lamps ring stands, small bowels, chattis, measures, lamps, lamp stands and dishes etc. Ritualistic pottery also had a limited supply. A globular vase stamped with triratna or nandipada at four places is one such item. But with three perforations, one at the top and two at the bottom, probably represents visage. The pot way represents the Mangalakalasa into which the Goddess was invoked. The dishes with spiral design may have been used for religious offerings. Several pots, stamped with trident could have been used as a censor or offerings. Decorated pottery along with graffiti marks which includes arrow, triangle, plough, fish, circle enclosing a cross, bow and arrow, inverted trident and parallel line intercepted by another set of parallel lines have been found in good numbers.

ROMAN COINS

A large number of Roman coins of the Imperial period travelled to India. It was brought by the traders during the last centuries of the Christian era. These coins have been discovered in many parts of peninsular India including Telangana. The movement of the coinage from Rome to India took place in two forms. Merchants, carrying on large transactions with foreign countries, found gold coins a necessity for possession as wealth and for commercial transactions. The silver coins were also essential for small change. Much of the Roman currency found in India was brought by the Roman subjects to India in order to buy whatever goods they were unable to get by exchange of Roman products. Pliny states that at the lowest reckoning, India, Seras and Arabia drained off the Roman Empire, a hundred million sesterces a year.

About 47 silver coins consisting of 39 Roman Dinari and 8 punched marked coins have been found in the village Nusthulapur in Karimnagar district. Of them, 13 are AUGUSTUS and the remaining 26 belong to TIBERIUS. Peddabankur have also yielded Roman coins. All the Roman coins were found in layers coterminous with the Satavahana coins of Satkarni, Gautamputra, etc. the Roman coins belong to Augustus (29 BCE to 14 BCE) and Tiberius (14 CE – 17 CE). No coins of the post Tiberius period was found. It may suggest that the contacts with Roman Empire must have been ended by that time.

STONE OBJECTS

Several stone objects found during excavations include querns, pestles, mullers, dabbers and a cup made on lathe with a featureless rim. A big quern has a rectangular grinding face with undulations in the middle. A pestle was also found in the proximity of the quern. The big quern is made of the red sand stone. The other smaller querns of smaller size are made of granite. In some cases, the material used was yellow quartzite or dolerite. A single completely ground stone, with a knob in the middle, may possibly be the lower piece of a rotary quern.

The red stone pestle is exactly cylindrical in shape. Both the ends of the pestle were grooved and rounded to facilitate easy grip. Yet another design is cylindrical in the middle and bulbous at both the ends.

There are two dabblers or similar shape with concave sides and groined ends, the working edge being bigger than the butt-end.

STATE STRUCTURE

During the Mauryan as well as the Satavahana times, the title Mahatalavara was borne by high dignitaries of the state. They were feudatories under the Mauryans and later Satavahanas. The feudatory Talavara may be an officer with judicial functions like the Kothwal during the Moghul times. Seva Sabha may mean a guild or union in the service of the General-in-Charge of the cavalry of the whole kingdom or a part of it. Those Sabhas or guilds were possibly entrusted with the maintenance of a fixed number of horses to be supplied to the ruler during times of war. This practice of maintaining cavalry and supply the king continued during Chalukya, Rashtrakutas, Kaktiyas and Vijaynagar times, as well.

During the Satavahana period, the empire was divided into aharas such as Soparahara, Govardhanahara, Mamalehara, Satavahana etc. Each one of these Aharas were governed by Amatyas who were inferior to the status of Maharathis. The Maharathis appear to be hereditary governors of the provinces. Satavahanahara, Pallava rashtra and Vaingeyaka Vishaya would probably demote a territorial division, not bigger than a modern day district.

10. VAKATAKS, IKSVAKUS AND VISHNUKUNDIS

10.1 ILLUSTRIOUS VAKATAKS

Satavahanas had lorded over the Deccan for around five centuries. The power void created after their departure during third century CE could not have been filled by a single entity. Several dynasties, major and minor, arose and ruled the territory during the next three centuries or so. Vakatakas, a stable and important dynasty, filled in the power vacuum in Deccan plateau. According to Professor Dubreuil, "Of all the dynasties of Deccan that have reigned from the third to the sixth century, the most glorious, the one that must be given the place of honour, the one that has excelled all others, the one that had the greatest civilization of the whole of the Deccan, is unquestionably the illustrious dynasty of the Vakatakas".

"Vakatakas were contemporaries of the golden Guptas ruling the northern lands from Patliputra. When the Vakataka King Rudrasena-II married Prabhavati, daughter of Chandragupta-II, their ties became familial. The two states became practically one kingdom when on the death of Rudrasena-II, Prabhavathi assumed royal power as the regent of her infant son. Being so closely interlinked, the two kingdoms rose and peaked together. Vakataka power inevitably collapsed when the Gupta Empire disintegrated during sixth century CE."[1]

SOCIAL BACKGROUND OF GUPTAS AND VAKATAKS

An assertion about the Guptas that they were Vaishyas is based on the recommendation in texts such as the manusmriti and Vishnupurana that the name with a suffix 'Gupta' was appropriate for members of this varna. On the other hand, some scholars have argued that the Guptas were Kshtriyas. This is based on their matrimonial alliance with the Lichchharis (who were kshtriyas) and Nagas (who were presumed to have been kshtriyas). The marriage of Prabhavati Gupta into the Brahmana Vakataka dynasty would have fallen within the Dharmashastras norms of hypergamous (Anuloma) marriages. However, the alliance with the Vakatakas and the possibility that a princess of the Brahamana Kadamba may have been married to a Gupta king has been used to argue that Guptas were Brahmanas. Furthermore, the inscription of Prabhavati gupta (daughter of Chandra gupta I and wife of Vakataka ruler, Rudrasena II) describe her as belonging to as the Dharana gotra. Since the Vakatakas were known to have belonged to Vishnuvriddha gotra. Dharani seems to be the gotra of Guptas. According to S.R.Goyal (2005 : 84), this was not simply a case of rulers taking on the gotra of their preceptors but a clear indication that the Guptas were Brahmanas.

Chanda Gupta I (319 CE – 335/36 CE) laid the foundation of the Gupta empire. In inscriptions, he has the title Maharajadhiraja which signifies imperial power and status. His successor Samudra Gupta was a ceaseless warrior with a record of endless victories. His successful military campaigns established a network of political relationships of paramountey and subordination that extended over large a part of Indian subcontinent. He is also described as having put Brahaspati (the preceptor of Gods) to shame by his sharp

and polished intellect and likewise Timburu and Narada with his musical performance. He is also described as Kaviraja (king among poets), whose poetry surpassed the glory of the genius of poets. Legends on Samudra Gupta's coins include epithets such as parakramah (brave), apratirathah (invincible), ashvamedha – parakramah (powerful enough to perform Ashvamedha) and vyaghra parakramah (brave as a tiger).

In conclusion, we can say that Guptas were either Brahmanas or Kshatriyas. But, irrespective of their social background, we can certainly assert that those ancient rulers were visionary and strong so as to bring major portion of the Indian subcontinent under their political umbrella

Vindhyasakti founded the Vakataka dynasty. "He increased his power by fighting great battles. He was irresistible when provoked. He was uncommon in charity and battle. He had a large cavalry with whose help he was able to defeat his enemies. He is comparable to Indra and Vishnu". That is how inscription describe him. Exaggerations apart, it gives us some idea about the founder of the dynasty.

His son Pravarasena succeeded. He enlarged the dominion with arms as well as strategic matrimonial alliances. Gautamiputra, the eldest son of Pravarasena-I predeceased him. Therefore, his grandson Rudrasena-I succeeded. He was a contemporary of Samudragupta. Rudrasena-I was succeeded by his son Prithvisena-I who annexed the territories of Kuntala.

Prithvisena-I was succeeded by his son Rudrasena-II. The latter was a contemporary of Chandragupta-II. His marriage to Prabhavathi Gupta, the daughter of the illustrious Chandragupta-II was strategic and bound to benefit both dynasties. Guptas needed the Vakatakas' help to subdue Sakas in the west. Rudrasena-II did not rule for long and was succeeded by his four minor sons. The queen mother, Prabhavathi Gupta, acted as regent and conducted state affairs efficiently. The sons succeeded as per seniority under the able guidance of noble mother and this reign is regarded as the golden age.

Their successors continued to enlarge dominions; Kosala, Mekala and Malwa were subdued. Thereafter, Vidarbha and Bastar were annexed. By and large, the rulers were enlightened. Sometimes, they were given to pleasures but capable ministers took care of state.

Harishena was the last valiant and victorious King. He conquered Kosala, Kalinga, Avanti, Kuntala, Trikuta (Nasik district), Lata (Gujarat) and Andhra (Godavari – Krishna area). He ruled over a vast territory from Malwa in the north to Kuntala in the south bordering the Krishna river. The Bay of Bengal in the east and the Arabian Sea in the west were the other two natural boundaries of Vakatakas. Varahadeva was the most competent and popular minister of these times. Excavations of the famous Ajanta caves commenced during this reign.

During Harishena's time, the power of Vakatakas was at its zenith. But the weak successors who followed were no match for rising aspirations of enemies all around. As powers of Kadambas and Nalas rose, the Kalachuris dealt the final blow to the glorious

Vakataka power. Eventually, the rising Chalukyas subsumed them during the second quarter of sixth century AD.

THE VAKATAK'S POLITY AND ECONOMY

For nearly two hundred years (300 CE to 500 CE), the modern regions of central India and the northern Deccan were under the hegemony of Vakatakas. Keeping in view the geographical distribution of their 37 inscriptions, the territory of their jurisdiction may ~~be~~ placed between the 18^{o} and 25^{o} northern latitudes and $74.5^{o}$and 81.5^{o} eastern longitudes. It comprised over thirty districts of the present day Madhya Pradesh, Maharashtra and Telangana. The rivers identified based on inscriptions are Wainganga, Wardha, Painaganga, Chandrabhaga, Purna, Dodna etc. Some major rivers delineating the landscape of the Vakatakas territory include Narmada, Tapti and Godavari rivers and their tributaries. The inscriptions do speak about mineral resources and hidden treasures in general terms. The mention of Lohanagara and Hiranyapura may be indicative of iron and gold deposits. But, as on today iron, manganese, bauxite and plentiful of coal have been mined from these areas. From agricultural point of view, the people of the land cultivate wheat, rice, millets, gram, cotton, oilseeds and groundnuts. Three districts of the present day Telangana state, namely Adilabad, Nizamabad and Karimnagar would fall within the Vakatakas dominions. The east flowing rivers, namely Painaganga and Godavari have given rise to the terraced and scraped character to the landscape. The trap rocks of the Maharashtra plateau on weathering have formed the fertile black cotton soil, which accounts for the high percentage of area under cultivation.

ROYAL LAND GRANTS

The earliest and explicit mention of royal gifts of lands to Brahmanas is to be found in Mahabharata. In the Dhanadharma section (33.17) of the Anushasana parva of the Epic, Bhishma tells Yudhishthira that Brahmanas can deify those who are not gods and can dethrone existing gods; they are the king makers, and a king can hope to retain his position as long as he enjoys their favour. The Danadharma refers to three major types of gifts - the gift of gold (hiranya – dana), cattle (go – dana) and land (prithvi – dana). The gift of land is considered the best, as it is the source of jewels, animals and grain. The Dharmashestra and Puranas likewise extol the gift of land to Brahmanas and promise that those who bestow appropriate gifts on worthy Brahmanas will attain fame in this world and happiness in the world to come.

The earliest indication that some of the Brahmana settlements established by means of a royal decree enjoyed tax exemptions and privileges comes from Arthashastra. In Brihaspati smriti, there is a clear assertion that land gifted by kings to Brahmanas should be tax free. This tradition of land grants to Brahmanas was maintained and transmitted over centuries. Even pali texts of Buddhists Bimbisara of Magadha and Prasenjit of Kosala mention gifting land to Brahmanas.

The earliest recording of land grants are found in Naneghat and Nashik in the western Deccan. There was considerable increase in grants from the 4^{th} century CE onwards. From the 5^{th} / 6^{th} century CE, kings all over the Indian subcontinent were making such gifts. Villages granted to Brahmanas were known as Agraharas,

brahmadeyas or shasanas. Other categories of beneficiaries included Buddhist and Jaina monasteries, Vaishnava and Shaiva temples and a much smaller number of 'secular grants'. However, until about the 10th century CE, the majority of land grants were made to Brahmanas.

While the imperial Guptas were not apparently great donors of land to Brahmanas, the Vakataks ruling from Deccan around Godavari vally were. The tally of the gifted villages "mentioned in Vakataka inscriptions is 35. A large number of these gifts were made during the reign of Pravarasena II – his 18 or 19 inscriptions record the gift of 20 villages in all. A wide range of technical terms are mentioned in the grants, indicating the exemptions and privileges that were bestowed on the gifted land and the donees. Thirteen inscriptions mention the area of land, ranging from 20 to 8000 nivaratnas by the royal measure. There are also a few instances of villages being donated in exchange for previous gifts. The Yavatmal plates of Pravarasena II record the renewal of an earlier grant. From the time of Pravarasena II, there seems to have been a shift in the location of gifted villages from the eastern to the western part of the Vakataka kingdom, particularly to the Tapi valley (Shrimali, 1987: 25). Land grants were also made by subordinate rulers of the Guptas and Vakatakas. These included, for instance, the Parivrajaka maharajas who ruled over the Baghelkhand area and acknowledged the suzerainty of the Guptas, and Bharatabala, a ruler of the Mekala country, who was a subordinate of the Vakatakas.[2]

Royal land grant to Brahmanas was also given by Pallava rulers while kings were the prime donors of land, others contributed as well. There are instances of land grants to Brahmanas by private individuals and lands granted by kings at the request of other people.

LARGE SCALE MECHANISM OF LAND GRANTS

"The Vakatakas did not strike any coins." This had perhaps been the most distinguishing feature of the Vakataka's economy. This absence of money had a certain correlations with the large scale mechanism of land grants, growth of small village settlements and relative non-urban economy during those times.

Almost 80% of all the inscriptions are clearly land grants given to Brahamanas. None of them have any reference to money. The Satavahanas inscriptions had prolific mention of gift of cows, elephants, horses, as well as donations of villages with privileges aplenty. Therefore, the complete dissociation between the land grants and money noticed in Vakatakas inscriptions is a very striking phenomena. The lands were mostly given to Brahamanas for earning religious merits for the donor and his predecessors. Amongst the people to whom these grants were generally addressed included householders, brahamanas, other residents led by Brahamanas, officials of noble birth, soldiers, policemen and peasants. The responsibility of getting the land cultivated devolved directly on the donee. The extent of land granted was not uniform among all donees and at times; a single donee may have land donations for more than one village. The use of hired/wage labourers had been known from the days of Kautilya and Pali texts.

Regarding privileges of a donee, there was a general pattern. The villages donated were not to be entered by soldiers and policemen; were exempted from purchasing fermenting liquors and digging of salt; exempted from obligations to supply flowers and milk; exempted from obligation to provide grass, hides, and charcoal to the touring soldiers; not to provide cots, water pots and slaves; not to pay taxes; not to provide draught animals; right to hidden treasures and deposits and generally a donee was endowed with immunities of all kinds. The prolific exemptions in Vakataka's inscriptions number nearly twenty. Such prolific land grants along with exemptions are not to be found in records of comparable antiquity. Sometimes, obligations of donees, if they wish to enjoy the rights, included that they did not commit any treason against the kingdom, they were not found guilty of the murder of a brahamana; theft, adultery; they did not wage a war and did no harm to other villages. The grants also warned people of dire consequences if the execution of grants is obstructed and threat of punishment and fine is also made. In the ultimate analysis, if a grant was not renewed, the king retained the full ownership of land.

IMPACT OF LAND GRANT ON ECONOMY

How did the large scale mechanism of land grants impacted the overall economic lot the realm? At least, one result seems to be the burgeoning of rural settlements, based on agriculture and animal husbandry and local trade.

The Vakatakas were one of the most important successors of the Satavahanas. It is fairly well known that the rule of Satavahanas had witnessed prolific economic activity, particularly on the point of trade stretching beyond oceans up to Roman imperium. A general picture of rich and prosperous life is borne out by epigraphic, archaeological and art remains. But, the evidence during the Vakatakas phase distinctly point to relative decline or the poor character of settlements. Some of the sites appeared to have 'dwindled' after the Satavahanas and were re-occupied in subsequent periods. Degeneration seems to have set in even during the later Satavahana period. Yet another significant evidence about Vakatakas has been the find of temples of Raj-Narsimha, Varaha, Indra Narsimha and Bhogaram at Ramtek in the present day Maharashtra.We may possibly assume that, in the present state of our knowledge, some of these settlements may have come up for the first time under the Vakatakas. But the broader picture of burgeoning rural settlements along with non-urban economy was a reality in central India and northern Deccan during the two centuries of Vakataka's rule.

AGENTS OF NEW SOCIO-ECONOMIC TRANSFORMATION

A certain evidence regarding Irrigation facilities provided by the Vakataka rulers could have possibly caused the new soci-economic transformation. The inscriptions in the Hisse-Borala mentions about the construction of Sudershanlake. The circumstantial evidence of Ganj stone inscription of Vyagrahdeva suggests that it was engraved on the walls of a dam. The suffix Viraka means barrage/ irrigational dam and therefore the places such as Darbhaviraka, Karanjaviraka and Sidiviviraka may also suggest that care was taken to provide irrigational facilities for agricultural operations. All these aspects certainly provided a certain viability to the small village settlements.

What could have been other factors behind this transformation? That thrust could have possibly come primarily from the Gupta Imperium. Samudra Gupta in his Allahabad Prasasti is known to have made all forest kingdoms his servants, including those in central India; almost in proximity of Vakataka territories. The growing tendency of land grants in favour of Brahamanas could possibly have invited increased immigration of people from western, northern and north-western India. These migrants arriving from the broad swathes of riverine plains, most probably introduced the process of Sanskritzation (as used in sociological sense by the sociologist M.N. Srinivasa).

TRADE

The rural-urban nexus hinges on the role of trade. It is well known that a large number of Buddhists centres in Central and western India were intimately linked with the growth of trade. Patronage was invariably extended to these centres by traders and merchants. Sathavahan's inscriptions bear eloquent testimony to this. As far as Vakatakas are concerned, these inscriptions can be counted on finger tips. On the basis of dress and ornaments in the Ajanta paintings, Mirashi wrote 'Merchants generally appear without jewellery on their person." Does it indicate a decline in their prosperity and perhaps status as well?

Absence of long distance trade is of course not an indication that trade and commerce was completely absent. The donated villages indicate settlements of a fairly diversified portfolio. There are leather workers (charmarika), bronze workers and goldsmiths (kamsakaraka and suvarnakara); distillers; brick centres and artisanal settlements. But, the overall decline of urban centres is more than attested by the archaeological finds. The excavation at the Hinayana Buddhist stupa at Panini reveals that the remarkable prosperity continued uninterrupted from Mauryan times to Satavahana times. Numerous inscriptions indicate the support extended to it by non-royalty; predominantly consisting of traders, merchants, goldsmiths etc. But, the excavators are certain that the monument had fallen in disuse by about third century AD, and went into oblivion afterwards, not to be noticed or referred to in subsequent times and accounts." It indicates that the trade and traders declined in this region of Vidarbha/Telangana after the 3rd century AD. This may have given additional impetus to the growth of rural settlements.

THE TERMS OF THE VAKATAKA GRANT

The Vakataka grants bestowed many exemptions and privileges on the gifted land. The meaning of some of the technical terms is not certain. The Basim plates of Vindhyashakti II of the Vatsagulma branch record the king's grant of Akasapadda village to certain Atharva Veda Brahmanas. The following exemptions and privileges were associated with the grant (the Language is a mixture of Prakrit and Sanskrit):

a-chand-adichcha-kalo: to last as long as the moon and the sun [i.e., forever].

a-rattha-samvvinayika: not to be entered by the district police;

a-lavana-kenna-kkhanaka: exempt from [the royal prerogative] of digging salt and purchasing fermented liquor;

a-hiranna-dhanna-ppanayapa-deya: exempt from the obligations to gift grain and gold [to the king];

a-puppha-kkhira-ggahana: exempt from the obligation to supply flowers and milk;

a-parampara-go-bali-vardda: exempt from the obligation to supply [to the state] customary cows and bulls;

a-chara-siddhika, a-chammangalika: exempt from providing pastures, hides, and charcoal [to touring officials];

a-bhada-ppavesa: not to be entered by [royal] soldiers;

a-khatta-chollaka-venasika: not to provide sleeping cots, water pots, and slaves (perhaps to touring officers);

a-karada: not to pay taxes;

a-vaha: not to provide draught cattle (for the transport of officials);

sa-nidhi, s-opanidhi: along with the right to hidden treasures and deposits;

s-ukutuppanta: along with major and minor taxes;

sa-mancha-maha-karana: along with the right to platforms and large fields;

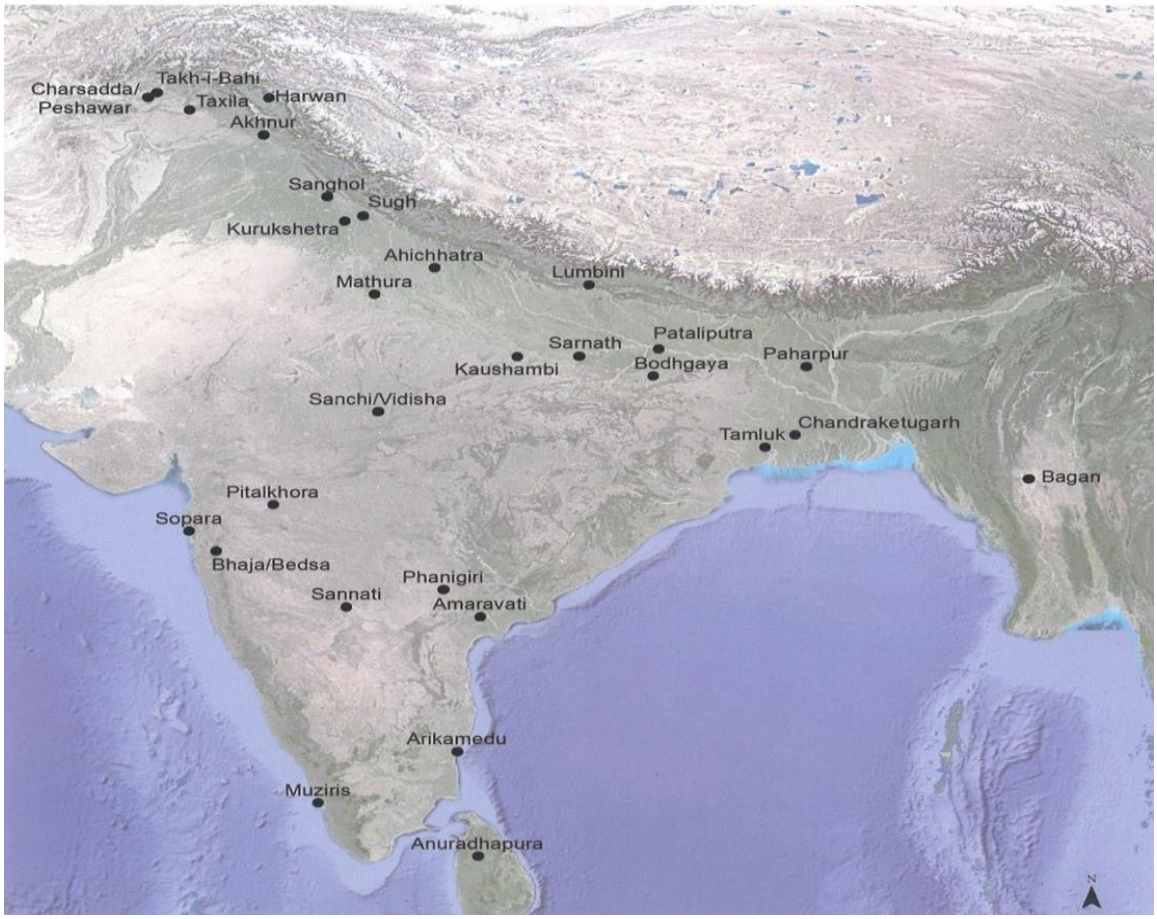
savva-jati-parihara-parihita: exempted with all kinds of immunities.

The Poona plates of Prabhavatigupta also refer to the donees being granted the right to mines and khadira trees. The term sarvva-vishti-parihara-parihritah in the Jamb, Siwani, and Pauni plates of Pravarasena II, the Riddhapur plates of Prabhavatigupta, and the Mahurjhari plates of Prithivishena II indicates thatthe gifted land was free from forced labour. The Siwani and Patna Museum plates have the term sa-panchashatakah, the meaning of which is not clear. The Siwani plates have sa-koratah, which has been variously translated as 'together with coconut plantations', 'together with the right to bulls', or 'along with undulating wastelands'. The Riddhapur plates of Prabhavatigupta state that the field was granted along with a farmhouse and four farmers' huts (abhyantara-nivesh-ena-saha karshaka-niveshanani cha). The Pauni grant of Pravarasena II records the gift of a village along with the habitations (saha-niveshana). Some of the grants contain the phrase a-bhata-chch-hatra-praveshya, which means 'not to be entered by regular and irregular troops' or, alternatively, 'not to be entered by soldiers and policemen'.

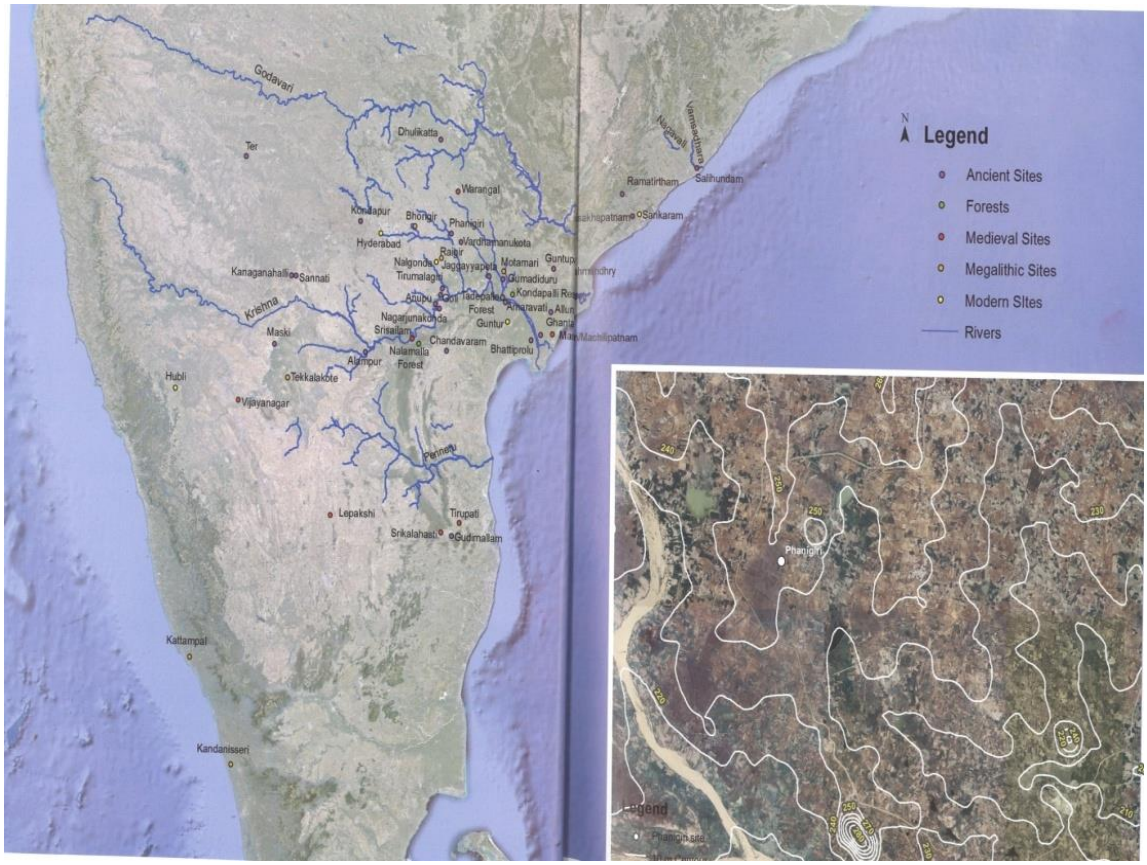
The Chammak plates of Pravarasena II have a curious stipulation. The donees-1,000 Brahmanas–were to enjoy the gifted land as long as they did not commit treason against the kingdom, as long as they were not found guilty of the murder of a Brahmana, or of theft, adultery, and high treason, etc.; as long as they did not wage war and did not harm other villages. It was declared that if they indulged in or assented to any such acts, the king would be justified in taking the land away from them.[3]

10.2 PHANIGIRI – AN EPICENTRE OF TRADE DURING IKSVAKUS

After the collapse of Mauryan Empire, Satavahanas came to rule over the Deccan lands including the present day lands in Telangana state. Phanigiri, among other towns showed up on the trade route during the period. With the collapse of Roman Empire, the trade routes via Alexandria, Berenike were replaced by revitalized networks with South East Asia. Now, Phanigiri fellen route to the grand emporia of Amaravati, Dharanikota, Nagapattinam and Arikamedu towards the south and Kalinga, Tamluk and Chandraketugarh further north east. These coastal towns were no doubt also connected by maritime waterways to Sri Lanka, Thailand and Thence to Indonesia and even as far as the Mekong delta in Vietnam. Most of these trade routes, within India and other countries were traversing through forests. These forests were controlled and the polities that spread within them used religious apparatuses which have left monumental evidence of their control. The growing urbanisation during the post Mauryan period saw a widespread development of sites all through the north west frontier, the north Indian plains as well as south Indian trading centres to trade with south east Asia. Each one of the part was a part of networked numismatic economy trading against bullion. The urbanising scenario had enough space for nomadic pastoralists who coexisted with traders and wandering monks in their midst. Nomads, traders, teachers and preachers were using these road networks simultaneously, some two millennia ago.



Map – AhujaNaman P., Phanigiri – Interpreting an Ancient Buddhist Site in Telangana, Dept. of Heritage Telangana, Marg Publications, p 11



Map - Ahuja Naman P., Phanigiri – Interpreting an Ancient Buddhist Site in Telangana, Dept. of Heritage Telangana, Marg Publications, p 12

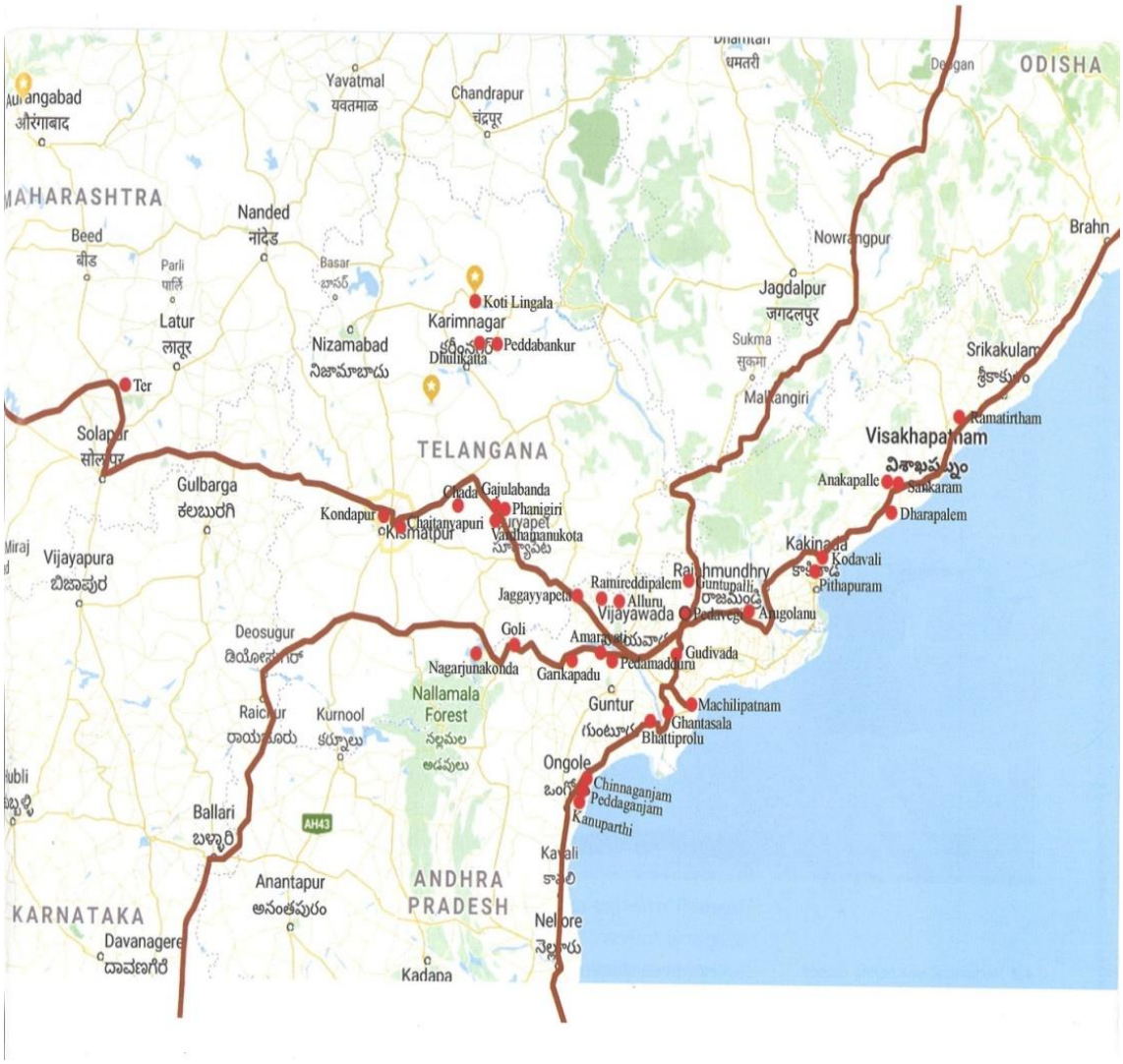
PHANIGIRI

Phanigiri in Telangana is one of the most important ancient Buddhist sites in India. This site along with Amaravati, Sannati (Kanaganahalli), Nagarjunakonda and so many well-known sites in Deccan region were active at the same time. The most important inscription at Phanigiri records the donation made at the time of King Rudrapurushadatta of the Ikshvaku dynasty. This inscription, like most others are in Sanskrit followed by a few lines in Prakrit.

The site at Phanigirilies east of Musi river that flows southwards from the highlands of Telangana and joins the Krishna river, along which are Buddhist sites such as Amaravati, Nagarjunakonda, Goli, Bhattiprolu, Jaggayapeta and Ghantasala. There have been a cluster of Megalithic burial sites at the foot of Phanigiri hill. It points to a possibility that the river valley could have been a natural route since prehistoric times.

Phanigiri and its surroundings were highly populated areas in the early historic period (C.300 BCE – 300 CE) and even earlier. One of the main reasons for the development of these settlements was the area's strategic location connected the lower Krishna valley to the mid Godavari river valley. It is also positioned on the middle point between Amaravati / Dhanyakataka, the flourishing urban centres of lower Krishna valley since the third century BCE and the Karimnagar region of the Godavari valley, where sites such as Kadambapur, Peddabankur and Dhulikatta are concentrated.

Ikshvaku had replaced Satavahanas and set their capital at Vijayapuri (currently Nagarjunakonda). The dynasty they ruled Andhra until the emergence of Shalankayanas and the Vishnukundis in the early 4th century CE. This period also saw the increased presence of Shakakshatrapas from western Malwa to the Deccan. The Ikshvaku's rule seems to have relied on their strong relationship with the Shakas, forged through marital alliances. These alliances may have increased the political importance of Phanigiri and the northern Telangana region, the principle gateway connecting the ancient Andhra region to the western India. The marital alliances coupled with strategic location must have created political stability, which developed a favourable environment to develop Buddhist constructions in the Phanigiri area during the 3rd – 4th century CE.



Map – AhujaNaman P., Phanigiri – Interpreting an Ancient Buddhist Site in Telangana, Dept. of Heritage Telangana, Marg Publications, p 95

10.3 VISHNUKUNDIS, A CATEGORY OF THEIR OWN (AD 375 - AD 612)

'Vishnukundis' might not have been as illustrious as Vakatakas, but they preserved and held their ground firmly throughout the long period. Both the dynasties were based in Deccan lands. The Telangana territories were shared between the two as friends and foes alike. Vakatakas were mainly focused towards Deccan plateau in the north and west and were consumed by rising Chalukyas. Vishnukundis looked towards coastal flanks towards the east and were consumed by rising Gangas from Kalinga on the banks of Godavari in February 612 AD.

"They held sway over the region north of Srisailam in Rishika country (Nalgonda and Mahabubnagar districts). It was a part of Mauryan Empire during Asoka's times. Thereafter, Satavahanas ruled it. The dates of the Vishnukundi rise after downfall of Satavahanas are rather hazy. Indravarma (AD 375 – AD 400) and Madhavavarma-I (AD 400 – AD 422) may be the first two Kings of the dynasty who ruled either from Keesaragutta (near Hyderabad) or Indrapura (Indrapulgutta in RamannapetTaluka, Nalgonda district)".[4]

"The successor, Govindvarma (AD 422 – AD 462) was the real founder of the dynasty. Vakataka rulers entered into matrimonial alliances with Vishnukundis. It helped Vakataka ladies to offer royal prayers at Srisailam. Madhavavarma-II (AD 462 – AD 502) succeeded his father and pushed the boundaries all around. Devasena, the pleasure loving Vakataka ruler, was pushed beyond Warangal-Karimnagar region touching Godavari. Then, he turned east, annexed Vengi, Guntur and penetrated beyond Pishtapur into Srikakulam to secure the allegiance of Ganga rulers. He helped Vakataka ruler Prithivisena and maintained cordial relations with other neighbouring rulers. It was indeed the high noon of Vishnukundi's power."[5]

Vikramendravarma (AD 502 – AD 527) succeeded his illustrious father Madhavavarma-II. But, Vakatakas under Harishena struck back. The decline of dynasty had commenced. Indrabhattarkavarma (AD 527 – AD 555) was the last flicker of the long yet fast burning candle. He organized his forces and wiped the confederacy of Mathara, Vashista, Ram Kasyapa and Pitrubhakta families out of existence. But Nalas of Koraput and Gangas of Kalinga remained defiant. Pallavas had arrived from south and occupied Vengi for a while in AD 566 which Vikramendravarma (AD 555 – AD 572) was ruling. To secure the southern flank, he even married his daughter to Pallavas. But, Gangas of Kalinga took away his northern possessions.

"Madhavavarma (AD 572 – AD 612) was the last ruler. He transferred his capital from Indrapur in Nalgonda district to TrivaraNagara (Tiruvuru) in Krishna district. He led military expedition to recover Kalinga from Ganges, crossed the river Godavari in February 612 AD and was lost forever. Nothing is known about his expedition or other members of his family till today. With his extinction, Vishnukundi dynasty was extinguished, suddenly."[6]

10.4 CONTEMPORARY INDIA

Commencing from the Mauryan times, well into the first millennium, India enjoyed an unprecedented prosperity. It was primarily due to the spread of agriculture and improvement of farming practices. The surplus from land ignited trade which poured wealth into urban centres across the land. Expansion of trade stimulated India's contact with contemporary civilizations such as Persia, Greece, followed by South East Asian littoral. India was at that time an entirely open society, where the pollen of different civilizations from across the mountains and seas blew in to cross fertilize the native economy and its culture.

As economy transformed from subsistence to surplus, the societal attitude towards life also underwent a parallel transformation from survival to enjoyment. A millennium ago, cattle was the primary means of subsistence, agriculture was secondary and trade rudimentary. But now, as nomadic hoards had settled on permanent forms, agriculture became their primary occupation. As improved technology pushed farming frontiers, an improved management system pulled them ahead. With increased productivity, came marketable surplus which in turn, pushed trade frontiers across lands afar. Expansion of trade with distant lands brought wealth in the form of bullion and promissory notes. As the wealth poured in, its owner's attitude towards life changed as well. Wealthy families not only think differently but also provide a role model for the rest of the society.

Another aspect of economic transformation was the change of mode of craft production. Previously, the craftsmen were producing goods as ordered by their customers. In a limited cluster, demand was limited. In a sense, what they sold was service, not goods. In villages, the resident craftsman served the community as a whole, making whatever one needed without charging them individually. Later, they received a share of the produce from the village as a collective remuneration. It was a sort of, 'one for all- all for one' concept in actual practice. As commercial practices enveloped agriculture, craftsmen too resorted to making goods for sale to the public in the market. The concept of surplus i.e. 'capital' invaded non agricultural economy as well.

Another aspect of the economy was the development of the guild system. Nearly all classes of craftsmen, traders and professionals in India, even priests, thieves and prostitutes were organized into guilds. They regulated production, quality and prices of goods and services, as well as remuneration and service condition of workers.

A settled economy and a prospering society, interestingly, resulted in robust growth of village polity. Self governance in many parts of India, especially in its peninsular half was a reality. It was as democratic as it could have been in those times within the confines of evolving caste structure. Some villages even had formally adopted written constitutions. They were, in certain case as elaborate as a modern state constitution. They laid electoral rules and specified the powers and responsibilities of legislature and executive bodies.

According to Hindu law books, there are four distinct objectives that are to be pursued in life. They are Dharma (socio-religious proprietary and duty), Artha (wealth

and power), Kama(carnal pleasures) and Moksha (salvation). All the four pursuits are equally legitimate. Empowered with the religious sanction, the predominantly Hindu society adored the God of love- kama. Enjoyment of sensual pleasures was part of the fullness of life.

This open acceptance of role of sex in life made prostitution a respectable profession. There was no stigma attached to it. **Visiting prostitutes was neither a secret nor guilt.** It was done openly like any other socially accepted activity such as attending concerts or soirees. It was normal for men to promenade with prostitutes in parks or frolic with them in public bathing places. During Mauryan times, prostitutes were trained at state expense and were regarded as state assets.

Mauryan rulers, especially Asoka, raised tree plantation to a level of state worship. It was apparently due to Buddhist influence. Gautama was born under an Asoka tree, received enlightenment under a Pipal tree, preached his gospels under shades of Banyans and Mango groves and died in a Sal grove. Never before, or even after, has a religion been associated with vegetative growth. Buddhism adopted the cult of tree worship from the older religions which prevailed in the country.

After Gautama Buddha, the story of Asoka succeeding to the Mauryan throne in Patliputra, his massive attack and eventual victory over Kalinga, his remorse on seeing the horrors of war followed by renunciation of violence and embracing Buddhism is the staple diet of ancient Indian history. His love for the trees and forests is well known. For the first time in Indian history, we hear of a monarch who encouraged arboriculture and adopted it as a state policy.

Asoka prohibited burning of forests for driving out game. He encouraged planting of trees in gardens and along roads in the form of avenues. Rest houses were made and water stations were provided for the comfort of cattle and men. One of the Asoka pillars bears the following inscription, "On the roads, I have had Banyan trees planted, which will give shade to beasts and men. I have had Mango groves planted and have had wells dug and rest houses built every nine miles. And, I have had many watering places made everywhere for the use of beasts and men. But, this benefit is important, and indeed the world has enjoyed attention in many ways from former Kings and from me. But, I have done these things in order that my people might conform to Dhamma."

Arthashastra mentions about Superintendent of pasture lands. He supervised the construction of tanks, wells, buildings for shelter and flower and fruit gardens. This type of administrative arrangement for planting gardens continued under Asoka.

Buddhism spread rapidly in India under his patronage. It influenced peninsular India especially Dakshinapatha, the table land between Godavari and Krishna as well. In due course, it reached Ceylon, Burma, Thailand, Sumatra, Java, Vietnam, China, Korea, Japan, Central Asia, Mongolia and Afghanistan. It humanized the barbaric tribes. It gave them a new philosophy of life and developed their moral character. It inspired the great art of Ajanta whose influence reached Khotan in Central Asia and Tun Huang in China. It inspired the world's greatest monument at Borobudur in Java which is still admired for its

noble sculpture. Above all, it propagated love for trees and gardens. That is how children remember Asoka, even today.

Far removed from the Indo Gangetic plains, the peninsular history had a character of its own. It was shaped by the border of thick forests and inhospitable terrain bordering northern boundary. The isolation from northern India endowed peninsular culture with a powerful originality. Broadly, they fell into two groups. The Tamil group comprised of Pandyas, Cheras, Cholas and Pallavas while the Deccan group comprised of Satvahanas, Vaktakas, Chalukyas and Rashtrakutas. Encouragement to agriculture was a special feature of these kingdoms.

PENINSULAR PANORAMA

By third century BC, Iron technology had already penetrated into peninsular India. Therefore, during Satavahana period, iron implements multiplied. This gave a fillip to agriculture. They cultivated cotton and millets on high lands and transplanted rice in plain areas. The art of transplanting rice seedlings was widely practiced during the first two centuries in Godavari, Krishna, Mahanadi and Kaveri deltas. Contact with the North established during Mauryan phase helped them to learn the use of bricks and construction of ring wells.

Brahmins were the pioneers of progressive agriculture during Satavahana times. The later were the first rulers to make land grants to Brahmins. Owing to their knowledge of astrology and ability to forecast rain, they enjoyed respect among the rural people. Besides, they were the educated class of that age, and also pioneers of culture and progressive agriculture in the South. Kosambi states, "The Brahmins acted as pioneers in undeveloped localities; they first brought plough agriculture to replace slash-and-burn cultivation, or food-gathering. New crops, knowledge of distant markets, organization of village settlements and trade also came with them. As a result, Kings invited Brahmins, generally from the distant Gangetic basin, to settle in unopened localities. Almost all extant copper plates (which have been discovered all over the country by the ton) are charters which, from the fourth century onwards, record land grants to Brahmins unconnected with any temple. In addition, every village would set apart a lot or two of land plus a fixed though small share of village harvests for the cults and priests, Brahmin or not. Brahmins, however, claimed and generally received exemption from all taxes; they even claimed an especially low rate of interest on loans, and other privileges".

Coconut was cultivated on both the coastal strips, embracing the entire Indian peninsula. It provided so many necessities of life to the population. Kosambi states, "Coconut tree, which forms the basis of the whole coastal economy today, seems to be an import from Malaysia. It was being propagated on the east coast around the middle of the first century BC and reached the west coast a century later. By AD 120, the Saka Ushavadata, the son of Dinika and son in law of the reigning King Nahapana, began to give away whole plantations to Brahmins, each one containing several thousand coconut trees. Ushavadata was generous to the Buddhists as well, but there were no cave monasteries on the coast within his reach. The coconut, now to be found in every Indian ceremony and ritual, was rather poorly known in many parts of India before the sixth

century AD. This provides a useful comment upon 'timeless and immutable' Indian customs. The wood, fibre, wine and other products of this tree are also of the utmost value; the nut itself provides 'meat' for cooking and when dried, excellent food oil used also for soap-making. The western coastal strip (where the coconut can grow well because of heavy rainfall and hot climate) could not have been profitably cleared of its dense forest, let alone settled with its present crowded population, without this tree and the heavy commodity production based upon its exploitation in full. The trade through a few passes with the upcountry gave a longer lease of life to caravans; they took salts and coconuts up to the plateau to exchange for cloth and metal vessels, as well as for the grain of the uplands".

Iron technology made great progress in the age of Satavahanas and Kushans. Indian iron and steel weapons and cutlery were exported to west Asia where they enjoyed high esteem. In India, it led to the manufacture of sturdy and sophisticated agricultural implements. A variety of hoes, sickles with curved and straight blades were in use. Some of the specimens used then are even superior to those currently in use in tribal India. The workmanship of these iron agricultural implements indicates a high level of iron technology in India from 300 BC onwards.

Improvements in quality and strength of iron chisels and hammers led to improvement in the manufacture of stone objects, particularly the grinding mills (chakki). They are still used in villages for grinding food grains and spices. Mixies and electrical grinders, as we know them today, are their modern day avataras. Just remove the power button, and we revert back to the good old chakkis which were powered by the hands of our grandmothers since times immemorial. Querns, mullers, pestles and mortars were also manufactured with great ease during those days.

Spread of Irrigated Rice cultivation is another important development during this period. It diffused from the adjoining area of Orissa to the coastal strip of Andhra Pradesh and Tamil Nadu during Iron Age around 300 BC. As food supply was secured, population multiplied. It is no accident that the early Tamil kingdoms were located in deltaic areas of rivers. The contemporary Sangam literature provides information regarding various occupations followed by the population. Apart from farmers, there were shepherds, goatherds, hunters and fishermen. The village artisans included blacksmiths, carpenters, weavers, leather workers and salt workers. In towns were merchants, shippers, custom agents and horse importers. The people were entertained by drummers and dancers. The Kings were surrounded by chieftains, warriors, scholars, poets and priests.

The Tamil states were in constant conflict among themselves and nibbling at each other's territory. That is how the political history of that period is mainly remembered. However, there was considerable advancement in agriculture powered by iron technology and irrigated rice cultivation along with an effervescent culture which was of tremendous importance. In due course of time, the same factors were destined to take the Age of Guptas towards the golden threshold.

Monsoon was also discovered during those times. This was an extremely profound discovery. Till then, boats were sailing to lands afar just by hugging the coast line. But, monsoon winds were able to carry the same across the oceans in straight lines. Boat sizes escalated as the journey time shrank and the countries situated afar came onto trade maps. India started trading with countries under the Roman Empire viz., Spain, Gaul, Dalmatia, Italy and Egypt. Romans and Greek merchants visited Indian ports and established themselves in small colonies. They came in quest of spices and cotton for which India had become famous in the ancient world.

10.5 A GLIMPSE OF EARLY EMPIRES

Commencing from the third century BC, till as late as middle of sixth century AD, the European continent, the Indian subcontinent and the Deccan peninsula witnessed glorious empires. The Roman Empire rose, peaked, split and was eventually consumed by Barbarians and Huns in Europe. In the Indian subcontinent, the period commenced with the rise of the Mauryan Imperium and terminated with the golden Guptas. The long intervening stretch of four centuries was filled with the sketchy and chaotic rule of Shungas, Kanvas, Greeks, Parthians, Scythians and Kushanas in northern India. In peninsular India, the stable Satavahanas and illustrious Vakatakas were the lords of Deccan throughout these centuries. Finally, the lands due south of Krishna river were ruled by three Dravidian kingdoms; Cheras, Cholas and Pandyas, forever grappling and colliding with each other for dominance.

Several common features laid the foundations of those great empires, be it Roman, Mauryan, Satavahana, Vakatakas or Guptas. An overwhelming agricultural prosperity was the salient and most dominant factor. Cleopatra's beauty and her fatal attraction towards Roman Emperors may have excited poet's imagination. But it was the advanced agricultural practices in broad Nile delta which provided the edifice for their food security for three long centuries. In AD 285, Roman Empire split and Egypt was taken away by Byzantineans. The residual Empire stopped growing, and bereft of food security blanket, it was eventually consumed by Barbarians in AD 410. Mauryans in India were great horticulturists. Buddhism is associated with the cult of tree worship and vegetative growth. Satavahanas of Deccan, as a class were educated and as astrologers, could forecast rains. As peasant based society respected them, they naturally became the first set of agricultural extension specialists. Agricultural revolution was already under way due to widespread dissemination of iron technology during preceding centuries in Nile, Gangetic and Godavari Krishna basin.

The booming trade with multiplying wealth and prosperity was another factor underlying imperial strength. If agriculture provided stability around countryside, its surpluses were traded on a pan Indian and global basis. Trade ties with the Roman Empire during the Satavahana period is proved by numismatic evidence. Roman coins belonging from 40 BC till AD 68 have been found in hordes. Augustus ruled as Principate and Nero as the Emperor during those times. They paid for Indian goods in

gold or silver coins, which have been found all over peninsula. Besides spices and other goods, steel was exported from various places including the famous steel manufacturing centre at Konasamudram in Telangana. Pliny, the Roman historian, writing in AD 75, complained that there was no year in which India did not drain the Roman Empire of more than fifty five million sesterces (a silver coin of the Roman Empire). Spices and cotton from India were a craze amongst them. Spices preserved meat which excited their palates and cotton provided a soft and semi transparent clothing, which was a rage amongst royal women. Romans were also trading with the Pandyas of Madurai, the Cholas of Uraiyur (Thiruchi) and Cheras of Vanji (Karur).[Telangana exported quality steel to Rome.]

Technological improvements pushed the boat's size to carry heavy cargo. Pan Indian trade was facilitated due to easy river transport and laying of road network by rulers, especially Asoka. As trade flourished, prosperity multiplied and a wealthy class of people started inhabiting ever growing towns and cities. Patliputra, Ujjain, Pratishthan, Dhulikatta, Kotilingala, Nagarjunakonda and Amaravathi became important urban centres.

A wide network of paved roads interconnecting nooks and corners of empires was another cardinal feature. They were needed for swift movement of arms to quell dissidence and keep the dominion together. But their collateral advantages were multifarious. Movements of troops made roads quite safe. Soon thereafter, traders were using them. Trade boomed. Commercial practices developed. Material prosperity spread all over. Then, disciples of Jesus and Buddhist monks used the same roads to spread the message of the new religions far and wide across the empire. As missionaries and sanghas multiplied, more and more common folks took up the new faiths namely, Christianity and Buddhism. Roads carried raiders and traders. They also carried teachers and preachers, with unintended consequences to rulers.

Religious intolerance was the dominant theme in Europe. As Christianity spread, it alarmed Roman rulers. State sponsored persecution followed and continued for three long centuries. The Indian experience was quite the opposite. Indian rulers were eclectic towards all religious and state sponsored persecution during either Mauryan or Satavahana times is simply unheard of. Gautam Buddha had already arrived in India some five centuries before Jesus's birth in Nazareth. But religion and society interacted with each other on a bilateral basis. State as an instrument hardly interfered in it. Kings and Emperors were free to choose their faith, which they consciously did. But, they never imposed it upon their subjects. The royal Queens too were free to choose their own faith, which they did with complete freedom, even when at variance with that of their own husband. Differences in faith based on religion did not cause friction and, therefore, left royal households as well as larger society quite intact.

State neutrality towards religion was observed by all rulers across Indian subcontinent throughout these centuries. But there was one solid exception. In AD 515, Mihirakula, the son of Toramana succeeded him. He was active in central India around Malwa, and was particularly vicious towards Buddhism. Monasteries and shrines were

destroyed and monks slaughtered. Kalhana, the twelfth century Kashmiri historian writes, "In him, the northern region brought forth, as it were, another God of death, bent in rivalry to surpass….Yama (the God of death). People know of his approach by noticing the vultures, crows and other birds flying ahead eager to feed on those who were being slain within his army's reach. The royal Vetala (demon) was day and night surrounded by thousands of murdered human beings, even in his pleasure houses. This terrible enemy of mankind had no pity for children, no compassion for women and no respect for the aged".

In AD 542, after his macabre performance, Mihirakula eventually died in Kashmir. His death was no less gory. "He had to suffer for all that savagery towards the end of his life", continues Kalhana, "This terror of earth became afflicted in his body with many diseases, and immolated himself in the flames. And the self-immolation saved his soul. When he sacrificed his own body, there issued from sky a voice which declared; the destroyer of three crores (of human beings) has attained salvation, since he has shown no mercy for his own person either".

Hiuen Tsang has this to say, "At the time of his death, there was thunder and hail and thick darkness. The earth shook and a mighty tempest raged. Then the holy saints said in pity, "For having killed countless victims and overthrown the Law of Buddha, he has now fallen into the lowest hell, where he shall pass endless ages". Mihirakula was an unusual exception on the Indian landscape. He killed millions of his people, and eventually consumed himself. He was a great and uniform killer - indeed.

But who was Mihirakula? Well, he was one of the last Huns. But who were Huns? Well, the Huns were a restless short statured Mongoloid people made up of several marauding bands. They virtually lived on their horses, had their meals on horseback and rode them even in their sleep. Their original habitat was the arid steppe, north of China. But when China closed its borders against their ravages by building the great wall, the Huns turned south-westwards and by fifth century AD, some six hundred years after leaving their home land, they dominated most of central Asia from Hotan in western China to as far west as Persia. The major wave advanced into Europe under Attila, where their depredations led to final collapse of the Roman Empire. Another wave, though a minor one, swung towards Indian subcontinent and debilitated the golden age of Guptas. Hun power in India lasted for only three to four decades. In the mid sixth century, after Mihirakula's death, Turks and Persians allied together and crushed them. Hun power collapsed everywhere and nothing was heard of them as a political force. They came, they destroyed and they vanished in a trice, but not before destroying the two great empires, the imperial Romans in Europe and the golden Guptas in India.

By around the same time, during middle of sixth century AD, the illustrious Vakatakas in Deccan too were subdued by the rising Chalukyan power. Therefore, the second half of sixth century witnessed the eclipse of three great empires; the imperial Romans in European continent, the golden Guptas in Indian subcontinent and the illustrious Vakatakas in Deccan peninsula.

The sixth century witnessed the arrival of mighty Chalukyas who swept aside Vatakatas from Deccan as well as innumerable Kings from the coastal stretch abutting

Bay of Bengal. Between Satavahanas and Chalukyas, therefore, Vatakatas stand out as the illustrious dynasty who ruled Deccan. Vishnukundis, of course, fall into a category of their own.

Words like Kalinga, Andhra, Kuntala, Rishika and Asmaka meant certain definite areas during those times. The coastal flank between the rivers Rushykulya and Godavari was known as Kaling country. Coastal plains between Godavari and Krishna were called Andhradesh. Rishika included upper Krishna valley and Kuntala included middle Krishna valley of Telangana. Asmaka or Assaka included the Godavari belt covering Nizamabad and Pratishthan (Aurangabad areas).

11. CHALUKYAS AND RASHTRAKUTAS

11.1 THE CHALUKYAN CLEVAGE

The Badami Chalukyas (AD 550 - AD 750), the Rashtrakutas (AD 750 – AD 973) and the Kalyani Chalukyas (AD 973 – AD 1158) held their sway over areas which included the present day Telangana for over five centuries. Kannada and Sanskrit were patronized, but Telugu as common man's languagesprouted, grew, leafed and flowered in these lands during their rule.

Endorsing this view, Dr.Kolluru Satyanarayana, Professor, department of history and archaeology, Andhra University, Vizag, says, "The Telengana part was under the control successively of the main authorities like the Chalukyas of Badami, Rashtrakutas and the Chalukyas of Kalyani or under their subordinates like Chalukyas of Vemulwada, whereas some provinces were under the Vengi subordinates like Chalukyas of Mudigonda. Sri Vijay, a court poet of Amoghvarsha of the Rashtrakutas in 'Kavirajmarga' described the extent of Kannada kingdom, from river Kaveri to river Godavari. In fact, during those centuries, major portions of the present day Telengana were a part and parcel of Karnataka."

About Vengi Rajya, Professor is quite explicit. He states, "The geo-physical extensions of the kingdom of Vengi from the Mahendragiri mountains in the north to the Manneru river in the south, along the Eastern Ghats in the west extended the Telugu community identity. Though vengi rulers extended their power into the present districts of Telengana, Rayalaseema and the parts of Kalinga occasionally, their main authority was confined to coastal Andhra only."

ACCELERATION OF ROYAL LAND GRANTS

The phenomena of Brahmadayas (land gifted to Brahmanas) increased significantly during C 600 – 1200 CE. The settlements were created by royal order and the right of Brahmana donees were declared and confirmed by royal decree. This period was marked by the proliferation of state polities at the regional, sub regional and trans regional levels, within a broader economic context of agrarian expansion. Land grants to Brahmanas were one of the integrative and legitimizing policies adopted by kings. The increase in the wealth and power of a section of Brahmanas and institutions such as temples did not take place at the expense of royal power. Brahmanas, in turn emerged as ideologues and legitimizes of political power by crafting royal genealogies and performing prestigious sacrifices and rituals. These genealogies linked lineages with the epic purana tradition and assigned kings a respectable varna status. This reinforced the symbiotic relationship between kings, Brahmans and temples.

A sustained migration of these closely knit Brahmana groups across the sub continental geography is yet another phenomena evident during this period. This phenomenon intensified during the eighth century. The immigrants from the heartland of Madyadesha into the areas of Maharashtra, Bengal, Madhya Pradesh, Orissa and southern territories was the dominant stream. The fanning out of Brahmanas into different parts of

the subcontinent created two broad divisions, namely Panch Gauda (the northern group) and Panch-Dravidas (the southern group). The former included the Sarsvata, Gauda, Kanyakubja, Maithila and Ulkala Brahmans. The Panch dravida group included the Gurujjaras, Maharashtrias, Karnatakas, Trailingas and Dravidas.

As always, the migration of a certain social group is the resultant of push and pull factors. The push factor may have been related to the decline of sacrificial oriented religions practices in north India during the Mauryan and post Mauryan phase when Buddhist influence was dominant. However, later on, the proliferation of several kingdoms in various part of the subcontinent provided fresh opportunities to these groups of learned and well informed persons. The emerging political elite needed legitimisation and an administrative infrastructure and this opened up opportunities and avenues of employment for learned and literate Brahmanas. Most of them belonged to the Sanskrit-Vedic tradition which was the prevailing preference at the ruler's level. The evolution of the regional languages like Marathi, Telugu and Kannada etc., was the preferred choice in the lives of ordinary people. The gap proved a useful legitimizing basis for elite groups who were keen to highlight their loftiness while maintaining aloofness from the masses. The two major phases of Brahmana migration coincided with the major phases of state formation.

The process of land grants to Brahmanas also witnessed an enormous output in the sphere of Sanskrit literature. The Brahmana were employed in the administrative structure of proliferating royal courts. Their learned society also nurtured scholars, poets and dramatists who were patronized and feted in these courts. Security of wealth coupled with socio-political salience provided a safe ambience for their sustained intellectual activity. The writings of Medhatithi, Parashar and Kashyapa provide us a rich window of agricultural knowledge and practices during those times spread over 9th century CE to eleventh century CE.

11.2 SOCIAL BACKGROUND OF CHALUKYAS

"The Badami Chalukyas claimed Brahmana origin as Haritiputras of the Manavya gotra. Pulakeshin I (535 CE – 566 CE) established the independent power of this dynasty. He built a strong fortress at Vatapi (Badami) and is described as having performed a number of shrauta sacrifices including the Ashvamedha."[1]

THE CHALUKYAS OF BADAMI

In AD 550, Pulakesin, the lion hearted laid the foundation of Chalukyan dynasty. He was an army chieftain, who rose to sovereign power in Deccan after the Vakatakas eclipsed during second quarter of sixth century. Ruling from Vatapi or Badami near modern Bijapur in Karnataka, the dynasty ruled for two hundred years. Chalukyans were unique in several ways. They were the first to cross the Vindhyas and defeat north Indian rulers. They broadly followed the victory route taken by Samudragupta, some three centuries ago. Sweeping along the eastern board, they appointed their kin as rulers. Known as eastern Chalukyas, they were to rule from Vengi for over four centuries.

Eventually, Badami Chalukyas penetrated south and befriended Cholas, Cheras and Pandyas to form an axis against Pallavas, their sworn enemies. During most of their dynastic rule, Badami Chalukyas and KanchipuramPallavas kept on colliding and debilitating each other across Tungabhadra river for supremacy.

They won vast territories, but did not win friends or allies. Their own kinsmen in Vengi rarely came to their rescue. Finally, the Badami Chalukyas were over powered, paradoxically not by Pallavas but by Rashtrakutas. In AD 750, Kirthivarman-II, their last ruler was defeated by Dantivarman. As the latter laid the foundation of Rashtrakuta dynasty, the Badami Chalukyas stood eclipsed, for the time being.

Being such a unique dynasty, legends abound regarding their origin. "They are related to Chandra Vamsa (Lunar royal line) and Surya Vamsa (Solar royal line) simultaneously. Then, Brahma himself appears to have poured them out of his water pot (chulka) on Indra'srequest to create a dynasty on earth to suppress evil doers. Bilhara, the court poet of Chalukyas had narrated all this in Eleventh century. He must have known the whole truth. But, historians' limited belief is that Chalukyas rose from local army chiefs to sovereign power in northern Karnataka under Pulakesin (lion hearted). He was the first Maharaja in the family who ruled from about AD 535 to AD 556. He built a fortress on a hill at Vatapi (Badami) and celebrated his accession by performing AshwamedhaYagna (horse sacrifice)."[2]

His son, Kirtivarman took the next step and reportedly defeated the rulers of Vanga, Anga, Kalinga Vattura, Magadha, Kerala, Ganga, Mushka, Pandya, Dravila, Choliya, Aluka and Vaijanti. He is also described as "Night of Destruction" to the Nalas, Mauryas and Kadambas. After all these conquest stretching from Bengal to Cape Cameron, he declared himself a universal monarch. He was succeeded by his brother Mangalesa who humbled Kalachuris and conquered Revatidvipa. Kalchuris were finally defeated in AD 602 and entire central and western Deccan came under Chalukyan control. A civil war ensued wherein Mangalesa lost his life and his nephew, Pulkesin-II, the son of Kirthivarman-I, became the King.

"Pulakesin-II (AD 610 – AD 642) inherited the Chalukyan throne, 'when the whole world was enveloped in the darkness that was the enemies', states Aihole inscription. Pulakesin set out on his campaign, the inscription continues, 'with his six fold forces, the hereditary troops and the rest, who flaunted spotless chowries, hundreds of flags and umbrellas', and were 'elated with the sentiments of heroism and energy'. The dust raised by this immense army on the march turned the day into night, states the inscription. Pulakesin first turned southward, to secure his rear by subduing the chieftains in southern Karnataka, then advanced north into Maharashtra and annexed it to his kingdom. Next, he crossed the Vindhyan barrier into Madhya Pradesh and Gujarat, but there his path was barred by Harsha, the ruler of Kannauj and dominant power of north India, who was also advancing into Madhya Pradesh and Gujarat at this time.In the ensuing battle, fought on the banks of the Narmada, Pulakesin routed Harsha. 'Harsha, whose lotus-feet were arrayed with the rays of the jewels of hosts of feudatories, prosperous with unmeasured might, through him (Pulakesin) had his mirth (Harsha)

melted away by fear, having become loathsome with his rows of lordly elephants fallen in battle,' gloats the Aihole inscription. The defeat of Harsha in the battle is indirectly admitted by Hsuan Tsang, who writes that though Harsha had set out to subdue the Chalukyas with a vast army, 'he has not yet conquered their troops."[3]

It is rightly pointed out that the struggle between the Kings of Madyadesha and Dakshnapatha was inherent in the attempts of both to extend their power over Aparantha (Gujarat region) of India. Whatever the motive, the young Pulakeshin-II raised his kingdom to the dominant power in the entire peninsula. By defeating an emperor of Harshavardhana's fame, he became the first and perhaps the last monarch from Deccan to humble a northern ruler in the entire history of India.

Pulakesin then marched into eastern Deccan, conquered Orissa and the lower Godavari Krishna valleys. The fortress of Pishtapur (Pithapuram, East Godavari district) and another fort on the Island in Kunala (Yanam) were captured. The ruler of Pistapur was deposed and Pulakesin-II put his younger brother, Kubja (hunch backed) Vishnuvardhan in charge of the new territory. In AD 640, that is how the dynasty of eastern Chalukyas was founded. It was to last till AD 1070, for almost four and a quarter centuries and ruling the coastal territories sandwiched between Kalingas in north and Cholas in south abutting Bay of Bengal.

"Pulakesin continued to push along the eastern coast. He confronted Pallava King, MahendraVarman-I but did not occupy his capital Kanchipuram and proceeded southwards, crossed the Cauvery, befriended Chola, Chera and Pandya Kings as his allies, presumably as an axis against the Pallavas. On his return march, Pallavas resistance was swept aside and their northern provinces were annexed. Safe and back in his capital Badami, Pulakesin justifiably assumed the title of "Lord of the eastern and western waters."[4]

Pallavas, on the other side were down but not out. Mahendra Varman's successor, Narsimha Varman mounted attack and sacked Chalukya's capital Badami. Pulakesin-II fell in the battle and Badami remained in Pallava hands for many years. From AD 642 to AD 655, the Chalukyan throne remained vacant. But, Pulakesin's son, Vikramaditya-I recovered the capital and regained southern province by engaging three successive Pallava Kings to a long drawn out war. Vikramaditya occupied Kanchipuram and claimed the title of lord of the earth. But, counter claims of Pallavas assert to have razed Badami and 'Vikramaditya took flight, covered only by a rag.' As the battle on the ground and the war of words razed on for over a century between neighbouring kingdoms across Tungabhadra river, the truth became the ultimate victim. But, throughout these conflicts, Badamigot no help from their eastern kinsmen in Vengi who were enthroned there just a decade ago by Pulakesin-II.

"Vikramaditya's son Vinayaditya too claimed grand victories and tributes from Srilanka and even from Persia. He was succeeded by Vijayaditya who fought against Pallavas, conquered Kanchi and levied tributes. The next ruler Vikramaditya-II continued the tradition of hostilities against Pallavas. He entered Kanchi, but did not destroy it. He

appears to have subdued Chola, Kerala, Pandya, Kalabhara and other Kings, till the victory pillar was erected on the shores of the southern ocean."[5]

Then came Kirthivarman-II, the last ruler. Dantidurga, the Rashtrakuta King defeated him in AD 750. The glorious rule of Badami Chalukyan dynasty, lasting around two centuries, was obliterated from Deccan lands.

11.3 THE AIHOLE INSCRIPTION OF PULAKESHIN

"The Meguti temple at Aihole (Bagalkot district Karnataka) stands on top of a hill, commanding a panoramic view of the surrounding countryside, including a large crop of megaliths nearby. Embedded in the eastern wall of this Jaina temple is a 19-line inscription in Sanskrit verse, written in the southern script typical of the 7th century. The inscription is dated in the year 556 (of the the Shaka era), i.e., 634-35 CE. The composer, a poet named Ravikirti, was also the one who had the temple built. The inscription is a prashasti of the Chalukyas, especially the reigning king Pulakeshin II, who is referred to as Satyashraya (the abode of truth). It contains many details about the history of this dynasty, but its literary merits are also great. These suggest that Ravikirti may not have been making an idle boast when, in verse 37, he describes himself as the equal of Kalidasa and Bhasa. A few translated excerpts from the inscription are given below (pronouns starting with capital letters - He,Him, etc. - refer to Pulakeshin II):

Victorious is the holy Jinendra - he who is exempt from old age, death and birth - in the sea of whose knowledge the whole world is comprised like an island.

And next, long victorious is the immeasurable, wide ocean of the Chalukya family, which is the birthplace of jewels of men that are ornaments of the diadem of the earth.

And victorious for very long is Satyashraya, who in bestowing gifts and honours on the brave and on the learned, both together on either, observes not the rule of correspondence of number....

An account of the early kings of the Chalukya line follows, upto the reign of Pulakeshin II's uncle Mangalesha.

...Then, on the subversion of that (i.e., Mangalesha's) rule encompassed by the darkness of enemies, the whole world grew light again, invaded as it were by the lustrous rays of His (i.e., Pulakeshin's) irresistible splendour. Or when was it that the sky ceased to be black like a swarm of bees with thundering clouds, in which flashes of lightening were dancing like banners, and the edges of which were crashing in the rushing wind?

When, having found the opportunity, he who was named Appayika, and Govinda approached with their troops of elephants to conquer the country northof the Bhaimarathi, the one in battle through His armies, came to know the taste of fear, while the other at once received the reward of the services rendered by him.

When He was beseiging Vanavasi, which for a girdle has the rows of hamsa birds that sport on the high waves of the Varada as their play-place, and which by its wealth rivalled the city of the gods, that fortress on land, having the surface of the earth all around covered with the great sea of his army, to the onlooker seemed at once converted into a fortress in the water.

Although in former days they had acquired happiness by renouncing the seven sins, the Ganga and Alupa lords, being subdued by His dignity, were always intoxicated by drinking the nectar of close attendance upon him.

In the Konkanas the impetuous waves of the forces directed by Him speedily swept away the rising wavelets of pools - the Mauryas.

When, radiant like the destroyer of Pura [i.e., Shiva] He beseiged Puri, the Fortune of the western sea, with hundreds ofships in appearance like arrays of rutting elephants, the sky, dark blue as a young lotus and covered with tiers of massive clouds, resembled the sea, and the sea was like the sky.

Subdued by His splendour, the Latas, Malavas, and Gurjaras became as it were teachers of how feudatories, subdued by force, ought to behave.

Harsha, whose lotus feet were arrayed with the rays of jewels of the diadems of hosts of feudatories prosperous with unmeasured might, through Him had his joy [harsha] melted away by fear, having become loathsome with his rows of lordly elephants fallen in battle.

While He was ruling the earth with his broad armies, the neighbourhood of the Vindhya, by no means destitute of the lustre of the many sandbanks of the Reva, shone even more brightly by his great personal splendour, having to be avoided by his elephants because, as it seemed, they by their bulk rivalled the mountains.

Almost equal to Indra, He by means of all the three powers, gathered by him according to rule, and by his noble birth and other excellent qualities, acquired the sovereignty over the three Maharashtrakas with their nine and ninety thousand villages.

Through the excellencies of their householders prominent in the pursuit of the three objects of life, and having broken the pride of other rulers of the earth, the Kalingas with the Kosalas by His army were made to evince signs of fear.

Hard pressed [pishta] by Him, Pishtapura became a fortress not difficult of access; wonderful (to relate), the ways of the Kali age to Him were quite inaccessible.

Ravaged by Him, the water of Kunala – colouredwith the blood of men killed with many weapons, and the land within it overspread with arrays of decorated elephants – waslike the cloud-covered sky in which the red evening twilight has risen.

With His six-fold forces, the hereditary troops and the rest, who raised spotless chauris, hundreds of flags, umbrellas, and darkness (i.e., dust), and who churned the enemy elated with the sentiments of heroism and energy, He caused the splendour of the lord of the Pallavas, who had opposed the rise of his power, to be obscured by the dust of his army, and to vanish behind the walls of Kanchipura.

When straight away He strove to conquer the Cholas, the Kaveri, who has the darting carps for her tremulous eyes, had her current obstructed by the causeway formed by his elephants whose rutting-juice was dripping down, and avoided the contact with the ocean.

There He caused great prosperity to the Cholas, Keralas, and Pandyas, he being the hot-rayed sun to the hoarfrost–thearmy of the Pallavas.

While He, Satyashraya, endowed with the powers of energy, mastery, and good counsel–havingconquered all the quarters, having dismissed the kings full of honours, having done homage to the gods and Brahmanas, having entered the city of Vatapi–isruling, like one city, this earth which has the dark-blue waters of the surging sea for its moat....

This stone mansion of Jinendra, a mansion of every kind of greatness, has been caused to be built by the wise Ravikirti, who has obtained the highest favour of that Satyashraya whose rule is bounded by the three oceans."[6]

AYYAVOLE GUILD

"Inscriptions form a major source of information regarding the guilds of early medieval South India. Most of them are on stone, a few on copper plates. The stone inscriptions are often associated with temples and usually record donations made by guild members. A few refer to public services performed by them, or agreements between rulers and merchants regarding the setting up of a mercantile townships. Guild inscriptions frequently include a prashasti of the guild, which throws light on its relationship with the state and other organizations, as well as the religious affiliations of guild members. Lists of commodities involved in trade are also often given.

Aihole, located on the banks of the Malaprabha river in the fertile Raichur doab in Bijapur district, Karnataka, is known for its magnificent Chalukya period temples. The Ayyavole guild seems to have originated in this town. It wasprobably founded by a group of Brahmana mahajanas (traders) of this place in about the 8th century. The earliest inscription referring to this guild is found in the Lad Khan temple at Aihole. Several other Aihole inscriptions, ranging from the 8th to 12th centuries, mention it as well. The town of Aihole was also known by other names such as Ayyavole, Aryapura, and Ahichchhatra. Inscriptions refer to members of the Ayyavole guild as 'ornaments on the brow of that great lady, the city of Ahichchhatra', or as 'the 500 svamis [lords] of the illustrious town of Ayyavole'. Inscriptional references to the Ayyavole range from the 8th/9th century to the late 17th century. During the early medieval period, against the background of expanding trade and urban settlements, the activities of this guild expanded.

Given the large area that the Ayyavole operated over (Karnataka, Tamil Nadu,southern Andhra Pradesh, and parts of Kerala), one of the questions that arises is whether it functioned as a loose federation of units or whether it had a centralized organizational structure. Opinions on this issue vary greatly. Meera Abraham suggests

that the organization consisted of a sort of federation of units, each operating over fairly large areas.

The Ayyavole had close links with various ruling elites and enjoyed royal patronage. The Cholas had a close relationship with this guild. According to tradition, the Pandya kings invited the Nattukottai Chettiars, members of Ayyavole, to migrate from Kaveripattinam to their territory. The Ayyavole had links with other, smaller merchant associations such as the Valanjiyar, as well as close links with agraharas and agrahara Brahmanas."[7]

THE DURGA TEMPLE AT AIHOLE

"The 'Durga temple' at Aihole is named after a nearby fort, and is now dedicated to the goddess Durga. It was probably built in about 725-730 CE, during the reign of the Chalukya king, Vijayaditya.

The Durga temple is an enigmatic structure.

The mystery, concerns the deity to whom this temple was dedicated. Over the years, it has been variously connected with Shiva, Vishnu, Brahma, and Aditya (Surya). It has also been argued that it was a Buddhist shrine, taken over at some point by the Shaivas. This view is no longer accepted.

The sheer variety of the sculptures makes it difficult to identify the cultic affiliations of the temple. Shaiva temples of this region usually depict a variety of deities, but have a Nandi mandapa (a pavilion enshrining the Nandi bull), which is absent here. Therefore, it does not seem to be a Shiva temple. As its sculptural programme does not privilege the goddess, it does not seem to be a goddess temple. Vishnu temples of this region and period tend to have exclusively Vaishnava sculptural themes, so this was not a Vishnu temple. The view among many art historians today is that the Durga temple was dedicated to Aditya (Surya). There is an image of this deity above the entrance, and a gateway inscription refers to it as a temple of Aditya. Several representations of the sun god have been found elsewhere on the structure as well. However, even if it can be understood as a Surya temple, in many respects, the form and style of the Durga temple at Aihole remain unique.[8]

11.4 LAJJA GAURI; FERTILITY CULT AND MOTHER GODDESS WORSHIP

Female fertility worship was a universally accepted practice in ancient cultures. Almost all such cultures have yielded a good number of female figurines identified as the mother Goddess. Right from prehistoric times, as society and culture evolved, such practices came into existence as a part of social and ritualistic beliefs. Fertility worship as mother Goddess worship became one of the important practices in the Neolithic and post Neolithic cultures in India. The Saraswathi Indus valley cities have contributed a good number of figurines resembling mother Goddess images. In spite of their varying forms and types, the figurines have voluptuous or slender physique, wide pelvis and prominent

breast portions. The head portion has decorative features like flowery headgear, dotted ear ornaments and necklaces. The figurines are quite small in size and probably symbolized the worship of 'Yoni' in ancient periods.

One such figure has been identified by the scholars as 'LajjaGauri". The headless figure with lotus and stupa like form with a pot like belly is found at several locations adjoining Telangana and Karnataka border in and around Krishna Tungabhadra basin. The sizes range from two or three inches to life size figures carved in stone. The best example of Lajja Gauri was found at Badami site at Naganathakolla near Mahakuta which is preserved in the ASI museum in Badami. The image is in seated posture and may be considered as sublime face yet provocative in appearance. The legs are bent up and spread apart. The posture is identified with giving birth. It is identified as 'Kabandha' posture. In some places, the belly portion appears like a pot (kumbha). Kumbha with a lotus directly associates the figure with PurnaGhata, which symbolizes fertility and auspiciousness.

These images of LajjaGauri worship date back to 2^{nd} – 3^{rd} century CE to 10^{th} – 12^{th} century CE. The earliest figures, found at Sannati have simple features which go beyond Buddhist beliefs.Fertility was a common issue then and even now. To get better offspring, people would pray to the Goddess and also submit votive objects. Even Buddha, born as Siddhartha was a very late issue to his parents. The royal family having sought the blessings of 'mother Goddess' were of course not disappointed.

The Badami Chalukya period was very rich in the worship of LajjaGauri. Aihole, Mahakuta Naganathakolla, Huligemmanakolla and Siddhanakolla (all in the present day northern Karnataka) and Alampur temple complex is located on the northern banks of the river Tungabhadra in Jogulamba district of Telangana. The original female deity, known as mother Jogulamba was known at least from 742 CE onwards during the reign of Badami Chalukyas. Essentially, it is sought after by women for a sure and safe motherhood. The cult of female fertility is at the core of these locations. Over centuries, the area witnessed increased attention by devotees, which in turn provided for diversified features like multi-dimensional Bala Brahma in the vicinity. Bahamanis Sultanate, an Islamic polity ruling these areas from 14^{th} century CE caused destruction to several deities in the complex. The worship of mother Jogulamba, nevertheless continued unabated. After Indian independence, the complex got attention of the state government and now, with the realisation of Telangana state, the attention of state, as well as devotees has accelerated. Alampur (in Gadwal district of Telangana) are places quite away from the regular habitation in the broad river valley. The images are carved right on the boulders and are worshipped, even today. Local beliefs and myths are closely connected with tantric practices of 'yoni-puja'. In the post Badami-Chalukya period, the cult of LajjaGauri started sharing space with Narsimha Brahma Shivalinga, Nandi and Conch. Such plaques have been found in Telangana, Karnataka and Maharashtra. The Goddess 'LajjaGauri' remains a tireless divinity with her unique features directly associating her with the fertility cult and worship.[9]

11.5 THE RASHTRAKUTA EMPIRE

The political history of Deccan between C 753 – 975 CE was marked by the ascendancy of Rashtrakutas."In certain copper plate grants, the Rashtrakutas claim descent from the lineage (vamsha) of Yadu. In the Epics, Yadu was the son of Yayati and the brother of Puru and Thirvasu. Krishna was supposed to be a descendent of Yadu. Various inscriptions elaborate upon this mythical story of origin, stating that the Rashtrakutas belonged to the Satyaki branch of the Yaduvamsha, mentioning an eponymous ancestor."[10]

Rashtrakuta means the 'Chief of a Rashtra'. The word occurs in inscriptions of several dynasties from about the 4th century CE. They, most probably belonged to a class of provincial officials in the beginning. As the central authority of Badami Chalukyas weakened, the emerging power vacuum was filled in by 'Rashtrakutas' from 753 CE onwards.

Theories abound regarding the origin of Rashtrakutas. Fleet thought them to be connected with Rathikas of Ashokan inscriptions or descendents of Rathods from north. Burnel thought them to be connected with with the Kannada-Telugu Reddy caste. None of these assertions carry any historic gravitas. Rashtrakutas appear to have migrated from the Latur (in the present day Maharashtra) to Ellichpur (near the source of Tapi, in the present day Madhya Pradesh) in C 625 CE. Here, they carried out a principality and ruled for several generations as feudatories of the Chalukyas. They assumed an independent status under Danti Durga (in whose Elephant is his fortress) who ascended the throne in 733 CE. He won many military victories and assumed imperial rule.

The Rashtrakuta Empire expanded during the reign of Dantidurga's successors, especially under Krishna I, Govinda III and Amoghavarsha. The magnificent Kailashnatha temple at Ellora was built during the reign of Krishna I. Later on, Amoghavarsha (814 CE – 878 CE) built a new capital city of Manyakheta (identified with modern Malkhed). He was a patron of literature and a scholar himself. He wrote 'Kavirajmarga', the earliest Kannada work on poetics. Interspersed with success and reverses, the Rashtrakuta dynasty was extinguished towards the end of 10th century when Paramaras sacked Manyakheta.

'Rashtrakuta' literally means the chief of a rashtra (division or kingdom). It is possible that Rashtrakutas were originally a group of officials who eventually came to occupy power with the decline of Badami Chalukyas. The origin of the dynasty can be traced to Kannada speaking area. They achieved spectacular military successes in north and south and at some point in time, they defeated the powers like Gurjara Pratiharas, Palas, Eastern Chalukyas and even Cholas. However, they were not able to hold on to their northern conquests for long.

Dantidurga (literally meaning he whose elephant is his fortress) founded the dynasty and started expansion all around. He was followed by equally ambitions successors with expansionist mindset. The magnificent Kailashnath temple at Ellora was built during the reign of Krishna I. Amoghavarsha (814 – 878 CE) built a new capital city

of Manyakheta (the modern Malkheda). He was a patron of literature and a scholar himself. He wrote Kaviraj marge, the earliest Kannada work on poetics. Subsequently, Rashtrakuta kings captured Kannauj and achieved victories against Cholas, but there were several reverses as well. Towards the end of 10^{th} century, the Parmars sacked Manyakheta and this event signalled the decline of Rashtrakutas dynasty. In 950 CE, the vacuum was filled up by Chalukyas (this time Kalyan Chalukyas) who ruled for the next two centuries or so.

Hundreds of inscribed and uninscribed memorial stones are found in peninsular India. A majority of them "are viragals (memorials for heroes), mostly honouring men who died in the course of cattle raids, either as defenders or attackers. However, an interesting memorial stone found at Kembalu records the death of a queen who led her men in such a raid. There are memorials to those who died while protecting their womenfolk from molestation and rape at the hands of enemies, those who perished while helping or rescuing friends and relatives, and those who gave their lives defending their lord or their land. Some memorial stones record the bravery of people who died defending their town or village from kings, princes, robbers, and oppressive officers. There are also memorials in memory of those who died while fighting wild animals such as elephants, cows, boars, tigers, and even horses. Sometimes, only the name of the hero is inscribed, with no mention of the circumstances of his/her death"[11]

The word 'Rashtrakuta' means an official designated, possibly the head of a Rashtra or province. In AD 750, Dantivarnan also known as Dantidurga laid the foundation of Rashtrakuta dynasty. Ruling from Deccan lands with Manyakhet or Mankhed, near modern Sholapur in Maharashtra, the dynasty ruled for more than two hundred years. Palas in eastern India and Pratiharas in northern and western India were their peer adversaries. Rashtrakutas ruled till AD 973, when Taila-II, one of their feudatories defeated Karaka, the last ruler of the dynasty. By AD 975, Taila-II became the overlord of Deccan, as Rashtrakutas disappeared into history.

Dantidurga, plunged head long into war and defeated Kanchi, Kalinga, Kosala, Srishaila, Malwa, Lata and Tank. In AD 750, all these victories were celebrated by performing Hiranyagarbha ceremony at Ujjain. By now, distant arms inspired by a new Ideology of Islam had reached from Arabian Desert right onto the doorstep of India. Mohammed Bin Kasim had humbled Sind. As a reaction to these new forces, Dantidurga took part in the campaign against the aliens. Arabs were defeated, never to invade Gujarat again. Finally, he subdued Kirtivarman-II, the last Chalukyan ruler and became the master of entire Deccan lands.

With the fall of Kirtivarman-II, the original home of Chalukyas at Badami came under the influence of Rashtrakutas in AD 754. The rise of this new power posed a new challenge to the eastern Chalukyas based at Vengi from central Deccan. Till then, there was no fear of attack from the west since Badami Chalukyas were their kinsmen. VengiChalukyas had never come to the rescue of their kinsmen. Both however, assisted each other in their wars against the Pallavas of Kanchi.

Krishna-I succeeded Dantidurga. He finally obliterated Badami Chalukyan Empire by defeating Kirtivarman-II by about AD 760 subdued Gangas ruling Mysore and then humbled eastern Chalukyas of Vengi. Over time, Dhruva (AD 780 – AD 793) succeeded him. An ambitions man with an eye upon northern India, he registered victories all around. Vatsa Raju, the Pratihara rulers and eastern Chalukyas of Vengi were humbled. Then, he moved beyond and defeated Dharmapala of Pala dynasty. Pahlva rulers were made to submit. Territorial conquests reached its zenith during the reign of Dhruva.

Govinda-III (AD 793 – AD 814) came next and continued Dhruva's tradition. He advanced as far as Himalayas. Dr. Altekar says, "Govinda-III was undoubtedly the ablest of Rashtrakuta kings. He was unrivalled in courage, generalship, statesmanship and martial exploits. His invincible armies conquered all the territories between Kannauj and Cape Camerin and Benaras and Broach." For a while, virtually, the whole of India was acknowledging Rashtrakuta supremacy.

Amoghvarsha, the thirteen year old son of Govinda-III succeeded and he had a long and prosperous reign stretching from AD 814 to AD 878. Sulaiman, an Arab merchant, who visited Rashtrakuta kingdom has described him as one of the four great monarchs of the world, the other three being, the Khalifa of Baghdad, the Emperor of China and the Emperor of Constantinople.

His rather long reign was bound to generate dissentions in the royal family. They were overcome but Vengi rulers sought their revenge and dethroned him. He recovered, turned the tables on Vengi and occupied it for twelve years. However, conflict with Gangas forced Amoghvarsha to come to terms with them. The King was also famous as a great patron of Jainism and the Jain work, Ratnamalika is attributed to him. Dr. Atlekar says, "His name will endure as a ruler who established peace and order in his kingdom, encouraged art and literature, practiced the principles he preached and did not think even from offering a limb of his body by way of sacrifice, what he thought that public welfare demanded it." He ended his life by taking Jal Samadhi in the Tungabhadra river.

During his long rule, the hard victories in the battle field had given way to soft aspect of art, literature and public welfare. The high noon of Rashtrakutas was over by now. Amoghvarsha's son Krishna-II succeeded him. Pritiharas and eastern Chalukyas humbled him. His efforts to put his grandson on the Chola throne also failed. Successive rulers had mixed fortunes. One of them was a tyrant. He was removed.

Krishna-III (AD 940 – AD 968) was ruler of some substance. He invaded Cholas, subdued them finally and led his victorious march up to Rameshwaran where he built a pillar of victory. He led an expedition to Malwa and then to Buldelkhand into northern India without success. Dr.Atlekar says, "Krishna-III may not have been as successful in his campaigns in northern India as Dhruva or Govinda-III, but it cannot be denied that he was the Lord of the whole of Deccan. He possessed a large part of Chola kingdom. He was one of the ablest monarchs of the Rashtrakuta dynasty."

As, rulers followed in quick succession, the situation worsened. Prestige was gone and the empire was hollowed out by now. Taila-II, a feudatory of Rashtrakutas revolted in AD 973 and defeated Karakka, the last ruler of the dynasty. By AD 975, as Taila became overlord of Deccan, the Rashtrakuta's disappeared into history.

Atlekar sums up the Rashtrakuta's times, "The period of Rashtrakuta ascendancy in the Deccan from about AD 753 to AD 975 constitutes perhaps the most brilliant chapter in its history. No other ruling dynasty in the Deccan played such a dominant part in the history of India till the rise of the Marathas as an imperial power in the eighteenth century. No less than three of its rulers, Dhruva, Govinda-III and Indra-III, carried their victorious arms into the heart of north India and by inflicting severe defeats upon its most powerful rulers, changed the whole course of the history of that region. Their success in the south was equally remarkable and Krishna-III literally advanced as far as Ramesvaram in the course of his victorious career. All the great powers of India, the Pratiharas and the Palas in the north, and the eastern Chalukyas and Cholas in the south, were subjugated by them at one time or the other. They, no doubt, suffered reverses at times, but on the whole their military campaigns against powerful adversaries were repeatedly crowned with brilliant success."

WESTERN CHALUKYAS OF KALYANI

By AD 973, another Chalukyan dynasty re-emerged on the Deccan horizon, known as Western Chalukyas. Ruling from their capital at Kalyan (in Bidar district of Karnataka), they played a dynamic role, exhibiting vibrancy and tenacity in expanding their frontiers. They remained invaders and interventionists throughout their rule for around two centuries. Thanjavur Cholas, remained their peer adversaries. RomilaThapar has observed, "The political history of the Deccan and further south evolved a pattern based on geopolitical influence of a region, a pattern which remained unbroken until recent times. It resulted from the conflict of the geographical regions of the Western Deccan and Tamil Nadu, the vast plateau areas enclosed by mountains along the coasts on the one hand and the fertile plain south of Madras on the other. The division of the peninsula into plateau kingdoms on the west and coastal kingdoms in the east increased the desire of each to control the entire waterways particularly the Godavari and Krishna Rivers. Vengi, lying between the Godavari and the Krishna deltas, was frequently the bone of contention. The conflict was as much dynastic as it was geographic, and consequently, continued through centuries despite the rise and fall of particular dynasties."

Tanjavur Cholas remained peer adversaries of Kalyan Chalukyas. As incessant conflicts weakened latter, several power centers arose in the evolving power vacuum. In Telangana region, Kakatiyas emerged powerful and decisive. In AD 1158, they declared their independence. Others followed. Eventually, Yadavas of Deogiri in western Deccan and Hoyasalas in south subdued the Chalukyas and eradicated their dynasty by around AD 1190.

Kalyan Chalukyas claimed their descent from the Chalukyas of Badami. The founder of the dynasty was Taila-II. He defeated the last Rashtrakuta King Karakka and

ruled for twenty four years from AD 973 to AD 997. His sovereignty was eventually acknowledged by all the vassals of the Rashtrakuta Kingdom. Telangana region, hitherto under the Chalukyas of Vemulwada had come under Kalyana's hegemony. Taking his arms forward, Taila embarked upon an invasion of south to confront Cholas of Tanjavur.

This ignited conflicts between Kalyana Chalukyas and Thanjavur Cholas for mastery over Deccan lands. It would last for more than a century and a half and devastate the area which is present day Kurnool district. Conflicting claims apart, Krishna and Tungabhadra rivers remained the dividing boundary while Vengi region in the East continued to pendulate between the two warring Kingdoms. Chalukyan arms however were more successful in securing northern boundaries up to Narmada and Western territories abutting coast.

Among those who followed, Vikramaditya-VI needs special mention. On 11th February 1076 A.D., he ascended the throne and initiated a new era called Chalukya Vikrama. His peaceful rule for fifty years ensured loyal feudatories who, in turn stabilized the Kingdom. The glory of Kalyana, the capital, and the ruler are inscribed as – "There has not been, there is not and there will not be, on the surface of the earth, a city like Kalyana; and never was a monarch like the prosperous Vikramaditya seen or heard of."

The present day Telangana was ruled by several chieftains. KakatiProla had obtained Anumakonda Vishaya and Sabbi as a fief. Mudigonda Chalukyas ruled over tracts around the river Godavari in Khammam, a buffer region to Vengi. The Polvasa chiefs ruled the areas around Jagtiala in Karimnagar district. The Kanduru Chodas ruled an extensive territory called Kandurunadu with capitals at Koduru and Panagallu. The tract west of Anumakonda Vishaya, Kollipaka was conferred on Paramara Jagaddeva. All of them were loyal and staunch followers of Vikramaditya-VI. In AD 1117, Vikramaditya invaded and subjugated Vengi. And, the Chalukyan dream of hegemony over entire Deccan land was realized. From coast to coast, it was indeed the high noon of the Empire. But, soon, the decline was to set in.

Hegemony over Vengi was contested by Cholas and their loyalists. As territories couldn't be protected, Chalukyans were driven away in 1135 AD. As decline got accelerated, several forces emerged and struck more confidently. In the Telangana region, the Kakatiyas emerged powerful and decisive. Taila-III, the younger brother of Jagdekamalla ascended the Chalukyan throne a decade later in AD 1149. The Kakatiyas declared their independence in the central Deccan in AD 1157. The Silaharas from north and the Hoysalas from the south embarked on their pursuit of independence. In the emerging adverse scenario, Taila-III died in AD 1162.

By now, the pith and substance of Chalukyan dynasty had melted away. Finally, the Yadavas of Deogiri and Hoysalas under Vir-Ballala attacked the Chalukyas and eradicated their dynasty by around AD 1190. The Chalukyan flame after illuminating Deccan lands for more than six centuries stood extinguished, forever. Their heritage, especially in temple architecture has survived in Adilabad, Karimnagar and Warangal districts, till date.

12. KNOWLEDGE FRONTIERS BY 1000 CE

12.1 ASTRONOMY AND MATHEMATICS

Aryabhata I is the earliest known historical astronomer in India. He wrote two works – Aryabhatiya, a text which deals with astronomy and mathematics and Aryabhata Siddhanta. He was a native of Asmaka country (on the banks of Godavari) and lived in Kusumapura (Patliputra). He was aware about the ideas and methods of his predecessors, but struck his own course. "I dived deep in the ocean of astromical theories, true and false, but rescued the precious sunken jewels of true knowledge by means of the boat of my own intellect" (Aryabhatiya, 449).

Aryabhata had an earth-centric view of the universe and thought that the planets moved around the earth in circular epicycles. He was the first astronomer to give a scientific explanation of eclipses. He was also the first to discover that the earth rotated on its axis. He also discovered the sine function of trigonometry and used them in astronomy. He worked out the correct equation for calculating the orbit of a planet and gave an extremely accurate estimate of the length of a year as 365.2586805 days. Unfortunately, nothing is known about the experiments or the methodology used by that genius, Aryabhata in arriving at such a momentous and precise conclusion. Some fifteen centuries ago.

Varahamihira was a 6^{th} century astronomer and mathematician who belonged to Avanti (in western malwa). On Panchasiddhanta, he summarised the five astronomical schools prevalent at that time. His Brihatsamhita is an encyclopaedic works dealing with diverse topics such as how to sharpen swords, how to ascertain the value of precious metals and stones, how to make tree bear fruits out of season, how to distinguish the good breed of animals and how to divine the location of ground water. It also discussed the nature and structure of temples, palaces and houses. It also explains about seasons and the correlation between the clouds, winds and amount of rainfall.

Brahmagupta, an astronomer and mathematician of the late 6th/7th century, was the author of the Brahmasputa siddhanta (628 CE) and the Khandakhadyaka (665 CE). These texts became very influential within India, and their Arab translations and adaptations introduced Indian astronomy to the Arabs. The Brahmasputa siddhanta is also the first surviving Indian text containing a systematic discussion of astronomical instruments, as well as methods of computing astronomical elements from readings taken with them (Sarma, 1986). The instruments include accessories, astronomical instruments for measuring time and observing the celestial bodies, instruments that turn automatically for the duration of one day, and ones that rotate perpetually. The accessories (samsadhana) comprise water, a pair of compasses (bhrama), plumb-line (avalamba), hypotenuse (karna), shadow (chhaya), mid-day (dinardha), the sun, and the local latitude (aksha). The text mentions nine astronomical instruments – chakra(a circular wooden plate graduated into 360°), dhanus (a semi-circular plate), turyagola (a quarter plate), yashti (staff), shanku (gnomon), ghatika (clepsydra), kapala (a horizontally placed

circular plate), kartari (two semi-circular plates joined together at different levels), and pitha (a horizontally placed chakra). S.R. Sarma points out that the instruments, made of wood or bamboo, are very simple in design and could not have provided much precision in measurement. This suggests that astronomers probably relied more on their superior computing skills. However, Brahmagupta also referred to complex automatic devices called svayamvaha yantras, which reflects an awareness of the idea of perpetual motion"[1]

The roots of Indian mathematics can be traced in the shuluasutras, appendices to Shrautasutras (Hayashi, 2003). Shulva means measurement and Shulvasutras are manuals for preparing the site where vedic sacrificial rituals are to be performed. Among other things, these manuals contain one of the earliest expressions of the principle which came to be known as Pythagoras theorem in geometry. There are also suggestions for squaring a circle i.e., to construct, using only a ruler and a compass, a square whose area is equal to that of a given circle.

In later times, the term Ganita shastra was used for mathematical science. The decimal system of notation was the seminal discovery of our creative ancestors which made the modern system of numbers amenable to simplified arithmetical calculations. The oldest datable evidence of this system is found in a third century work on astrology called the Yavanajataka by Sphujidhvaja (Hayashi, 2003 : 366). This work does not however mention the zero. The zero symbol, a mere dot, was used in metrics (chhandas) by Pingla Chhandasutras, a pre 2^{nd} century BCE work. Varahamihira's pancha siddhantha is the earliest datable text to give zero both as a symbol and as a number.

The decimal system of notation was used by Varahamihira and Aryabhatta to extract the square root and cube root of numbers. Clearly, Indian mathematicians were using this simple yet smart method of decimals in the 5^{th} century CE. Europe, sunk in dark ages was still using the old cumbersome method of Roman numerals till 12^{th} century CE. In the meantime, the Arab writers such as Ibn Mashiya, Al-masudi and Al-Biruni gave credit to 'Hindus' for the discovery of decimal system, before this seminal discovery was transmitted to Europe.

Primarily an astronomer, Aryabhatta dealt with various aspects of mathematics. His work regarding rules of involution and evolution deals with arithmetical progression of numbers and their squares and cubes. In geometry, he describes various properties of circles and calculated the value for pi (π) correct to four decimal places at 3.1416. He is also regarded as the father of Algebra. His work solves a number of complex simultaneous equations. In trigonometry, he calculated the ratio of sine (called jya in Sanskrit) for angles from $0^o$to 90^oat intervals of $3^3/4$ degrees. He perfected the method of finding in integers certain types of indeterminate. Subsequently, Brahma gupta (early 7^{th} century CE) and Bhaskara II made contributions in this sphere. None of those Indian mathematicians, unlike their Greek counterparts left any proofs or methodology to arrive at the seminal conclusions.

Mahavira (9^{th} century CE) was a famous mathematician of Karnataka who lived in the court of Rashtrakuta king Amoghavarsha Nrupatunga of Manyakhata. He wrote a book called Ganitasara sangraha which dealt with various mathematical problems. He

also gave formulae for the area and circumference of an ellipse. The formula, he gave for the area of an ellipse was incorrect; but the one for the circumference was correct. Bhaskara II (12^{th} century CE). The author of Lilavati was yet another important mathematician whose writings contain some important ideas of calculus.

MEDICAL KNOWLEDGE

Ayurveda (literally, knowledge for longevity) is one of the most important tradition of ancient India of which the charaka and sushruta samhitas are its earliest surviving texts. Ayurveda does not owe anything to Greek medicine but experts like Konneth G.Zysk (1991) believe that the roots of Ayurveda lie in the milieu of the Buddhist monasteries of early historical India. The evolution of medical knowledge and the practice of monks gradually spread beyond the confines of monasteries. The tapestry of medical texts is interwoven with the ancient India philosophical ideas like Sankhya, Vaisheshika and yoga.

Let us take charaka samhita first. The origin of the work may go back to 3^{rd} / 2^{nd} century BCE and it contains several chronological layers. Charaka was considered a medical authority in the early 5^{th} century CE. The main body of the text contains the knowledge received by Agnivesha fromhis teacher, the Sage Atreya. Charaka seems to have edited the Agnivesha text. The text was edited yet again in the 4^{th} or 5^{th} century CE by Dridhbala. The charaka samhita is divided into 120 chapters arranged in 8 sections. "The Sutra section deals with pharmacology, food, certain diseases and their treatment, doctors and quacks, and various philosophical issues. The second (Nidana) section deals with the causes of eight important diseases. The third (Vimana) deals with issues such as taste, nutrition, pathology, and medical studies. The fourth (Sharina) deals with anatomy, embryology and philosophy. Then there are sections dealing with diagnosis and prognosis (Indiriya), therapy (Chikitsa), pharmacy (Kalpa), and a further discussion of therapy in general (Siddhi)."[2]

The sushruta sutra too has several chronological layers. Just like charaka samhita, the original text of sushruta sutra was composed during the last centuries BCE. However, due to addition and edition over several centuries till about 5^{th} century CE, the commentaries on the work mention the name, Nagarjuna. "The first (Sutra) section deals with issues such as the origin and parts of medicine, a doctor's training, therapeutic substances, food, surgery, the treatment of wounds, and the extraction of splinters. The second (Nidana) deals with symptoms of diseases, their pathology, prognosis and surgery. The third (Sharira) deals with embryology, anatomy and philosophy. Chikitsa deals with therapy, Kalpa with poisons. The Uttara section deals with eyes, teeth, children's care and diseases attributed to demons, etc."[3]

"The Sushruta Samhita describes surgery as the most useful branch of medical knowledge and gives information on surgical techniques and practices in ancient India. The author discusses the training of a surgeon and gives a detailed description of his tools. There are descriptions of surgical procedures such as the dislodging of the eye lens for the removal of cataract, cutting for a stone in the bladder, removing splinters and arrows, and suturing. The text also refers briefly to plastic surgery; a flap from the skin

being grafted to repair a severed nose (rhinoplasty), and the repair of torn earlobes. It also discusses how corpses can be used to study human anatomy."[4]

"Yet another important Ayurveda texts include Vigbhata's Ashtangahridaya (Heart of medicine), a comprehensive and systematic presentation of Ayurvedic medical knowledge, which may belong to c.600 CE. Another important work called the Ashtangasamgraha (Tome on Medicine) is ascribed to the same author. Other ancient Ayurvedic treatises include Kashyapa's compendium, which deals mainly with the diseases of women and children. It may belong to the 7th century, although some parts may be based on older material. The 14th century Sharngadhara Samhita offers a brief but succinct account of Ayurveda. Its recipes are still used by the Ayurvedic pharmaceutical industry."[5]

The ideas of Ayurveda had an impact outside the Indian sub-continent as well. The major texts were translated into languages such as Arabic, Persian and Tibetan, whereby the pollens of knowledge fertilised and enriched Islamic and Buddhist cultures. There is evidence that Ayurveda ides influenced botanical science in Europe as well. Ayurveda, the knowledge of longevity has pretty deep roots in ancient Indian tradition; no wonders that it has survived this long and continued into our own times as one of the several traditional alternatives to the allopathic system of modern medicine.

There was also some attention to veterinary science. The Hastyayurveda of Palakapya is a work consisting of 160 chapters. It deals with the diagnosis and treatment of the major diseases of elephants through medication and surgery.

"The Chinese pilgrim Faxian refers to houses dispensing charity and medicine in the cities of north India. The Charaka Samhita gives details of how a hospital should be equipped: 'Now I shall set forth the chapter which starts with the preparations to be made,' said the Venerable Atreya....

The hospital building: I shall now point out in brief the various supplies. Thus, an expert in the science of building should first construct a worthy building. It should be strong, out of the wind, and part of it should be open to the air. It should be easy to get about in, and should not be in a depression. It should be out of the path of smoke, sunlight, water, or dust, as well as unwanted noise, feelings, tastes, sights and smells. It should have a water supply, pestle and mortar, lavatory, a bathing area, and a kitchen.

The Staff: After that, one should select the staff of soup and rice cooks, bath attendants, masseurs, people to help patients with getting up and sitting down, and herb grinders. They should be good-natured, clean, well-behaved, loyal, practical and pious. They should be skilled in nursing, and accomplished in all treatments. They should not be reluctant to work. The attendants should be able to sing, play instruments, and perform recitations, as well as being skilled in verses, songs, legends, and ancient lore. They should be pleasant and able to anticipate. They should know the where and when of things, and be generally sociable.

Supplies: There should be bustard-quails, grey partridges, hares. black-buck, Indian antelope, black-tails, chinkara, sheep, and a nice, healthy milk cow with a live calf and good arrangements for grass, shelter, and drinking water.

There should be dishes, cups, water barrels, jugs, pots, pans, saucepans, large and small jars, bowls, platters, spoons, straw mats, buckets, oil pan, churns, leather, cloth, thread, cotton, wool, and so forth. There must be beds and seats, and so on, with vases and receptacles placed near them. Their coverlets, quilts, and pillows should be neatly made, and they should have bolsters. These are to make it easier to apply treatments involving lying down, sitting down, oiling, sweating, massage, balms, showers, massage ointments, vomiting, purges, decoctionenemas, oil enemas, purging the head, urine and faeces. There should be smooth, rough, and medium grinding stones with well irrigated uppers. Knives and their accessories must be supplied, as well as pipes for smoking [i.e., for fumigation of the nose and mouth], tubes for enemas and douches, a brush, a pair of scales, and a measuring instrument.

There must be supplies of ghee, oil, fat, marrow, honey, sugar-cane treacle, salt, kindling, water, mead, molasses rum, liquor, fermented barleywater, fermented beanhusk, blended liquor, spirits, curds, sour cream, watered buttermilk, fermented rice water and urine. There must also be supplies of shall rice, sixty-day shell rice, mung beans, green gram, barley, sesame, poor-man's pulse, cottony jujube, grapes, white teak, phalsa, myrobalan, emblic, belleric myrobalan, as well as the various kinds of drugs used during oiling and sweating.

There should be drugs for throwing up, soothing, and those which have both effects, as well as medicines well-known for constipating, for kindling the digestion, digestives, and those which remove wind.

All these supplies, as well as anything else that might be needed in an emergency, should be reckoned up and provided for the purpose of treatment. And items of food over and above the prescribed diets should also be laid on.[6]

12.2 METAL TECHNOLOGY

Metal technology in the Indian subcontinent has had an impressive and evolving tradition dating all the way back to the forth millennium BCE. The beginnings can be traced back to the Saraswati Indus Valley civilisation and the tradition continues to this day. The Kalibangan and Harappan metal smiths undoubtedly knew the art of using copper, bronze, lead, silver, gold and electrum (the alloy of gold and silver). The copper technology came first. Then, it was discovered that adding tin to copper. We get an alloy harder than copper but easier to cast. It was also resistant to corrosion. The new alloy was hardened further by adding nickel, arsenic or lead. The evolving alloys of copper bronze mix were shaped as axes, dagger knives, spears, arrowheads, short swords, chisels, drills, fish hooks and metal mirrors and so on. A remarkable tool was saw where teeth were crafted in a long blade which enabled it to cut through a log of wood, instead of merely

gashing the surface. This specialised tool to splice wood was unknown elsewhere in the world at that time.

Tools and implements apart, the bronze were used to craft human and animal figurines. The bronze figurine of a dancing girl, foot and anklet, bull and so on at Mohenjo-daro and other sites are quite well known and admired. These figurines were caste by the lost-wax process. The initial mould was made of wax and it was thickly coated with clay. The ensemble was fired; the wax melted away or was lost. As the clay hardened, into a mould, the molten bronze was poured into the hollow. Subsequent cooling and removal of mould showed up the desired figurine.

With the passage of time, technology improved further. By the Gupta period during the reign of Chandragupta I Vikramaditya (375 CE – 414 CE), an iron pillar with a height of more than 7.2 meters and a diameter of 40.6 cm was erected at Udaygiri near sanchi in the present day Madhya Pradesh. The solid marvel weighing more than 6,000 kg was translocated subsequently by Delhi Sultans in 1233 CE and brought to its present location in Delhi's Qutub complex. Thousands of men and animals hauled, this over a long distance covering eight hundred kilometres interspersed with rivers, valleys, plateaus and plain lands, some eight centuries ago. Thousands of tourists visit this rustless wonder' every day. Experts, of late have opined that phosphorus together with iron interacting with oxygen from the air contributes to the formation of a thin protective coating on the surface. Are we talking about phosphorus coating using 'Nano Technology' some fifteen hundred years ago in the Indian subcontinent?

There are other iron pillars a well. There is an iron pillar around 87 meters tall and weighing around 500 kgs located at Adi Mookambika temple in Kodachadri hill area in Karnataka. It is dhwajasthambha (flag staff) of the temple. It is yet another example of ancient Indian metallurgy and dates back to around 600 CE. Yet another iron pillar located in Dhar town of Madhya Pradesh is actually fragmented into three parts. The fourth part is missing. It was the victory pillar erected by the Paramara king Bhoja. The total length of the three fragments is 13.21 metres (43 feet 4 inches) and the combined weight is estimated to be 7,300 kgs. Far heavier than the Delhi pillar (or sanchi pillar), it was probably the largest forge welded iron pillar in the world.

"Yet another metal masterpiece is the huge bronze statue of Buddha. The impressive statue, with a height of 2.3 metres and width of one metre weighing over 500 kgs was made between 500 CE – 700 CE in Sultangunj by the same 'lost wax technique' that Harappans used some 3000 years earlier. It was translocated by British rulers in the nineteenth century and is presently preserved in the Birmingham museum in U.K. The same technology continued to be used to produce marvellous bronze statues in South India during Cholas period. Quite a number of those divine marvels like Shiva Nataraja at Chidambaram and other temples were made by Indian metal technologists more than a millennium ago. Quite a few of them have been translocated to far away lands in museums and private collections."[7]

12.3 THE BOUNTIFUL AGRICULTURAL SCENARIO

The writings of Medhatithi, Parashar and Kashyapa provide an elaborate edifice regarding Agricultural knowledge and practices recommended for peasants, kings, ministers and society alike. Medhatithi was a Kashmiri scholar who lived during the period from 825 CE – 900 CE. He stresses the importance of irrigation works so as to make people less dependent on rains. As regards taxation, he stresses light taxes on small holdings and heavy on those which yield large profits. About drinking, gambling and hunting, he is quite pragmatic and says that it is neither possible nor desirable to prohibit them. Parashar, a probable author of Krishi Parashar and Parashar Smrithi is regarded as the authorative account on agriculture in Kali age. It was probably authored during 950 CE – 1100 CE. Kashyapa authored Krishi Sukti, a comprehensive text on agricultural science probably before 10^{th} century. He shows keen insights into rice cultivation and also mentions Kosala, by name when describing rice culture. He also mentions tropical crops such as arc aunt, coconut and bread-fruit. Realising the importance of agriculture, Kashyapa advocates its practice by the rulers, their advisers and officials, so that they realize the difficulties which the farmer face. Says Kashyapa, "Both bipeds and quadrupeds on the face of the earth would face misery if there were no cultivation. Hence, for pleasing the gods and protecting the people the king should take keen interest in agriculture. Agriculture should also be practised by priests, Brahmanas and ministers particularly. Having mined iron, copper, gold, silver, red ochre, etc., the king should have the various war-weapons and agricultural implements prepared by expert ironsmiths, cutters, and goldsmiths in the villages and cities. The former he should distribute among the soldiers and also keep at the army headquarters for the protection of towns, palaces and fortresses, and the latter he should distribute among the village people.

MANAGEMENT - Kashyapa stresses the importance of efficient and good management in agriculture. He states, 'By continued vigilance over their paddy-fields, by holding cultivation in esteem, and doing it methodically and by the care of their cattle, the cultivators get richer rewards as well as peace of mind. Hence experienced cultivators, having cordial relations among themselves and intent on having two crops every year, should consider it their first duty to protect their cattle, servants, seeds, water-channels, reservoirs, tanks, lakes, etc., spades, sickles, etc., threshing-floors, fences and fields diligently and practising the bountiful art of cultivation according to their local custom, snug in the fulfilment of the three aims of their life, live in great happiness.

CROPS - Apart from rice, Kashyapa mentions other crops. He says, 'Cultivation of beans and pulses like masha (Vigna radiata), chana (gram), mudga (Vigna mungo), kuluttha (Dolichbiflorus), tila (sesamum), andof seeds of pepper and ciraka should also be doneat some places.

MARKETING - Recognizing the importance of marketing, Kashyapa says, 'The king should collect the produce of vegetables, grains, adhakas, grams, sesamum, masha, mustard, grapes and the various seasonal fruits and stock them for the benefit of the people in shops, market-places, stalls or other places especially built for the purpose on the cross-roads and provided with a spacious yard with or without a shed.

All the commodities mentioned above and useful necessities such as blankets, cloth, curds, milk and other articles of food, jaggery, oil and other useful products of agriculture, the king should place in the market-places of the villages, towns, cities and particularly of the capital. There he should appoint rich vaishyas who are well-versed in trade for the sale and purchase of these commodities.

RICE - Observations of Kashyapa on the cultivation of rice are remarkable for their accuracy. From the raising of the nursery, he describes the transplanting of seedlings, weeding, irrigation, protection against pests,threshing and storage.

'Of the cultivable commodities the varieties of rice occupy the first place, the pulses the second, and the vegetables the third', says Kashyapa. In the fourth place comes ghee, milk, curds, etc. These four kinds of products comprise the entire food-stuff. This stuff promotes the happiness of all the gods and is the means of sustenance of man-kind. This gives nourishment, health and long-life and was created by Brahma at the beginning of creation all over the earth.

The sages have said that the cultivation of paddy is best done in countries like Kosala where the fields are irrigated with river-water. Therefore, wise husbandmen who have decided upon reaping a harvest of different kinds of rice like Kalama and Vrihi should first irrigate their fields well by means of channels drawn from reservoirs, rivers or lakes and then till them with the help of oxen.

Transplanting seedlings, 'Then the cultivator should order the uprooting of the wisps of paddy seedlings which have already been grown closely in a separate nursery, and then, tying together each wisp, he should, on an auspicious hour, have them transplanted by servants in rows evenly in the paddy field in which the clay has become soft by tilling and has beencarefully dressed with the dung of cows or goats or with decayed vegetable matter.

Afterwards only a small quantity of water should be allowed to remain in the field and care be taken to provide an outlet for superfluous water.

In this manner, the paddy seedlings transplanted in rows in a well-ploughed paddy field full of water, in a village, town, forest or wood-land, irrigated by a canal and provided with several outlets for draining away the surplus water, are made to take root by the Creator (i.e., Nature) after the lapse of seven or ten days and then the new shoots sprout forth and make their blessed appearance. Then the land shines forth with that fascinating bloom which is found on the plumage of parrots or on the body of a damsel in the prime of her youth.

In this way at the expiry of the first month gradual growth of the paddy blades is discernible.

There is an all-round growth of shoots and increase of splendour on the plants which feed on water daily and hold out a promise of rich harvest.

Weeding. Therefore the cultivators should systematically and assiduously weed out the wild grass and weeds and other injurious rushes like munia from their fields. It is

best to destroy the wild grasses, rushes, weeds, etc., which affect the growth of grain and reduce the yield of crops, from their very roots. An experienced person should first fill the paddy fields with water and then gradually root out the weeds, etc., row by row. Or it is best to have the pest removed daily by the servants. When the weeds have been eliminated by the cultivators their fields shine forth lustrous and luxuriant.

The cultivation of all the various kinds of rice like the white Sali, red Sali, Kalama, etc., which have been enumerated above is done in the same manner.

When the ears at the top of the rows of plants gradually grow solid and full of milky-juice (or sap) and appear to be somewhat bent, then they should be protected, especially from the parrots. This caution applies equally to all countries.

Irrigation. Then by and by the juicy grains in the ear would become harder at the core and would finally ripen into the rice. Till then regular irrigation of the fields is advisable and beneficial; otherwise there would be the loss of crop.

Therefore, the cultivators should continue to observe the development of sap frequently, and should regularly water their fields at the proper times for the sake of increasing the sap.

Protection against pests. 'It is extremely beneficial if the crop is protected from rats, locusts, parrots, and other pests.'

The ripe paddy, which is so beneficial to the living beings, should be honoured by those who live on it, with circumambulations, and then preserved by them after having determined the period of life of the grain from its appearance, the stamina of its seed and the quality of the soil from which it is produced or from actual experience.

Therefore, the cultivators should be alert to protect their crop at the time of ripening against all sorts of depredations.

Harvesting. When the ears of the paddy have gradually ripened according to their respective duration of time, then water should not be let into the fields. This is the advice of the agricultural experts and should be followed in the case of all paddy-fields.

When the ears at top of the plants become ripe then their stalks bend their head very low to the ground. Seeing them bend so, the husbandman should himself or through his servants protect them in the field for a period of twenty days. Now, when the stalks have become ripe and assumed a golden hue, the cultivators should then reap them with sickles etc. They may have the harvest mown in one day or in several days successively with the help of their dependants and servants working in co-operation.

But reaping would be useful only if care is taken that the stalks are not damaged during the operations nor the harvest spoiled by rain or carried away by thieves.

Threshing. The cultivators should have the reaped plants with their ears stacked on threshing-floors with the help of their servants and attendants. It is advisable to keep the harvest lying on the threshing-floors for three to five days. By threshing the ripe stalks from which the ears become loosened, the grains drop on the threshing-floor and sparkle like heaps of bright pearls. On the second round of threshing done by having the

crop trodden over by bullocks and buffaloes, the remaining quantity of the grain also drops on the floor. After having the paddy threshed in this way on the threshing-floor, the cultivators should gather the assorted stuff that is thick and substantial.

Selection of seed. The cultivators should carefully sift the superior grain from the inferior stuff by means of the winnowing-fans, etc., and gather the former into a heap. A wiseman should then dry them in the sun and get them cleaned of impurities. He should then, having apportioned one share to the gods, one to the king, one as a gift to a Brahmana learned in the Vedas, and one for the maintenance of the servants, keep the remaining stock of paddy in his own house.

Storage. He should carefully preserve the grain in suitable receptacles like kathinya or in well-baked clay pots or in vessels of strong glass, or in containers woven of ropes and plastered with mud, according to the custom of the locality. At some places, the farmer should dig a pit in the hard earth, provide it with descending steps and store the paddy into it, taking care that it is safe from the hazard of damp, thieves, parrots, rats and other noxious animals.

VEGETABLES- Regarding the cultivation of vegetables, Kashyapa states, 'In spite of the various species of rice and other provisions like adhaka, etc., want of food is still felt all over the world. Therefore, the farmers should cultivate delicious vegetables like jatika, rasijatika, valhika, vanavalika, patolika, egg-plants, savaka, pumpkin-gourd, kalata, kustumburu, surana sakula, and turmeric and ginger—both cultivated and wild—as well as various other luscious plants for the sake of cooking. In the writer's opinion these are the principal vegetables.

The cultivators should grow vine, Indian spikenard, cardamom, etc., in their respective regions of cultivation.

Sometimes parasitic vermin grow on the leaves of the vegetables like the egg-plant, patolika, valte, savaka, cucurbits, kalatas, surana, sakuda, turmeric, ginger, etc. In order to kill the vermin, the cultivators should sprinkle the leaves with ashes, dust or lime-water according to the local usage.

For the sake of obtaining luscious edibles wisemen should undertake the cultivation of patolika, egg-plant, gourds, jambir (citron), lakuca, cardamom, vine, date-palm, etc., according to the local custom and proper season. Of these vegetables, either leaves, flowers, fruit, unripe fruit or bulbous roots are taken for use either at the beginning of efflorescence, or in the middle or end of it, as the case may be.

Some of the fruits are delicious to eat, and others good in sucking their juice. Of the plantain tree in particular all the parts—roots, stem, flower, unripe fruit and ripe fruit—are delicious and agreeable to eat. It is recommended as an excellent food by the sages.

The cultivators should preserve the art of cultivation by practising it in their homes, pleasure groves, land, field-beds, on the banks of ponds and lakes, below the water-reservoirs or near to their sluices.

They should also grow in a proper manner the plantain, arecanut palm, punnaga (Rothleria tinctoria), coconut, mango, bread-fruit, cardamom, vine and rnalati (jasmine) as well as egg-plants, valte, gourds, etc.

GARDEN CROPS - Kashyapa mentions a number of garden plants. He says, 'A wise man may grow plantain, sugarcane, piper-betel and arecanut in a low land, a garden or a pleasure grove. He may also grow the plantain (Musa paradisiaca [M. Sapientum], mocha), bread-fruit (panasa) tree, likucha (Artocarpus lakoocha), the rasala and amra varieties of mango, rose-apple (jamun) and coconut trees in the house-orchards, in gardens, or on high or low land.'

GARDENS - 'A wise king should grow a pleasure grove or a garden in a suitable place in the village, city and particularly in the capital', says Kashyapa. 'He should have a grove of trees planted outside or inside the town. He should also have a garden planted especially for the diversion of the ladies of his harem. He may have a grove of trees grown on the precincts of a forest.

By growing trees like the sara (sal) and sandal he should provide material for house-building for his subjects.

In his palace garden he should grow various kinds of beautiful and fruits-bearing trees such as the different species of the plantain (rambha, mocha, etc.) and citron (jambira, matulunga, etc.) and the Indian spikenard.

He should also encourage the cultivation of the various species of grass (such as kusa, kasa), basil, the wood-apple and the fragrant and seasonal flowers which may be suitable for worship and household remedies.

For religious festivals he should have a garden planted on the temple land inside or outside the village according to the availability of land or local custom.

In his palace he should have an excellent pleasure grove attached to the gynaecium bristling with beautiful trees and flowers like the malati. He may also have one such grove planted outside his capital for the diversion of the people.

FORESTS - Kashyapa further enjoins that the king should encourage forestry. He says, 'their precincts and on the top and slopes of the hills he should grow forests radiant with many kinds of trees. There he should also order the preservation of the seeds of all kinds of trees.

From these trees the people get flowers, fruits and wood for the construction of their houses.

Therefore, the king, taking upon himself the responsibility of protecting his kingdom, should grow on vast tracts of land or with walled enclosures trees and plants like the following: viz. karanjaka (Pongamia glabra); bhurjaka or birch (Betula utilis [B.Bhojapatra]), arjuna (Terminalia arjuna), kadamba (Anthocephalus chinensis [A.Cadamba]), sigru (Moringa oleifera [M.Pterygos perma]), ornamental flowering trees; tinduka (Diospyros peregrina [D.Embryopteris]), vata—the banyan; Plaksa (Ficus lacor [F.Infectoria]), vibhitaka (Terminalia bellerica), Amalaka (Emblica officinalis)

[Phyllanthus emblica], karnikara (Plerospermum acerifolium), Iikuca (Artocarpus lakoocha), nimba (Azadirachta indica), margosa; ashoka (Saraca asoca) [Jonesia asoka], sirisa (Albizia lebbeck), gampeyaka (Michelia champaca), vamsa-bamboo; kuta; rasola, amra (varieties of mango); madhuka (Madhuca indica) [Bassia latifolia], punnaga (Calophyllum inophyllum), kovidara (Bauhinia purpurea), paribhadra (Erythrina variegata var. orientalis) [E.Indica].

In this manner, he should have great forests, radiant with groves of trees, planted by the cultivators and other people on river-banks and invarious countries like Gandhara, Kunti, Panchala, Kashmira, Avanti, Sindhu, Nepala, Nishadha, Kosala, Anga, Dhurjara (Gurjara) and Saurashtra, on fertile land provided all round with tanks, canals or ponds, etc. He should have them well guarded by brave soldiers and fighters for the benefit of the people.

The forests yielded a large variety of edible fruits—mango, pomegranate, jack, banana, date, vilva, kapittha, rose-apple, jujube, mascot, coconut—these being the commonest and best. Vines, dates and palms were specially grown in the Punjab and the North-West Frontier. Panini speaks of Kapisa as the premier vine-growing district of India.[8]

We have indeed covered a wide spectrum of crops like cereals, fruits, vegetable, garden crops and forests grown in our country. The overall description is indeed mind boggling. The breadth of coverage, the depth of details and the laser like accuracy with precision are simply overwhelming. Just imagine. Detailed description of rice cultivation from seed to seed, Land owners and servants growing vegetables to augment food, preserving seeds and the art of cultivation, planting gardens for the diversion of ladies of harem, encouraging forestry on slope of hills and guard trees by brave soldiers and fighters for the benefit of the people was being propagated by thinkers in India; all this practical knowledge was available more than a thousand years ago in our country. That makes it look all the more exciting. Indian sub continental knowledge frontiers were certainly in the most advanced stage compared to any other part of the world, a millennium ago.

12.4 URBAN PROCESSES IN PENINSLAR INDIA (187 BCE – 1000 CE)

Roughly, twelve centuries separate the end of Mauryan Imperium (187 BCE) and the year 1000 CE. During this prolonged period, the peninsular India witnessed a slow yet certain demographic, economic and political evolution. Our focus would be on the present day Telangana lands which are mostly confined between the Godavari and Krishna river systems. It was a period of agrarian expansion with a corresponding increase in overall population. It was bound to reflect in proliferation of states with new polities along with the development of new capital cities. First came the Satavahana imperium from about 187 BCE to about 300 CE with its capital at Pratishthana and possibly Kotilingala and Amaravathi. It was followed by Vakatakas who were conjoined with the Gupta Imperium in the north. From the mid sixth century CE till about 1000 CE,

we witness Badam Chalukyas with their capital at Vatapi, followed by Rashtrakutas with their capital at Manyaketa. Finally, we see the re-emergence of Chalukyan dynasty known as western Chalukyas with their capital at Kalyana (near the present day Bidar) from 950 CE onwards. They continued to rule well into twelfth century over the present day Telangana lands when in 1158 CE, they made way to Kakatiyas with their capital Anumkonda followed by Orugallu.

Demographic growth, agrarian expansion and emergence of new states was a symbiotic phenomena which was bound to witness the new capital cities. The erstwhile capitals like Pratishthana and Kotilingala gave way to Vatapi, Manyakheta and Kalyana followed by Anumkonda and Orugallu. This phenomenon of decline of certain urban centres and emergence of new ones was in fact an all India phenomena. Xuanzavy suggests that during the first millennium cities like Kaushambi, Shravasti, Vaishali and Kapilvastu were in decline while the new ones like Thaneshwar, Varanasi and Kanyakubja were flourishing. Some ancient cities like Anichchhatra, Atranjikhera, Rajghat and Chirand continued to be inhabited through this period of flux.

Merchants played an important role in the administrative organization of the Chalukyas. They occupied important civil and military pots such as those of 'Mahamatya and Dandadhipati'.

"Many of the traders of western India were Jainas. Jaina texts such as the Shatsthanaka prakarana of Jineshvara Suri (11th century) laid down the ethical code that Jaina merchants should follow. Merchants of Gujarat made their mark not only as patrons of learning but also as writers of works of kavya, poetics, philosophy, and grammar. Hemachandra, who wrote several important Jaina texts as well as works on subjects such as grammar, metrics, and philosophy, was the son of a merchant of Dhandhuka. Gujarat merchants made generous grants to support the building of temples, wells, and tanks. The temples at Mount Abu and Girnar reflect such patronage. Inscriptions from this region also refer to tolls and taxes that were due from merchants being transferred to religious establishments for their maintenance and for the celebration of festivals."[9]

Traders of the subcontinent, particularly from Peninsular India were part of a wider world of trade interactions which connected, Europe, Africa and various parts of Asia. The first half of the first millennium is known for a brisk trade between various kingdoms in peninsular India with the Roman Empire. Between the sixth and seventh centuries, there was the rise of Islam in Arabic and soon it expanded to politically dominate northern Africa, Medelemanean, central Asia and Sind. Their territorial conquests gave them strategic control over the Indian oceanic trade. Arab traders emerged as lead players in trade along the overland as well as maritime routes which connected the peninsular India with west Asia onwards to Europe.

The texts of 9th century, such as Ahbar as-Sin Wa'I Hind describe the long maritime journeys made by Arab traders from parts of Oman to Quilona (Kollam) in Kerala and on to China via the port of (Kalah-bar probably located north of Singapore) and the Malacca straits. K.N.Chowdhuri (1985; 37-41) has shown that by 11th century, the Indian ocean trade was divided up into smaller segments. "The stretch from the Red

Sea and Persian Gulf to Gujarat and Malabar; from the Indian coast to the Indonesian archipelago; and from Southeast Asia to East Asia, great trade emporia emerged at the junction of these three segments, providing merchants with cargo, shipping services, and protection. They included Aden, Hormuz, Cambay, Calicut, Satgaon, Malacca, Guangzhou, and Quanzhou. Chaudhuri highlights the importance of silk, porcelain, sandalwood, and black pepper in the Asian trade during those times. These commodities were exchanged for various items such as incense, horses, ivory, cotton textiles, and metal products. India's maritime networks were strongly oriented eastwards, towards China and East Asia. Sri Lanka was an important hub of Indian Ocean trade.

Ranbir Chakravarthi (2002: 187-219) highlights the importance of mandapikas in the trade circuits of early medieval India. These were, for the most part, local centres of exchange that constituted an intermediate level between the small, periodic markets (hatta, hattika) and larger trade centres (pattana). The mandapikas were integrated into their rural hinterlands, and functioned as nodes of exchange of various types for edible staples and cash crops. They were also centres for the collection of commercial tolls and duties. They were analogous to the penthas in the Deccan and the nagarams further south. Chakravarti also draws attention to the tradition of raja-shreshtis (royal merchants). Although the references to such merchants go back to the 4th/3rd century BCE, they are mentioned more frequently in the early medieval period, especially in the Deccan and and South India. These royal merchants may have procured luxury items and war animals for rulers. It is not certain whether they also collected revenue at trade centres on king's behalf.

The analysis of the literary and epigraphic sourc'es of western India (c.1000-1300 CE) by V.K.Jain (1990) indicates that traders of this region were carrying on business in luxury goods as well as in staples such as food grains, pulses, salt, oil, ghee, jaggery, coconut, betel leaf, are canut, spices, textiles, pottery, animals, fragrances (e.g., sandalwood, camphor, musk, aloe, and saffron), ivory, and gold. Jain suggests that Indian traders of western India tended to confine their operations to coastal and internal trade, leaving the operations further afield to the Arabs and others. The main imports into western India included metals (both base and precious), silk, gems, spices, wine, frank incense, and horses. As far as exports are concerned, there was a change during the 11^{th} – 13^{th} centuries. Before this, India's exports mainly comprised luxury goods such as fine textiles, silk, and spices. From the 11^{th}century onwards, although these items remained important, there was a significant expansion in the range of exported items, which came to include sugar, cotton and flax cloth, buckram, tanned leather, leather goods, and weapons such as swords and spears. Hoards of gadahiya/gadhaiya coins of the 7^{th} – 12^{th} centuries have been found in various parts of western India, indicating the use of money as a medium of exchange. Traders also used hundikas or bills of exchange, which facilitated large-scale transactions without the use of money. Inscriptions often mention toll houses (shulka-mandapikas), and commercial taxes were an important source of state income"[10]

The western coast of the peninsular India came to be increasingly dominated by the Arab traders from 7^{th} century CE onwards. This was the time when Indian trade with

the Southeast Asia and China also grew from the eastern coast of peninsular India. Various kingdoms like Chalukyas, Pallavas, Cholas and Pandyas extended their trade arms to embrace all lands towards the east. Buddhism had embraced China and streams of Buddha monks were moving between India and China. Demand for Buddhist ritual items went up in China. On return journey, the China exported fine silk, porcelain, hides, vermilion, frits (such as pears and peaches), camphor, lacquer and mercury. There is also mention of metals like gold, silver and copper coming from India. The items exported from India to China included textiles, sandalwood, spices, sulphur, ivory, cinnabar, rose water, rhinoceros horn and putchuk. The expanding trade between China and India was using both overland route as well as maritime route. Tamralipti in Bengal, Khalaka patna in Orissa and coromandel coast abutting the Bay of Bengal were important trade emporia of those times.

Evolution of these trade routes over centuries saw migration of communities involved in trade. The earlier ones were Arabs and Persian traders who settled on the western coast of Gujarat, Konkan and Malabar. The Islamic expansion in the west Asia also witnessed the expulsion of Christians, Zoroastrain Persians (Parsis) and jews from their homelands. All of them, without exception arrived at Indian shores from time to time and made this country as their permanent home. However, the Chettiars on the coromondel coast fall in a unique category of their own. They were the frontline traders from the Tamil country who spread their wings beyond the Bay of Bengal to cover Burma, Thailand, Vietnam, Sri Lanka, Singapore, Malaysia and Indonesia. After trading in off share lands lasting full season, they returned loaded with wealth to invest in palatial homes, tanks and temples back at home. Their exotic homes flaunted of pillars crafted from Burma teak, marbles from Italy and mirrors from Germany. Their trade flourished abroad; but their roots remained intact in their Janma bhoomi (the birth place).

12.5 POPULATION DYNAMICS FROM POST MAURYAN EMPIRE TO AROUND THE YEAR 1000 CE

Roughly, twelve centuries separate the end of Mauryan Empire (187 BCE) and the year 1000 CE. The population trend during these centuries was basically a continuation of previous trends. In particular, "there was migration into river valleys, where people slowly cleared forests, drained marshes, brought new land into cultivation and, little by little, populations expanded. Given the slow build-up of concentrated agricultural populations, new urban centres emerged only gradually—including, eventually, in the south and the east. The chief cities of what seem to have been rather modest urban networks became the foci of various 'kingdoms'. And these entities tended to rise, struggle, and fall, with relatively little being known about them today. However, from time to time the people of these kingdoms must have experienced severe demographic crises and cutbacks."[11]

George Erdosy has compiled tentative estimate of the land area of several north Indian cities, mostly in the Ganges basin at the end of the first century CE. It is tabulated as follows.

Table – Estimated land areas and populations of various northern cities, c.100 CE[12]

Site	Approximate area in hectares	Population (000s) (central estimate and associated range)
Mathura	300	69 (36-102)
Vaisali	240	55 (28-82)
Kausambi	225	52 (27-77)
Ujjain	190	44 (22-65)
Ahicchatra	180	41 (22-61)
Sisupalgarh	144	33 (17-49)
Taxila-Sirsukh	137	32 (16-47)
Balirajgarh	70	16 (8-24)
Sringaverpur	40	9 (5-14)
Jhusi	30	7 (4-10)
Tilaura-kot	20	5 (2-7)
Bhita	19	4 (2-6)

Notes: The populations have been rounded to emphasize their crudeness. They are based on a central density assumption of 230 persons per hectare, while the ranges use figures of 120 and 340 respectively. The density assumption used by Erdosy is 160 persons per hectare, which may be more realistic, especially for smaller cities.

Source: For the land area estimates see Erdosy (1987: 1-2)& Dyson Tim (2018), A Population History of India, Oxford University Press, New Delhi, p 37.

What the table suggests is that around the year 100 CE, the large urban centres like Mathura, Vaisali, Kaushambi, Indraprastha, Rajgriha, Ayodhya and Kashi, may each have contained more than 50,000 people.

There was no central authority in the subcontinent during the period of these twelve centuries. The Gupta Empire (320 CE – 454 CE) and Harshvardhana period (606 CE – 647 CE) being partial exceptions didn't change the overall dynamic of political fragmentation across the subcontinent. In the peninsular India, we see Satavahanas followed by Vakataks and Vishnukundis controlling the lands between Godavari and Krishna river system. From 6th century CE onwards, we witness further fission between Vatapi Chalukyas and Vengi Chalukyas followed by Rashtrakutas. Yet again, western chalukyas and eastern chalukyas appear on the horizon. In fact none of the kingdoms, either in the northern areas beyond vindhyas or from the southern areas beyond Krishna river system held any sway in these Deccan lands. There were of course periodic battles for the control of fertile lands and the people along with resources that went with it. The Krishna Tungabhadra lands had been at the centre of this periodic conflict all too often.

The peninsular kingdoms had trade links with the Roman world for about 500 years – ending in the 5th century CE. Roman coins have been unearthed in copious quantities across the peninsular India.

Malaria and Cholera were both established by the time of the Mauryan Empire and almost certainly, the same applied to tuberculosis. As the towns and cities of growing

kingdoms got interconnected through trade and travel, these infections also were spread over these new populations. If a population hosts a certain percentage of these infections, a periodic epidemic of infectious diseases such as measles and pertussis became inevitable. Some diseases may also have entered the human population through greater contact with animals, both wild and domestic.

It is believed that before the fifth century CE, smallpox was either not present in the subcontinent or, if it was present, it was only a mild disease. By about the eighth and ninth century, the smallpox was widespread and very lethal. The spread of irrigation probably assisted the transmission and dissemination of diseases, just as mixing of people due to invasions, trade and religious pilgrimages helped to spread infections such as dysentery and typhoid, both within the continent and further afield.

The 'plague of Justinian' had killed a substantial population of both middle east and southern Europe during 542 – 543 CE. The crisis impacted Persia as well. Did this tragedy impacted in Indian sub continental population also? There is no definitive answer. However, Hsuan Tsang, who visited India during C 630 – 644 noted that the eastern kingdom of Kalinga had experienced a massive depopulation and that in the lapse of many years since that event, it has gradually become inhabited again, but still had scanty population. It certainly underscores the demographic crisis and population reductions during the mid-first millennium.

Population density was certainly not uniform within a kingdom or across kingdoms. Various river rallies were better populated, especially due to the location of its capital on the river banks. But, the periphery of a kingdom was thinly populated, especially the plateu and mountainous areas. Hsuan Tsang was interested in visiting Buddhist sites. His chronicle describe going through heavy jungle and other unpopulated land, particularly when he travelled outside the Ganga basin.

THE SIZE OF POPULATION IN C 640 CE

Joslah Russel has estimated the size of the subcontinent's population near the end of Harsha's rule, in around 640 CE. Including amendments, it comes to about 58 millions. It is surprisingly close to the estimated population by McEredy and Johns who arrive at a figure of 53 millions for around the same time. The population in around C 250 BCE was in the vicinity of 15 – 30 million. A tentative implication is that there had been considerable population growth during the intervening nine centuries from 250 BCE to 650 CE.

What was the population of the Indian subcontinent in 1000 CE? Angus Maddison has estimated it to be 75 million. The world population in 1000 CE has been estimated by Maddison to be 267.6 million. It implies that the Indian subcontinent was hosting about 28.02% of the global population in 1000 CE. By them, the new world of North America and South America were yet to be discovered and populated due to the global migration later.

What about the population inhabiting the lands constituting the present day Telangana state during 2014 CE. It constitute around 3% of the present Indian population.

Taking the south Asian sub continental countries into account, it may account about 2.5% of that population. It implies that the present day Telangana lands during the beginning of Satavahana rule inhabited some 7.5 lakh people. It increased to around 14.5 lakhs by the time Vatapi Chalukyas arrived on the horizon. By around 1000 CE, it was hosting about 18.75 lakh people. It was the year when the seed of the future Kakatiya imperium was planted in Anumkonda during the regime of western Chalukyas.

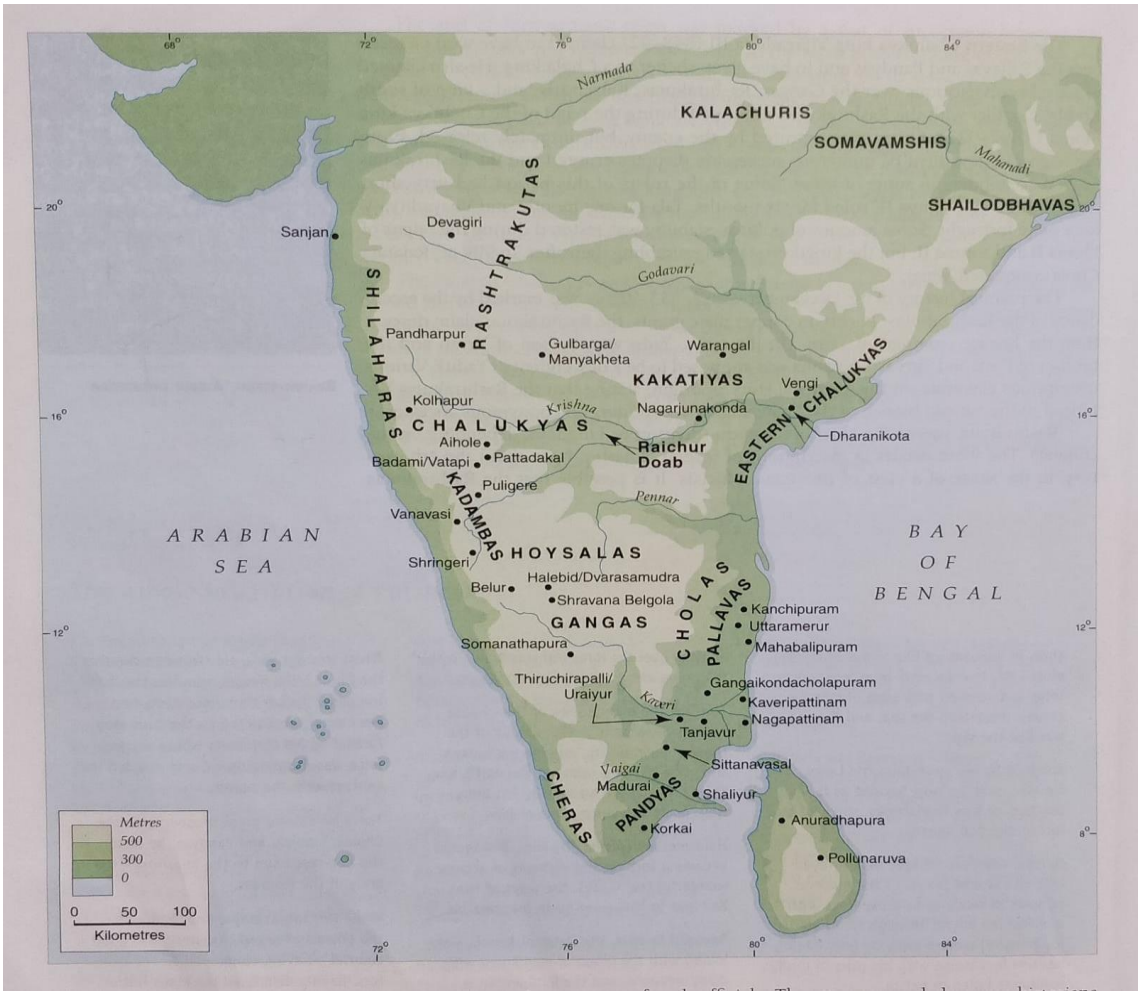
12.6 A GLIMPSE OF PENINSULAR INDIAN HISTORY (600 CE – 1000 CE)

The political history of this period was marked by a proliferation and expansion of states in various parts of the subcontinent, especially in peninsular India. Land grants to Brahmanas played an important role in the legitimisation of political power and had a significant impact upon agrarian relations. There was agrarian expansion in various parts of the subcontinent coupled with technology of harvesting water for irrigation purposes. That brought rural prosperity along with social stratification amongst multiple occupational groups. In urban areas, crafts added value to raw materials available locally, trade guilds flourished and a symbiotic commercial relationship networked towns and cities in the peninsular India and lands afar reaching upto China and Southeast Asia. Devotional worship was a marked feature of religious thought and practice. Temple functioned not only as a place of worship with its sacred space; it also provided a focus to the growing urban centres and political symbols. They attracted patronage of aspiring and diverse social groups. The cultural sphere was marked by production of a wide range of texts in Sanskrit along with evolution of several regional languages like Marathi, Telugu, Kannada and Malayalam.

Tamil, being the most ancient language also underwent considerable enrichment due to the sustained support from Pallavas, Cholas and Pandyan rulers. There was an efflorescence and refinements in temple architecture and sculpture with the signature of distinct regional styles. The overall picture of peninsular India during this long period of six centuries presents a throbbing culture with pulsating regional variations.

MAJOR DYNASTIES OF PENINSULAR INDIA

(700 CE – 1300 CE)



Source: Singh Upender (2009), A History of Ancient and Early Medieval India, Pearson India Education Services Pvt.Ltd., Noida, p 556.

CULTURAL EFFERVESCENCE IN PENINSULAR KINGDOMS (600 CE – 1200 CE)

The Peninsular India witnessed the rise and fall of several kingdoms during this vast stretch of six centuries. For the purpose of understanding, these kingdoms can be broadly divided into two groups segregated by the Krishna-Tungabhadra river system. The Chalukyas and Rashtrakutas were in control of territories north of Krishna-Tungabhadra river system. The Pallavas and Cholas were in control of territories between Krishna and Kaveri river system. The cheras and pandyas were in control of the southernmost territories. The eastern chalukyas were in control of the eastern coast abutting the Bay of Bengal lying between the river Godavari and Penner. The shailodbhavas were in control of lands between Mahanadi and Godavari while Somavashis and Kalchuris were controlling the inlands covering the present day Bastar and northern part of Chattisgarh state. The adjoining map broadly depicts these various kingdoms which evolved in peninsular India during that period.

Most of these kingdoms lasted quite long ranging from two centuries to five centuries. Yet another important feature of these kingdoms is the simultaneity of their rise and fall. For example, Badami chalukyas and Pallavas were contemporaries during sixth to eighth centuries. Similarly, western chalukyas and cholas were contemporaries during ninth and eleventh centuries. Even, at the pan Indian level, we talk about the tripartite struggle among Rashtrakutas, Gurjana Pratiharas and Palas during 750 CE to 950 CE. Therefore, a synchronous evolution and decline of these kingdoms is another important feature of those times. Each of these kingdoms witnessed its own cultural effervescence, interspersed with a sprinkle of victories and defeats. It would be appropriate to have a glimpse of the cultural achievements of various kingdoms during those times.

Let us take the period from 600 CE – 900 CE first. It was marked by internecine warfare between the chalukyas of Badami, Pallavas of Kanchi and Pandyas of Madurai. All three rose to power in 6^{th} century and by the mid eighth century. Badami chalukyas made way for Rashtrakutas of Manyakheta. The Badami rulers expanded their kingdom in all the directions which are described in an inscription at Aihole. These included the victories against the kadambas of Banarasi, Alupas and Gangas of Mysore. Expeditions were despatched into the eastern Deccan, south kosala and kalinga. One of their most important victories was against Harshavardhana, a north Indian ruler on the banks of Narmada river. Pulakesin successfully attacked the pallava kingdom, but was killed soon thereafter by a Pallava army that attacked and captured the capital, Badami. Pallavas control over Badami and southern areas of the Chalukyan empire continued for several years till mid eighth century when they were overwhelmed by the Rashtrakutas.

12.7 A GLIMPSE OF CONTEMPORARY INDIA

The overall Indian scenario during the second half of the first millennium presented a multidimensional kaleidoscopic picture. If one looked from economic angle, it was dazzling and at the apex of global packing. From socio cultural perspective, it reflected a robust and diversified picture. However, from political angle, it was a period of endless fission leading to a fragmented, fragile and unstable polity. Bereft of any central control, the polity was quite indigenous without any strategic intervention from outside.

Economic dimension was most dazzling. There was no sector in its sweep across the world which was not flourishing in India then. Agriculture and its management, as we have already seen in the previous chapters was superb. Industries like textiles, metals and handicrafts were vigorous in domestic as well as exports market. A detailed description would be in order.

FRONTIERS OF KNOWLEDGE

Frontiers of knowledge were not merely confined to agriculture. They swept across several fields like astronomy, mathematics, medicine, architecture and science and technology. In AD 476 Aryabhata, born in Kerala migrated to Kusumapura in Magadha Empire, not far from the celebrated Nalanda University. He produced two works viz,

Aryabhatiya and Aryabhata Siddantha. They include astronomy, trigonometry and arithmetic. Brahmagupta was a mathematical genius and an accomplished astronomer. He worked in Ujjain, the seat of King Bhoja who is famous for his famous Navratnas, which included celebrated poet Kalidasa. Bhaskaracharya was another famous astronomer and mathematician. Their works were translated by Islamic rulers in Baghdad into Arabic from where, they got transmitted to Europe. Building construction, especially temple architecture was well known and fairly developed. Soil testing, making of bricks, mortar, assembling pillars, selecting stones were known in fine details. No wonder, an array of marvellous temples were built by the rulers across the subcontinent. The name of Vighata is well known in dealing with paediatrics and gynaecology. Of course, Charka in medicine and Sushrutha in surgery had already made their contribution before the millennium itself. In view of all these achievements, it's just no wonder that India was known as 'The Golden Bird' with rivers of 'milk and honey' flowing aplenty.

INDUSTRY AND TRADE

Textiles are one of the oldest Indian industries. A great variety of them such as woolen hempen yarns, garments made of silk and of sheep or goat wool were common. The profession of a weaver, tailor and dyer are mentioned in contemporary literature. Medhatithi said that wives left un-provided for by their husbands are to live by such unobjectionable occupations as spinning (kartana) and lace making (jalika-kartana), and widows forced to live by their own labour are to subsist by the same occupations.

The working of metals was pursued with as much success. The list includes copper, brass, iron, lead, tin, silver and of course, gold. Five centres of sword manufacturing are mentioned in Agni Purana, along with the distinctive qualities of their products. Ibn Haukal mentions the city of Debal in Sindh as famous for manufacture of swords. "Having mined iron, copper, gold, silver, red ochre, etc., the King should have the various war weapons and agricultural implements prepared by expert ironsmiths, cutters, and goldsmiths in the villages and cities. He should distribute among the soldiers and also keep at the army headquarters for the protection of towns, palaces and fortresses, and the latter he should distribute among farmers and village people." Evidence of Persian wheel in a Hindu sculpture has come from Mandor, near Jodhpur in Rajasthan. It is ascribed to the eleventh century which is pre Islamic. Therefore, the so called Persian wheel is an Indian wheel and is not an import from Iran.

Trade was carried with the outside world by land and sea. Enterprising Arab merchants from southern Arabia, by this time, had built up extensive trade relations with India and with the countries in far east, as far as China. According to Mas'udi, ships from India along with those from Basra, Siraf and Oman, from Djawaga and Champa ascended the Khanfu River to reach Khanfu (Canton) at a distance of seven days journey from its junction with the sea. Reminiscences of voyages by daring Indian merchants to the rich lands of Southeast Asia are found aplenty in contemporary literature.

BOOKS

Socrates was asked as to why he did not compare books. "I don't transfer knowledge from the living hearts of men to the dead hides of sheep" was his reply. In the early times of Islam, most of the writings used to be on hides. In fact, the treaty between the prophet and the Jews of Khaibar and his letter to Kisra was written on hides of sheep. The copies of the Koran were written on the hides of gazelles. Pharaohs knew the art of writing since ancient times. Papyrus, a plant grown in Egypt was beaten flat and used for writing purposes. Its advantage was that you could neither rub out nor change anything on it, because, thereby it would be destroyed. In course of time, paper was first manufactured in China. Chinese prisoners introduced the fabrication of paper into Samarkand, and there upon, it was made in various places, so as to meet the ever increasing demand.

About Hindus, Alberuni states, "The Hindus are not in the habit of writing on hides like the Greeks in ancient times." He continues, "They have in the south of their country a slender tree like the date and cocoa nut palms, bearing edible fruits and leaves of the length of one yard, and as broad as three fingers, one put besides the other. They call these leaves tari, and write on them. They build a book of these leaves together by a cord on which they are arranged, the cord going through all the leaves by a hole in the middle of each."

SPLINTERED POLITY

What was the political scenario like in Indian subcontinent during that phase? As fission was the dominant feature, the overall polity was fragmented, fragile and unstable. It infected almost all the kingdoms. Marauding Huns had destroyed the two great empires, the imperial Romans in Europe and the golden Guptas in northern India. Vakatakas in Deccan peninsula had strategically allied through matrimonial links with Guptas. Therefore, they too declined, along with Guptas by the middle of sixth century.

After Guptas, north India slipped into disintegration and political chaos, endless wars between petty kingdoms and a sudden rise and fall of numerous dynasties. This continued till AD 1000. Except for a brief but dazzling reign of Harsha during the seventh century, there is no comparable ruler to talk about during this period. Contrary to north Indian experience, the peninsular kingdoms evolved slowly but lasted much longer over several centuries. Barring some temporary eclipses, Satavahanas had lasted for nearly five centuries. Western Satraps had lasted for as much. Then Chalukyas ruled Deccan lands for over six centuries. Pallavas sustained for over six centuries and down south, beyond Krishna river, Chola and Pandyan kingdoms sustained for as long as a thousand years.

Towards the close of eighth century AD, three power centres emerged in India, the Gujarat Pratiharas in the north, and Palas in the east and Rashtrakutas in the Deccan. The struggle for supremacy over each other is known as tripartite struggle. Pratiharas were generally successful against Palas, but seldom so against Rashtrakutas. The ultimate aim of the struggle was to possess the coveted city of Kannauj, the symbol of sovereignty. Around the end of tenth century, the powers of Rashtrakutas, Palas and Pratiharas declined almost simultaneously. Kalyan Chalukyas tried to fill the power

vacuum in Deccan but Kakatiyas got a foothold in central Deccan around Warangal by AD 1000. Overtime, it got firmed up and by AD 1158, it assumed imperial dimensions. Kakatiyas were to rule central Deccan with Telangana at its core for around three centuries. Yadavas were their contemporaries who ruled western Deccan from Deogiri.

Though polity was in flux, but socio religious environment presented a picture of peace, tranquillity and tolerance across kingdoms. Palas founded the famous Buddhist monastery at Vikramsila. It became second only to Nalanda in fame as a centre for higher learning. By then, the fame of Nalanda University had spread all over the world. Then, Chandelles of Bundelkhand built the famous Khajuraho temples. Sculpted erotica was as much exposed to public gaze as sunlight, because none was considered sinful. Vimala Vasahi temple at Mount Abu has survived till this day. But, Rashtrakutas ruling Deccan were a class apart. They not only patronized Saivism and Vaishnavism but also Jainism, Buddhism and even Islam. They gave India its most extraordinary monument, the great Kailasanatha temple at Ellora. It is carved out of a single outcrop of rock, and considered to be the largest sculpture in the world.

About their patronage to Islam, the Arab traveller Masudi testifies, "There is none among the rulers of Sindh and Hind who in his territory respects the Muslims like Raja Balhara (of the Rashtrakutas). He continues, "In his kingdom, Islam is honoured and protected. And for them, mosques and congregational mosques, which are always full, have been built for offering prayers five times. The Rashtrakutas even had an Arab provincial Governor. Another Arab, Abdul Rahman served the Pandyas as their minister in charge of customs and this office was later occupied by his son and grandson. Arabs had their presence as merchants and shippers at the western sea ports of India from early historical times. Though Islamic arms had reached Sind in AD 712, but they were repulsed by successive rulers for almost five centuries thereafter. In the mean time, they continued their business as usual on commercial lines. They built their mosques at the Indian ports, practiced their religion, maintained their lifestyle and carried on their profitable trade without any tension or conflict. This was possible only in India and certainly not in Europe, during those times.

Social peace and religious tranquillity notwithstanding, the process of political fission continued unabated. The end of first millennium witnessed innumerable Rajput dynasties capturing bits and pieces of Indian sub-continent. Some of the dynasties who ruled and followed were Gahadavalas of Kanauj, Paramars of Malwa, Chandellas of Khajuraho, Chauhans of Ajmer, Kalachuris of Tripuri, Chalukyas of Deccan, Tomar of Delhi, Shahiyas of Punjab, Senas of Bengal, Ahoms of Assam and Kesaries followed by Gangas in Orissa. None of these rulers were inspired by a pan Indian vision. They were not on friendly terms. Conflictual engagements for petty gains kept them busy most of the times. They were too weak to defend themselves individually. And at the same time, they were too arrogant to come together to save themselves against the tidal waves of invasions which were to hit them from northwest frontier in not too distant a future. There was no Chandragupta Maurya on the horizon, nor a clever Chanakya with an all India vision. Alexander had already shown the path to potential invaders some thirteen centuries ago.

And now, with the advent of second millennium, military adventurers, fired by the new faith of Islam were going to follow the same route. In a couple of centuries by 1206 CE, they would get a political foot hold in the Indo gangetic belt around Delhi. However, the peninsular kingdoms protected by the Vindhyan barrier would remain safe for yet another century before the Islamic flag planted in these lands by 1323 CE.

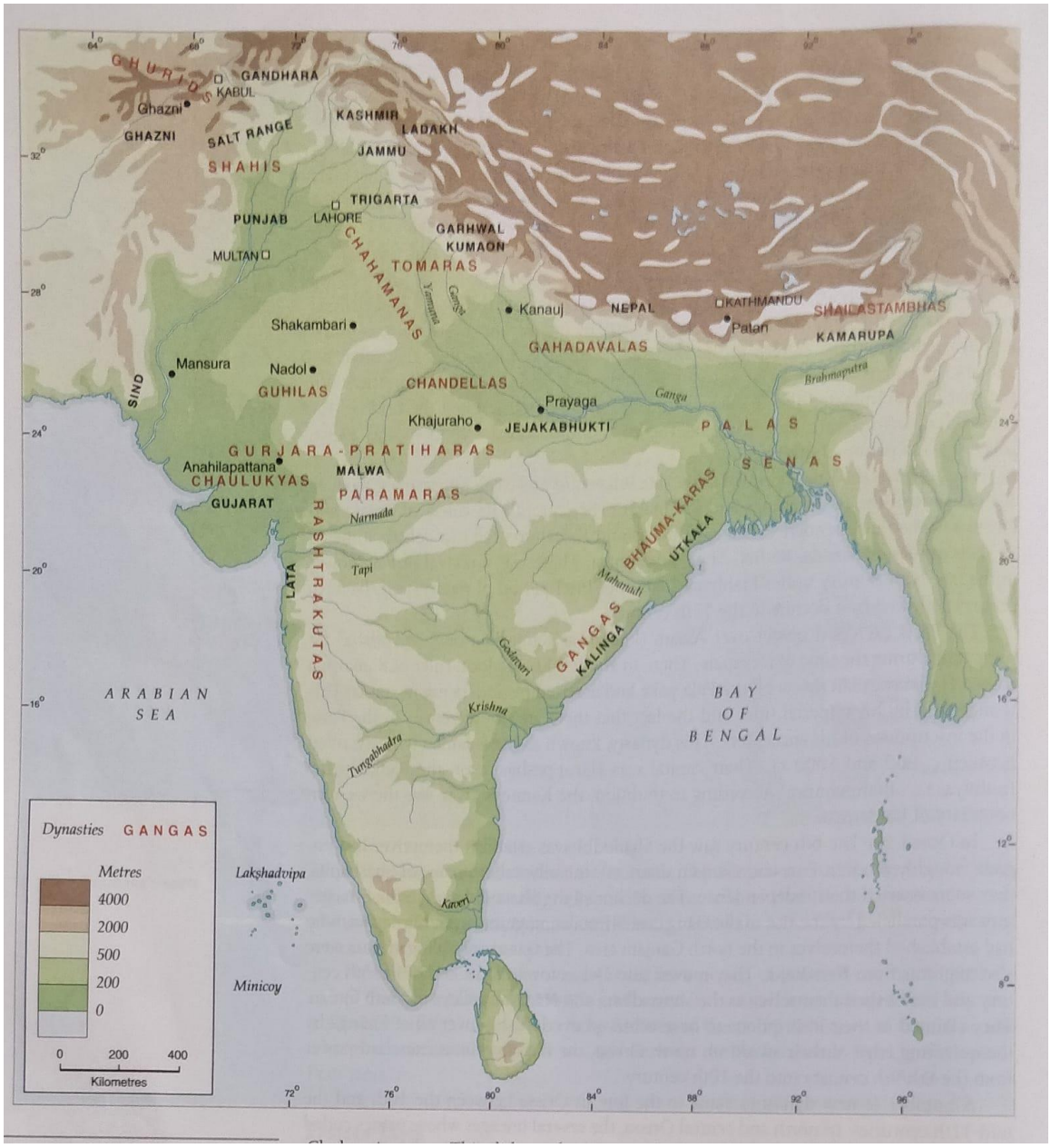
13. FROM 712 CE TO 1323 CE

13.1 REPULSION OF ISLAMIC INVASIONS

Hazarat Mohammad, the founder of Islamic faith died in 632 CE. Immediately thereafter, the Arab inroads into western India began with a naval expedition to Thana near Mumbai in 637 CE. Abu Bakr, the first Caliph had died in 634 CE and Mohammad Omar, the second Caliph was incharge of Islamic lands and their armed expeditions. The expedition to Thana was followed by expeditions to Broach and Dobal, a part of Sind. None of these expeditions resulted in any decisive territorial gains. However, the Arab armies under successive caliphs continued their protracted campaigns against the kingdoms of Zabul and Kabul in Afghanistan and they also launched several campaigns resulting in the conquest of Makran. They finally succeeded in getting a foothold in Sind, when Al-Hajjaj, the Governor of Iraq despatched an army under his nephew and son-in-law, Mohammad Bin Kasim. The capture of Debal was followed by the annexation of Nehrun (Hyderabad) and Simistan (Sehwan). In 712 CE, there was a decisive victory over the Hindu king Dahir Shah at the fort of Roor, not far from the latter's capital Alor. Later on Alor, Brahamanabad and Multan were overtaken. All these events are recounted in the Chachnama, an early 13th century Persian translation of an old Arabic history of Bin Kasim's conquest of Sind. Later on Junaid came to rule Sind and tried to make imoads towards Malwa. That is where he was thwarted by a confederacy of Hindu rulers "namely Pratihara Nagabhata I, Chalukya Pulakeshin II and perhaps also by Yashovarman."

REPULSION OF SUCCESSIVE ISLAMIC INVADERS
(700 CE – 1100 CE)

MAJOR DYNASTIES OF NORTHERN CENTRAL AND EASTERN INDIA, C.700-1100 CE



Source: Singh Upender (2009), A History of Ancient and Early Medieval India, Pearson India Education Services Pvt.Ltd., Noida, p 566

Names of Islamic invaders, namely Mohammad Bin Kasim (712 CE), Mahmud Ghaznavi (1000 CE – 1027 CE) and Mohammad Ghori (1191 CE – 1192 CE) spread over almost five long centuries are etched deep in the ancient Indian History books. Did these incursions leave any lasting impact upon those lands and people? What about their immediate successors? Did they continue to sustain the victory march of the Islamic flag? Or, were they comprehensively defeated by the confederacy of local rulers. A brief look at each one of these three invaders trajectory would be appropriate.

NAG BHAT I AND BAPPA RAWAL

These are rather unknown names in Indian history. But, their confederacy in 738 CE defeated the Arab forces commandeered by Emir Junaid decisively on the borders of the present day Rajasthan and Sind. Let us see the turn of events from 700 CE onwards. The Ummayed dynasty was ruling Arab lands with its capital at Damascus. Abdul Hajjaj, the Caliph was keen to spread his wings towards Sind and Hind. Several incursions were made which were thwarted by Dahir Shah, the Hindu ruler of Sind. But, in the year 712 CE, Mohammad Bin Kasim, the nephew of Abdul Hajjaj defeated Dahir Shah and killed him. After his return to Damascus, the successive Caliphs continued to thrust deeper into Sind.

In 738 CE, "The Arab governor of Sindh, Emir Junaid led a large army consisting of infantry and cavalry numbering to a total of 50,000 to 60,000 men. As news of this oncoming foe reached the Indian kings, they decided to forge an alliance to face the enemy. The Arab force consisted of cavalry from Syria and Iraq, aided by men from Sindh along with mercenaries.

Nag Bhat I, king of the Gurjar Prati-hara Empire, was chosen as the leader of the Indian alliance comprising of Rashtrakuta, Guhil, Chalukya and Gurjar armies to face the enemy. This alliance was between North Indian and South Indian rulers. Vikramaditya II was then the king of the Chalukya dynasty and Bappa Rawal of the Guhils.

Nag Bhat I led an army of 30,000-40,000 men mostly consisting of cavalry and infantry. He was a great military commander and organised his army by dividing his cavalry in parts on the flanks. The battle hardened infantry was positioned in the center with reserve cavalry and possibly war elephants in the back as a rearguard.

The battle was fought somewhere on the borders of modern day Rajasthan and Sindh. The Arabs advanced, ravaging the countryside and destroying many temples along the way besides forcefully converting many to Islam. Arabs made a dash at the center of Hindu lines hoping to dissect the army into two and directly reaching upto the king. But, the infantry held on and the resulting melee gave enough time to the cavalry of Nag Bhat I to outflank the Arab army. Once totally flanked, what followed was a total carnage as Arab flanks disintegrated and total confusion prevailed.

The Arab cavalry could not withstand the furious charge of the Indian cavalry and a rout started. Emir Junaid tried his best to motivate his forces and stop the rout but the charge was too strong to hold on. In the ensuing melee, Junaid was killed and without a leader, the Arab army disintegrated.

In the words of Suleiman, an Arab chronicler, the Arab forces were scattered like hay by the hoofs of the horses of the Gurjar king and his alliances.

A battered Arab army reached the other bank of the Indus. They later constructed a new city in Sindh named Mansurah and abandoned all dreams of capturing India. The annihilation was so complete that even Arab chroniclers described the Gurjar king in their history records as the biggest enemy of Islam in the whole world.

Inscriptions about this great victory have been found at various places including Gwalior in Madhya Pradesh. Now, why this important battle has been omitted from Indian History is anyone's guess."[1]

That was not all. Bappa Rawal pushed the Arab wave westwards towards Makaran right upto Iran. From there, he turned towards Afghanistan and established forts under the control of Hindu kings at Ghazni, Kabul, Peshawar right upto Rawal Pindi (the city in the present day Pakistan is named after the Hindu victor, Bappa Rawal). In 753 CE, Bappa Rawal took sanyas (Renunciation) from the stately activities.

The impact and consolidation done by Bappa Rawal was quite profound. It kept the north western border of the Indian subcontinent free from invaders for the next two and a half centuries till 1000 CE.

SUHALDEV

Similarly the name of Raja Suhaldev, the ruler of Shravasti who killed and defeated General Salar Masud on 15th June 1034 CE is also unknown in Indian history. Let us see the turn of events from 1000 CE onwards. The second millennium for the Indian subcontinent is ominously inaugurated by the successive invasions of Mahmud Ghaznavi from 1000 CE till 1027 CE culminating in the cataclysmic plunder of the famous Shiva temple at Somanatha. After the death of Mahmud Ghaznavi, his mantle was shouldered by nephew, Salar Masud, who was yet another religious warrior (Ghazi).

Suhal Dev, ascended the throne at Shravasti in 1000 CE. "The ancient city of Shravasti carries forward a legacy of several thousand years. King Shravasta from the Vedic period founded this kingdom. It was one of the major cities that flourished during the time of Gautam Buddha. It was the capital of the Kosala kingdom that drew its lineage from Shri Ram. Shravasti was the place where Buddha first came, at the invitation of Sudatta, a rich merchant, who was also known as Anathapindika. Sudatta bought a piece of land from Jeta, the then king of Shravasti, for building a vihara. The king donated valuable wood for the construction of the vihara; hence the place where the vihara was built was also called Jetavana Vihara. It was here where Buddha spent the longest period of time. Over time, Buddhist followers from Myanmar, Thailand, Sri Lanka, South Korea and other countries donated for the construction of stupas, viharas and monasteries in Shravasti. Today, Shravasti is an important Buddhist pilgrimage centre and home to several ancient Buddhist monuments.

Raja Suhaldev ruled the kingdom of Shravasti wisely. He was the emperor of the region with several small kingdoms, each under a chief under his emperorship. He was known far and wide for his skills in warfare and leading armies to victory. Like Krishn's Mathura, Shravasti and neighbouring kingdoms were home to great number of cows. Suhaldev initiated measures for the protection of cows. He was a patron of saints and a staunch follower of Vedic rituals.

Ghazi Saiyyad Salar Masud, also known as Ghazi Miyan, was the nephew of Sultan Mahmud of Ghazni. During Mahmud's conquest of parts of India in the early 11thcentury, Salar Masud accompanied him during the expeditions. He was with Sultan

Mahmud when the latter destroyed the Somnath temple, looted the temple treasury, and killed hundreds and thousands of Hindus.

Ghaznavid campaigns in Indian subcontinent were a success in Multan, Delhi and Meerut under the leadership of Salar Masud. To further expand the Ghaznavid influence in India, Masud set up his headquarters at Satrikh in the Barabanki area of Uttar Pradesh. From here he dispatched separate forces to capture Bahraich, Gopamau and Benares. The Bahraich expedition was led by Salar Masud's father Salar Sahu, who died at Satrikh in 1032 CE. Salar Masud then himself led the Bahraich expedition in 1033 CE.

Several kingdoms shared their local boundaries with Bahraich. Salar Masud camped at Bahraich. Who isn't familiar with Sultan Mahmud's loot and plunder of the Indian cities and razing of temples to the ground? Mahmud and his followers took women as slaves, raped them, destroyed temples, converted many to Islam, killed those who refused to convert, and their list of atrocities goes on. Mulla Muhammad Ghaznavi in his book Tawarikh-i-Mahmudi wrote about Sultan Mahmud, "And in the work of religious war, he had planted the banners of Islam and had pulled up the roots of tyrants." Salar Masud exactly followed Sultun Mahmud's footsteps in all of his military expeditions in India.

With an aim to subjugate all of the kingdoms in and around Bahraich, Salar Masud started encountering several rulers one by one. A year passed by, but he was not able to vanquish all of the rulers.

At Bahraich, he saw the ruins of a Hindu temple dedicated to Surya Dev with a sacred reservoir adjacent to it. The site was once an ashram where Balark Rishi lived. Masud decided to construct a mosque at the site after his military expedition of Bahraich was complete. According to an account by William Charles Bennet, Salar Masud wished to destroy the shrine and reside there thenceforth.

Meanwhile, Raja Suhaldev invited the rulers of his neighboring kingdoms to his court. The defeated rulers as well as those who were ready to face Salar Masud in battle assembled at Shravasti. As decided, the combined forces of the Hindu rulers led by Suhaldev were to face the Ghaznavid forces at Chittora near Bahraich. Suhaldev strategized on the military formations and other tactics so as to defeat Salar Masud and his forces. The Shravasti king's army consisted of not only infantry but also cavalry, war horses and elephants.

Salar Masud came to know about the plan of Suhaldev. Both parties had entrusted spies to know about the ongoing plans. Masud was well aware that Suhaldev revered cows. Hence, he hatched a plan. He decided to put a huge herd of cows in front of the Hindu army in the battlefield. And he knew that Suhaldev would not harm cows and hence he and his army would retreat. And then as they would retreat, the Ghaznavid forces would attack and subjugate them. Masud’s men captured huge number of cows from the area. Suhaldev came to know about this. A few hours in the night before the great battle was to start, the Raja's men quietly released all the cows.

A fierce battle took place between the combined forces of Suhaldev and Salar Masud at Chiottra near Bahraich on 15thJune 1034 CE. The Ghaznavid forces made a dash at the center of the Hindu army lines hoping to dissect the army into two and directly reaching for the king. But, the Hindu infantry held on and the resulting melee gave enough time to the cavalry of Suhaldev to outflank the Ghaznavid army. Once out flanked, what followed was a total carnage as Ghaznavid flanks disintegrated. Confusion prevailed amongst the Mohammedan forces. Salar Masud's army could not withstand the furious charge of the Hindu army. There were major casualties from Masud's side.

Suhaldev himself marched ahead in the battlefield and attacked Salar Masud. The Ghaznavid general was no match to the fierce Hindu king who struck terror amid the Muslim army. In the ensuing fight between the two, Salar Masud was heavily wounded. Before he breathed his last, he asked his followers to bury him near the sacred reservoir in the Surya Dev temple premise.

Hindu kings have a trackrecord of following the rules of Dharma in warfare. They took care of the injured at the end of the day. They never interfered into the religious affairs of the followers of other religion. So did Suhaldev. Salar Masud was allowed to be buried at Bahraich. More than 200 years later, Sultan Firuz Shah Tughlaq turned it into a dargah, which emerged as an important pilgrimage site for the Muslims."[2]

The impact of the decisive victory of Raja Suhaldev upon Salar Masud, the successor to Mahmud Ghaznavi in 1034 CE was quite profound. It kept the north western borders of the Indian subcontinent free from invaders for at least next one and a half century till 1191 CE.

NAIKI DEVI

Just like Nag Bhat I, Bappa Rawal and Suhal Dev, the name of Naiki Devi is rather unknown in Indian history. She was the great Chalukyan queen from Gujrat who defeated Mohammad Ghori in 1178 CE. A brief description would be appropriate.

Naiki Devi was the daughter of Paramardin, the Kadamba chief of Goa. Naiki Devi was married to king Ajayapala of Gujarat. He belonged to the Chalukya (Solanki) dynasty and ascended the throne of Gujarat in 1171 CE. The Chalukyan kingdom included parts of Gujarat and Rajasthan with capital at Anahilavada, modern Patan. This dynasty was founded by Mularaja in 940 CE after supplanting Samantsimha, the last ruler of the Chapotkata dynasty. The Chalukyas here were also known as Solankis and Agnivanshi Rajputs.

Ajayapala's rule was short lived. He died in 1175 CE. His elder son Mularaja II became his successor. But as he was a minor, his mother Naiki Devi acted as the Queen Regent. She looked after the complete administration and military affairs of the kingdom. Besides, she herself was well versed in the art of warfare to lead possible future battles.

During this time, Mu'izz ad-Din Muhammad of Ghor, also called Mohammad Ghori, was the Sultan of the Ghurid Empire in Afghanistan. The Ghurids were originally Buddhists but converted to Islam after Mahmud of Ghazni conquered Ghor in 1011 CE. Mohammad Ghori ruled Ghor along with his brother Ghiyath ad-Din Muhammad.[3]In the

year 1173 CE, he subdued Ghaznavids in Afghanistan.In 1175 CE, he captured Multan and Ucch forts. His next target was to subdue Anhilwara Patan, the prosperous capital city in the present day Gujarat. In the 8th century CE, Vanaraj from Chapotkata dynasty had established Anhilwara Patan as the capital of Chalukyas (also known as Solankis). An American historian Tertious Chandler has opined that this Citadel in 1000 BCE was the tenth largest city in the world, with a population of around 1,00,000. Mohammad Ghori had heard a lot about the wealth and riches of India, and he was reassured that the widow mother Naiki Devi and her rather too young son as a ruler would not be able to resist his armed fury.

With base at Multan, Mohammad Ghori marched with a huge army to Ucch, the southern part of Pakistan's Punjab province. From there, the Muslim army crossed the desert and started marching towards Anhilwara, the Chalukyan capital in 1178 CE. 13thcentury Persian historian Minhaj-i-Siraj wrote about Muhammad of Ghor advancing towards Anahilavada, the Chalukya capital through the routes of Uchchha and Multan. Ghori did learn about Gujarat being ruled by a boy. Little did he know that the Chalukyan army would offer stiff resistance under the leadership of the boy's mother, Naiki Devi!

Meanwhile, Naiki Devi heard from her spies about the advancing Muslim army towards her capital. She also heard that their forces were huge[4]. Her request for help from Prithiviraj Chauhan and other neighbouring rulers was not met with enthusiasm. But she got assistance from smaller kingdoms, namely Jalor Chahamana ruler Kirtipala, Arbuda Paramara ruler Dharavarsha and Naddula Chahamana ruler Kelhanadeva.

The combined forces at Naiki Devi’s command were, numerically speaking no match for Ghori’s army. That is where her strategic thinking in strategic formation came into play. She chose a rather difficult and inaccessible forest terrain in Gadaraghatta territory. Kasaharada village near Mount Abu in the present day Sirohi district was chosen as the place for confrontation. Before joining the battle, the Ghori’s army was softened by the unfamiliar hilly terrain surrounded by thick jungles before arriving at Kasaharada.

Mohammad Ghori from his camp sent a messenger to the court of the Chalukyan queen with a condition that he would not attack, loot andplunder Gujarat if the queen herself surrendered to Ghori along with her sons and handed over to him all of the gold and women of the Chalukyan kingdom. The queen pretended to agree. Mohammad Ghori waited in his camp for the arrival of the queen, her sons, gold and women. Naiki Devi approached towards the camp on a horse with her minor son Mularaja II tied to her lap. Approaching hoofs alerted the Ghurid Sultan. He was overjoyed that the queen easily accepted defeat and accepted his conditions. Soon, sound of more hoofs followed and then it was unending.

The combined forces of the Chalukyan army led by Naiki Devi surrounded the camp of Mohammad Ghori. A fierce battle ensued between the two forces. Soon the Battle of Kayadara witnessed major casualties from Ghori's army. Swords and spears clashed amid war cries. Naiki Devi tore into the enemy forces killing the enemy soldiers on either side with her sword. As she fought, her son watched the fast dwindling enemy

forces from her lap! Firishta, a Persian historian from the 16th century mentions how the ruler of Gujarat defeated the Muslim army "with great slaughter". Ghori's army was badly defeated. The Sultan and the remaining Muslim army fled from the battlefield. Chalukyan army chased them out of the territories of Gujarat.

Besides Firishta, Minhaj-i-Siraj also wrote how the huge Chaulukya army with elephants defeated Ghori. In his words, "the army of Islam was defeated and put to rout". 16th century Muslim historian Badauni also mentions Ghori's defeat. He also mentions how the `remnant of the defeated army' returned to Ghazni out of great difficulty. Mohammad Ghori was so badly defeated in this expedition that he did not think about attacking India until 1191! Never again did he attack Gujarat in his life![5]

Naiki Devi's victory is chronicled in several documents. A Gujarati poet Someshwara has sung the peans of Bala Mularaja (the child king) whose army defeated Turks and Mlechha (foreigners) army had to retreat. Another poet, Udayprabha in his Sukrita Keerti Kallolini wrote that how Naiki Devi's army defeated Mleccha's army who were covered with a defensive gear covering them from head to toe. A stone plague during Chalukyan times mentions as to how a woman during BalaMularaj's time could defeat invaders. A Persian historian, Minhaj-e-Shiraj in thirteenth century mentions about the Chalukyan victory. He mentions that the Ghor of Muhammad proceeded to Naharwala (Anhilwara Patan) via Uccha and Multan. Naharwala was a small kingdom but the battle was fought with a large army with the help of elephants. The army of Islam was defeated and the invader has to retreat without any achievement.

In 16th century, Badauni has also mentioned about the defeat of the invader, adding that they could return to their motherland with great difficulty. However, the battle of Kasahradais chronicled in details in Jain chronicles of Merutunga. It is mentioned that how Naiki Devi defeated Mlecchas in Gadadhad. Her indefatigable courage and determination has sunk deep in the soil of Anhilwara Patan.

Apart from their proven valour in the battle field, our ancestors during Chalukyan times were constructing unique water storage structures which had survived the millennium. The place also boasts of 'Ranika Bav' (the queen's well). It is a subterranean water storage system with seven storied deep construction during Chalukyan times (Solanki). It has 500 plus statues and more than 1000 tablets on its walls.

The impact of the victory of Naiki Devi upon Mohammad Ghori was such that the invaders from Afghan lands abandoned the idea of penetrating the Indian subcontinent from the western frontier. They went back to the historic gap through Khybar pass to penetrate Punjab and arrive at the outskirts of Delhi. The victory of Prithivi Raj Chauhan in 1191 CE, followed by his fatal defeat and liquidation by Mohammad Ghori in 1192 CE in Tarain (near Karnal in the present day Haryana) laid the foundation of Islamic rule in the Indian subcontinent from 1206 CE onwards.

13.2 KASHMIR

Even though Kalhana starts the history of Kashmir from the time of Gonanda I, in about the 7th century of the Kali Era[1], its correct chronology is established during the times of the Karkota Dynasty. Its most illustrious king, Lalitaditya Muktapida (697-733 CE), is reputed to have extended the Karkota Empire from the edge of the Caspian Sea to Pragajyotisha (Assam) in the East and the boundary of the Rashtrakutas (Deccan) in the South. He was followed by Vignaditya, whose reign witnessed Arab raids into Kashmir. Jayapida was one of the most powerful king who claimed to have defeated the kings of Gauda and Kanyakubja. The Karakota dynasty came to an end in 855-856 CE.

The Utpala and Lohara dynasties succeeded the Karkotas and had a clear run till 1315 CE. The Utpala dynasty was founded by Avantivarman. He took major steps to prevent the flood waters of Mahapadma (Wullur) lake from damaging crops. Another ruler Shankaravarman led military campaigns into the Punjab and Gujarat. Later years of this dynasty were marked by political intrigues. Power changed hands frequently and successors of the Utpalas included kings such as Yashaskara and Parvagupta.

The reign of the Karkota, Utpala and Lahara dynasties were marked by great renaissance in the fields of art, literature, science, mathematics, spirituality and logic, and all-round material development. The greatest polymath Abhinavagupta shines as the brightest gem of Kashmir, having lived there in the 10th and 11th centuries. He is also credited with having taken the practice of Kashmir Shaivism to its peak. He was also a great scholar in many other fields.

The period between 1315-1339 CE is a period of strife marked by changing kings and much instability. Suhadeva, the last stable king of the Lohara dynasty ruled till 1320 CE. He too made the mistake that many kings have made throughout the history of India. He gave shelter and position to Shah Mir from Swat Valley (some other versions dispute this origin), to the Chaks from Dardistan near Gilgit and to Bulbul Shah and Rinchan from Ladakh. After a Turkish invasion in 1320 and the death of Suhadeva, Kashmir Valley fell into confusion. Scheming aliens brought the Valley to its knees. Queen Kota Rani, the widow of Suhadeva's brother, Udayanadeva, offered resistance for a while. There are conflicting accounts about her end. The popular version among Kashmiri Pandits has it that she married Shah Mir and died on the wedding night. Whether she was treacherously killed by Shah Mir or committed suicide is disputed. Shah Mir took the throne in 1339 CE.[6]

The political history of Kashmir indicates the important role played by powerful queens. The best known is Didda, who dominated Kashmir politics in the second half of the 10th century. The Rajatarangini description of the 12th century history of Kashmir mentions three women rulers, Yashovati of the Gonanda dynasty, Suganda of the Utpala dynasty and Didda of the Yashaskara dynasty. Didda is a respectful term for an elder sister, still used by Kashmiri pundits. She had the longest and most powerful stint exercising political power for almost 50 years. Kalhana, the author Rajatarangini, refers

[1] Beginning 3102 BCE

to Didda founding towns, temples and monasteries. She is also credited with repairing many temples dedicated to the Gods. The same author, also disapproved of her as deficient in moral character, merciless by nature and as one who was easily influenced by others.

The same author also reflects the direct and indirect influence of courtesans and women of low birth in the harem. All in all, women were sovereign rulers as well as powers behind the throne. At times, they also played an important role in founding as well as destruction of lineages.

13.3 EASTERN INDIA – ORISSA

In the late 6th century CE, Shailodbhavas established themselves in Kongoda (roughly modern Puri and Ganjam districts). By the 8th century CE, they declined and Gangas of shvetaka came to occupy north Ganjam area. Similarly Gangas of Kalinga nagara established themselves in the Vamsadhara and Nagavali valley in south Orissa. Both the Gangas of shvetaka and kalinga nagara were migrants from Karnataka.

The rapid expansion of the Ganga kingdom began in the 10th century CE and culminated in the unification of north and south Orissa, with the river Mahanadi bisecting the two territories. The Ganga king Ananthavarman Chodaganga was responsible for displacing Somavamshi ruler in lower Orissa in the early 12thcentury. The military expansion of the imperial Gangas may have been assisted by their strategic alliance with the Cholas. The mother and one of the queens of Ananthavarman was Chola princess. This did not, however rule out military conflict – Kulottunga I twice sent armies against Kalinga. Similarly, Ananthavarman made inroads into Bengal as well.

Genealogical accounts throw some light on the origins of certain lineages. Shailodbhavas were of tribal origin. Somavamshis and imperial Gangas used gotra designations, indicating claims to Brahmana status. There is also evidence of migration of lineages. Ganga lineages were migrants from Karnataka. The somavamshis came from south kosala (Chattisgarh and western Orissa).

"Regarding their worship, Shailodbhavas were solid worshippers of Shiva. Most of their inscriptions have the Shiva bull motif on the seal; many of them begin with an invocation to Shiva and describe the king as Parama mahadira. Shailodbhavas inscriptions also eulogize the Mahendra mountain, referring to it as a Kula-giri i.e., a tutelary mountain."

"The Somavamshis and imperial gangas anchored themselves in the epic-puranic tradition. The Somavamshis claimed to belong to the lunar dynasty. The Vizagapatnam plates of the Ganga king Ananthavarman Chodaganga give the most grandiose account of all, tracing the ancestry of the dynasty book to the god Vishnu"[7]

NARSIMHA DEVA – THE AGGRESSIVE KALINGA RULER

Narsimha deva I of Orissa invaded and defeated Tughan Khan, the Nawab of Bengal in 1244 CE at Lakhnor fort, near Lakhnavati. A brief summary of events are as follows.

Narsimha deva was the son of Kasturi devi and Ananga Bhimadeva III. This Ganga dynasty was founded in 11th century by Ananthavarman Chadaganga deva whose mother Rajasundari was the daughter of Chola king Vira Rajendra Chola. Initially, territories of the dynasty was confined to southern part of Kalinga but subsequently, the empire expanded and by the time Narsimha deva I ascended the throne in 1238 CE, it extended from the river Bhagirathi ganga in the north upto Gautami Ganga or the river Godavari in the south. Narasimha deva was also known as Lingala Narsimha deva because of some of his bodily deformities.

Malik Fzzuddin tughril-i-Tughan khan was the Nawab of Bengal and he established his supremacy by ascending the throne of Bengal in 1233 CE. Even prior to this, the Bengal Nawabs were making repeated attempts to occupy Orissa. Narasimha deva I was well aware of these motives and Maneourness of the neighboring Afghan rulers. Realising the ever present threat, he strengthened his military power and decided to attack Nawabs of Bengal and create terror in their minds. The strategy was not only to check their immediate advances, but eradicate any idea in their minds to attack Orissa in future.

In 1243 CE, Narasimha deva I invaded Bengal with his large army and advanced upto Lakhnor and seized Katasin fort. The Nawab's army, stationed at Lakhnavati advanced upto Katasin. Tughan Khan, the Nawab himself was leading it and on 15th April 1244, he found out that there is no resistance. Ganga army has retreated as a tactics and concealed themselves in the thick jungles and bushes surrounding the fort and remained in hiding.

Finding no visible resistance, Tughan Khan's army retired for a midday meal and started relaxing. From nowhere, the warriors of Ganga army sprung in all the directions and attacked the relaxing Muslim army. Taken by surprise and unprepared for the battle at that moment. The Muslim army could not offer any stiff resistance. Persian historian Minhaj-i-Shiraj mentions in his book Tabaghat-i-Naistri as to how a section of the Ganga forces made a sortie from the directions of the fort and simultaneously, another detachment of two hundred footman and fifty, horsemen stole their way from behind the cane jungle and fell upon the Muslim forces. This was followed by heavy casualties from Tughan Khan's army.

Tughan Khan lost his nerve and could not continue with the battle. Most of his men were killed. Defeated, he fled to Kakhnavati, his capital. The Ganga army of Narsimha deva persued their adversaries for beyond th fort of Katasin. With this, the Ganga dynasty extended their territories upto the river Damodar in the north.

In 1245 CE, Narsimha deva attacked Lakhnor, another principality of the Nawab of Bengal. Fakhar-ul-Mulk Karim-ud-din laghori was the commander of the fort of Lakhnor. The Ganga army easily defeated then and captured the fort. Then they advanced upto Lakhavati fort, laid seize to it at the base and threatened the Nawab.

Meanwhile, Tughan Khan sought the help from Delhi Sultans. Help arrived as the Nawab of Kara, manikpur nd Nawab of Oudh advanced towards Lakhnavati. On 30th

April 1244 CE, the massive forces arrived and the Ganga army vacated the seize of the Lakhnavati fort and retreated.

Tughan Khan was expecting that the two forces together would persue the Ganga army out of his territories in Bengal. That did not happen. The duo, had developed distrust in Tughan Khan and seized Lakhnavati instead. Tughan Khan was forced to flee from his kingdom. Thus, Narsimha deva's strategy not only shattered the dream of Tughan Khan but also snatched back the territories in the present day Bengal and Bihar from the Turkic's Afghans to establish Hindu supremacy.

Narsimha deva built the famous Konark Temple dedicated to Suryadeva in Orissa. He erected a victory pillar designed as a war chariot. The structure commemorates the victories in the battles against the Muslims.

13.4 THE FAR SOUTH

"The term 'Far South' as understood in geo-historic terms refers to the territories of the peninsular India lying due south of the river Pennar. The other important rivers are Kaveri and Vaigai. Along these river systems, the political history was dominated by Pallavas, Cholas, Pandyas and Cheras.

Pallavas were associated with Tondaimandalam, the land between the Pennar and Vellar rivers. They rose to power in the last quarter of 6th century when Simhavishnu asserted his authority by conquering lands upto the Kaveri. Mahendravaram (590 CE – 630 CE) succeeded him and came in conflict with western Chalukyas. The latter's army led by Pulakeshin II reached perilously close to the Pallava capital Kanchipuram and annexed the northern parts of that kingdom. Thee subsequent ruler Narsimhavarman I Mahamalla (630 CE –608 CE) managed to settle scores by winning several victories against Chalukyas, climaxing in capturing their capital, Badami. The Pallava king claim to have defeated the Cholas, Cheras and Kalabhras. Two Naval expeditions to help Sri Lanka ruler Manavarma were successful.

The Pallava – Chalukya conflict continued during the subsequent decades interspersed with some peaceful interludes. The Pallavas also came in conflict with the Pandyas to the south and Rashtrakutas to the north. In the early 9th century, the Rashtrakuta Govinda III invaded Kanchi during the reign of Pallava Dantivarman. The latter's son Nandivarman III managed to defeat the Pandyas. The last known imperial Pallava king was Aparajita. Aided by the western Ganga and Chola allies, he defeated the Pandyas at a battle at Shripurambiam. Finally, in C 893, the Pallavas were overthrown by the Chola king Aditya I, and thereafter, control over Tondaimandalam passed into the hands of the Cholas.

A look at the background of Cholas would be appropriate. Vijaiyalaya was the founder of the dynasty. He established his power in the area around Uraiyur, captured Thanjore and extended his kingdom along the lower Kaveri. Vijaiyalaya accepted the over lordship of Pallavas. Aditya I (871 CE – 9007 CE), the successor of Vijaiyalaya expanded the Chola kingdom by entering in a dynamic strategic alliances. First he joined

hands with Pallavas to defeat the Pandyas in the battle at Shri Purambiam and obtained some territories near Tanjore. He then went on to defeat and kill his Pallava overlord Aparajita in 893 CE. Flush with the victory and control over Tondaimandalam, he conquered Kongudisha (corresponding roughly to Coimbatore and Salem districts) from the Pandyas. He also claims to have captured Talakkad, capital of the western Gangas. Aditya I entered a matrimonial alliance with Pallavas by marrying a Pallava princess.

Parantaka (907 CE – 953 CE) succeeded Aditya I and by striking strategic alliances with western Gangas, Kodumbulur chiefs and the ruler of Kerala.He conquered Madurai, the Pandyan capital. He defeated the combined armies of Pandyas and the king of Sri Lanka at the battle of Vellur. These victories were however overshadowed by defeats at the hands of Rashtrakutas in 949 CE. The army of Krishna III defeated the Chola army at the battle of Takkolam. The Cholas gradually recovered their power, during reign of kings such as Sundar Chola Parantaka II (957 CE – 973 CE). By the time Uttama Chola came to the throne in 973 CE, most of Tondaimandalam had been retrieved from the Rashtrakutas.

The peak of Chola power was reached during the reign of Anumolivarman, who assumed the title of Raja Raja on his accession. From the Raja Raja's reign (985 CE – 1014 CE) all the way upto 13thcentury, the Cholas remained the major political power in the deep south of peninsular India. A succession of military campaigns broke the confederacy of the Pandyas, rulers of Kerala and Sri Lanka. A successful naval expedition to Sri Lanka led to the destruction of Anuradhapuram and a Chola province was established in the northern parts of the Island. Raja Raja also achieved victories against the western Chalukyas and Rashtrakutas. The Maldives were conquered towards the end of his reign.

The juggernaut of Chola's victories continued to roll under Raja Raja's son and successor Rajendra I. Achieving all round victories against Sri Lanka, Pandyas, Kerala and the western Chalukyas, he built a new capital at Gangai-Kondacholapuram. In1025 CE, a successful naval expedition subjugated the kingdom of Srivijaya in the Malay peninsula. It had great strategic importance in Indian ocean trade. Military conflicts continued and Cholas held their sway till Koluttunga (1070 CE – 1122 CE). His long reign saw the despatch of an embassy of merchants to China while trade with Malay continued to flourish. Although his long reign was relatively peaceful, during the second half, the kingdom faced hostility from the Chalukyas and Hoyasalas. There was some recovery during the rule of Vikram Chola who managed to re-establish Chola control over Vengi. Later rulers like Kulottunga II, Raja Raja II and Kulottunga III came and went and eventually the Cholas dynasty came to an end in the 13th century.

The Pandya dynasty with its epicentre at Madurai on the banks of the river Vaigai (meaning a river with swift flow of water) has left its imprint from 6th century CE to 10th century CE. The first two rulers were Kadungon (560 CE – 590 CE) and his son Maravarman Avanishulamani (590 CE – 620 CE). The latter is credited with ending Kolabhra rule in the area and reviving Pandya power. They were involved in internecine wars with the Pallavas and other contemporary powers like Cholas. King Rajasimha I

(735 CE – 765 CE) had the epithet Pallava Bhanjara (breaker of the Pallavas). The empire expanded during his reign as well as during his successors Jatila tarantaka Nedun jadaiyan (756 CE – 815 CE) and Srivallabha (815 CE – 862 CE). The Pandyas were completely overpowered by the Cholas in the 10th century.

On the south western strip along Kerala coast, the Cheras continued to hold sway in spite of the fact that several Pallava, Pandya, Chalukya and Rashtrakuta rulers claimed military successes in the area. One of the last king of the line was Cheruman Perumal about whom legends abound. Different sources describe him as a Jaina, Christian, Shaiva or even a Muslim. It is possible that he renounced the world, dividing his kingdom among his kinsmen or vassals. His reign ended in the early 9th century CE.

Rulers of all these dynasties be it Pallavas, Cholas, Pandyas or Cheras connected themselves with the epic-puranic tradition. They also legitimized their power through the performance of sacrifices such as the Ashvamedha and Rajasuya. The inscriptions also mention rituals such as Hiranyagarbha and Talapurusha. The gifting of lands to brahmanas and in addition, gifting various other things to temples were other important activities linked to the legitimation of royal power.

On linguistic front, the north Indian tradition of Sanskrit coexisted with the indigenous Tamil tradition. For example, kings of Pandya dynasty claim to have had their twin fish emblem carried on the peak of the Himalayas or mount meru. They also claim to have been anointed and taught Tamil by the sage Agastya, and as having built the great city of Madurai and establishing the sangam there. Yet another aspect of linguistic coexistence is evident in the copper plates. In Pandya royal grants, the Sanskrit is followed by the Tamil. The two portions are not identical, the Tamil are being sometimes more detailed. In Chola and Pallava inscriptions, the royal prashasti is usually in Sanskrit and the rest is in Tamil.

Almost all the rulers of each one of the dynasties in far south during 600 CE to 1300 CE were great builders of massive temples and large irrigation canal networks. Each one of the capital cities of those rulers, be it Pallava's Kanchipuram, Chola's Thanjur and Thirichirapalli or Pandya's Madurai abound in huge and numerous temple complexes. In fact, a temple was the fulcrum around which grew a city. Temple complex was like a soul to the broader body of a city. Then, there is the tradition of constructing massive irrigation works across the river Kaveri, be it in Thirichirapalli or Thanjavur. A well laid out canal network carriedthe life giving water to quench the thirst of land, animals and people. The consequent abundance of grains, milk and gold is captured in folklore and rich Tamil poetry"[8]

13.5 WOMEN IN ANCIENT INDIA

Women held very important positions in ancient India. The plethora of Goddesses in ancient period was created in respect of women. Literature reveals that women in ancient India like –Gargi and Maitreyi participated in rituals. During the period of the Smriti literature, women began to call the husband as Swami or Lord. As the time passed

the position of women underwent changes in all spheres of life. From prehistory to history we see the shift is clearly marked in the Indus valley civilization, where archaeology has revealed the preeminent position of men. Another great transition is from the early Vedic to later Vedic society showing the shift from pastoral to agrarian society. This becomes more hardened during the period of the *Smriti* literature, when we see the rise of the private ownership in land followed by the writing of the *Grihya Sutra* and the *Srauta Sutra,* where women call the husband as *Swami* or Lord. The holder of the land is also referred to as *Bhu Swami* or Land holder.

Changes in the mode of food gathering and food production male domination came to be established step by step. The process began with hunting, probably with the invention of spear and in the post hunting age with the people that developed pastoral economy and male supremacy came to be established because stock rising was a man's work. But in societies where agriculture predominated over hunting in providing food, it raised the status of women because agriculture was their invention and business. But with the development of higher forms of agriculture, more especially with the introduction of cattle drawn ploughs, this *matria protest as* was finally overthrown.[33] Indications of a change in status can be noticed in the early texts referring to the origin of the notion of state. The context is that of peasant societies, who having lived through a halcyon period of coexistence and peace, began to erupt as centers of violence and lawlessness with the stealing of each others wives and the crop from each other's fields. Property and women, it is implied are the source of trouble. To establish law and order, not only are the institutions of private property and marriage recognized, but a person is selected, or alternatively, requested to become the arbiter of law and thus maintain harmony. It is from this point on that the status of women begins to deteriorate as is evident from the narration of texts like *Digha Nikaya* of the Buddhist Canon and the Mahabharata.[34] Hence patriarchal order became gradually established with the transition in the mode of production and the establishment of distinct socio- cultural and economic developments. Some other systems like the Republican states known as *Gan Rajya* and tribal oligarchies where the women's position was not subservient continued to coexist side by side.

Though it has been claimed that the position of women was much better in the Vedic period and that things began to deteriorate with the arrival of Muslims, and the often cited examples of Gargi and Maitreyi who participated in the Sabha and Samitis, it cannot be denied that ancient societies were patriarchal simply because the dominant structure and values of society were or were not patriarchal. We may make the case that this process continued in mediaeval times since there is no evidence of a severe structural disjunction that would have brought patriarchy to a halt. In reality, there is continuity in modern times, which is one of the reasons why social reformers and freedom fighters took up this subject as one of the unfinished business of Indian social reform, and it is on the agenda of the post-independence women's movement.

Most historical records from the previous time, as has been pointed out, generally allude to the elite group, the King, the court, and wealthy merchants. From oblique refere nces, we must deduce information about other aspects of society. Aristocratic women wer e seen to be gentle beings who bore future kings. Marriage was commonly used as a cove

r for a political connection, as well as a way of family mobility for individuals of lower s ocial standing. The aristocratic lady lived in seclusion and comfort. Women from respect able houses walking around veiled can be traced back to the early centuries A.D., and Isla m's purdah furthered women's seclusion.[35] Women from artisan families and peasant families lived in a more strenuous environment. Where leisure was restricted and women joined in men's professional employment, the pressure was not so much from societal mores as it was from the need to survive economically. Those who had a specific economic position and had individual access to local marketplaces were perhaps the most self-reliant among peasant women. The divide between different classes of women emerges, with royal women needing protection and lower-class women having more freedom. In the area of religion, this divergence can also be noticed. The demure goddess, such as Lakshmi or Parvathy, is considered consort, whereas the ferocious goddess, such as Kali or Durga, is considered independent of a man.

TEMPLE WOMEN IN CHOLA INSCRIPTIONS

Leslie Orr's study shows that the 'temple women' of the Chola period were very different from what we understand about the devadasis of the 20th century. In fact, although there are a few earlier occurrences, but the term devadasi seems to have really come into vogue only in the early 20th century.

The words used for temple women in the Chola period inscriptions were tevaratiyar (devotee of god), tevanar makal (daughter of god), and taliyilar or patiyilar (woman of the temple). The identity of these women was not based on birth, caste, professional skill, or ritual function. It was based on their connection with a temple, deity, or place.

These women were not generally connected with performing rituals or management roles in the temple. There are a few instances of their performing minor, sometimes menial services, for the temple. There is also an increasing number of temple women who were slaves functioning within the temple context. But by and large, temple women were connected to temples, especially those located in their native villages or towns, through their donations. They appear prominently in this capacity in inscriptions, especially in the 12th and 13th centuries, more so in the northernmost and southernmost parts of Tamil Nadu. Temple women were distributed all over Tamil Nadu, and although they were closely associated with certain towns such as Kanchipuram, they were more often associated with small temple establishments. In the late Chola period, these women acquired certain privileges and honours in exchange for their donations. These included, for instance, the honour of being given a place close to the deity in a procession or the right to sing a certain part of a hymn before the deity. Such honours seem to have gradually become hereditary. Temple women of the Chola period do not seem to have been married.

In the early Chola period, temple women mostly made gifts to defray the cost of maintaining perpetual lamps. In the late Chola period, they also made gifts to support services in the temple on a daily basis or on festive occasions, to support temple

personnel, build temples, or make and install images. In these respects, their gifts were similar to those made by other categories of donors, male or female.

Inscriptions indicate that women in the Chola period had access to and control over economic resources of their households. Orr suggests that while women in general become less visible as donors in Chola inscriptions, temple women remain constantly visible.

On the other hand, the modern devadasi phenomenon is marked by hereditary transmission, professional skill, and temple dedication. None of these were operative in the case of the temple women of the Chola period. Those women were neither temple dancers nor prostitutes. They were not married to the god, nor is there any indication that their sexual activity was exploited or confined in the temple context. Their history in the Chola period cannot be seen as a story of degeneration or decline - in fact their position got strengthened and well-established over time."[9]

13.6 MAINTAINING LAW AND ORDER AND LEGAL FRAME WORK

Maintenance of law and order by ancient rulers across their kingdom or imperium was achieved by upholding Dharma, as described in the traditional Indian texts. The rulers unabashedly boasted of their tradition of upholding justice at all times and ensuring fair trials. All the polities located in peninsular India followed these principles. The Chola inscriptions have captured several incidents throwing light as to how the legal framework functioned.

Local courts were as powerful as the local administration consisting of learned scholars. Those well versed is Smiriti texts and Dharmasana Bhattas were identified and appointed as interpreters of the codified manuals on Dharma and its practice. There were no lawyers to argue cases and individuals were allowed to defend themselves. There was no segregation of civil and criminal cases and jury conducted all the trials together. The jury in concurrence with the interpreters of Dharma shastras would hear the plea and examine witnesses and testimonials. Involvement of the king or other prominent people in power was rare, even in cases involving severe crimes. The concept of appealing to higher courts was mostly unheard of and the world of the sabha was accepted as final. A few examples gleaved from inscriptional documentation are as follows.

Sequestration of property and deportation from the country was probably the ultimate punishment. Crimes like rioting or bothering the common public invited such extreme punishments. During the reign of Kulottunga III from Kilayur, a village near Thanjavur, there is a detailed record describing crime and punishment given to two individuals for rioting and inducing public nuisance. The crime included causing trouble to the Brahmins, Vellals and the temple there. The local court punished them both with a penalty of 1,000 kasu. As they had no money, their properties were confiscated and sold at an estimated amount of 1060 kasu. The extra amount was accounted as the penalty for delay in paying the fine. Subsequently, a royal order was passed warning the public about

a fine of upto 20,000 kasu, if such offences were committed in future. An appropriate deterrence was established by the rulers.

In another interesting case, the local administration unit held a woman guilty for not settling her pending tax dues. The charges were however denied by the woman but she was accused in a public trial in full view of her relatives and neighbours. Unable to bear the humiliation, she committed suicide. The Dharmasasana Bhattas who constituted the administrative unit were deemed guilty and unfit to continue the enquiry. The situation required the intervention of scholars and Dharma Adhikaris from other regions and districts. A committee of such scholars discussed at length and levied a fine of 32 kasu on the man especially responsible for humiliating her during pubic trail.

Common offences including cattle lifting and petty thefts were investigated, with the punishment ranging from the penalty to be paid to confiscation of property. Endowments to burn perpetual lamps in temples seem to be the most popular way of punishing culprits. The standard chart of offerings gives a choice of 96 sheep, 64 cows or 32 buffaloes as donations to maintain one perpetual lamp. The cattle thus donated to the temple are leased to the local cowherds and they in turn are required to provide oil to burn the lamp. In return, they can make an income through other dairy products but had to ensure that the cattle count was never less than what was provided by the temple. This can be understood more as a means to repent for the crime than one to be endured as punishment.

Surprisingly, homicide cases where there was no premeditation were also dealt with similarly. The accused proven guilty was imposed a fine of one or more temple lamps in a temple. During the times of Kulottunga I, a juvenile offender was charged with murder of another juvenile while cutting wood with a sickle. The local jury, after enquiry ordered the murderer's father to create an endowment to burn half a perpetual lamp. During Kulottunga III's reign, two men were punished in the same manner for beating a buffalo to death while it was grazing their fields.

Imprisonment, corporal punishment or death penalties were not popular practices at the village or district level courts. Serious cases like harming the members of the royal family, indulging in acts that cause riots or instigating rebels against the government have led to confiscation of property of the offender and his family and sometimes the extended family too. The property was then auctioned in public and the money deposited in the coffers.

"In general, a case was tried not on face value thereby treating it as an isolated event. All the circumstances that led to the final event were taken into consideration. After interpreting as per Dharma Shastras, the final punishment was imposed to uphold Dharma rather than focussing on punishment. The overall approach encouraged repentance rather than retribution."[10]

DEALING WITH TEMPLE THEFTS

The temptation to lay hands on unguarded possessions of temples are as old as the abode of Gods themselves. In ancient India, the law of the land was as swift to deal

with such (un)divine misappropriations during twelfth and thirteenth centuries CE. The punishment imposed was severe upon the guilty; be it noblemen, priests, administrators or tenants living in the temple premises. Some of the abominable temple burglaries recorded during those times, gleaned from inscriptions are as follows.

In 1152 CE, a grand temple complex at Thanjavur dedicated to Siva as Pasupateeshwara witnessed a succession of burglaries. A special committee was set up under royal orders to undertake a thorough investigation. The committee comprised of religious leaders, scholars and practicing shivaite among others. The temple priests were found guilty. They were sacked with immediate effect and banished thereon from serving in temples. The inscription even documents the family details of the priests and their individual names.

The Chola king Rajaraja III heard and pronounced the judgement relating to misuse and theft in Thirunakeshwaram temple. Temple accounts were handled by three officials, two of them brothers. They were found to have failed their moral code of conduct. They misused temple funds, stole silk garments offered to the deity and used temple bricks to extend their residences. Found guilty, the king pronounced that their properties be seized and sold in auction. The inscription records that 40,000 kaasu' thus realised were deposited with the temple.

In 1194 CE, certain land donated to the Siva temple of Govindhaputhur to grow area palm trees was misappropriated by the manager of the temple. He felled the trees, sold them and shared the profit with his relatives. Donations collected were also not accounted for and when an enquiry was setup, he disappeared from his residence. The accused was proven guilty; his properties were confiscated and his house demolished. In its place, a temple for Vinayaka was built and the deity was named Koluthunga Chola Vinayaka Pillaiyar.

In 1213 CE, a certain Manager had managed to pilfer the jewel that adorned the forehead of the deity. He was promptly caught by the guard on duty. Enquiry revealed that forefathers of the Manager had instituted several endowments to benefit social and religious causes. Notwithstanding his past, the accused was tried and found guilty. His property was confiscated; he was forcefully removed from his residence located in the western quarters of the temple. He was labelled as a traitor. His property was sold off and proceeds were used to build a hundred pillared hall in the temple premises.

The same temple complex witnessed yet another theft a couple of centuries later during Vijayanagar Rule. The suspects were temple administrators and a priest. They had managed to break open the store vault, steal the jewels of the deity and lock and seal the vault back. A few suspects managed to escape and the priest was not doubled, initially. After a long time, the case was reopened and the bewildered priest confessed his role in the crime. His properties were confiscated; his sixteen and a half day of rights to perform puja in the temple was nullified and was distributed amongst other serving priests. Those who managed to escape were not forgotten either. Their own property was confiscated and declared as the temple property. The kith and of those escapees were punished by

confiscation of the family property. Thus, a forgotten case was reopened to ensure that justice prevails.

All these instances prove that while dealing with temple burglaries, it was Dharma which was always applied to ensure uniform punishment to anyone and everyone found guilty in a temple theft. In fact, the power of Dharma was upholding justice. What could be mere humiliating than getting once name recorded on stone as a convict who burgled temples?[11]

14. THE KAKATIYAS

14.1 CHAPTER SUMMARY

From the very beginnings of the second millennium, commencing right from 1000 CE onwards, incessant invasions by Islamic armies had destabilized North Indian polity. Innumerable kingdoms collapsed during the next three centuries or so (1000 CE – 1323 CE). But, Peninsular India and its kingdoms stood safe below the Vindhyan mountain barrier during this period. Naturally, the evolution and status of polity and economy on either side of the Vindhyas was bound to diverge. The North Indian polity evolved around a single command centered at Delhi, while the polity in Peninsular India evolved around multiple power centres. More than three long centuries (1000 CE – 1323 CE) of relative peace allowed them to continue to construct innumerable irrigation tanks and temples. A vast seaboard and a number of ports on the Indian sub-continental coastal rim connected its trading routes with foreign lands. As agriculture boomed, its country side developed. As its trade flourished, the towns and cities prospered. As prosperity grew, the society's religious faith enriched its temples. As the kingdoms grew wealthy, their name and fame reached far beyond the peninsular border. Wealth attracted envy and attention of the rulers of Delhi. The lure of loot apart from an urge to plant the Islamic flag in the Deccan lands was an important factor, which eventually brought Islamic arms to Peninsular India.

Yadava kingdom in Devgiri and Kakatiya kingdom in Warangal were prominent in the Deccan. Further, the Hoyasala, Pandya and Chola kingdoms were important in further south. The Kakatiyas of Warangal had evolved as one of these important kingdoms. As the second millennium began, they established their foothold in central Deccan, almost at the same time when Mahmud Gaznavi commenced his raids across North Western India. By mid twelfth century, as Kalyan Chalukyas declined, the rising Kakatiyas filled in the vacuum. They ruled for one hundred and sixty six years (1158 CE – 1323 CE) from Orugallu (the present day Warangal), as their capital. Kakatiya period is reckoned as the golden age in the history of Telangana during the second millennium, not unlike the golden age of Guptas in North India during the first millennium. The golden glow was too good to last. The first quarter of the fourteenth century saw the repeated invasions of Islamic armies across the Vindhyas. Within a brief span of a couple of decades, most of the peninsular kingdoms were destroyed, including the Kakatiya kingdom of Warangal.

This chapter deals with the political history of the present day Telangana lands from 1000 CE till 1323 CE. Prior to 1000 CE, this land was ruled by the Kalyan chalukyas (also known as western chalukyas) with Kalyan (situated near the present day Bidar in Karnataka) as their capital. The entire period can be divided in two political watersheds. A brief description of each phase would be appropriate.

The first phase can be considered from 1000 CE to 1158 CE. Prior to 1000 CE, the present day Telangana lands were ruled by various tributaries while the apex was

controlled by the western chalukyas. Around 1000 CE, the Chalukyan emperor bestowed Anamkonda Visaya (meaning a certain territory with connotation of a district) upon the young Kakati lad, Garuda Beta. There were other feudatories as well controlling different Visayas, like Mudigonda (in the present day, Khammam, Koravai), Polavasa (in the present day,Jagtial), Sanigram (in the present day, Karimnagar), Kanuduru (in the present day, Nalgonda) and Kollipaka (in the present day Alair, Bhongiri). Chalukyan imperium had been facing sustained pressure from its neighbouring rulers. By 1158 CE, the western Chalukyas were overpowered by Silaharas from the north and Hoyasalas from the south. The local chiefs had also developed fluid loyalties. During the interregnum, the power struggle for supremacy posited Kakatiyas in a commanding position in the present day Telangana lands.

From 1158 CE, commenced the second phase. The successive Kakatiya rulers expanded, consolidated and brought imperial glory to this land and its people. New dominions were added towards western, eastern and southern directions. This period is reckoned as the golden age in the history of Telangana. From 1300's onwards, the Islamic armies penetrating from across the Vindyan Mountains directed by Delhi Sultanate hammered it repeatedly. First, the Khiljis armies made Telangana rulers as their tributaries. They were followed by the Tughlaq's armies, who changed their policy from imposing tributes to annexing territories. As repeated armed onslaught continued, the Kakatiyas were conclusively defeated in 1324 CE, before becoming a part of history.

14.2 FROM FEUDATORIES TO SOVEREIGNS

The Kakatiyas, like Satavahanas were one of the major dynasties based in central Deccan Plateau that ruled over extended territories, with the present day Telangana as its core. By about 1000 CE, as power was shifting from Rashtrakutas to Kalyan Chalukyas, the Kakatiyas got a foothold at Anumkonda. 'Kakatiyas' origin may be debated but their social background is on a firm footings. "They were out-and-out an indigenous power sprung from the fourth caste."[1]

Apart from Kakatiyas, there were three other feudatory families neighbouring the Kakatiya domains. They were Chalukyas of Mudigonda to the east; the Polavasa chiefs to their northwest and the Choda chiefs of Kanduru to the south. The region to the west of Anumkonda vishaya was under the direct control of the Chalukyan king and it was being administered by his officers from Kollipaka. "The relations of the above chiefs with the Kakatiyas were mostly hostile"[2]A brief account of each one of these families, with particular reference to their evolving political equations with the early Kakatiyasis given below.

CHALUKYAS OF MUDIGONDA

The Chalukyas of Mudigonda were located in the present day Khammam district and the adjoining areas like Korvai. "The Korvai epigraph of about 935 CE informs us that these Chalukya chiefs were enjoying a sort of independence in this territory. For a long time, they owed their allegiance to the Eastern Chalukyas of Vengi, in preference to

the Rashtrakutas, who held sway in Telengana at that time."[3] During 930 CE – 936 CE, a chief of Mudigonda family named Gonaga sought asylum in the court of the Vemulawada king. Gonaga's younger brother, Niravadya with the help of Western Chalukya, Bhima II (934 CE – 944 CE) became the king of Korvai. He was followed by Kusumayudha and Betaraja. The next ruler, Bottu Beta, after some political uncertainty was reinstated by Viriyala Erra. Bottu Beta died during a campaign leaving behind his young son, Garuda Beta. Kamavasini, wife of Viriyala Erra took up the cause of young Kakati Garuda Beta. "Her appeal worked and the Chalukyan emperor bestowed Anumkondavisaya upon Garuda Beta. The Kakatiya line was re-established in around 1000 CE."[4]

From about 1000 CE, the Bottu chiefs were in possession of Korvairajya and Kakati Garuda Beta was in possession of Anumkonda vishaya. Both were subordinates of the Chalukyas of Kalyana. The Kakatiya chiefs did not trouble Korvai rulers till about 1170 CE. But, when Kakatiya Rudra proclaimed independence, he deputed his general Recherla Rudra to subdue the Bottu chief of Korvai, who led his army into their territory and put them to flight. "Kukanur copper plate tells us that, "Due to upheaval (Bhu-Praghattana), they had to leave with their bag and baggage to other neighbouring territory (Paramandala), eating roots and fruits in the forest; They took refuge in Vengi region for about twelve years before returning to their original territory, Visurunadu (Mudigonda and Korvai territories are also known as Visurunadu).With the closure of the twelfth century, we do not hear anything about these Mudigonda chiefs. By then, Visurunadu was under the firm grip of Kakatiyas, ruling from Anumkonda."[5]

THE POLAVASA CHIEFS

The Polavasa chiefs were located in Polas or Polavasa in the present day Jagtial district to the north west of Warangal. Like the Mudigonda chiefs, they also played an important role during the time of the early Kakatiyas. The Thousand Pillar Temple inscription and other epigraphs refer to Medaraja of the Polavasa family as an enemy of Rudra, the Kakatiya ruler. Medaraja, with his feudal principality extending from Polavasa to Narsampet was a close neighbour of early Kakatiyas, in particular Prola II and Rudra. The close proximity between Polavasa and Anumkonda territories was bound to affect relations between the two neighbours.

To start with, both the families of the Kakatiyas and Medaraja, shared the same background as Rashtrakuta subordinates. Around 950 CE, the Rashtrakutas were overpowered by the Kalyani Chalukyas. Political changes notwithstanding, the new rulers allowed both the Kakatiya and Medaraja chiefs to continue as Mahamandaleshwara with their respective domains intact, lying adjacent to each other. Though relations were cordial in the beginning, it did not remain so in due course of time.

The Banajipet epigraph of 1004 CE and the Polavasa epigraph of 1030 CE belonging to Medaraja I describe the happy state of the Chaukyan kingdom. It would appear that Kakatiya Beta II donated some gifts to the Jain temple built by Medaraja. This indicates that the rulers in Polavasa and Anumkonda, apparently at that time had a peaceful relationship. By 1108 CE, both the rulers were also having similar alignments with their overlords. After Betaraja I's death, his son Jaggadeva succeeded him. But his

active career appears to be of a short duration between 1110 CE and 1117 CE. Jaggaraja had two sons, Medaraja II and Gumdaraja. "The former appears to have made some gift of land to Padmakshi temple in Kakatiya territory. The epigraphical evidence goes further and states that Medaraja's minister Nagaraja installed the image of Parasvanthand both the brothers made gifts to the temple."[6] Exchange of gifts, lands and idols between the Polavasa and Anumkonda rulers, during the early twelfth century appeared to be normal and friendly.

The epigraphical evidence also tells us that Meda raja II and Gumda raja, the Polavasa chiefs, appeared to flout the authority of the Chalukyan overlords. Medaraja II joined hands with the rivals of Chalukya king Bhulokamalla and revolted. Bhulokamalla's successor, king Jagdekamalla II, soon after his accession led an expedition to put down the rebellious Polavasa chiefs. Prola II and Rudra taking advantage of the disloyal behaviour of Medaraja and his brother Gumdaraja stood by the side of Jagdekamalla II and helped to suppress the revolt by killing Gumdaraja and making Medaraja IIflee from their domain. "The Polavasa town was burnt down and that was the end of the Medaraja's family. The same incident has been described at length in the Thousand Pillar Temple inscription of Rudra which describes the victories of Prola II also. The event took place in the first half of the twelfth century."[7] Annexation of Polavasa desa to Anumakonda vishaya was one of the most glorious achievements of Rudra. He soon asserted his independence. "The religious leanings of Medaraja II were clearly towards the Jain faith,though they also donated to Hindu temples."[8]

THE KANDURU CHODAS

From about 1060 CE to 1160 CE, the Chodas ruled over Kandurunadu, comprising Jadcharla and Achampet talukas of the present day Mahboobnagar district and Nalgonda and Miryalguda talukas of the present day Nalgonda district with Koduru and Panugallu as their capitals. "In 1091 CE, its ruler Bhima Choda II died and his ashes were carried all the way to Gaya for immersion in Ganga along with offerings of Pindas. During his life, he had obtained the fief of Kanduru vishaya from Vikramaditya VI, on account of his help to him in wresting the throne from Someshwara II."[9] Bhima II had two sons, namely TondayaII and Malla. The actual history of these chiefs with reference to Kakatiyas begins from Tondaya II, the eldest son of Bhima II. "Tondaya's wife Mailambika had three sons named Udaya, Bhima and Gokarna. In 1124 CE, she gifted a village, Pittamapalli for the merit of her second son, Bhima III, who seems to be the king of Panagallu at that time."[10]

"After 1124 CE, there arose differences between the two brothers, Bhima III and Gokarna. Kandurunadu was the Yuvaraja vritti (appanage) of Kumara Tailapa, the young Chalukyan Prince. He distributed his appanage between the two Choda brothers; Kanduru Vishaya in Mahboobnagar to Bhima IIIand Panugallu Vishaya to Gokarna Choda. This arrangement continued till the emperor, Tribhuvanamalla was alive. In 1126 CE, he died and was succeeded by Bhulokamalla Someshwara III. The new ruler was not able to win the loyalty of Bhima III and his followers. However, the Gokarna's loyalty to the new

Chalukyan ruler remained intact."[11] In the ensuing power struggle, Gokarna Choda lost his fief and later his life.

"Uday Choda, the son of Gokarna and the only remaining chief of the family succeeded and remained a feudatory of Chalukyan kings. After nearly two decades, he acknowledged the supremacy of Kakatiya rulers, who by then had declared their independence. Uday Choda seems to have lived upto 1176. His two sons Bhima IV and Gokarna as subordinates of Kakatiyas had become virtually insignificant by 1178. The members of the family, however continued to serve for a pretty long time, simply enjoying their fiefs."[12]

MAHA MANDALESWARA PARMARA JAGGADEVA

This province, west of Anumakonda vishaya, with its capital at Kollipaka, consisting of 7000 villages was administered by a Maha mandaleswara, directly appointed by the Chalukyan sovereign. Jagaddeva, a prince of the Paramara royal family of Malwa was its governor from 1104 CE to 1108 CE. Within less than a decade, the rise and fall of Jaggadeva from power needs some close analysis.

Jaggadeva was the son of Udayaditya and grandson of Gondala, the paternal uncle of Bhoja, the famous Malwa ruler. After Bhoja, his son Jaysimha succeeded to the throne of Malwa in about 1054 CE. During his time, Malwa was invaded by the king of Gujarat. Then Udayaditya with the help of Vikramaditya VI, the Kalyan Chalukyan ruler not only repulsed the aggression but managed to capture the throne and ruled till 1081. Being much impressed with the good qualities of Jaggadeva, the Chalukyan king Vikramaditya VI brought him to his court and treated him with fatherly affection. In due course of time, he was offered governorship of Kollipaka as Maha mandaleshwara, which he held from 1104 CE to 1108 CE. In 1106 CE, he seems to have defeated the kings of Vengi, Dravida, Chitrakota and Mahira.

The Idyllic scenario for Jaggadeva was too good to last. The Chalukyan overlord, Vikramaditya VIperceived a certain expansionist tendency in Jaggadeva's design of carving a principality of his own, extending on either side of the Godavari river. The formidable barrier, for quite some time had formed the boundary between the Chalukyan and Parmara kingdoms. With this suspicion, the king appointed his son, Kumar Someshwara as the Maha mandaleswara of Kollipaka. Jaggadeva was forced to leave. The Kakatiya prince Beta II, seizing this opportunity, aligned himself with the new Maha mandaleswara, Kumar Someshwara.

"Deprived of his position, Jaggadeva retaliated against the Kakatiyas by making alliance with the Polavasa chief, Medaraja. The later was already disgruntled and had refused to make any reference to the king as his overlord from 1108 CE onwards. The disgruntled team of Jaggadeva and Medaraja made an attack on Anumkonda, the capital of the Kakatiyas. But, they were utterly defeated by Beta's son, Prola II. The event has been graphically eulogized in the Anumkonda records of Rudradeva, the first Imperial ruler of Kakatiyas."[13]

STRUGGLE FOR SUPREMACY

In 1116 CE, Prola II assumed power with the full support of the Chalukan king, Vikramaditya VI. His succession was not peaceful due to political disturbances that took place during the preceding decade, beginning from 1106 CE. The trouble shooter was Parmara Jaggadeva, the ambitious Maha mandaleswara governing Kollipaka. The Kakatiyas availed this opportunity in gaining not only the new additions to their principality but also emerged as political potentates in Telangana by 1158CE.

Parmara Jaggadeva governed Kollipaka from 1104 CE to 1108 CE. His rulewas cut short due to his vaulting ambition to carve out a principality of his own, as this incurred the displeasure of the Chalukyan king. To realize his ambition, Parmara Jaggadeva invaded the Kakatiya capital Anumkonda. Prola II defeated him and forced him to retreat to the north of Godavari. Kumara Someshwara succeeded Jaggadeva as Maha mandaleswara of KollipakaProlaII, with his un-failing loyalty to the king, assisted Kumara Someshwara in suppressing further revolts.

Kumar Tailapa held the province of Kandurunadu as Kumara vritti (Crown Prince)since the time of his father, the Chalukyan king Vikramaditya VI. In 1127 CE, Bhulokmalla, the elder brother of Kumar Tailapa ascended to the Chalukyan throne. While his father was alive, the Kanduru Chodas were quite loyal. Since Bhulokmalla's accession, this unified loyalty among the chiefs cracked up. All the Choda chiefs of Kandurunadu directly owed their allegiance to Kumara Tailapa. Bhima II, the original fief holder of Kandurunadu was succeeded by his three sons, namely Uday, Bhima III and Gokarna. Subsequent to Uday's death, his kingdom was temporarily bestowed upon Gokarna by Kumar Tailapa, the master of the region.

"Thereafter, there arose differences among these chiefs. Bhima III along with his nephew Sridevi Tomdaya encouraged Kumar Tailapa to become independent, throwing off the yoke of subordination under his brother & King Bhulokmalla. Kumar Tailapa did not reveal his prospective insubordination. He, however, indirectly encouraged these chiefs not to acknowledge the sovereignty of Bhulokmalla. But, Gokarna as a loyal subordinate and perhaps with an ambition to secure Panagallu region for himself, superseding Sridevi Tomdaya with the approval of the King did not join hands with Bhima. In the collision of multiple ambitions, Bhima killed Gokarna on the pretext of protecting Sridevi Tomdaya's claim. The Manillapalli's epigraph indicates that Gokarna died owing to his failure to join the conspirator."[14] Subsequently, the Panagallu region was restored to Sridevi Tomdaya by 1128.

Sridevi Tomdaya was not the only one to have been offered Panagallu rajya. Govind Damdesa, another loyal and reputed general of Bhulokmalla was also involved in the power struggle. A part of Panagallu region was bestowed on Govindaraja by Kumara Tailapa, in order to ensure the general's support, in case of anarmed conflict with the King. Kumara Tailapa, the prince was therefore fortifying his position in Kandurunadu. Udaychoda II, who was deprived of his father's fief, approached King Bhulokmalla and complained about the treacherous activities of the insurgents. The King with a view to avoid direct conflict with Kumara Tailapa instructed ProlaII to reinstate Udaychoda II.

Accordingly, Prola II ousted both Tomdaya and Govind Damdesa, restored Panagallurajya to Gokarna's son, Uday ChodaII. "This event took place in about 1131 CE."[15]

Udaychoda II was reinstated in the Pangallu vishaya, but the authority of Govind Damdesa was dented. Kumara Tailapa vengeful of Prola II, instigated Medaraja and his brother Gumdaruling Polavasa on the northern borders of the Kakatiya territory to create trouble. These Polavasa chiefs were already showing their disloyalty to the King by not making any reference to him in their inscriptions. In 1138, Jagdekamalla II succeeded his father Bhulokmalla and by this time, there was revolt owing to Kumar Tailapa's designs to assert his independence.

The Kakatiyas had continued their unfailing loyalty to the Chalukyan King. Soon after his accession in 1138 CE, King Jagdekamalla II turned his attention to Kanduru Nadu. He led his army personally and marched there. Prola II, the only loyal subordinate in the region stood by his side against his uncle Kumar Tailapa. The latter was captured and forgiven. However, he was deprived of his rights over Kandurunadu, which he had enjoyed for more than a quarter century. After 1137 CE, Kumar Tailapa's records are not traceable in this region. Jagdekamalla's records are found for the years 1141 and 1143 CE, representing him as a sovereign king.

The Kumara Tailapa's silent revolt against his brother, King Bhulokmalla right from the latter's accession in 1127 CE explains his ambition which always entertained the deep hidden designs of revolt. ProlaII, as we have seen, intervened twice on behalf of his king. In 1130-1136 CE, it was to restore Udaychoda as the Panugallu chief. Next, it was to help dispose off Kumara Tailapa himself. The unfailing loyalty of Prola II's to his overlords, laid the solid foundation based on trust of a future empire.

After settling the Kandurunadu, it was time to tackle Polavasa. Jagdekamalla II marched against Medaraja and his brother Gumda. In this campaign also, Prola II took an active part displaying his valour in subjugating these chiefs. Gumda was beheaded after his head was shaved and chest marked with the symbol of Varaha as a mark of humiliation. Edaraja, another chief of the same region fled the battlefield and did not come back to offer any resistance, even though he was challenged by ProlaII. "The event has been described in multiple epigraphical records."[16] It seems to have occurred between 1138 and 1141 CE.

SAMMAKKA AND SARAKKA - VOICE OF THE FOREST

Samakka and Sarakka, both had a royal pedigree. Samakka was the daughter of Raibandini Raju, the king of Bhuplapatnam in Orugallu. Sarakka was the daughter of Medaraja II, the ruler of Polavasa kingdom in Elgandala. The marital bonds between the two ruling families, belonging to the same Koya tribe had reinforced their political alliance. The Tripurantakam Inscription dated 1290 CE mentions about tribal communities like the Koya, Pulinda, Boya and Lambadi at that time. There, the Boyas are referred to as traders.

The north eastern boundary of Kakatiya kingdom was flanked by an extended forest region, spread along the river Godavari and its innumerable tributaries. It would broadly cover the present day Bastar region in southern Chattisgarh, eastern Maharastra and north eastern Telangana. The natural unevenness of terrain, caused by interceptions due to hills and rivers rendered the area secure for the ruling by local tribal chiefs. It also provided safety to these forest kingdoms from the acquisitive tendencies of the rulers from plains like Orugallu, Mudigonda and Panugallu.

When these feudatories in the plains were at peace, everyone including tribal kingdoms used to rule in tranquillity. However, Prola II had an imperial ambition. In 1138 CE, ruling from Anumkonda, in a bid to expand his kingdom, he fought with the local kings, namely Medaraju and Pegididdaraju. The neighbouring allies tried to help the tribal chiefs but eventually, their kingdoms were subsumed by the rising Kakatiyas. In 1159 CE, Rudra I, the son of Prola II also attacked Medaraju and defeated him.

At this juncture, Sarakka, the daughter of Medaraju II comes into picture. The defeated tribal chief had refused to give his daughter's hand to the victor. He fled into Nandukonda forests located beyond the river Godavari. Subsequently, both the families migrated to Boyyakapet-Medaram forests in Orugallu and established their new kingdoms there. The rising Kakatiyas were determined to subjugate the new power center. Medaram was attacked but Koya forces resisted them. The battle continued for ten days near Dayyalamadugu (a small tank).Samakka's son, Jampanna, after putting up a brave resistance died in the battle. Samakka and Sarakka continued to resist the Kakatiya forces before eventually succumbing. Their sacrifice did not go waste. They fought to protect the freedom of their people. In turn, the grateful tribals have immortalized their war heroines as 'Veeragallu'. Their idols have been found in and around the temples of Naganuru in Karimnagar[2].

Samakka and Sarakka have remained in the fond memories of people, not only because of their bravery but also due to their benevolent rule. Samakka was an expert in herbal medicine. She treated people suffering from snake bites and all kinds of diseases. She also built tanks and dug wells for the use of her people. One such tank was Burrikunta and well was Jilakambaavi in Bayyakkapet. Some of the Sammakka's ancestors (Chanda clan) had also dug tanks in Dharmaram in Medaram. These tanks have served the irrigation and drinking water needs of the people and their livestock, especially during droughts.

'Chanda clan (vamsham) ancestors also constructed temples. They were devotees of Lord Shiva and the Mother Goddess (Matru Devata). Dommaraju, of Kashyapa gothra of the Chanda clan, constructed the Edaraju, Someshwara and Nageshwara temples and donated lands along wirh other emoluments for their maintenance and encouraged scholars'[3].Sammakka's husband Pegididdaraju also laid villages for settling their people.

[2]A couple of veeragallus a woman's and a man's had been found near Jampannavaagu in recent times. The idols may be that of Sammakka and Jampanna

[3] One Shasana was found near Gujjal Tadwai in Nizamabad district by Dyanapally Satyanarayana which gives the details of the donations made by Dommaraju

These villages were named after him. Three such villages by name Pegidipally could be found in and around Dharmaram and Medaram in Warangal.

The conflict between Koya tribes based in the forest region and Kakatiyas ruling in the plains was essentially a struggle for political power. The former endowed with rather limited resource base were eventually over powered by the imperialistic impulses of the rising Kakatiyas, who commandeered far more resources. **The conflict between the forest dwellers and the plain population has most often followed the same pattern. The voice of forests are either silenced or co-opted by the victors.**

POWER STRUGGLE IN CHALUKYAN HEADQUARTERS

"In 1151, Tailapa III dethroned his elder brother, the crowned king Jagdekamalla II. We learn from Sanigaram epigraph that upto 1149, Prola II was quite loyal to his overlord Jagdekamalla II, whose "Padapadmopajivi" (living at his lotus feet) he is stated to be."[17] Tailapa III was a weak king who could not consolidate his position in the capital. Prola II still considered the ousted king Jagdekamalla II to be his real overlord. The conflict between Tailapa IIIand Prola II became inevitable. The latter emerged supreme in the ensuing conflict and Tailapa III was reportedly captured in the battlefield. The victory achieved by Kakatiyas was remarkable.

After reigning supreme in Telengana, Prola II attempted to conquer the coastal Andhradesa. 'According to an epigraph at Daksharamam, he was slain by Chodayaraja of the Kota family and the Haihaya chiefs Satya and Mallideva of the Kona country. A chief named Mahadeva raja, a subordinate of the Eastern Chalukya king, Malla Vishnuvardhana, bearing the title 'The submarine fire to the enemy named Prola', claims credit for killing ProlaII.'[18]

'Prola II's wife was Muppamamba, sister of Natvadi Durgaraja. He too was a subordinate of the Chalukyas and was having his fief near Inagurti in modern day Mahboobabad taluka, Warangal district. Among Prola's sons, Rudra and Mahadeva are prominently known, whereas, his other sons Harihara, Ganapathi and Repolla Durgaraja are known only by references in the inscriptions.'[19] The former two, namely Rudra and Mahadeva were to raise the Kakatiya dynasty to imperial glory.

14.3 THE IMPERIAL GLORY

In 1158 CE, Rudradeva succeeded his father Prola-II. By now, there were several claimants to the KalyanI Chalukya's throne. The power conflict had hollowed the empire from within. Determined strikes from the Silaharas from the north and Hoyasalas from the south wrecked it further. In the prevailing mist of uncertainty, Rudradeva did not want to be subordinate or feudatory to any one of them. He asserted his independence and that is how, the Imperial Kakatiyas inaugurated their arrival from 1158CE onwards.

Rudradeva was the eldest son of Prola II from the Chief Queen, Muppamma. A man of praiseworthy deeds, he was associated with the administration during the life time of the previous rulers. He was the favourite, as per the tradition, to succeed Prola II. He

vanquished several of his enemies, before they could unite, within very first four years of his accession. Dommaraja, a leader of an aboriginal tribe of sabbimalam, headquartered in Nagunur in Karimnagar district was the first enemy. Medaraja II, the ruler of Polavasa desa (the present day, Jagtial) was the second enemy and Mailagideva, probably a Kalachuri prince, was the third enemy.[20] All the three formed a confederacy, probably based on their common Jain faith. 'But Rudradeva, a staunch Shaivaite; "Shattered more than once with ease Domma, who was skillful in riding the best of prancing horses and who was full of the best valour, and again having made him fly by him hundreds of shining arrows as Arjuna did regarding Karna and obtained the village and city having all excellence.'[21] The defeated King crossed the Godavari river and escaped into jungles. Sabbimalam came under the firm control of Kakatiyas. Vellanki Gangadharam, the minister and general of Rudradeva, the architect of the victory, was made its chief, with headquarters at Naganuru.

'The same minister, Gangadhara, in Hanumkonda inscriptions had stated about Rudradeva, "That Medaraja II offered his daughter to Rudradeva and gave up pride and family tradition for peace.'[22] Maligideva, the Kalachuri Prince appears to have retreated to Kalyani. However, territories only up to Zaheerabad were incorporated into the growing Kakatiya Empire. The sharp gradient of the plateau land with inhospitable geography beyond Zaheerabad, probably limited the Kakatiya's westward expansion. The results of the war proved very devastating for Rudradeva's enemies. Both Dommaraja and Medaraja were removed from the scene and the eastward expansion of the Kalachuries was halted.

Having consolidated the northern and the western borders, Rudradeva looked south towards Kanduru and Palamuru. His enemies were a group of six recalcitrant chiefs; namely BhimaII, Gokarna, Udaychoda Padma, Tailanripa and Sridevi, the step mother of Bhima. Bhima and Gokarna were brothers who belonged to the Kandur branch of the Telugu Choda family. The inscriptions, always poetic, state that, 'Gokarna was killed like a rat in the house caught in the darkness by a powerful kitten low born serpent. Uday Choda died in battle, whose body was frittered by the flashing missile, namely, the bewilderment born of the fear produced by the prowess of Rudradeva. Tailapa died with body completely overcome by dysentery, even Bhima's kingship proved momentary.'[23]

Rudradeva launched an expedition against Bhima, who declared his independence. 'Rudra having taken three or four steps in his march against Bhima, offered the city of Vardhamana as an oblation to the fire of his anger.'[24] Bhima was unable to offer resistance from his capital and took shelter in a forest accompanied by his brother, mother and wives, leaving behind all his treasure. Rudradeva burnt his capital city Vardhamana i.e., Vaddamana in the present day Mahaboobnagar district of Telangana. Sridevi was the second wife of Bhima II and step mother of Bhima III, both in illicit relationship.

'Then Rudradeva attacked the city of Chodadaya i.e., Kandur and burnt it "like Hanuman set fire to Lanka.'[25] It was protected by forests and fort. He destroyed the forest and fort and constructed a big tank in the middle of the city and settled there new

families. In this way, he captured Udaya Choda wealth and everything i.e., Lakshmi (Padma). Padma, probably the daughter of Uday Choda but surely the Goddess of fortune became the consort of Rudradeva. The victor commemorated the occasion by constructing a big irrigation tank, Rudrasamudram at Panagallu. T**he victorious achievements followed by acts of nobility were to make Kakatiya's immortal.**

The ambitious Rudradeva now looked towards the east to extend his empire. He, considered himself to be the political successor of Kalyani Chalukyas who had extended their sway over this territory. Apart from this, he had to take revenge of his father's death in that land. He allied with Rajaraja II and penetrated the Godavari delta and established his hold without any resistance. He placed his younger brother Dugga Bhupa as incharge of the region. But, the Velanadu rulers using force restored the original order. 'Rudradeva's authority over this region suffered an eclipse.'[26]

Around these times, civil war broke out in Palnadu. The causes of wars are not known. 'Wilson thinks that the war in Palnadu originated in a dispute amongst petty land holders of Gurijala Macherla during a cock-fight.'[27] But, others, think that causes were located in social and political divides. It was a fratricidal war, which spread amongst several princes. It further weakened the internal conditions of the eastern Andhra. This was the moment of opportunity for Rudradeva. He advanced and subjugated Dharanikota but refrained from annexing it. He gave the fief to Kota II, the son of Bhima III, who had lost his life while opposing Rudradeva. Rudradeva next set out for the subjugation of the Kondapadumatis. 'The war was fought on the banks of Krishna River, very close to the western frontiers of Vengi. Kondapadumatis were completely routed. However, the period of Kakatiya invasion and victory was very brief.'[28] "It didnot leave any permanent mark by annexation of the territory. But, in a short period of a decade or so, it "trembled at the feet of Rudradeva. It paved the way for his successors to invade and subjugate it again."[29]

'Rudradeva's glorious reign ended in the year 1195.'[30] He had no sons. He was succeeded by his brother, Mahadeva. Both were born to the same parents, namely Prola II and Muppaladevi. 'Mahadeva was probably a patient of "white disease" (Leprosy).'[31] 'The relationship between the two brothers might have been strained.'[32]

Mahadeva invaded the Yadava Kingdom and secured some early successes. It may have been because the Yadavas were engaged in a war with their southern neighbour, Hoysalas. But, Mahadeva perished as having fallen asleep in the great battle on the two temples of the female elephant, the foremost among the warriors awoke on the breast of a distinguished nymph of heaven.[33] He ruled just for three years.

With Mahadeva's death, the conditions in the Kakatiyas Kingdom became uncertain. The Yadavas of Deogiri were even able to control the administration of the Kakatiya territory from Deogiri. Feudatories revolted and chaos and confusion prevailed all over the Kakatiya region. But Recherla Rudra, "a hero, loyal to his lord, right resolute of mind, when the fortune of the Kakati monarch passing through error had among many sharp thorns and for the moment, the triple lore was disturbed, himself by the might of his

arms forcibly crushed and removed those thorns and very firmly established that fortune in security."[34]

Ganapathi Deva, the young son of Mahadeva, had accompanied his father in the war with Devagiri. While the latter perished, the son survived and was imprisoned and remained in Deogiri for some time. The news convulsed the kingdom. Many feudatories rose in revolt. The Kakatiya rule appeared to be extinguished. But then, once again a miracle happened. The faithful commander Recherla Rudra proved his worth and kept the throne intact by suppressing all rebellion, just as Ganapathi Deva's ancestors had kept their loyalty intact towards their Chalukyan masters. The prince Ganapathi Deva ascended the throne after safely returning to his kingdom in 1209 CE. Building upon the solid foundations of loyalty and devotion, Ganapathi Deva ruled for sixty long years. During his reign, the kingdom was destined to see a glorious future.

THE KAKATIYA EMPIRE AT ITS ZENTIH

Ganapathi Deva ascended the throne in 1209 after his father's death. He had two more brothers, namely Rudra and Bhadra. Most probably, they died at an early age as we do not hear anything about them. So Ganapathi Deva was the sole surviving male issue in the Kakatiya family.

After his imprisonment by Yadava rulers, why was he set free? The Yadava records state that 'Jaitugi, an ocean of compassion, fetched Ganapathi Deva, the speech of whose mouth was sweet, out of prison and made him lord of the country.'[35] In fact, Jaitugi followed the traditional policy of Hindu rulers, which recommends that a conqueror should reinstate the existing rulers as their subordinates or place a relative of the deceased upon the throne.

'The compassion of Yadava rulers may also have been necessitated by the prevailing triangular relationship among Kakatiyas, Yadavas and Hoysalas. Jaitugi, the Yadava ruler, could have killed Ganapathi Deva. But, the conditions of Kakatiya Kingdom had deteriorated and if anyone could have controlled it effectively, it was Ganapathi Deva, the only legitimate successor in the neighbourhood. His release would ensure peace and gratitude. Keeping in view the rising power of Hoysalas in the south who were pressing Yadavas hard, the compassion coupled with political expediency, made the decision obvious. Ganapathi Deva was released with an understanding that in case of Deogiri's conflict with Hoysalas, the Kakatiya ruler would help him. Kakatiya general, Racharla Rudra, approached Jaitugi for negotiations. The mission succeeded, the prince was released and was then enthroned. The faithful general was naturally honoured by several appropriate titles.'[36]

After establishing himself on the throne, Ganapathi Deva embarked upon his mission to realize his forefather's dream. His matrimonial relations with the contemporary powerful families proved to be immensely helpful. 'To establish his hegemony over the Velanadu territory, once conquered by his forefathers, he first invaded Bezawada, the eastern frontier of Kakatiya Kingdom in 1201 CE.'[37] In spite of the strong fortifications, General Chamunda conquered Divi and plundered its treasury.

For diplomatic reasons, the territories were not annexed and Ayya chiefs were allowed to continue their rule. 'In bargain, the ruler's two daughters, namely Naramba and Peramba were married to Ganapathi Deva and his son Jaya or Jayapa was taken in Kakatiya's service, who later became famous as Gajasenapathi.'[38] The cherished desire of Ganapathi Deva's ancestors was accomplished through the annexation of Divi Island, which brought the Kakatiya kingdom upto the sea shore.

After conquering Divi, Ganapathi Deva set his sight on Velanadu. However, in 1208, the Cholas invaded Kakatiya Empire. Ganapathi Deva had to withdraw his army from Velanadu. After tackling Cholas, he returned with renewed vigour to defeat Prithiviswara, the ruler of Velanadu, who was killed in 1210. The credit was taken by Telugu Choda King of Nellore, Ganapathi Deva and Ballaya Chola. The Ganapathi Deva inscription states that, "The King carried to his city a mass of handsome women, fine men, excellent elephants and horses and various kinds of precious stones, which he had seized throughout the Velanadu country."[39]

After Velanadu, Ganapati Deva looked towards Kalinga. In 1212, a partial victory was gained against Kalinga. His forces marched up to Aska near Berhampur. But his hold was not sustained. 'In 1217, after the death of Eastern Ganga King Rajaraja, his energetic and warlike son, Ananga Bhima III, ascended the throne and regained the territory up to Draksharama.'[40] The successive rulers of Kalinga and the Kakatiya ruler Ganapathi Deva were engaged in a series of inconclusive conflicts. Eventually, the Kakatiya power remained unchallenged in the former Kalinga region only upto Draksharama during the remaining period of Ganapathi rule.

Relations between Kaktiyas and Cholas had been mostly conflictual. The former's desire to dominate Velanadu region pushed Ganapathi Deva to south where Koluttunga III, the Chola ruler was bound to oppose it. One inscription says that, "Koluttunga III having subdued the Vadugu (Telugus) who were fierce in war and thus brought Vengi Mandalam under his sway. He was pleased to shower gold and enter the golden city of Urangi (A Tamilized name of Warangal)."[41] The year of the war between Kakatiyas and Cholas was perhaps 1208. 'Yet another inscription says that Ganapathi Deva pursued Koluttunga III till Nellore, where the latter's feudatory was defeated and replaced by TikkaI to the throne of Nellore by 1208.'[42]

By around 1216 CE, the Chola monarchy was moving towards its extinction and the balance of power was shifting in favour of Hoysalas. As the Chola hold over Kanchi became vulnerable, Ganapathi Deva intervened in its affairs on the Chola side and defeated the Hoyasalas. Yet another inscription of 1228 states that, "Ganapathi Deva was the destroyer of Lada, Choda and Kataka."[43] The victory restored Tikka Ion the throne of Nellore. Later on, Ganapathi Deva subjugated Telugu Chodas as well. Yadavas of Addanki were also brought under his Vassalage.

In 1248, Tikka I died. His successor's hold on Nellore became weak. Ganapathi Deva had to intervene in the emerging vacuum yet again in 1249. An epigraph states, "That Kakatiya army set out on an expedition charged with the conquest of southern Kingdom. It reduced Nellore to ashes and played a ball game with the heads of the

opponents and having entered Dravid Mandala, captured Koluttunga Rajendra Chola and received a gift of elephants from the King of Nellore.' War being over, the Kakatiya general Samantha Bhoja got busy in constructing a temple in the ensuing peace."[44]

In 1249, the Cholas may have been subdued by Kakatiyas, but in the ensuing years, the power vacuum was quickly being filled up by the Pandyans. 'The decisive victory of Jatavarman Sundara Pandyan's over Ganapathi Deva in Mattukur in Nellore district was the watershed in Kakatiya's affairs in those parts of the country. As Pandyas performed Virabhisheka ceremony, Ganapathi Deva fought the last battle and suffered his first defeat.'[45] The entire political set-up was disturbed and local chiefs started defying the Kakatiya authority. The Pandyan influence had come to the frontiers of Kakatiya Empire. 'To retrieve the situation, Ganapathi Deva sent his army to the frontier under the command of renowned generals, namely Induluri Gannaya, Jannigadeva and Natavadi Kumara Ganapathi Deva in 1259. The success, if any was partial and ultimately, Ganapathi Deva started withdrawing himself from the administration.'[46]

'In or about 1269 - 70 A.D., Ganapathi Deva joined the company of Lord Shiva.'[47]

THE GRAND QUEEN

Ganapathi Deva had no male heirs from his chief queen. 'He had two daughters, namely Rudramba and Ganapamba.'[48] Rudramba, the elder sister, was chosen by her father to succeed him. Poets did not find it difficult to justify it as God's will. 'Vidyanatha stated that without the blessing of God, a woman could not rule at all. The poet had already informed that Lord Shiva had taken birth in the Kakatiya family in the form of a woman.'[49] Poetic justification apart, Ganapathi Deva's domestic situation during his rule was complex.

Ganapathi Deva's chief queen was Soma. The daughter Rudramamba was born to this couple. After his Divi victory, the vanquished ruler's daughters, namely Naramba and Peramamba had also become Ganapathi Deva's wives. Ganapamba, the second daughter of Ganapathi Deva, was perhaps born to one of them. She became a widow at an early age. Her husband, Kota Betaraju's kingdom was a part of the Kakatiya Empire. As a father, Ganapathi Deva, might have thought that it was better to entrust the administration of that territory to Ganapamba.

These adjustments might have compelled Ganapathi Deva to involve Rudramba in his administration from an early age. In due course of time, she would have become a familiar figure in the affairs of state. Thereafter, stepping into the shoes of her father after his demise must have made the transition natural. From as early as 1240, Rudramba was actively associated with the state affairs, during her father's lifetime. From 1259 onwards, she began to rule as joint monarch, under the name of Rudradeva Maharaja. With proper grooming and rich experience, she ascended the throne in 1262. A woman of immense courage and wisdom, she took charge of the Kakatiya Empire when it was tottering owing to Ganapathi Deva's defeat at the hands of the Pandyas. The delicacy and social reluctance to accept woman as a ruler was not allowed to obstruct her in

discharging the sovereign duties. The brave queen not only rescued the Kakatiya Empire from a possible eclipse, but also retained its imperial prestige intact throughout her reign and, at last, she even died in battle.

The early days of Rudramba's reign were critical. Both internal and external dangers threatened the security of the throne. Ganapathi Deva's sons by other queens revolted and seized the capital. Some of the nobles of Kakatiya Empire were unwilling to pay homage to a woman and submit to her authority. They took up arms against her and attempted to throw off her yoke. Records tell us, "That when Rudramba had gone to a village called Mogalicherla to worship the deity Ekavira, her two step-brothers, namely Harihardeva and Murarideva closed the gates of Warangal fort and defied her authority. She appealed to the loyalty of her people and brought the two brothers around tactfully."[50] Army generals, accustomed to receive orders from her since the reign of her father, supported and sustained her rule just as Recharla Prasaditya, a Velama chief had helped her during accession. Having entered the fort, she severely punished the rebels.'

In 1262, Rudrama's first brush with external threat came from the Kalinga's territory. The Kakatiya's army under the general ship of Prolaya nayak defeated Kapperunjanga and compelled him to acknowledge Kakatiya's suzerainty. A couple of years later, in 1265, the Yadava King Mahadeva waged a war against their eastern neighbour. From Yadava's point of view, 'that Andhra placed a woman on throne for fear of Mahadeva[51] was a good enough reason, to wage a war. We are also told that "Mahadeva took several instruments from the ruler of Telingana, including five musical instruments (symbol of power and status) but left the ruler Rudramba as he refrained from killing a woman."[52] But, on the contrary, the Kakatiya records tell us that Mahadeva was badly defeated. 'Mahadeva invaded the Kakatiya Kingdom and laid siege to its capital Warangal. The queen fought against him for one full fortnight and destroyed three lakh of infantry and one lakh of cavalry and fully repelled the Yadava army. She pursued the retreating army upto Devagiri. Mahadeva was compelled to sue for peace and offered her a crore of gold coins as war indemnity, which she distributed among the commanders of her army. After that, she set up a pillar of victory and returned to her Kingdom.'[53] On the basis of other evidence, it is reasonable to accept that Mahadeva suffered defeat at the hands of Rudramba.

Annexing Bidar, collecting ransom, assuming the title of Rajagaja Kesari and thanking God by constructing a temple in Warangal fort were the obvious follow up to this victory. Rudramba remains the only Kakatiya ruler to have annexed portions of the Yadava kingdom. Some members of the Yadava royal family left their native country and settled in Telangana under the protection of the victorious queen.

The western frontier was saved. However, the control of eastern and southern territories became fluid. In 1274, Vengi was invaded by Gajapathi rulers of Orissa who came upto Draksharamam. Yet again, the queen despatched her army under the general Prolaya nayak. The victory over Kalinga was brilliant, but the conflict against Kalinga rulers and their allies was not over. 'To put an end to this threat, Rudramba sent her powerful generals Induluri Annayya and Kolam Rudradeva with an army of twelve

thousand cavalry, four lakhs of infantry, together with six thousand lancers.'[54] Even discounting for exaggeration, the fact remains that no further incursion occurred from Kalinga side into the Kakatiya territories.

After Ganapathi Deva's defeat at Pandyan's hands, both sides were itching for a decisive war. Ganapathi Deva was able to retrieve some of the territories. After his death, the Pandyas, smelling an opportunity due to a woman on Kakatiya throne penetrated into the Kakatiya territories. 'The Pandyan ruler was advised not to go north, because a woman was ruling under a masculine name.'[55] Vikram Pandya raided but was repelled by the queen in 1288.Rudramba may have subdued Vikram Pandya but a far more insidious challenge was brewing up in her territories in and around the present day Cuddapah district. A Kayastha ruler, Jannigadeva had regained this area which after his death, passed on to Tripurarideva. He was loyal to his Kakatiya sovereign, but his reign was short lived. He was succeeded by Ambadeva who was very ambitious and most powerful among the Kayastha rulers. From the beginning of his career, he was planning to carve out an independent principality for himself.

In 1289, Ambadeva defeated Sripathi Ganapathi, a feudatory of Kakatiyas. It provoked the queen. She concentrated her power to attack Ambadeva. He was not sitting idle either. The sworn enemies of Kakatiyas, namely Yadavas of Devagiri and Pandyas were befriended. 'As the queen's army approached, Ambadeva appealed to his allies for help. Inscriptions confirm that help did arrive. The Pandyans sent elephants and a "fleet footed horses" as auxiliary forces to his assistance. The Yadavas sent him 'presents of golden jewels set with gems.'[56] "In this fierce engagement, the Kakatiya troops were defeated. Tripurantakam inscription dated 1290-91 speaks of the crushing defeat of the Kakatiyas.It is claimed that Ambadeva cut off the heads of seventy five princes. Probably, it refers to the seventy-five Nayakas in the service of the queen."[57] Tragically, the Kakatiya queen Rudramba too died on the battlefield in the midst of fighting. Her general Mallikarjuna, too perished in the same battle. 'Ambadeva is said to have deprived him of "his seven limbs".Here "seven limbs" or "sapta-angas" mean the seven constituent parts of akingdom namely Swami, Amatya, Suhrit, Kosa, Rastra, Durga and Bala (king, minister, friend, treasury, territory, forts and forces).'[58]

In the midst of gloom and tragedy, poets were able to find some divine light. "The city of Orugallu show illuminated by the rays of the crescent moon adoring the head of Shiva, even during the dark fortnight. The implication is that by the grace of God Swayam Bhu, the people of Orugallu were not perturbed, even during the dark period of tragedy. The sorrows due to Rudramba's death were lingering in the hearts of the people of Orugallu."[59] The poetic consolation, however,alsoconfirms that the queen died in 1289.

Rudramba devi was undoubtedly one of the greatest rulers of Telangana and adjoining areas. The Venetian traveller, Marco Polo was deeply impressed by her active and wise administration of the kingdom. She, attired in male garments, presided over the court, gave interviews to foreigners, listened to secret service reports, held consultations with her ministers, generals and other high dignitaries of state and advised them on how

to promote best interests of her people. When required, she took to battlefield in person, astride on a horse and led her troops against the enemy. She was a valiant and courageous fighter with great ability as a general to lead her men in war and in peace.

Seven centuries and aquarter have lapsed since the brave Kakatiya Queen fell amidst the battlefield while fighting. But, her memory refuses to dim amongst her people. She reminds one of Rani of Jhansi, Laxmi Bai who astride on her horse in full battle gear too fell amidst the battlefield while fighting against British in 1857.**Queens who sacrifice their lives for their people never really perish. They continue to rule over the minds and hearts of their ever loyal people, forever.**

14.4 SETBACKS AND COLLAPSE

In November 1289 CE, Prataparudra ascended the Kakatiya throne after the demise of Rudramba. The early years of his reign were crowned with success and splendour but the later years of his rule witnessed incessant attacks from the Delhi Sultanate. After successive assaults, the Kakatiyas Empire was finally extinguished in 1323 CE.

As already said, "Rudramadevi was married to the Chalukyan Prince named Virabhadra, son of Indusekhara of Nidadavolu. She had three daughters, Mummadamma, Rudramma and Ruyamma. The eldest was married to a Kakatiya Prince named Mahadeva, the second daughter to the Yadava Prince Ellanadeva and the last to the Induluri chief, Annaya. Her grandson, Mummadamma's son Kumararudra i.e., Prataprudra succeeded her to the throne."[60] Born in 1254, he was, in fact, adopted by his grandmother as her successor. From an early age, he had been participating in administrative affairs of the empire. He had assisted his grandmother in military undertakings and the government. By the time, he ascended the throne at an age of thirty five years, his knowledge about statecraft was bound to have been quite mature. The nobles of the kingdom and enemies did not dare to rebel against the young monarch after his accession.

His first military enterprise as crown prince had been against the ambitious military chief, Ambadeva. The latter was defeated, but his ambitions survived. His hostility had been responsible for the death of Rudramba. His aspirations were bound to collide head on with the Kakatiya rule. In 1291, Pratapa Rudra planned a three pronged attack towards Nellore, Thripurantakam and Adoni. The triple alliance between Pandyas, Ambadeva and Yadavas was broken by intercepting their individual forces before they united. Isolated in this manner, Ambadeva fled from Thripurantakam towards Cuddapah during mid 1291 and his seventy two forts were captured during a single onslaught. Adoni was captured and Raichur Doab was brought under Kakatiya's control. Before the close of thirteenth century, Pratapa Rudra was able to establish his authority towards the southern and south-western territories.

In the past, Ambadeva had helped Manamagandagopala in getting the throne of Nellore. "Prataparudra's task was cut out. In the 1291 campaign, he killed the Nellore ruler. After 'cutting the head of Munamagandagopala."[61] Rajaganda gopala was put on

the Nellore throne. The new ruler had amicable relationship with Prataparudra to start with. However, in succeeding years, he became recalcitrant, overthrew the Kakatiya suzerainty and entered into an alliance with the Pandyas by accepting their lordship. In 1297, the Kakatiya monarch liquidated him to re-establish their suzerainty.

The Yadavas, the western neighbours of Kakatiyas, had mostly been hostile. Prataparudra ensured that "The mighty army of Kakatiyas brought crushing defeat for the Yadavas. After capturing forts, the army entered the city of Raichur. A strong stone fort was constructed with the sole objective of protecting the captured territory and its inhabitants."[62] By the closing years of the thirteenth century, the Kakatiya monarch, Prataparudra, was able to establish his firm hold in south-eastern, southern and western directions. None could challenge his authority, at least from those flanks.

But, local victories in Deccan lands were soon to be swamped by a gathering storm from the north. Fresh arms inspired by a new militant faith astride on hordes of swift fleet of Arabian and Persian horses had already crossed the Vindhyan barrier. In 1296, the Yadava kingdom of Devgiri was already overwhelmed by the Governor of Kara. He was none other than Allauddin, the son-in-law of Jalaluddin Khilji, the Sultan of Delhi. Its wealth was looted and as Devgiri lay in ruins, the victor returned to Kara, liquidated his father-in-law and, quite naturally, ascended the throne of Delhi.

As power shifted in Delhi, Pratapa Rudra got alarmed. He was hardly able to consolidate his conquests in the south. Danger was imminent and he could smell it. He reorganized the defences of his kingdom, toned up the Nayankara system, and said to have mustered an army of nine lakh archers, twenty thousand horses and hundred elephants. As he awaited the impending calamity, Allauddin, the Sultan of Delhi did not disappoint him either. His logic was simple. He had not sacked Devgiri completely. The Raja there had parted only a fraction of his wealth. If rumours are to be believed, Warangal was even wealthier than Devgiri. People said that Telengana, of which Warangal was the capital, had gold and diamond mines. Therefore, Warangal after Devgiri was the most obvious and coveted target for the Delhi Sultan.

In 1303, Allauddin directed his first invasion of Telengana. Malik Fakhruddin Juna and Jhaju led the expedition by way of Bengal and Orissa and met Kakatiya arms at Upparapalli in the modern-day Karimnagar district. The attack was repulsed by the Velama chief, Venna, son of Recharla Prasaditya and Potuganti Malli, the two commanders of the Kakatiya army. The ever loyal Velama commanders reportedly destroyed the invading army.But it was only the beginning of the northern onslaught.

THE END GAME

Allauddin just could not accept defeat. In 1309, to avenge the disaster, he dispatched a larger army, with Naib Malik Kafur and Khwaja Hazi as its commanders. They were suitably instructed that, "O my talented warriors? I charge you to march towards Telingana with a large army and move swiftly, doing one stage a day; on your arrival in the suburbs of Telingana, you should subject the whole area immediately to effective raids. Afterwards, you should lay siege to the fortress and shake it to its foundations. Should the Rai of Telingana submit and presents wealth in money and

elephants, you should ask him to be under my sovereignty and restore his dominion; you should give him a robe studded with jewels and promise him a parasol on my behalf with due regards. This done, you should return to the capital in good cheer. If the Rai wavers and delays his submission, you must draw out your dagger and demolish his fortress completely, kill him and send his head along with his elephants and riches to me"[63]

The march commenced and lasted for more than three months. Amir Khusran had given a graphic description about the entire expedition. 'Malik Kafur started on expedition against Telinga (Telengana) on 31st October 1309 with a red canopy. Roads were not comfortable and the army had to pass through hills, rivers and forests. The army crossed the five rivers - Jun, Chambal, Kummari, Niyas and Bhanuji and waded through forests, before it could reach Sultanpur. There, they halted for four days. After that, the army resumed its march towards its destination through hazardous route. After thirteen days, they reached Khandar. There, they took rest for fourteen days. There, they reviewed their army.'[64]"After being fully satisfied about their condition, the Maliks, the pious and celebrated persons in the army assembled under the royal canopy and offered common prayers."[65]

"Again, the invading army resumed its march through hill roads which were high and low. Every day, they crossed new rivers. They came to the great river Narmada which looked like a flood. They managed to cross it and after eight days reached Nilakanthe, which was on the border of Devagiri. On their approaching Devagiri, Rai Ramadeva came forth to meet the army with respectful offerings to Sultan and presents to the generals. While the army was marching through the territories of Deogiri, Ramadeva and his officers went out to the camp headquarters and rendered every assistance. He made the bazar people attend to the army and gave them strict orders to supply goods to the soldiers at cheap rates. When the army resumed its march, Ramadeva sent men forward to all the villages on the route, as far as the borders of Arangal (Warangal), with orders for the collection of fodder and provisions for the army, and giving notice that even if a bit of rope was lost, they would have to answer for it. He added to it a force of Maharathas, both horse and foot. He himself accompanied the army on its march upto several stages." In fact, the loyalty and hospitality offered by Ramadeva is attested by Ferishta too."[66]

"The imperial army marched towards Telengana through a very difficult path which was narrow and at the same time,led to gross greenery hills. Passing through Basirgarh, the doab of two rivers, the Yashar and the Baruji, the army reached the fort of Sarbar or Sirpur,on the northern borders of Telengana. Ala-ud-din's army used the difficult route via Sirpur-Tandur to descend on Warangal."[67]

Sirpur was an important fort, functioning as a protective barrier for the Kakatiya Empire. Malik Kafur, the commander of the Imperial army, ordered the attack. The Kakatiya's army fought valiantly, but losing hope of victory, everyone threw himself with his wife and children, upon the flames and departed life (to hell). While the fire was yet blazing, an attack was made on the fort and those who escaped the flames, became the

victims of the sword. "The Governor of the fort was killed and his brother was made incharge after securing a promise of loyalty and the accumulated wealthwas seized."[68]

After capturing fort at Sirpur, the victorious army resumed its march to Warangal. "**In order that the pure tree of Islam may be planted and flourish in the soil of Tailang and the evil tree, which had struck its roots deep might be torn up by force."**[69] On 20th January 1310, the Muslim army reached in the neighbourhood of Warangal. One thousand warriors were deployed to collect information and two chiefs with forty archers were sent to capture the hill of Anumkonda (Hanmakonda), from where the gardens of Warangal were visible.

The hill of Anumkonda, located strategically some four miles before Warangal Fort was captured. The city of Warangal, fortified by double wall of mud and stone of seven miles circumference was surrounded by invaders. The outer wall was made of mud and the inner of the black granite stone. Khusran writes, "The wall of Arangal (Warangal) was made of mud, but was so strong that a spear of steel could not pierce it, and if a ball from a catapult was to strike against it, it would rebound like a nut which children play with."[70]

The siege began and continued for twenty five days. "Trees of the sacred grooves were cut with axes and felled, notwithstanding their groans. And the Hindus, who worshipped trees, could not at that time come to the rescue of their idols, so that every cursed tree that was in that capital of idolatry was cut down to the roots; and clever carpenters applied the sharp iron to shape the blocks, so that a wooden fortress was drawn round the army, of such stability, that if fire had rained from heaven, their camp would have been unscathed. It was carried on with great fury in spite of an obstinate defence. The outer part of the fort was protected by seventy bastions, each of which was under the protection of a general (nayak). Several sorties were repulsed and in one, the whole party was slain and, the heads of the Raouts rolled on the plain like crocodile's eggs. At length, the outer wall was taken"[71]

The invaders pressed from the outside. The besieged offered a stubborn resistance, while remaining confined within the four walls of the fort with their treasure. It was the time, when the local population, wanting to help Prataparudra, waged a guerrilla war. It destroyed the postal system which had been arranged by Alauddin for the purpose of quick information. It might have made Alauddin anxious but, Malik Kafur did not lose his nerve. He ordered his army to shower a reign of arrows upon the inmates ceaselessly, day and night. The fort was overcrowded. So, no arrow missed its mark. Prataparudra, seeing no alternative lost his courage. He sent messengers for negotiations.

Negotiations were over. He was ordered to give up the whole of his treasure, and a general massacre was threatened, should he be found to have kept anything for himself. "Malik Kafur took from Prataparudra all the treasure which he had accumulated in course of many years – **a hundred elephants, seven thousand horses and huge quantities of jewels and valuables.** He took from him in writing a solemn promise acknowledging to send annually treasures and elephants."[72] Prataparudra, the Kakatiya ruler became a tributary to the Sultan of Delhi.

The following day, Malik Kafur lifted the siege. In March 1310, Malik Kafur left Warangal with his army, **with a thousand camels groaning under the weight of the treasure**. On reaching Delhi, he presented treasure to the Sultan. The Muslim penetration of the Deccan had completely changed the political balance of power in south of Vindhyas. The harsh and humiliating defeat of Prataparudra at the hands of Alauddin Khilji weakened his authority. An atmosphere of chaos and confusion gripped various Kakatiya feudatories.

In 1311 CE, Allauddin attacked the Pandyan kingdom of Madurai and sought the help of the Kakatiya ruler. As Pratapa Rudra's authority in Nellore and Gandikota was challenged by local feudatories, he found himself supporting Allauddin, reluctantly to assert his own authority there. Kakatiyas might have established their authority in Nellore, but Allauddin's shadow continued to linger till his death in 1316.

Taking advantage of the power vacuum, Hoyasalas occupied Kanchi. Pratapa Rudra expelled them. But now, Pandyas laid siege to it. Thereupon, Pratapa Rudra took the command, and brought Kanchi under Kakatiya control. After establishing his authority in Nellore and Cuddapah regions, Pratapa Rudra visited the famous temples at Srisailam and Tripurantakam. Area was thickly forested. Large tracts of lands were cleared and new villages were colonized by the people from Telengana. Srisailam region was constituted into a Nayankara and assigned to Videmu Kommaraju, a local subordinate.

In 1316 CE, Alauddin was liquidated by Malik Kafur, his trusted general and architect of the Deccan conquests. Soon after his succession, Malik Kafur ordered the gouging of the eyes of two of Alauddin's sons. In 1317 CE, he himself was killed while asleep due to palace intrigues. His successor Khutb-ud-Din Mubarak Khan, the third son of Alauddin Khilji was the only survivor. Due to tectonic shifts of power in Delhi and the prevailing confusion, Prataparudra decided to stop sending the annual tribute to Delhi. At around the same time, Devgiri rulers also revolted against Delhi. The Sultan Mubarak Khan, promptly dispatched a prompt expedition under his trusted general, Khusrau Khan, to demand payment of annual tribute. The shadows of Delhi Sultanate were lengthening over Deccan, with ominous consequences to Kakatiya rulers.

THE FINALE

The chosen general, Khusrau Khan, promptly marched to Deogiri and crushed its ruler Harapaladeva. Thereafter, he resumed his march for Arangal (Warangal). After reaching Warangal, he drew the army in battle array and sent a courier with a letter to Prataparudra. The text of the letter, as described by Isami, a Deccan historian was, "O wise and talented Rai! You are the pride of the intellectual Rais. The emperor has sent me to your territory backed by enormous troops. If you send the fixed amount of the tribute soon, it will be to your interest in the end. If you do not accept this, your territory and countryside will be damaged. As soon as you take cognizance of this letter, you must either pay the tribute or show cause for non-payment. You must not delay this matter, for thereby you will be setting the region Telingana onfire."[73]

Prataparudra received the letter with much cordiality, honoured the messenger and sent a reply conveying his regret and seeking apology in the following words:

> "I am a slave of the emperor; I am devoted heart and soul to his army chiefs. I myself was intending to send the tributes to the capital, but since the distance is great and roads are infested with miscreants' right through, I kept the matter in abeyance. I hope that His Majesty will accept my plea. Now your Excellency has arrived right in, I shall whole heartedly send the tribute with proper presents."[74]

Soon after this, Prataparudra sent the tribute which was received by Khusran Khan. He, in accordance with the orders of the Sultan, sent be jewelled robe together with aparasol and durbash to Prataparudra. With the submission of Prataparudra, Khusrau Khan accomplished histask and returned in triumph.

"After the departure of Khusran Khan, Prataparudra was involved in a war with Kampili. It was under the rule of Kumara Rama. He is said to have visited the court of Prataparudra and appealed for help against the Hoyasala king, Ballala. The guest was honoured but no help could have been extended on the ground that Hoyasalas were Prataparudra's friends. Kumara Rama got angry and captured some southern territories of Kakatiyas. The later were able to assert their domination when Prolaya Annaya recaptured the same soon thereafter."[75]

"Khusrau Khan took his victories in Deccan as a stepping stone to the throne at Delhi. As if driven by some invisible force, the trusted general, liquidated his own master. He occupied the throne under the title Nasir ud Din. Soon thereafter, he was beheaded by Turkish noble Ghias ud Din Tughlaq. The later wept after witnessing the scenes of the Khilji's family's destruction. After showing formal reluctance, he mounted the throne and founded a new dynasty, under the title of Ghiasuddin Tughlaq Shah in September 1320."[76] The arrival of Tughlaqs, on Delhi throne had even darker consequences in store for Tilangana lands.

These quick political upheavals in Delhi made Prataparudra forget to pay his tribute, yet again. He also reoccupied Bedarkot and other places ceded by him to Khusrau, the Khilji governor. How could Delhi ruler, whosoever it was, couldever tolerate it? "The new ruler Ghiasuddin was an energetic ruler and a man of strong will. There was a difference between him and Alauddin Khilji. The latter was satisfied only with the treasure. But, Ghiasuddin Tughlaq wanted territories as well as treasures."[77]After consolidating his position in the north, he sent an expedition against Prataparudra under the command of his son Ulugh Khan. "He was accompanied by troops from Chanderi, Badaon, Malwa and a number of veteran soldiers of both, old and new dynasties. On his way to Telingana, the Prince halted at Deogiri. After recruiting some more troops, he ultimately reached Warangal. According to Ferishta, Pratapa Rudra opposed the advance of Muslim army with spirit, but was obliged in the end to retreat to his capital, which was immediately besieged by Ulugh Khan. Siege was indeed protracted and fierce. The fighting extended beyond Warangal. Majir Abu Riza was engaged in besieging Kotagiri at the same time that Ulugh Khan was vainly attempting to capture Warangal. It is quite

likely that other places of importance in the Kakatiya country were also attacked by various detachments."[78]

'The capital Warangal remained under siege for six long months but could not be captured. Defenders were running low on their fast depleting resources. A rebellion broke out in the invader's camp owing to the machinations of Ubaid, who is variously spoken as a poet and an astrologer. As Ulugh Khan retreated homewards, Kakatiya arms pursued him. They attacked, plundered his baggage and followed him until he reached Kotagiri. Majir Abu Riza who was engaged in besieging the fort came to his rescue and saved the army from destruction.

The consequent loss to the Muslim army gave a fresh impetus to Prataparudra. It also enhanced his power and prestige, in quite a surrealistic manner. "He celebrated by a feast in honour of his victory."[79]He asked his officials to, "let the granaries be opened, let the market be brisk, let the amins empty all the stores, let them continue this from morning till sunset, and give away to farmers all kinds of grains, let the whole land come under tillage, hands should be off from every other business."[80]The all out celebrations in Prataparudra's domain were rather short lived.

Sultan Ghiasuddin Tughlaq, just like Allauddin Khilji was a man of strong will. He could not accept defeat either. Rebel armies were severely punished. To avenge the disaster, reinforcements were sent to Devgiri where Ulugh Khan had taken refuge. He was instructed to march again into Telingana and subjugate it. The King's faithful son, Ulugh Khan set-out, marched rapidly, reached Bedrakot, seized it along with several others en route. They were garrisoned under trustworthy officers with instructions to hold them to the last. He arrived in Podhana (Bodhan), which was at a distance of few days journey from Warangal. After siege of three or four days, the fort capitulated. The Governor and his followers saved themselves by embracing Islam.

Next and final destination of Ulugh Khan was Warangal, the Kakatiya's capital city. He proceeded and arrived there soon. Promptly, the siege was laid. Isami describes it and the circumstances, in which the fort was captured.

"After the retreat of Ulugh Khan from Warangal at the end of his first expedition Pratapa Rudra held a feast to celebrate his victory over the Muslims. Believing that they would not again invade his kingdom in the near future, he opened the granaries within the fort and sold all the grain stored up there; he also commanded his subjects to abandon military activities and busy themselves with their cattle and crops. When, within four months of his retreat Ulugh Khan returned with a fresh army to besiege Warangal fort, it was without a proper garrison to maintain its defence, and lacked even adequate stores and provisions to feed the garrison during the siege. Though taken by surprise, Pratapa Rudra put up a plucky fight. But the scanty stock of provisions soon ran out and since the troops inside the fort began to suffer severely from hunger, Pratapa Rudra was forced to surrender. He threw open the gates of the fort, and handed himself along with other members of his family to Ulugh Khan. The Muslims then entered the fort, plundered the houses, and demolished the public buildings."[81]

Victory was complete. The very name Warangal was altered to Sultanpur. However, it was not considered safe to keep Pratapa Rudra in the country. His presence might lead to popular revolts and other political complications. Ulugh Khan immediately sent him to Delhi with all his family members. An army contingent escorted them under Kadin Khan and Khwaja Hazi.

They were however, not destined to bring the fallen monarch into the metropolis. He preferred death to dishonour. On the way, while taking bath in Narmada River on its banks in Hoshangabad, he took a final dip, never to resurface again. They say that he took jal-samadhi, voluntarily. The inscriptions clearly state that, "Prataparudra reached the habitation of God on the bank of river Somodhbhava, i.e., river Narmada."[82]

In 1323 CE, with the defeat and death of Pratapa Rudra, Telengana passed into the hands of alien rulers. The fourteenth century witnessed the total subjugation of both the Deccan kingdoms i.e., Yadavas of Devgiri and Kakatiyas of Warangal. Arms of Delhi Sultans subsumed other southern kingdoms like Hoysalas and Pandyans too. In fact, the overall polity of Peninsular India was going to take a totally new trajectory, unknown in the past.

14.5 SUBORDINATES OF KAKATIYAS

The long political journey of Kakatiyas, spanning more than three centuries from 1001 CE till 1324 CE, could not have been possible without a team of dedicated chiefs. A look at these feudatory chiefs would be appropriate.

THE RECHERLA CHIEFS

They were associated with Kakatiyas from the very beginning, and deserve particular mention. "They were Reddis by caste and seem to have originated from the village of Recheruvula. We must distinguish them from the other family, bearing the same name but belonging to the Velama caste. The latter seem to have come from the family, Rechadi or Rechadla."[83] With unfailing loyalty, the Recherla chiefs served the Kakatiyas for many generations as military commanders and feudatories.

In 1052 CE, Brahma Senapati appeared to have seized Kanchipura and secured the Goddess of victory" to his Kakatiya master, Beta I. The occasion was the invasion of Kanchi by the Chalukya king, Trilokyamalla Someswara I. Brahma Senapati's son was Kota Senapati, whose son Kama served Prola II, as the commander of his armies. Gumda of Manthena is stated to have been beheaded by this general. His son was Kata, whose son was Rudra Senapati. "He set up an inscription to record the construction of a temple to the God Rudrashwara at Palampet and gifted villages to him. Rudra Senapati is stated to have rescued the "Goddess of Fortune" to the Kakatiyas when "she set her foot on the thorns"."[84] In 1198 CE, the conflict with the Deogiri rulers and death of Kakatiya monarch Mahadeva at the hands of Jaitagi, the very existence of the kingdom was endangered. Ganapathi Deva's accession became uncertain. "But, the statesmanship of Recherla Rudra and his followers like Malyala Chaunda Senapati, ensured safe return and accession of Ganapati Deva. The latter, in recognition of his services, conferred on him

the position of Mandalika along with insignia like throne, a pair of chauries etc."[85] During the early thirteenth century, Recherla Rudra had annexed Bhadrachalam region, also known as Visuru nadu to the Kakatiya kingdom. This family continued to be in the service of the Kakatiyas, even later than Ganapati Deva's reign, but with diminishing prominence.

"Various chiefs of Recherla family, besides their military activities strove hard to reclaim land, settle people by constructing tanks and embellish it with temples."[86]

THE VIRIYAL CHIEFS

These chiefs were also among the earliest associates of the Kakatiyas, even before the latter asserted their sovereignty. "Both Kakatiya and Viriyal families had matrimonial relations in those early days."[87]

"Viriyal Erra is known to be in the service of the Bottu Beta, of the Mudigonda Chalukya family to whom he restored Korvai region, whereas his wife Kamavasini helped the Kakatiya orphan boy, Garuda Beta (Beta I) in acquiring the Anumkonda vishaya as fief from the Chalukyan king in 1000. Viriyal Erra had a son named Sura, whose son and grandson were Beta and Malla respectively. In 1124 CE, Malla installed the god Malleshvara and donated the village Guduru to the deity."[88] "After 1157 CE, Kakatiya Rudra attacked Kanduri Bheema. Beta's other three sons were Sura, Malla and Komma. This Sura is stated to have built a temple for the Lord Shiva and a tank at Ayyannapura."[89] The other brother Malla had a son called Annaya whose daughter Mallamma was given in marriage to Malyala Chaunda, Senapati of Kondaparti. "In the year 1245 CE, another member of the Viriyala family named Rudra made a gift of a lamp to god, Svayambhu deva."[90] The record of service of Viriyal chiefs continued till 1273 CE. Therefore, the family line of these chiefs can be traced all the way from the very beginning from the time of Beta I in 1000 till Rudramba's times. All these chiefs were designated as Samantanripa and whose loyalty to the Kakatiyas was extolled. Their participation in all the military undertakings was unfailing and the role played by these chiefs in establishing the Kakatiyas and extending their authority, at crucial early stages was quite significant.

THE MALYALA CHIEFS

Dannaya Mantri, lord of the town of Malyala, was the earliest member of this family of generals. Dannaya's son was Sabba Senapati whose son was Kata, a commander in the armies of Kakatiya Rudradeva. During the latter's campaign in the coastal Andhradesa, Kata took an active part and captured Dharnikota. Prola and Malyala Chaunda were the two sons of Kata. The latter was the commander-in-chief of Kakatiya's armies during early years of Ganapati Deva. The credit of subjugating the entire coastal Andhra, in particular the defeat of Prithiviswara, the Velanati chief, who was holding sway over the entire coastal region at that time goes to this famous general, Malyala Chaunda. This campaign took place sometimes between 1203 and 1206. The able commander proceeded to Dvipa, the island province of the Velanati kingdom. The island was captured, its ruler Prithiveswara driven out, the treasure of the enemy seized

and presented to the king Ganapati. "He commemorated the victory by building a temple to the God Chaundesa at Kondaparthi."[91]

THE NATVADI CHIEFS

The present day Nandigama Taluka in Krishna district was the well known Natvadi region. "These chiefs might have been stationed by the Rashtrakuta kings in this region and later shifted to Telingana."[92] "They were serving as subordinate chiefs under the western Chalukyas. In 1101, Buddha raja granted a village Indrapura to a Brahamana sabha as per Narsampet inscription of the Warangal district."[93]"They are stated as the lords of Madapallipura, a village near Madhira, which is supposed to be their original town. They were having marital relations with the Kakatiyas for more than one generation. Kakatiya Mahadeva's mother Muppamamba was the sister of Natavadi Durga. Mahadeva's two daughters Mailama and Kundama were given in marriage to the grandsons of Durga. Both the families namely Kakatiya and Natavadi belonged to the same caste and moved together during the times of Rashtrakutas. Mailama had her fief in the Bayyaram region including Ingurti, whereas Kundama had Nandigama, Kundavaram and other places in Janagaon and Chennur talukas. Some records of Mailama are also noticed as far as in Tripurantakam temple."[94]

THE CHERAKU CHIEFS

"The family of these chiefs, like others, got their name after their home town – a small town Cheraku, consisting of twelve villages situated in the Eruva region."[95] The region extended on both sides of river Krishna in the Nalgonda and Prakasam district. Choda chiefs controlling this region granted the leadership of Cheraku to an early member, named Kata. The family belonged to Reddi caste. Kata, the earliest Cheraku had three sons. His grandsons changed their loyalty, from Choda chiefs to the rising Kakatiyas, who made them the hereditary Mahasamantas ruling the hill tracks of present Achampet Taluka. Due to the power shift, Kakatiya Rudra was able to achieve his victory over Choda Bhima and Uday Choda. The successive generations, serving the Kakatiya kings Rudra, Mahadeva and Ganapati, continued to be showered with favours.

"In all the military undertakings of the Kakatiya kings, participation of these chiefs was always accompanied by victory. They were most trustworthy subordinates with a distinct military muscle. In 1289-90, after the accession of Prataprudra, Cheraku Rajendra, son of Veluri Bollaya granted the village Garrankapalli to certain Brahmanas, who performed the obsequies at Gaya for his deceased father in 1293."[96] It is plausible that some chiefs of Cheraku family were entrusted with the administration of region south of Krishna river in Nandikotkuru taluka in Kurnool district. Cheraku Rajendra's loyalty to Prataprudra remained intact.

THE KOTA CHIEFS

The family's name is derived from Dharanikota or Dhanyakataka near Amaravati. "These chiefs come under the class of relatives of the Kakatiyas."[97] They are said to have been the lords of the six thousand country (shat sahasravani vallabha) on the southern bank of Krishna. A member of this family, Beta was married to Ganapamba, the

Kakatiya princess. In 1218 CE, after losing her husband, she granted the village Mogalutla to a Brahamana, who performed Gaya sraddha for her husband. Another member, Kota III, married Bayyala Mahadevi, daughter of the Natvadi chief, Rudra. Their subsequent descendents were originally aligned to Chalukya-Chola sovereigns. Later on, they changed their allegiance to Kakatiyas. In 1185 CE, Kakatiya Rudradeva, during his campaign in Palnadu region, attacked these chiefs. The Malyala chief, Chaunda-senani did the needful. After the victory, the Kota principality came under the Kakatiya sovereignty.

THE KAYASTHA CHIEFS

Of all the Kakatiya subordinates, the Kayasthas were the most accomplished, powerful and ambitious. Controlling the territories south of Krishna river in the present day Rayalseema, their alignment with the Kakatiyas was propitious for both. However, the subsequent ambition of Kayastha chiefs confronted the Kakatiya sovereign as well as all their subordinates resulted in collision and counter collision. Consequently, the Kayasthas lost their kingdom by the end of the thirteenth century.

"Kayastha chiefs as a class of warriors had migrated from Western India. Dhamsa was the early known member of the family."[98] The king Ganapathi deva had stationed them at Panagallu as the governors of that part of the kingdom. Horsemen ship and command of the cavalry was their specialization and, therefore, the reason for their entry in Kakatiya power structure.

Five chiefs of this family had ruled some part of the Kurnool-Cuddapah region of the Kakatiya kingdom. Gangaya Sahini, the commander of the cavalry, was the earliest member to have become popular. By 1250 CE, he rose to the prominence of Maha mandaleshwara, ruling a large region extending from Panagallu in modern-day Nalgonda district to Valluru in the modern-day Cuddapah district. "At the command of Ganapathi deva, the Kayastha chief Ganagaya Sahini led an expedition into the Seuna kingdom in the west and made its king Kannara or Damodara flee from the battle that ensued. Ganapathi deva, apart from honouring him with several titles, also made him the head of the seventy two branches of administration of the kingdom (Bahattara Niyog Adhipati)."[99]

In 1254 CE, the Gangaya Sahani attacked the Vidumba chief, Rayadeva. The latter was ruling Marjavadi and Pothapinadu region, i.e., the territories adjoining present-day Cuddapah and Nellore districts. During the conflict, Manuma Siddhi II, the Telugu Choda king of Nellore, sent his armies to support Kayastha chief. After victory, the Kayastha chief enlarged his kingdom including Marjavadi, Eruva and Pallinadu with their capital at Valluru in Cuddapah district.

"In 1258 CE, Gangaya Sahani died. As he had no sons, his sister's eldest son, Janardhana or Janniga deva, succeeded him. He was also a warrior of great valour and participated in the war against Pandyas at Muttukuru in the Nellore region. His attack on Pallava chief from Kanchi at Somsila on the banks of Pinakini is described at length in the Mydukuru inscriptions. He was credited with the title (Ganapathi Deva Dakshina

Bhuja Danda) i.e.,the right hand of Ganapathi deva. He ruled upto 1268 and was succeeded by his younger brother Tripurari-I. The latter died after a short rule of three years in 1272. His younger brother, Ambadeva II came to power at this crucial juncture of Kakatiya rule."[100]

"Ambadeva II was the most illustrious and powerful chief of the family. He had an uninterrupted series of victories. Sripathi Ganapathi ruling Gurindala in Palnadu region was defeated and the title 'The Wrestler of the Thousand Kings' was appropriated. Then he killed seventy five kings and worshipped with their 'lotus like heads the goddess of anger that came out of his eyes'."[101] He is said to have killed Mallideva, a Choda chief of Eruva. This was followed by his defeating the Kota chief who was ruling the eastern part of Tripurantkam and Palnadu. He is next said to have killed several enemies and wore the garland of their skulls, imitating the God Bhairava. He made the Vaidumba chiefs flee and captured several horses from them. Further, he reinstated Manumaganda Gopala, the Choda king in Vikramsimha pura i.e., Nellore. This Choda ruler was the enemy of Manuma Siddhi II, who was formerly helped by Ganapathi deva.

All these victories of Ambadeva II, have a common thread. All his enemies were loyal subordinates of the Kakatiya Queen, Rudramba. To bring down the Queen's kingdom, Ambadeva was successfully demolishing each one of its supporting pillars. The structure, built on trust and loyalty, was bombarded by towering ambition, disloyalty and brute force of Ambadeva II. In 1289 CE, it eventually consumed the Queen Rudramba herself. She died in the midst of the battlefield along with her general Mallikarjuna Nayaka. We are informed that he was captured in the battlefield and instead of killing him with sword, Ambadeva took away "his seven angas". In all these expeditions, he received help from the Seunas and the Pandyas, the neighbours and sworn enemies of Kakatiyas.

In 1290 CE, having achieved such a great victory over the sovereign Queen, Ambadeva proclaimed independence. Even before that event, he was exercising his independent authority from Valluripatna in the regions of Gandikota, Mulkinadu, Renadu, Pendekallu, Sakili, Eruva and Pottapi.

Prataprudra succeeded Rudramba and he was determined to wipe off the disgrace that befell the royal family. He mounted a three pronged attack to tackle the triple challenge of Seunas, Pandyas and Ambadeva simultaneously. In 1291 CE, Tripurantkam was captured by his minister Induluri Annayya.

Prataprudra, with his sustained onslaught, eradicated Kayastha power within a period of eight years and re-established his authority in the entire region. In the history of the Kakatiyas, the Kayastha chiefs thus played a prominent role, both as loyal or disloyal subordinates and formidable opponents.

THE INDULURI CHIEFS

"Hailing originally from the village Induluru, the ancestors of this family are reported to be Shiva Bhaktas, Nayakas, chief accountants, Governors, scholars and administrators, the officers in charge of royal seal, scholars in Sanskrit grammar, and the

like."[102] Essentially, they were Brahmins performing multifarious duties as demanded by the successive Kakatiya rulers. The Queen, Rudrambadevi, impressed with the good qualities of Induluri Annaya offered her third daughter Ruyyama in marriage to this chief. He was the chief general who led the campaign against Ambadeva and seized the enemy's seventy forts. He was one of the loyal ministers of Prataprudra and was entrusted with the defence of the stone fort of Orugallu during the Muslim invasion. The family of Induluri chiefs were ruling more or less the whole of Vengi region and they protected the Kakatiya Kingdom for a long time.

THE PADMA VELAMA CHIEFS

"In the post Kakatiyan period, the Padma Velama chief's hold over Telengana lands was sustained with Rachakonda and Devarkonda as their power bases. They could command considerable influence all the way for around a century till 1325 CE, when the rising tide of Bahamanids from Bidar submerged them completely. In the subsequent periods of Vijaynagara and Gajapathi kings, they continued to play an important role. The later rajas of Venkatgiri, Pithapuram, Bobbili, Jatprole and several others in Andhradesa claim their descent from this ancient family of Padmanayakas, rooted in the Kakatiya period."[103]

THE CHALUKYAS OF MUDIGONDA

Ganapathi deva, after the subjugation of the Kolanu region, proceeded against the Chalukyas of Nidadavolu. The Mandalika Indusekhara was ruling there. In order to make him an ally, Ganapathi deva offered his daughter Rudramba in marriage to Indusekhara's son, Virabhadra. This chief was placed in charge of Kollipaka for some time. His other brothers and brother's son served the queen Rudramba and Prataprudra as governors of Nidadavolu's province.

14.6 CAUSES OF DOWNFALL OF THE KAKATIYA EMPIRE

Victory has many suitors; defeat is an orphan. The adage fits well while narrating the victorious march of successive Kakatiya rulers. However, the defeat of Prataparudra which destroyed the Kakatiya kingdom was not at the hands of neighbouring kingdoms. It was an Islamic hurricane, directed from Delhi and driven by superior mobility, technology and ideological impulse of religious zeal. The lure of gold accumulated in temples and forts acted as an ever present catalyst to tempt the invaders. These external factors were compounded by internal fractures between the Deccan Kingdoms.

The persistence of Islamic invasions kept buffeting the Deccan kingdoms, till the complete victory was achieved. Whether Prataparudra's kingdom was attacked five times as claimed by Muslim historians or eight times as claimed in local inscriptions is irrelevant. What is important is that attacks were mounted one after the other, till the Kakatiya Kingdom was destroyed. The entire endeavour was undertaken, 'In order that the pure tree of Islam may be planted and flourish in the soil of Tailang and the evil tree, which had struck its roots deep might be torn up by force.'[104] The invader along with its

army travelled thousands of miles, crossed several rivers, forest and hilly regions, before mounting their assault.

What was the state of political situation in Deccan kingdoms south of Vindhyas? Each kingdom was in conflictual terms with its neighbour. They had a bitter history of almost annual warfare amongst themselves. The Kakatiyas with Yadavas; the Yadavas with the Hoyasalas and the Hoyasalas with the Pandyas carried on generations of warfare with a zeal worthy of a worthless cause. The mutual mistrust was so deep that instead of making an alliance against the common foe, they made things rather easy for the invader. After their defeat by the Muslims, Yadavas, in fact, helped the advancing invaders towards Telengana. Their ruler, Ramadeva personally supervised all the help and provision of facilities to the entire army, while on march. Ramadeva was not alone in doing so. In fact, Prataparudra did exactly the same while helping the invaders to reduce the Pandyan country. Prataparudra personally fought against the Pandyas. With these cracks bordering upon each kingdom, each one of them became the cause for the ruin of others, till all of them were reduced to smithereens and swept away.

"The pugnacious activity of religions such as Vira Shaiva and Vaishnava divided the people into sects hostile to each other. After the decline of Jainism in the twelfth century, the social space was filled up with two contending sects, namely Vira Shaiva and Vaishnavism. They launched organized campaigns to exterminate each other. The Kakatiya rulers, particularly after Prola II were all staunch Shaivites. This might have alienated those who followed Vaishnavism, either within Kakatiya domain or even beyond its borders. The sectarian animosity amongst Hindus, weakened them socially to confront an enemy who was moving ahead under the single flag of Islam, without any distinction of caste, race or sects. The social cracks in the society rendered the job of invader that that much easier."[105]

The divide on caste lines at the top echelons of administration was yet another factor which weakened the Kakatiya's resolve to win. "During the reign of Ganapathi deva, the governor of the different regions of the empire known as Nayakas were appointed from members of different castes. This was known as the 'Nayankara' system. Prataparudra re-organised this system appointing mostly Padmanayakas to these offices. He dismissed Nayakas belonging to other castes as he suspected their loyalty after the revolt of Amba Deva – the Kayasta."[106] When the news reached Warangal about the impending invasion, Prataparudra got busy in collecting his forces. Reddies took advantage of the situation, concentrated at Amaravati and proclaimed independence. This was not all. Those who remained in the service of Prataparudra betrayed him at the crucial moment. "When the fortune of war was hanging in the balance, they received a handsome bribe under the leadership of Babba Reddi from the invaders and deserted the Kakatiya camp."[107] The resulting demoralization sapped the morale and motivation of remaining troops. Though Prataparudra continued to fight, the morale amongst his forces was fading fast.

The final responsibility for the historic defeat has to be shouldered by the ruler, Prataparudra himself. His strategic failure to size up the intention of the invader and the

degree of their preparedness is one aspect. But the more important aspect was his continued conflicts with his neighbouring rulers, be it Yadavas in the west or Pandyas in the south. In politics, it is said all too often, that no one is a permanent enemy nor a permanent friend. What is permanent is one's own enlightened self interest. Even in the face of sure defeat at the hands of a powerful and motivated alien invader, the neighbouring Hindu kingdoms could not come together. Each one of the kingdoms in Deccan was defeated, one after the other. None assessed the threat with a broader vision. The invaders had a far broader vision, and eventually, they succeeded in realizing it.

Yet another strategic blunder of Prataparudra relates to his becoming complacent too soon, and in the process, lowering his guard. In the last but one invasion, the Delhi army was compelled to retreat disgracefully. Prataparudra was overjoyed with his success. All the stored grains were sold away. The monarch himself spent his time in offering feasts. He ordered his men to give up war like activities and turn to agricultural pursuits. While the Kakatiya populace was in the thick of festivities and celebrations, the invader returned with fresh impetus and new troops. The ensuing war between an invader, hungry for revenge and victory and Prataparudra, satiated with festivities and celebrations but low on resources was bound to be one sided.

Three other factors, namely fiscal, technological and management of troops also need to be highlighted. The Delhi Sultanate was having access to a massive revenue inflow, from the territories spread over Indo-Gangetic plains. The Deccan Kingdoms, on the other hand, were smaller in size and with fewer resources. Moreover, the water flow in northern rivers fed from Himalayan glaciers was certain. But, the uncertain rainfall in certain unpredictable years made the revenue flow in Deccan Kingdoms rather difficult. The fiscal mussle behind northern troops was surely an important factor behind their ample size. About management of troops, the Kakatiya monarch had to mobilize the troops of his feudatories well in time. The mobilization of such large numbers for defensive operations took time. Sometimes, they were blocked by the invading troops who were working under a single command and control. This decentralized system might have been effective to tackle Yadavas and Pandyas but proved quite inadequate against formidable surprise invasions from the Delhi Sultanate. "About technology, the invaders were equipped with arms of superior quality, such as 'Manjank' and other fire arms.Kakatiya forces had the ageold spears, swords and arches. The invader mostly used fast moving cavalry while Kakatiya forces used oxen, elephants and horses."[108] The assorted lot of animals, carrying men and material quite often created confusion, especially when elephants created panic in the midst of the battlefield by crushing their own army. The sad spectacle had been repeating with deadly certainty for the previous sixteen centuries, when Alexander defeated Porus in Northwest India in BCE 323.

15. THE STATECRAFT AND ECONOMY DURING KAKATIYA TIMES

15.1 CHAPTER SUMMARY

This chapter deals with various aspects of the statecraft which include polity, Governance and taxation on land and commerce. It also covers the scenario relating to tanks, crops and temples. The erstwhile centralized polity of Chalukyas was transformed into a decentralized power structure during Kakatiya times. Even after dominating the main chieftains and assuming imperial dimension, none of the chiefs were disturbed in their possession of power. The ordinary chiefs used to eulogize themselves with lengthy prasasti while referring the Kakatiya overlord with the simple attribute, Maha mandaleshwara. For administrative purposes, the kingdom was divided into Nadus (akin to districts) and Sthalas (a unit of about twenty villages). Village was the lowest unit of administration. During the closing decades of the Kakatiyan rule, a unique system known as 'Nayanakara system' of governance evolved, wherein the substance of the centralized power shifted to decentralized chiefs.

Land tax, based on the canonical principle drawn from scriptures was Shathabhaga (one sixth of the produce on land). It was similar to the one prevailing in all the neighbouring kingdoms like Deogiri and Dwarsamudra. Due to the expansion of population and economy, several other activities like industrial, commercial including professionals were brought under tax net. Property tax was based upon the size of the dwelling. There was cattle tax too.

The trading networks provided the interconnecting grid between rural surplus and urban needs. It also ignited the international trade with a vigorous import and export markets. The excise and customs duties on various commodities were quite gentle.

The rural scenario was studded with tanks, crops, temples and festivals. The tank construction was raised to a pious pedestal. That is why its construction was taken up by anyone with adequate resources. Its maintenance, repairs and repayment of the capital cost was taken up by the community. Innumerable tanks ensured adequate food, fodder, fibre and animal produce. The temple, apart from being a place of worship also served as the fulcrum of socio-cultural activities.

The chapter concludes with a broad glimpse of Kakatiya times with a clear hint of its economic prosperity measuring a notch above the Indian sub continental levels.

15.2 THE GOVERNANCE

With the liquidation of the last ruler Brihadralha, in 187 BCE, the Mauryan Imperium commenced its downward spiral which affected Peninsular India. The power vacuum was filled up by the Satavahanas, who in due course of time became Dakshinapath Patis (The lords of Dakshinapath). By the middle of the first millennium, the Peninsular polity was split into two dominions. Chalukyans came to dominate the

north of Krishna river, while the Pallavas followed by Cholas ruled over the region south of the Krishna river. These two imperial powers kept expanding and therefore, colliding with each other. During the twelfth century, both these powers declined and in their place, kingdoms of smaller size arose. Thereafter, for a couple of centuries, Kakatiyas from Orugallu, Yadavas from Devagiri and Hoyasalas from Maa'bar came to rule the Peninsular India.

Let us concentrate upon the rulers covering the present day Telengana lands. With the rise of Western Chalukyas (950 CE – 1158 CE), the Rashtrakutas (750 CE – 950 CE) were eclipsed. The Chalukyan rulers were in conflict with all their neighbours, in particular the Yadavas of Deogiri and the Hoysalas of Dwarasamudra. As their hold diminished, the subordinate power centers in the peripheral zone started shifting their alliances and realigned with the 'war groups', so as to carve out their independent power. When the Chalukyan Emperor Vikramaditya VI was in trouble, Kanduri Chodas declared their independence. The Viriyala chiefs took the opportunity to support Vikramaditya VI. Viriyala Erra, ably supported by his wife Kamavasini got 'Anumkonda Vishaya' conferred on her nephew, Beta I.

The sustained loyalty to their political overlords commenced with Beta I and continued through with Prola I, Beta II and Prola II. As their victories enlarged their area of influence, the influence of Chalukyas declined. In 1158, the Silaharas from the North and Hoysalas from the South attacked and finally extinguished the Chalukyas. The ensuing power vacuum was filled up by Rudra Deva, the son of Prola II in 1159. The Imperial Kakatiyas had arrived in Telengana lands as its undisputed masters. All the other subordinate powers viz., the Recharlas, the Viriyalas, the Malayalas, the Cherukas, the Gonas and the Natawadis etc., who served under the Chalukyas began to extend their support to the new rulers. Over a century and a half, by 1310 CE, the Kakatiya kingdom extended from the river Godavari in the north to the renowned town of Kanchi in the south and from the eastern coast to Panugal-Marzawadi in the west.

A NEW POLITY

At first, the introduction of the polity by Kakatiyas was not exactly imperial. After dominating the main chieftains, especially Prithivisvara of Velanadu region, others quickly became their allies or relatives by marriage. None of these chiefs were disturbed in their possession or power. They enjoyed their freedom in all respects, except in military matters. The only concern of the king was to check their growth in power. Kakatiyas preference was for a decentralized type of administration with limited central enforcement. In general, the system worked well, except in the case of the Kayastha chief, Amba Deva.

"Thus, the erstwhile centralized policy of the Chalukyas and Cholas was transformed into a decentralized power structure by the Kakatiyas."[1] In this novel type of polity, there was no pomp, no eulogy of high sounding titles and no imposition of direct supremacy. The ordinary chiefs used to eulogize themselves with lengthy prasasti and refer to the Kakatiya overlord with the simple attribute, Maha mandaleshwara. The decentralized power structure was sustained for a century and a half from 1158 onwards,

where trust was reposed upon, and reciprocated by the subordinate chiefs. The solitary exception was Amba Deva, the ambitious General from Paknadu – Cuddapah region, whose revolt radically destabilized the structure. In 1290, this internal revolt, reinforced by several other factors, eventually caused the collapse of the Kakatiyas in 1323.

From 1158 to 1323 CE, the Kakatiya imperium sustained for 165 years. Such a long span of uninterrupted rule was due to certain unique characteristics, common to successive Kakatiya rulers. **An orderly succession without any conflict or bloodshed was the most important factor.** It was reinforced by successive rulers, when they expanded and consolidated the Kakatiya Kingdom.

Prola-II had died in the midst of the battle field while on an expedition in Vengi. His son, Rudradeva was determined to achieve the task left unfinished by his father. Rudradeva, transformed the Kakatiya kingdom into an empire. It extended upto the sea in the east, Srisaila in the south, Kalyana (Bidar) in the west and Malayvanta mountain ranges in Karimnagar district in the north. The everexpanding territories of the empire led to shifting and expansion of the Capital. The overcrowding at Anumkonda was tackled by moving the new capital to Orugallu (Warangal), so that growing population, governmental buildings and officials could be accommodated there. Rudradeva completed the stone fort at Warangal, which had become the seat of their power. His successor, Ganapathi Deva ruled for 64 long years. The Kakatiya Empire witnessed rapid expansion during his reign. At its height, it extended upto Draksharama in Godavari district in the north to Kanchi in the south; Bellary district in the west to the sea in the east. During his long reign, he met defeat only once in Muttukuru in Nellore district, at the hands of the Pandyas.

Rudramba's period witnessed further reinforcement in all aspects of administration initiated by her father. The territory lost to Pandyas was recovered and the territories to west were added by defeating Yadavas. Kalinga's periodic advances in the east were dealt with a heavy hand. Prataprudra's reign, to begin with, witnessed consolidation of boundaries in southern and western flanks. Thereafter, buffeted by incessant Islamic assaults, he faced continuous vicissitudes and misfortunes. With the defeat of Prataparudra, the Kakatiya Empire ceased to exist. The Godavari – Krishna delta territories lying between the Eastern Ghats and the Bay of Bengal were controlled by the Rajahmundry and Kondaveedu rulers. The inland territories, covering the present-day Telengana were controlled by Padmanayaks, before being absorbed by the rising tide of the Bahamanis.

EXPANSION BY COOPTION

There had been a common thread running through the personal characteristics of successive Kakatiyas rulers. Their acts of victory did not vanquish the enemy. The enemy was mostly co-opted in the expanding empire. Even, the art and architecture in his dominion were replicated, in Kakatiya's capital. "In 1172 CE, Rudradeva visited the village Akunuru in Janagaon district and granted vrittis (favours) to Brahmans. He also donated ratnas (Water lifting mechanism) to certain communities and articles to the temple built in his name by the soldiers of the village."[2] He also exempted farmers from

payment of taxes on certain grains grown in the village. He was a pious man too. 'Apart from going on pilgrimage to different religious centres, he performed Pindadana at Gaya in Bihar to his ancestors. A staunch shaivaite, he also worshipped Vasudeva and Surya.'[3]

His military victories were followed up by investments intanks, temples and the new capital city. He never demolished any tank or temple, even after subduing his several enemies. Ganapathi Deva, apart from a great conqueror, was also an able administrator. He always gave a patient hearing and was called, 'one who was never agitated by anyone.'[4] His kindness towards his subjects reportedly turned their heart into a 'Krida Griha' (a play house) for them. His efficiency in matters of justice and timely adjudication is well preserved in various inscriptions. "A boundary dispute between villages of Duggirala, Brani and Morampudi was settled in an amicable manner. Two ministers were sent to the spot and in presence of all the parties, Surapraju, the watchman (Polewari) was asked to walk on the boundary line. He faithfully traversed the ancient boundary as per his memory. Pillars were set-up at fourteen places to restore the original boundary. The dispute was settled to the satisfaction of one and all."[5]

"Yet another inscription mentions about denial of water rights to Brahamans from Gonugu Kalva by nearby cultivators. The local authorities failed to resolve it. The Brahamans moved to the court of Ganapathi Deva. He deputed his Minister who ascertained the factual position on the spot with the help of documents. After re-examining the matter, the Gonugu Kalva was restored to the rightful owners. The just and fair play of the ruler was essential for maintaining social harmony and the solidarity of his empire."[6]

"Rudramba, like her father, was a devoted Shaivaite by faith. We are informed that she made a gift of thevillage Mandarin in Guntur district to a Shaivaite ascetic, Vishvesvarambhu. The village was inhabited by sixty Brahaman families brought from the Tamil (Dravida) country. The village had a hospital and a school. There were a set of artisans such as goldsmith, coppersmith, blacksmith, carpenter, stone mason, maker of stone images, basket maker, potter and barber. It also informs us that Virabhadras were appointed guardians of the village to perform certain duties like cutting of testicles, heads and stomach. Most probably; they were forms of severe punishment for heinous crimes."[7]

"Prataprudra, just after ascending the throne, reformed his overall administrative machinery. As already stated, he recruited seventy-seven Nayakas and entrusted them with the defence of the seventy-seven bastions of the Warangal fort. They were granted territories in exchange for their services and subsequently, the system became famous as Nayankara system. That continued even in the Vijayanagara kingdom. His army was composed of four arms, namely elephants, cavalry, archers and infantry. At one place, it is pointed out that the army consisted of hundred elephants, twenty thousand horses and nine lakh archers."[8]

The impact of these conquests was large scale migration of people from one part of the country to another. Rudramba's victory over Deogiri at Bedarakot (Bidar) witnessed migration of Yadavas into Kakatiya's dominion. Conquest of Warangal saw an outmigration of its military leadership towards west, who subsequently laid the

foundations of Vijayanagara Empire. At the same time, the rise of Bahamanis saw immigration of Muslims soldiers and their camp followers from northern India. It was followed by immigration of soldiers from distant lands like Transoxonia, Iran and Turan. With the extension of Vijayanagara Empire, large number of Telugus and Kannadigas moved into Tamil country. Most of these were soldiers and officers upholding the authority of the victorious rulers. Their migration was undoubtedly helped by grants of lands and other concessions, at the expense of the people of the conquered territory. Royal patronage of learning, art, sculpture and religion were other causes for similar movements of people.

The governance during the Kakatiya times was based on the ancient traditions. The time honoured tenets of the Hindu Dharmalaid down by the great Rishis of yore, right from Manu to Kautilya had guided the rulers and the ruled in Bharat Varsha in general. Dharmashastras in those days used to serve as the statutory texts. The king was to abide by Rajaniti,and, as much as the subjects, by Dharmashastra. The king had a heavy responsibility to protect good and law abiding subjects from the evil-doers. Whenever a conflict arose between the king's rules i.e., Rajaniti and the general law i.e., Dharmashastra, the latter was to be honoured. Kakatiya rulers subscribed to those well laid out tenets, just as their contemporaries like Chalukyas, Cholas, Hoyasalas and all others were following the same principles in their respective dominions.

SAMAYAS

'The societal division, besides the four main Varnas was further categorized in their professions. The usual way of representing the people in general was by mentioning them as Ashtadasapraja i.e., the eighteen sects of people, a comprehensive term covering the whole society. The eighteen sects were the four main castes and fourteen occupations; Vyavaharikas (Officer), Parnchala (Smiths and Carpenters), Kumbhalika (Potter), Tantuvaya (Weaver), VastraBhedaka (Dyers), Tila-ghataka (oil pressers), Kurantaka (Pariyas), Rastra – Rakshaka (tailors), Devamga (spinners), Perika (transporter of goods by pack loads), Go – rakshakas (cow herds),Kirata (hunters), Rajaka (washerman) and Kshauraka (barbers). Almost all the occupationsmentioned above exist in some form or the other in the countryside, even today. The division of society onoccupational basis remained intact, so as long as the need for that particular occupation was felt.

All these eighteen categories used to organize their corporate associations to look after the well-being of their people. They were called 'Samayas'. They were internally governed by their own laws and customs called 'Samayachara'. They elected their elders by mutual acceptance and moral integrity. These elders were vested with powers to levy taxes on members, to construct a temple in their locality, to make a gift of ghee for lamps in the temple etc. Defaulters, if any faced the punishment of ex-communication from the Samaya.'[9]

'The Brahamanas of a village generally formed into a body called 'Mahajanas'. Normally, they were dealing with the temple administration. The Mahajanas of two villages, namely Vasantapuram and Vellamgodu had settled a dispute over the boundaries between the two villages. For making minor adjustments, so as to keep the natural

barriers like stream or hillock as the boundary, they had asked the parties to compensate for the loss by forfeiting some land in favour of the loser.'[10]

ADMINISTRATION

'For the purpose of administration, the Kingdom was divided into several Nadus (akin to districts). Some of the well known Nadus were Venginadu, Velanadu, Natwadi, Kona Mandala, Virusunadu, Eruvunadu, Marjavadi, Kondapalli nadu, Sakalisima and Prolinadu. Some others were Kammanadu, Sabbinadu, Pallinadu, Pakanadu, Renadu, Mulikinaduand Kandurunadu.

These nadus were further subdivided into sthalas; the sthala being a unit of about twenty villages grouped together. The number of sthalas were obviously quite large. Some of the sthalas were Gurindalasthala, Pingalisthala, Tangedasthala, Magatalaksthala, Kailasamkotasthala, Nadendlasthala, Konduristhala, Maunanuristhala, Kacheralakotasthala and Gangapurasthala.'[11]

Among the officers who assisted the king in administration, Mahapradhanis came first. There were only few in this category. Pradhanis, Pruggudas, Amatyas and Mantris constituted the next cadre. The administration was divided into seventy two Niyogas or branches. Each Niyoga was under the supervision of a high officer called Bahattarani yogaadhipati. The administration of a nadu was entrusted to an Amatya or Preggada while the sthala was looked after by sthala karnams, sthala sumkaris and sthala tirparis.

'The village was the lowest unit of administration. Officers called Ayagaras looked after the various aspects like collection of taxes, maintaining accounts and land tenures of various kinds. Talari was one of the Ayagars. Similarly Nirukattu or waterman who organizes distribution of water of a tank to various cultivators was also one of the village Ayagars. All these Ayagars were granted some lands as vrittis, plus they used to collect some grains from the cultivators.

Some other officers are mentioned in various inscriptions. The post, with or without their functions are enunciated as follows.

1. Tantrapala Prola Rautu
2. Sasanadhikari, Sandhivigrahi Devamamatya
3. Padala - A small officer in Army
4. Srikarna - Accountant
5. Tirparis - The fixer of levy i.e., government share in produce
6. Sri Bhandau - Chief treasurer
7. Sarvadhikari - The King's agent
8. Sumkadhikari - Tax collectors
9. Adapamu - Betel bag bearer
10. Alavathamu - Royal fan bearer
11. Kottaruvu - Store keeper of the palace
12. Angarakshaka - Bodyguard
13. Nagari Srivakili - Gate keeper
14. NagariAdhikari - Palace administrator

15. Talari - Village watchman
16. Savasi - Military officer'[12]

The ranks of these functionaries depended upon the place of their service, their ranks and most importantly, to the proximity of the ruler they served.

THE NAYANKARA SYSTEM

The Telangana lands, endowed as they are with hilly terrain and thick forests were also quite congenial for construction of strategic forts. The formidable backdrop of a hill range was turned into an impregnable fortress, which later developed into military camps. A fort controlled the plateau; it also stood as a defiant sentinel to any authority desirous of establishing control in the countryside. The hill forts also provided shelter and refuge during anarchy and disorder. Several forts like Panugal, Konduru, Bhuvangiri, Rajukonda, Devarkonda, Anumakonda, Amangallu, Orugallu, Perur, Nallakonda, Kandikonda, Sirikonda, Urulugonda, Arvapalli and Podichedu etc., were constructed by the subordinate authorities in their localities. Each one of these forts was a kind of military station, with enough room to storefood, and other essentials in times of crisis.

"The 'Nayankara' system of military Administration was introduced by Rudrambadevi and further embellished by her successor, Prataparudra. According to Nitisara, the king should assign villages to the Nayakas in lieu or their salary and the maintenance of some armed forces for the king's use. The number of elephants, horses and foot soldiers which they had to maintain was fixed according to the fiefs they held. In addition to the supply of soldiers etc., to the king, they also had to pay regular tribute. In this way, the king could ensure about the force he could gather at the times of war. It is a meaningful boast, often quoted from a verse that Prataparudra possessed ninelakhs of archers. According to Pratapacharitra, Prataparudra entrusted the defence of the seventy seven bastions of his fort at Warangal to as many nayakas of the Velama community, allotting them one-fourth of his kingdom as estates to enable them to maintain the stipulated army."[13]

Both the statements namely the strength of the nine lakh archers as well as seventy seven Velama Nayakas are boastful exaggerations. A total population of around 16 lakhs or so during Kakatiya times, inhabiting the present day Telangana lands could not possibly have contributed nine lakh archers. "Moreover, the assertion that all the seventy seven were Velama nayaks may not be true. The reason being, that nayakas of other castes are also noticed in the inscriptions. The Lemkas, whoseem to be equal to nayakas in this respect includeReddis and others also. Juttaya Lemka, Gonka Reddi, Rudraya Lemka, Somaya Lemka, Madaya Reddi, Dechaya Lemka and Pinnaya Lemka were not Velamas."[14]

"Besides the forces maintained by the Nayakas, the king maintained large units of four classes of troops, viz., ratha (chariot) gaja (elephant), turaga (cavalry) and padati (foot soldiers). According to chronicles, the Kakatiya army during the reign of Prathparudra consisted of 100 elephants, 20,000 horses and 9,00,000 foot soldiers and their commanders were called gaja-sahini, asva-sahini and senadhipati respectively."[15] As already argued, the actual strength of army needs to be viewed with some moderation.

"The kings themselves used to lead the armies in times of war. The next highest officer was sakala-senadhipati or commander-in-chief. Somayajula Rudradevaya was the sakala-senadhipati of Prataparudra during the battle with Ambadeva. Similarly Adidamu Mallu and Somaya-lemka also held that post. The common bantus or soldiers were granted vrittis in lieu of their salaries, whereas the commanders were posted as governors of the nadus."[16]

Prataparudra had entrusted the defence of the seventy seven bastions of his Warangal fort, predominantly to the Padmanayaka (Velama) caste. The rise of 'Nayankara System' was accompanied by a gradual reduction of 'Rachabhumi', which were held by royal officials who acted as a check against those spread across the Kingdom as military chief. It resulted in loosening of the king's grip. Moreover, the decrease in the number of Agraharas and Devabhagas, held by the Brahmins and temples, contributed for the loss of ritual link. The weakening of the two links, namely royal and the ritual rendered 'war units' detached and made them almost autonomous. It also rendered them free to shift their allegiance with the neighbouring 'power unit', in case of collapse of the central power.

In and around 1315 CE, Alauddin found an ally in Prataprudra to wage a war in Pandyan kingdom, to restore Sundara Pandya to his ancestral throne. The subjugation of Prataprudra by Malik Kafur was followed by arrival of Kakatiya officials to the court of Sultan to pay the annual tribute into the imperial treasury. The political relations between Delhi and Warangal apparently became quite intimate. Wassaf refers to the flight of Sundar Pandya to Delhi. 'Sundara Pandi, trembling and alarmed fled from his native country and took refuge under the protection of Ala-ud-Din of Delhi'.

A large Kakatiya force under Prataprudra's famous general Muppidi Nayaka was operating on behalf of Sundara Pandya in Tamil country. In 1315, there is an assignment of income from lands in some villages for conducting a service named after Muppidi Nayaka, the ruler of Vikramasimha Pattana (Nellore) and one of the ministers of Kakatiya Pratap Rudradeva, in the temple of the God Vriddhagiriswara. In 1317, as per Sri Rangam epigraph, the Kakatiya armies came there to restore Sundara Pandya to his ancestral throne.

Therefore, it is quite reasonable to believe that the Kakatiya Monarch sent his armies to the south at the instance of Sultan Ala-ud-Din Khilji to support the contingent of Mohammadan forces, sent thither by the later to restore Sundara Pandya to his ancestral kingdom. Howsoever reluctant an ally of Delhi Sultan, the Kakatiya's loss of will to confront the superior armies from northern geographies reflect a sapping of their morale from 1315 CE onwards. The mounting demoralization was to cost them the entire kingdom by 1323CE .

From 1303 to 1323 CE, the Kakatiya polity was repeatedly hammered by the military might of the rulers controlling Delhi Sultanate. The stubborn resistance in the beginning by Kakatiyas was followed by ever growing hunger for tributes by the victor. The extraction of wealth was climaxed by the surrender of Prataprudra himself. The whole city of Warangal was plundered. The treasury was bankrupted and the state

economy destroyed. The accumulated wealth for generations was carried away by Muslim generals. The polity became economically weak and politically lifeless and hence disintegrated.

The Imperium built by the Kakatiyas might have collapsed but the tanks, temples and fort complexes survived. Nayankaras chiefs, who survived became a sort of autonomous power units, free to align with any neighbouring power centre. The Padmanayakas domination was resented by other sudra feudals, who in due course of time, were pushed beyond Godavari river in to forested territories or even beyond eastern ghats in the deltaic lands. The centralizing tendency drew the surviving Padmanayakas together in establishing themselves in Amanagallu, Rachakonda and Devarkonda forts.

Summing up the rise of Padmanayakas, who were an outcome of Nayankara system, T.Dayakara Rao says,

> "Owing to the arid nature of the Telangana, the rural bosses, the "local" peasant warrior groups, emerged and gradually developed into "Supra local" and "Regional powers" in time of structural anomalies and external influences. The Padmanayakas (Velamas) of Recharla gotra who were the dominant peasant warriors became "local power groups" in the early Kakatiyan times and emerged as the Nayakas and Nayankaras in the later Kakatiya times at "Supra local" level and finally developed as the "Regional Power" in the post-Kakatiyan times."[17]

15.3 LAND AND TAXATION

Who owns the land? Is it the king or the individual? The question is as old as the settlement of people on land and evolution of kingdoms. The Hindu law givers like Manu, Narada and Kautilya have said that the king was the owner of the land. The immediate counter argument suggests ownership by people who use it by way of cultivation or residence. The convincing solution appears to be that while the basic proprietorship rests with the King, the individuals possess secondary ownership. It is an admitted fact that all the uncultivated waste land, forests, rivers and water bodies in a kingdom belong only to the sovereign. Kakatiya rulers were quite proactive in settling people on these vast and vacant territories.

'When a village was newly constructed by clearing the forest, the kings normally extended incentives and privileges like remission of some taxes for a certain period say, for three to five years, along with construction of tanks and allotment of house sites free of cost. An epigraph at Mellacheruvu in the Nalgonda district datable to 1311 refers to remission of taxes from all kinds of government lands.'[18]The right of state to tax by way of grain or coin is over a particular piece of land, but not the individual farmer. The person may cultivate it or leave it fallow or even get it cultivated by someone else. The king was satisfied so long as he gets his annual revenue regularly. Therefore, a farmer could sell, donate or mortgage his land along with the same rights that he enjoyed. The state was least concerned about such kind of transfer. That is what is meant by the concept of secondary ownership of the land, which rests with the individual.

Individual ownership apart, there were Devavrittis and Agraharas. It was given to a class of people, mostly Brahamins who looked after the maintenance and functioning of temples, including performance of various rituals. Normally, they possessed more privileges than other land owners. Apart from this, there were service tenures. Those classes of people like soldiers, nayakas, ministers, generals, bodyguards and karnams (village accountants) who served the king's administration were granted Vrittis in the form of some villages or lands according to their services. However, they did not possess any permanent right over these villages. The lands which were allotted to Agraharas or Vrittis naturally belonged to the king and they were called Racha Polamu. Such lands were leased out to cultivators on almost permanent basis, the rent being mostly one sixth of the gross yield under normal circumstances. During wars or other emergencies, it may have been even more.

The king's right to impose a certain tax and his authority to ensure its collection from the people in his kingdom is a time honoured concept. Having inherited the system from the well-established Chalukyan times, the Kakatiyas introduced several new taxes, due to expansion of economy during their reign. 'The taxes can be broadly categorized as follows:

1. Land Taxes
2. Industrial and Property Taxes
3. Profession Taxes
4. Commercial Taxes
5. Miscellaneous Taxes[19]

LAND TAXES

All the lands assigned to individuals, temples, brahmanas, nobles or chiefs were invariably subjected to taxation. Only the unassigned lands in the villages called 'Rachabhumi', apart from waste lands, forests, hilly tracts, river courses and the like were not taxed. The burden of taxation upon Brahamana Agraharas and Deva Vrittis or temple lands was lighter. To encourage new settlements, certain exemptions for a certain period, say three years or more, were granted. But once the families were well settled, the normal principle of taxation was applied to them. The cultivable lands, demarcated for the purpose of taxation was called Ayakattu and the officers who used to collect the governmental share of grain were called Ayagamdru. They were the officers like today's karnams and patwaris.

"Pannu was the primary tax levied on all kinds of lands, irrespective of the crop grown in it. This tax was simply for possessing the land, because the proprietorship of all land in the kingdom rests with the king. Parngamu was another concept which involved the king's share in the gross produce of the cultivated land. The rate at which the king was entitled to have a share in the produce had been known from the time honoured scriptures, reiterated by several authors from time to time. It was to be SHATBHAGA (one in six parts) i.e., 16.7% of the gross produce. The system was called 'Shatabhagen – one who has the right to one-sixth."[20]

"Koluchu was yet another concept. It is the levy in kind at the rate of one tuma per each putti (one twentieth) of the gross produce. Ayagamdru would visit each piece of land at the time of harvest and assess the king's share in the gross produce. In a record datable to ninth Century found at Kondaparthi, one officer Dhananjaya Phaladharu was entrusted with the task of collection of Kolchu fixed by the chief.Dharana or Nirdharana in Sanskrit means to fix or assess. Phaladhara meant an officer who assesses the produce and the king's shareof it."[21]

"Sunkamu was yet another concept. It comes into operation at the market place where the grain stocks accumulated due to Koluchu are sold to realize cash. Government in those days did not seem to have maintained public granaries for the storage of a variety of levy collections and their disposal. They were, most probably disposed off on a daily basis on the spot at the prevailing market rate. In 1224, the Vardhamanapura inscription of Ganapathi deva's vassal Gona Ganapayya stated that at the place where koluchu was sold, a gift of 2 manikas was made to the god. The question arises as to who paid for this and that is where the concept of Sumka comes into being. The commodity so transacted in the market would entail Sumka payment upon the cultivator as well as the purchaser. Sumka, in some ways can be compared to the present day sales tax, but imposed equally on seller and buyer both."[22]

"Kanika and Darisanamu are other taxes mentioned in the Durgi inscriptions. The former was a kind of tribute people had to pay to the king as a mark of their submission. The Kanika was levied not only on cultivators but also men from other walks of life. Darisanamu was a payment to the king or his subordinate chief when the ryot went to see the king or chief. Even if he did not go to see the king, the payment had to be made. Obviously, the temple lands were exempted from this obligation."[23]

There were some additional taxes on lands for the extra benefits and privileges derived from public sources. Irrigation was the singular source of additional benefit. Tanks were owned by kings, their subordinates, temples as well as individuals. "If the tank or canal belonged to the king, as in the case of the Akunuru epigraph, the income goes to the king. If the water source belongs to an individual, the levy is collected by the owner, who in turn pays to the king a fixed amount for possessing the tank. Same was the case if the tank belongs to the temple. The fact remains that the cultivator of the wet land had to pay the additional levy to the owner of the tank for using water."[24]

'Vennu Pannu was a tax levied on the crops when they are ready for harvest.' The amount was assessed on the appearance of corn (vennu). If the crop was unusually good, the cultivator was liable to a levy of additional tax, apart from what was stipulated earlier.

'Bamtela Ayamu was a levy intended for the maintenance of bamtus or warriors.'[25] The general was supposed to maintain a fixed number of bamtus to serve the king in times of war. For the maintenance of such an army, he had to raise extra funds within his fief. The only source of fixed income was the tax on land. This additional tax on account of warriors occurs in the fiefs of those who maintain special battalions for the King. It can be said with certainty that in all the Nayankara villages in the kingdom, the cultivators were subjected to the additional levy of Bamtela Ayamu.

'Ardhaya refers to the government lands leased out to cultivators, where king gets half of its produce.'[26] This must be distinguished from regular assigned lands on permanent basis where the cultivator has to pay one sixth of the produce. Ardhaya type of tenure was confined to only government lands. They were prime assets enjoying strategic advantages like proximity to the capital and water bodies. A certain setti i.e., a merchant is stated to have constructed a tank in Chittapur in the present day Karimnagar district during Prataprudra's times. He donated one-third of the produce in the irrigated land to the local god, leaving two thirds to the king, because the whole land belonged to the king. Such lands fetched considerable income to the temple, as well as to the royal exchequer.

CATTLE TAX

Sheep and goats had always formed an important possession amongst all peasant classes in Telangana. The reasons are obvious. This land and its topography has provided an enabling ecosystem for these small ruminants to inhabit it since mesolithic times. The Kakatiya rulers invariably levied taxes called pullari on animals. It is a compound word consisting of pullu (grass) and ari (tax). It was the levy imposed upon animal breeders for grazing of sheep, goat, oxen, cows, buffaloes and other domestic animals in the pasture lands and forests, the proprietorship rights of which rest with the king. The system was decentralized to subordinates who used to collect a larger amount from herders and remit a fixed amount to the king.

'There were two more taxes called Ari and Appanamu.'[27] The first relates to the property tax and the second is a tribute to the king. An inscription from Tripurantkam records a private gift of 50 cows and while handing over the cattle to a cowherd, he was enjoined to supply daily one mana of ghee for maintaining one lamp in the temple and pay a certain Ari i.e., tax per annum. Here 25 cows were generally sufficient for supplying daily one measure of ghee for 365 days. The remaining 25 cows were intended to meet Ari, apart from maintaining his livelihood. In theory, even the temple sheep and cows were subjected to property tax, but in practice, they were mostly exempted from this burden.

INDUSTRIAL TAXES

There were no big industries, as we presently see and understand them, in those days. However, small scale outfits in the nature of cottage industries were aplenty. Weavers, oil grinders, salt-makers, toddy tappers and potters were subjected to a series of taxes. The first two, namely weavers and oil grinders have to pay several taxes. They had to pay for setting up the industry, for running it and for selling the product in the market, to the local god and to the guild of their community and so on.

Just as Ari is a tax on property, pannu was the tax on the industry. It was levied in two ways. Firstly, one had to pay to get the license and then pay periodically towards the recurring tax. 'The Velpuru inscription of Ganapathideva dated 1169, refers to the gift to the temple of Rameshwara of the Mudra Sumka and Varusarukas levied on the oil mills. Mudra Sumka is analogous to the one-time registration fee of the present days levied at the time of installation of oil mill.'[28]Varusa–rukas was the subsequent periodical tax on the producing industry. Sumka was perhaps the toll tax on the sale of oil. Donation to the

temple was exempted from any kind of tax. Kanika was tribute paid to the king or his representative. These four types of levies, namely Ari, Pannu, Sumka and Kanika were to be paid to the government. Besides these, he had to pay the Samaya. Sumka or the tax to the guild called Telikivevuru or oilmen's association. Last but not the least, the share of local god was paid without fail.

From this example of the oil mill or ganugu, we can infer that any cottage industry be it handloom, salt pans, ratnas or water pulling for supplying water to the fields from a stream or well, tapping of toddy tress, pottery etc., were subjected to a series of taxes.

HOUSE TAX

'Illari consists of two words, namely Illu – House and Ari – Tax. Illari simply means house tax.'[29] Merchants and weavers were charged more than the shepherds and other village servants. Sometimes, the assessment was made on the economic status of the owner. For instance, an inscription of Kanduri Bhima Choda at Perur records house-wise contribution by the local nakaram of merchants depending upon three classes. The above average houses were levied a tax of 2 rukas per house; average house 1½ rukas per house and below average house ¾ ruka. There are hints that at times, house taxes were granted to the local gods.

PROFESSION TAX

Professions in general, included not only caste-wise livelihoods but also various cottage industries. All this was covered by various taxes during Kakatiya period. 'In 1219, Ganapathi deva and his daughter Kota Ganapamba issued a grant to certain Rudra PeddiReddi.'[30] The village Mogalutla was granted to the donee with two important conditions.1) King Ganapthi deva who was present at that time granted his share of income in the village to the donee and 2) The dues payable by the village communities Takshaka (carpenter), Ayaskara (blacksmith), Kumbhakara (potter), Suvarnakara (goldsmith), Rajaka (washerman), Hapita (barber), Chandala (Pariah), ArdhaSiri (Cultivator who shares half the produce with the owner of lands), Adi (and the like) were also granted to the doneee, Rudra Peddi Reddi. That proves a point that even in the village belonging to his own daughter, the king had his share, i.e., one sixth of pannu and other taxes on profession, which in the present case he granted to the donee. 'Elsewhere, King Prataprudra granted the entire income of the village to god Sri Ranganatha.'[31]

'The Kokkireni inscription dated 1314,lists house taxes in a certain order. It is maximum from Komatis, followed by Kampus, Weavers and minimum from Karnams.'[32] The Akumuruepigraph of Rudradeva in 1172 indicates the levies from professionals which the king granted to the god. It included a vast spectrum like ratna owners, garden owners, temple priests, herdsmen, potters, barbers, Jains, garland makers, Illadi, washerman and cattle-sheds outside the village. Other levies like tolls, shop taxes and water taxes are stated to have been donated to the god and Brahmins as Vrittis. To compensate for this, the king granted full remission of Tumunyaya i.e., the King's share in kind on all crops and sumka taxes in coin on all varieties in that village. That is why the rate of profession tax are different compared to those cases where people are not

granted any concessions. It is quite obvious that weighted average of total tax burden, by way of grain and coin to both i.e., king and the god was kept in a certain balance. The Khandavalli inscription dated 1290, confirms this conclusion by stating that whatever the eighteen castes of people had to pay to the king should henceforth be paid to donee alone. For the people, there was only one agency to collect the dues i.e., either king or the god; not both.

'Even the military personnel were to pay the professional tax. The Maktal inscription during Prataprudra's time indicates that Rautu (horse troopers), tamigadu (foot soldier), omte bamtu (soldier riding on camel) and each dhora (master of a group of soldiers) had to pay a certain amount per annum.'[33]

"Even the wage earners were not exempted from the profession tax. Some employees of the village Kopparam in Guntur districthad reportedly made certain gifts to the god out of their wages for the merit of the king Prataprudra. Vritti pannu or the profession tax is categorically mentioned in one of the at Sarpavaram in East Godavari district of 1404. A time indicator or watch is said to have been installed in a temple and the brahamin appointed for its upkeep and maintenance was given some lands as his remuneration. He was exempted from payment of Vritti pannu (Profession Tax) and the regular tax on his lands as well."[34]

"The Draksharama inscriptionof 1117 mentions certain rates on professionals like sri mangali, garland makers, potter, vaddari, kammari, goldsmith, carpenter and washer man. The Patarlpadu inscription of 1290 mentions certain rates on cowherds, weavers, pregada, sri mangali, potter, warier, pattolavaru, ayagamdru and karnams. These taxes were however donated to the god."[35]

COMMERCIAL TAXES

Just like Pannu, Sumka is yet another general term which had a wide range of application from tolls on merchandise to tax on marriages. Normally, it implies the levy of tolls on articles of trade. The tradition was well developed during the Chalukyan times and Kakatiyas followed it by incorporating local variations. The word Adda indicated a place where business transactions were conducted or a place where things temporarily stay (Majili). 'The word Adda Pattu meant a place on lease with the right of collecting tolls.'[36] Those authorised contractors were generally called Sumka-Manyagandru or toll farmers. They had to pay a certain proportion of their income regularly to the king or his agent, in addition to the initial cost of purchasing the license. Tolls were levied on all variety of articles. Even the articles brought to the adda but could not be sold for various reasons were also subjected to a partial taxation towards the rent of penta (market) which belonged to the government. The sellers had to pay pentasumka in all the markets where they took the articles. The tax had to be paid in every market till the articles were disposed off. The rate of levy was also varying from market to market.

MARKET OFFICERS

The system of fixation of toll and its collection was handled by four functionaries. Sumka manyada (tax farmer) was the first who purchased the right to collect sumka in

adda or penta. He had to pay the governmental share, then and there, to the karnam, the second functionary. The latter was to receive the credits to the Government's account and maintain an account of these transactions. Tirpari was the third functionary who would make assessment about the commodity value and the tax to be paid thereof. Kolagadu was the fourth functionary to weigh and measure various articles. Thus, karnam and Tirpari were government officers while Sumkari and Kolagadu were private contractors. The sumkari was to purchase his right of collecting sumka. His profits depended upon the volume of goods sold in the adda in the year. He was permitted to take his prescribed share of the sumka and nothing more. "This was the general procedure in collecting the addavattu-sumka as illustrated in Tripurantkam of 1296."[37]

Tirpari was not confined to a village. This functionary was appointed at village, taluka (sthala) and district (nadu) levels as well. "An inscription of Ganapathi deva's reign mentions certain tirpari for two districts, namely Gudrarama and Velanadu, who made a gift of angadi-sumka to the god Kundeshvara of Gudivada, the headquarters of Gudrara region."[38] It would appear that Tirpari was a responsible officer of the state to protect the interest of producer or owner on one hand, and ensuring fair collection without causing any loss to the state exchequer, on the other.

"The Panugallu inscription dated 1122 set-up by Mailamba, the queen of Kanduri Tomdaya Chada, specified levies on certain articles like salt, cart load of jowar, pack load of paddy, betel leaves per head load, areca nut, pepper, ginger, turmeric, cotton, jiggery and sarees. The famous Motupalli charter of the king Ganapathi Deva records the rates of duty on some articles imported and exported from that sea port."[39] The rate of duty was one in thirty (or 3.3%) on all exports and imports. The rate on the sale and purchase of cart horses and other animals was 1.25%. At times, it was split into sales at 0.625% and purchase at 0.625%. A tax burden on the seller and purchaser at 0.625% appears to be modest, equitable and just.

There were some miscellaneous taxes as well. In the case of marriage of the komatis, the bridegroom's party was enjoined to pay. The occasion of naming a child also sometimes attracted tax levy. A sheep or angadi used for conducting business was taxed. A hollow ditch used for mota or water lifting device was taxed. Plying of ferries across rivers was in vogue; so was the practice of leasing those rights for collection of taxes. Gift lands were taxed at concessional rates. Gardens and sheep were in tax net. Over and above all these known taxes, there was a provision to impose tax for unseen circumstances. Madyakam, was an arbitrary tax which could have been levied under any extraordinary circumstances. The right of the sovereign to tax its people was absolute.

15.4 TRADING NETWORKS

We should look upon a city as an organism, pulsating with complex societies, where the urban nucleus along with its rural hinterland is woven into a tight political and economic web. A brief backdrop of evolving urban scenario in the subcontinent, especially in peninsular India where the present day Telangana lands were situated would be appropriate.

For a millennium or so after disintegration of the Indus Valley Civilization, there was a kind of dark phase in the urban scenario. However, from sixth century B.C.E. onwards, there was a long stretch of urban growth. From its epicentre in the Gangetic valley, it spread to the whole of north India first, during sixth century B.C.E. to the third century B.C.E. Thereafter, from second century B.C.E. onwards, it also covered the central India and peninsular India. Peninsular India witnessed two sets of rulers. The northern half in Deccan plateau was ruled by Satavahanas, Vakatakas, Chalukyas and Rashtrakutas. Their capital cities were Dhulikatta, Kotilingala, Paithan, Badami, Maniyakhed and Kalyan. The southern half was ruled by Pallavas, Cholas, Pandyas and Cheras, from their capital cities of Kanchipuram, Tanjavur and Madurai. The Krishna river, bisecting the peninsular land mass, broadly served as a boundary between these two set of kingdoms. Of these two regions, it is the Deccan that first concerns us.

The forces of trade and technology are known to bring prosperity; they also catalyze urbanization. By the third century BC, iron technology had already penetrated into peninsular India. Therefore, during Satavahana period, iron implements multiplied. This gave a fillip to agriculture. Farmers cultivated cotton and millets on high lands and transplanted rice in plain areas. The art of transplanting rice seedlings was widely practiced during the first two centuries in Godavari, Krishna, Mahanadi and Kaveri deltas. Contact with the North established during Mauryan phase helped them to learn the use of bricks and construction of ring wells.

Iron technology made great progress during the first millennium in the age of Satavahanas. Indian iron and steel weapons and cutlery were exported to West Asia where they enjoyed high esteem. In India, it led to the manufacture of sturdy and sophisticated agricultural implements. A variety of hoes, sickles with curved and straight blades were in use. Some of the specimens used then are even superior to those currently in use in tribal India. The workmanship of these iron agricultural implements indicates a high level of iron technology in India. Improvements in quality and strength of iron chisels and hammers led to improvement in the manufacture of stone objects, particularly the grinding mills (chakki). Querns, mullers, pestles and mortars were also manufactured with great ease during those days.

Monsoon was also discovered during those times. This was an extremely profound discovery. Till then, boats were sailing to lands afar just by hugging the coast line. But, monsoon winds were able to carry the same across the oceans directly. Boat sizes escalated as the journey time shrank and the countries situated afar came onto trade maps. India started trading with countries under the Roman Empire viz., Spain, Gaul, Dalmatia, Italy and Egypt. Romans and Greek merchants visited Indian ports and established themselves in small colonies. They came in quest of spices and cotton for which India had become famous in the ancient world.

Brahmins were the pioneers of progressive agriculture in the peninsular kingdoms. The Satavahanas were the first rulers to make land grants to Brahmins. Owing to their knowledge of astrology and ability to forecast rain, they enjoyed respect among the rural people. Besides, they were the educated class of that age, and also pioneer of

culture and progressive agriculture in the South. Kosambi states, "The Brahmins acted as pioneers in undeveloped localities; they first brought plough agriculture to replace slash-and-burn cultivation, or food-gathering. New crops, knowledge of distant markets, organization of village settlements and trade also came with them. As a result, Kings invited Brahmins, generally from the distant Gangetic basin, to settle in unopened localities. Almost all extant copper plates (which have been discovered all over the country by the ton) are charters which, from the fourth century onwards, record land grants to Brahmins unconnected with any temple. In addition, every village would set apart a lot or two of land plus a fixed though small share of village harvests for the priests and Brahmin. Brahmins, however, claimed and generally received exemption from all taxes; they even claimed an especially low rate of interest on loans, and other privileges."

As people settled on land, the evolution of crafts relating to agricultural activities was inevitable. To manufacture a plough, cart and a host of agricultural implements, needed smiths, carpenters and metal workers. To meet the rising social needs, weavers, jewellers and goldsmiths are needed. The proximity of the capital and a port introduced a further element of diversification, such as traders, a group of merchants, king's officers and custom agents, warehouse guards in the market and port towns. The spread of Buddhism and Jainism, coinciding with the increase in trade and commercial activity added further diversification, Jainism was more often prevalent in inland towns while Buddhism was prevalent in lower riverine areas and coastal towns. Both had their patrons who mainly came from mercantile community, apart from ruling families.

The peninsular rulers made temple construction an important activity and in due course of time, these temples controlled adjacent lands and water resources. The seasonal regulation of cultivation process along with technology of irrigation provided a fillip to farming incomes, which in turn helped the deity and its priests and various service providers, especially its tenants cultivating the 'attached lands'. Brahamins were, needless to say, the organizers, managers and beneficiaries of these multifarious activities, around a temple complex.

"The practice of land grants to Brahmanas and temples for the upkeep of the deity started off the long process of agrarian development, followed by social and economic diversifications. Thus, the control over the temple, the most important 'super ordinate redistributive instrument' was in the hands of the 'Brahamanas'. They, through their 'Sabhas' assumed the role of economic administrators. The creation of such Brahamadiyas and temples was an act of validation by some form of divine authority for the Ksatriyas to give permanence to their power. This, in fact, led to the forging of a new instrument for the organization of sacred, economic, social and political space."[40]

Some enterprising peasants diversified into trade. Their social status did not change, but they sought validation within the existing institutional means i.e., by participating in gifts to the temple giving. In due course of time, they started managing temple finances. The deity found itself diversifying further as a 'bank' so as to provide loans with its 'righteous interest' to devotees. The merchant representatives were also accommodated in the expanding but effective space created by the temple centers. In

physical terms, it was the 'Tirumadaivilagam' around the temple, where separate quarters were assigned to the merchants and craft groups. The trading activities tend to diversify due to the process of specialization. Trading in textiles, supplying ghee and oil, trading in horses or graded spices, aromatics, incense and gems evolved over centuries and spread across peninsular India reaching upto the coast.

To handle this volume of trade, there was need for an appropriate organization. "The founding of Ayyavole (Five Hundred) in the eighth century may be attributed to a decision of 500 mahajanas of the mahagrahara of Aihole in the Bijapur district of Karnataka to provide an institutional basis for commerce in this region."[41] It was the largest organization of itinerant merchants of a supra-regional character. It must be differentiated with Manigramam, which as a merchant organization operated within specified regions. The interaction between 'Manigramam' and Ayyavole (Five Hundreds) strengthened both. In due course, many of the military groups joined the organization as protectors of merchandize with a stake and share in its profit. By its very nature and functional necessities, this Five Hundred were not confined to a single caste but were composed of representatives of all the four castes.

"This merchant organization played a dominant role in relation to craft groups. The organization gave advances. The craftsmen produced and merchant's network sold it to markets, near and far. The association of craft groups with the Five Hundred provided certain legitimacy to the Ayyavoletrade in various articles. This was particularly important in the case of weavers, with whom close contacts were established, for the textile trade was handled particularly in peninsular India and overseas by the five hundred. Their presence in Siam, Sumatra and Burma is attested by the inscriptions in Takua Pa, Laboe Tima and several other places in those countries."[42]

A profuse agricultural prosperity, with rice and cotton aplenty, drawing their extension management practices from temple centric men of learnings was a rule, without exception in all peninsular kingdoms, irrespective of dynasties. The uniform Shata Bhaga (one sixth) share of produce as the king's share sat comfortably on peasant's shoulders. The balance 5/6thshare, after meeting their family needs found its way through the networks of 'manigramam' and Aihole Five Hundred to the markets situated near and far. The virtuous cycle of prosperity kept the king, the deity, its managers, traders and the bulk of peasantry, including military groups in a state of social equilibrium, with a rising and shared prosperity.

TRADERS, TRADE CENTRES ANDKING'S DUTY

During the first millennium, several kinds of merchant guilds, in particular the famous Ayyavati–500 guild had been in place to take care of trading needs of those times. However, during the Kakatiya period, the traders neither seem to have got any connection with the Ayyavati–500, nor had their religious learnings to Jainism, as they are supposed to have. "An inscription at Tripurantakam of 1214, mentions merchant guilds consisting of members of not only Setti but other classes like Reddis, Nayudus, Boyas and Dasaris."[43] Therefore, the advent of Kakatiyas in Telengana brought about a multi-caste sectarian set-up of the merchant guilds. These trading organisations were

mainly called Nakarama, Swadesi, Pardesi and Ubhaya Nanadesi–Pekkamdru. These merchants were dealing in wheat, paddy, green gram, jowar and other grains, salt, oil and ghee, pepper, mustard, honey, metals like zinc, tin, copper and camphor, musk, silk, precious stones, pearls, beads, turmeric, onions, ginger, roots, yarn and so on. These guilds had got the license to operate their business in specific territories. Almost all the merchant guilds in the kingdom, besides their respective regions of business, used to maintain regular contacts with the bigger traders in metropolitan areas.

"Several craftsmen and manufacturers like weavers, oil pressers, smiths, potters, jewelers, basket weavers, mat makers and the like also formed into guilds and took their goods in a fair near to their own village. They were not like regular traders of multiple commodities. Yet, they had a place in the adda or market. Their role as producers in the commercial set-up of the country was by no means insignificant."[44]

"Trade in medieval India was dominated by the Vaisya community and in Telengana, this community was called Komati. Some scholars hold a view that the term is derived from the Jain God,Gomateshwara."[45] But, as most of the Komatis in Telangana did not belong to Jain faith, this view is not tenable. The Komatis are otherwise called Setti (Shreshthis), Chettis etc., and they squarely fall within the Hindu fold. Several authors have attested to the importance of Komatis during the twelfth century. One opinion holds that Komati was the life of a town, like the trunk to an elephant and water to the paddy crop. It is understandable for the simple reason that wherever there is surplus agricultural produce, it has to be collected, stored, transported and distributed to the nearby towns. Similarly, the ordinary needs of the households like oil, ghee, clothing, utensils, cosmetics and other sundry items had to be procured from towns to be distributed to the villages. The trading network provided two-way circuit among the countless producers and consumers.

"Even the kings and subordinates maintained state Settis. In 1268, Daram Govindu Setti is mentioned during Rudramma's times; Surapa Setti of Kulottunga Gonka raja and another Setti of the same king is named Raddi Namakara, son of Ayyappa Reddi."[46] It must thus be noted that even Reddis were appointed as Settis of the king. In every town and business center, it would appear, the king used to appoint these royal Settis to dispose-off the grains collected as state's share from the cultivators. Establishing equivalence between a commodity and its prevailing market value has always been the skill of this community.

"The villages were self-sufficient to the extent of food and clothing. However, several other items like salt, minerals and forest produce must necessarily reach every village. Among the aromatics, pepper, ginger (green and dried) and cloves were to be imported from other parts. Then, among the animals, horse, camel, cow, oxen, sheep and buffalo were traded during fairs and pentas, especially organized for animals, as now-a-days. The Velpura inscription of Dochana Peggada Ganapayya of 1247 mentions horse, ox, sheep, cart, ropes as saleable items."[47]

Orugallu, the capital town undoubtedly, was at the apex of trade pyramid. The market at this place was called 'Mathiya'. It changed to 'Mattewada' with the

passage of time. It was the center of all business activities then, just as it is today. Pangallu near Nalgonda, Jadcherla in Mahboobnagar, Alampur on the banks of Tungabhadra, Manthena in Karimnagar, Peruru in Nalgonda, Durgi in Guntur, Gantasala in Krishna, Tripurantakam in Prakasham and Dornal in Kurnool districts, among others were the important trade centers during the Kakatiya period.

The Kakatiya inscriptions give us some interesting insight about the king's responsibility in maintaining proper conduct of trade in the kingdom. "It is disastrous, it says, to the people if the king appropriates the merchandise, enhances the Sumka (tax) and refuses permission to Pardesi merchants (outsiders) to carry on trade, keeps himself unconcerned when the merchants enhance the prices as they like and when the weights and measures do not remain standard, allows theft and adulteration and the use of false balances even at the cost of his income."[48] The author continues that when a merchant assures monopoly of a commodity and tries to enhance its price abnormally, the king must confiscate the commodity, paying the dealer its lowest cost price. That is how a king had to deal with the evil trade practices." The ethical trade practices mandated around a millennium ago bear an uncanny resemblance with today's scenario.

The fourteenth century, with the penetration of Islamic armies into the peninsular India presented new challenges to the rulers as well as temples. The accumulated wealth in temples and forts, especially gold and jewels was plundered and carted away. The residual authority of the ruler was demolished. The capital city lost its authority and luster. In its wake new fortified urban centers, fully protected by forts and their garrison rose. The political existing and economic structures were shattered. They were replaced with an alien polity and a changed economy and new capital cities.

15.5 TANKS

The present day Telangana land in the year 2014, sheltering a population of some 351 lakhs, most probably had around 16 lakh population, a millennium ago. Certain features regarding its population density, being sparser than river valley plains or coastal deltaic spreads were equally true then, as they are today. The main reason hasalways been the underlying geography. The rocky nature of soil deposits on an undulating plateau, scrubby hills, wooded forests and limited rainfall, restricted to a couple of months followed by a long dry spell could not have been the first choice of early settlers. Whatever population was subsisting on these lands must have struggled hard against the elements for millennia to ensure its own survival.

The lack of perennial river systems in the peninsular India was compensated by developing 'water storage technology'. Since the turn of the millennium, successive dynasties like Sathavahana, Chalukyas and Rashtrakutas had perfected the technique of check dam constructions across streams and tank construction technology in general. By the time the Kakatiyas arrived on the scene, all these water harvesting structures were well known to the rulers and people alike. Dams were erected across streams and channels taken off from them. In undulating plateau geography of Telangana lands, a

chain of tanks (golusu cheruvulu) were constructed along a formidable stream, so that the surplus of a tank in upper reaches flows down to fill up the successor tank downstream. This cascading flow was completely captured through a chain of tanks, even at the height of copious rains during a vigorous monsoon. Most often, the size of a large tank was so large as to accommodate the highest rainfall once in a while, without ever getting breached. A proper management system for maintaining these tanks was always in place.

"Construction of tanks and settling people was embedded in the policy of Kakatiya rulers. Innumerable inscriptions mention about Ganapathi Deva's instructions to his chiefs to carry out his wishes by constructing a tank and settling people around it. All the chiefs took pride in carrying out the ruler's wishes. The spree of constructing irrigation projects continued apace due to active interest taken by the wives of ministers and high ranking officials. Kuppembika, the wife of Malayala Chamunda excavated several tanks, namely Basasamudram, Kuppu samudram and Ganap samudram and donated her lands behind the tanks.[49]

"In due course of time, the Kakatiya Kingdom came to be dotted with countless tanks with settled agriculture and expanding prosperity. The Ramappa and Pakhal lakes are just two examples, which survive even today, after seven long centuries." Ramappa lake, 'stands like an ocean that has come thither from fear of submarine fire and looks like a mirror for that city. All the clouds certainly take up its water, not that of the ocean, for they everywhere carry sweet water." About Pakhal lake, "Because of its depth, Sesha in its waters relieves himself of drought by means of the throat position of its coolness; by reason of its breath, the damsels of the region of space together perform in it adequate sports; because of its height, its waves spring over the river in the park of the celestial city; into it the orbs of the sun and moon sink by way of substitution, because they imagine it to be an ocean.'[50]

In Telengana, therefore, unlike the rulers located in river valleys or deltaic areas, the kings and their dependents had a tough task of clearing jungles, harnessing streams and managing cultivation. In times of erratic rainfall or spread of epidemic, the challenge must have worsened due to loss of crops and perishing of small animals and human beings. The arrival of Kakatiyas, being the native rulers, was accompanied with strenuous efforts to harness land and water for cultivation. A large number of villages were founded by them or their subordinates. Most of the habitations in the forest tracts of Manthena, Kaleshwaram, Chennur, Narsampeta, Achampet, Khammametu and Kothagudem were all founded during those times. All these habitations were embellished by construction of a tank. The donors, quite often due to their religious zeal, not only funded the entire projects but distributed the consequent benefit in a ratio 1:2 between the temple and the king. The people's faith in the authorities, both priestly and temporal remained intact.

To settle a village and to construct a tank was a pious act; and added to one's good deeds. All the rulers and their sub-ordinates, therefore, were busy in earning these spiritual credits for their present life and even beyond. Rudradeva created Rudravaram village; Mahadeva established Mahadevapuram village and Ganapathi deva established Gnanapuram village. Even royal queens did their bit. Bayyaram village has the imprint of

Bayyaldevi and Muppavaram village carries the name of Muppamamba, the sister of Ganapathi deva. Kundamamba gave Kandasamudra tank to the village of Kundavaram in Chinnur taluka. In 1144, an inscription in Parenda in Nalgonda district records the creation of an Agrahara in the same name. "Shares in the lands were assigned to several Brahamanas, Setti, Boya and some temples, with a specific condition that the donees should neither leave the place nor sell away their shares. They were expected to remain there so as to ensure that the village prospers. The lands in the village were exempted from payment of all kinds of taxes, obviously to promote the new settlement."[51]

TANK, A SPRITUAL VIRTUE

Sapta-Santanas or seven deeds of everlasting virtues, being mentioned in Hindu ethics comprise of producing a son, building a temple, laying a garden, constructing a tank, establishing an Agrahara, undertaking a literary work and accumulating a treasure. Divine benefits attached to the construction of a tank have been mentioned as an incentive in countless inscriptions in Kakatiya times. The tank construction was invariably preceded by installation of Varuna, the God of waters, in order to ensure good supply of water by his grace.

The Kakatiya capital cities of Anumkonda and Orugallu are not served by a perennial river or a natural water body in their proximity. This is in sharp contrast to similar capitals in the contemporary kingdoms like Chalukyas, Deogiri, Hoyasalas, Cholas and Pandyas which had rivers like Krishna, Godavari, Kaveri and Vaigai serving the capital needs. Therefore constructing tanks, reclaiming forest lands and settling people on irrigated agriculture was the essentialtask of Kakatiya's socio-economic policy. It was also a geographic imperative in plateau lands with a few monsoon months, followed by dry spells. Driven by this logic, all the Kakatiya rulers constructed several tanks; their example was followed by the royal personages, including royal women and others. The table given below is quite eloquent.[52]

Patrons	Tanks	Canal	Well	Ponds	Total
Kings	64	11	01	01	77
Royal Officials	48	12	01	14	75
Royal Women	09	01	01	06	17
Others	06	03	--	02	11
Total	127	27	03	23	180

(Source: Rao Dayakara, 2016, p 33)

In fact, the Samanthas increased the area under irrigation and cultivation in their own jurisdiction. After meeting their expenses, the surplus went to the central authorities by way of taxes, along with military assistance. It also enhanced the political status of the subordinate powers of Kakatiyas such as Viriyala, Kanduri Choda, Cheraku, Natvadi, Malyala and Recherla families. Among them, Recherla fared well in the polity as well in the economy, since they were supporting Kakatiyas during their troubles with the Yadavas. 'Almost 30% of total irrigation facilities were developed by Recherla chiefs and Kanduri chodas developed 35%.[53]

Feudatory Chiefs	Tanks	Canals	Wells	Ponds	Total
Recherla	**15**	**05**	**--**	**01**	**21**
Malyalas	**05**	**04**	**--**	**01**	**10**
Viriyalas	**05**	**--**	**--**	**04**	**09**
Cherakus	**04**	**04**	**--**	**03**	**11**
Kanduri Chodas	**20**	**04**	**--**	**--**	**24**
Total	**49**	**17**	**--**	**09**	**75**

(Source: Rao Dayakara, 2016, p 34)

The Recherla chiefs were not only enhancing the agricultural production and also stabilizing Kakatiya rule. In the future, this investment would help them to consolidate their grip over power, even after the fall of Kakatiyas.

'In the Kakatiya administration, there seems to have been no centralized department to look after either the construction or maintenance of tanks. The Kakatiya kings themselves constructed big tanks. Prola I constructed Kesari Samudra near the village Kesamudram in modern day Mahboobabad Taluka of Warangal district. His son Beta II began the construction of two tanks. Rudradeva caused a big tank to be constructed in the town of Udaychanda, while his minister Gangadhara is known to have constructed a big tank in Hanumkonda. In due course of time, their ministers, subordinates and rich families constructed many tanks across Telangana. Pakala tank, Ramappa lake, Ghanpur tank, Laknavaram tank and so many others have withstood for centuries and continue to irrigate vast extents of land even today.'[54] 'In short, there could not have been a village without a tank in those distant times. The same reality is discernable in all the districts of Telingana even today.'[55]

Besides tanks, subsoil water along the sandy banks of rivers and streams formed another source of irrigation. 'Drawing water by means of mota was in vogue in those days. They were called ratanas. Bullocks were generally used to lift the water from deep wells. An inscription records the gift of a ratana with necessary wood and bullocks. But when water is not very deep, men also used to lift it from canals and wells. Reference to ratanas, that is lifting water by pulley device is very common in the inscription. It seems that these ratanas were let out for rent by the owners of the wells to the neighbouring landowners who did not possess wells.'[56] Quite often, the money or grain collected was gifted to a certain deity. Similarly, small ponds or kuntas were granted as gifts to the Gods. It would appear that innumerable water bodies, apart from enriching human beings were ensuring prosperity of divine beings as well.

This organic linkage between a tank and the temple gave rise to a unique system of maintenance of water bodies.'A record in the Amarabad village datable to thirteenth century A.D. states that a tank belonging to the temple of Swayambhudeva was repaired by a certain Mallisetti. Thereby he irrigated new land and paid 30 madas towards the cost of the land, 25 madas for acquiring niri-mudi, the right of using water from the tank and 10 visas as recurring annual water cess, all the three items being paid to the temple treasury.'[57] It is interesting to note here that a private individual on his own accord raised the tank bund and got the land irrigated, paying the amount to the temple under the above

heads. The individual as well as the owner of the tank, i.e., temple are benefitted. This is a fitting example to illustrate as to how tanks, organically attached to the temples were maintained in those days.

"The regular maintenance and upkeep of these irrigation sources was organized with sufficient care. Annual repair to the bunds, removal of silt deposits on the bed and repairs to canals and sluices were looked after by a dedicated body of persons. Those persons were granted an income levied on the cultivators, generally at the rate of one Kuncha for each putti (5% of 20 kuncha is 1 putti)of the gross yield of grain. It was known as Putti-Kuncha or Cheruvu-Kuncha. There was another kind of remuneration called Dasabandha (one-tenth). These charges, it would appear, were in the range of 5% or 10% as a water cess collected and paid locally to those who maintained the irrigation works."[58]

All the arable land in the kingdom broadly fell in two categories. The lands irrigated by rivers, rivulets, canals, tanks and springs were called Nadi – Matrikas. The other rain-fed lands by nature were called Deva – Matrikas. A look at the variety of crops grown during those times would be appropriate.

'Paddy and millets, grown on wet and dry lands were the staple crops in all parts of the kingdom, as it is today. The harnessing of water on all kinds of streams, small or big, seasonal or perennial for lands lying along their courses was not insignificant. Every village was self sufficient with regards to its food, fodder and water needs. Abundance of rice is attested by innumerable inscriptions.'[59] All kinds of millets along with wheat, green gram, horse gram and black gram were grown in the fields. Sesame was the main oilseed while mustard, areca nut, coconut, betel leaves and sugarcane were the important commercial crops of that period. Handloom industry needed cotton which had been produced in vast areas since the times immemorial. Vegetables, roots, turmeric, jiggery, indigo, onions and ginger were also grown by the farmers.

The cycle of seasons and rainfall pattern in the geography of Telangana had remained, by and large, consistent over centuries. Therefore, the cropping cycle from sowing to harvesting had remained stable. This also explains the seasonal regularity of various agricultural festivals observed by peasantry in Telingana countryside. Decoration of bullocks and carts and worshipping seed pots along with deity before sowing is still a common sight. A temple on a tank bund is revered as 'Katta Maisamma' by all, with a prayer to Gods to ensure safety of the tank and its filling up during the monsoon season.

The surplus produce from irrigated and settled lands was bound to initiate trade with the outside world. That is where the acumen of the ruler was reflected. After the fall of Chalukya Chola monarchy in coastal regions, the foreign trade deteriorated considerably. Traders were insecure as the king used to take away by force the whole cargo of shipwrecked merchants. But, once his authority in coastal areas was established, Ganapathi Deva brought the situation under control. A charter of security (Abhayasasana) was issued and Motupalli inscription states that he gave protection to all merchants who wished to trade in this part and made them free from oppressive taxation. Moreover, the duties on all exports and imports were not to exceed $1/30^{th}$ of their value. This edict was

renewed a century later by Annupota Reddy (1378) and corresponded to the general practice that prevailed in all the ports, controlled by enlightened and progressive rulers of peninsular India. Duties were fixed for various articles and a state representative was stationed there to ensure fair treatment to all traders. The articles traded were gold, elephants, horses, gems, sandal, camphor, pearls, ivory, silk thread, cereals and spices etc.

The trade driven prosperity was reinforced by the existence of guild system which networked traders dealing in a specific commodity. These networks, often transcended political changes and were therefore not much impacted by wars and revolutions going on all around. The most celebrated guilds from fairly early times were the 'Manigramam' and the 'Nanadesis'. The records of the Kakatiyas speak about the merchants of home country (Swadesabeharulu), merchants of another country (Paradesabeharulu) and merchants from different countries (Nanadesis). The first were the local merchants organized in local guilds – nagarams. The second were like the first, except that they came from another country; perhaps combining business with pleasure while on a visit to their neighbours, or possibly acquiring religious merit by attending yatras and festivals in famous shrines. The last were the powerful guilds which included merchants from all the countries, with established branches in all of them.

The Nanadesis certainly brought traders from outside, but they also opened a window for any local enterprising trader to look out for opportunities. They played a very important role in encouraging foreign trade from these lands with countries situated afar. The term 'Manigramam' is a corruption of 'Vanik – gramam', 'an association of merchants'. The traders paid the 'Sunka' regularly, and filled the royal treasury with gold and jewels, and replenished the king's armoury, besides bestowing gifts on pundits and sages "versed in the four samayas and six darsanas". These activities involving continuous meetings and intermingling of people of diverse social background created a liberal and cosmopolitan atmosphere, as opposed to an insular and provincial attitude to life, so common in a peasant society. There were guilds amongst those dealing with Panch Lohalu (five metals), perfumes, money exchangers, areca nut dealers and santa guilds (The weakly fair is called santa). Incidentally, the weekly market i.e., santa is mentioned during Satavahana times as well.

Internal trade was equally brisk in those times. Both, native and foreign traders were participating in internal trade. Bandi (a cart load) was the unit of measurement and the basis of calculating the dues for bulk commodities like grains, fruits, oil and ghee. Peruka was the unit for salt and unhusked grains. Tula (weight) was the unit in case of sandal and metals, pada in case of javadi and maddur, kodi in case of ivory and silks; malga in the case of yarn and cotton piece. The overall prosperity was so much that, "Ganapathi Deva's representative Pochana Preggada Ganpayya remitted custom duties payable to three hundred bullocks used in importing goods in the town of Tripurantakam."

The extension of agriculture was encouraged at all times by granting special facilities and tax concessions for specified periods to people who reclaimed land and brought it under cultivation for the first time. Closely allied to agriculture was cattle

rearing and dairy farming. The eco system in Telangana was quite suitable for rearing sheep and goat. Then, dairy farming had been yet another activity prevalent all over. Ghee was not only an important item of food amongst well to do sections in the society, but was used in considerable quantities for lighting lamps in the large temples.

"During Prataparudra's time, agriculture development was amongst his priorities. He, while on a military campaign against Kayastha Chief Ambadeva, directed one of his officers Irupaketi Nayaka to clear the jungles. He accomplished the task and founded a village named 'Dupaddi'."[60] Similarly, the dense forests covering west of Srisaila mountains were cleared by the order of the king and new population was rehabilitated there. This developed the material resources of the people and also enabled the ruler to expand his revenues. To facilitate the settlement of new arrivals, they were exempted from the payment of revenue for the first three years. New inhabitants arrived, cultivated lands which attracted more people. Increase in population, agricultural expansion and enrichment of state revenues got linked up in a virtuous cycle.

Besides agriculture, industries were also in a healthy condition. "Spinning and weaving formed a major industry, which enjoyed good reputation in the world market. Marco Polo informs us about the muslin manufactured by the local people, that "you must know that in this kingdom best and most beautiful and finest buckram, in the world is made and most costly too. For I assure you that they were like tissues of spiders web. Indeed they are so beautiful that the greatest king and queens might wear them as something truly royal. The people have also the largest sheep in the world, and great abundance of all the necessaries of life."

The flourishing condition of this industry is attested by the payment of tax by weavers. The Mellacheruvu inscription in Huzurnagar taluk in Nalgonda district dated 1312 CE informs us that weavers were paying 16 sinnas per year as professional tax"[61]

If agriculture and industry were powering the economy within the Kakatiya territories, an acceleration was provided by trade including foreign trade. An inscription from Tripurantakam dated 1292 says that various kinds of grain were generally sold in that market. Marco Polo, a Venetian traveller, who visited Motupalli in 1293 CE, informs us that the Kakatiya Empire had trade relation with the great Khan. He says, "do not suppose that the good diamonds are brought to our Christian countries, they are all taken to the great Khan and to the kings and barons of these kingdoms. It is they who possess great treasures and purchase almost all valuable stones."[62] After praising the virtuous queen, his observations regarding diamond industry are quite appropriate.

"It is in this kingdom that diamonds are got; and I will tell you how. There are certain lofty mountains in those parts; and when the winter rains fall, which are very heavy, the waters come roaring down the mountains in great torrents. When the rains are over, and the waters from the mountains have ceased to flow, they search the beds of the torrents and find plenty of diamonds. In summer also there are plenty to be found in the mountains, but the heat of the sun is so great that it is scarcely possible to go thither, nor is there then a drop of water to be found. Moreover in those mountains great serpents are rife to a marvellous degree, besides other vermin, and this owing to the great heat. The

serpents are also the most venomous in existence, insomuch that any one going to that region runs fearful peril; for many have been destroyed by these evil reptiles.

Now among these mountains there are certain great and deep valleys, to the bottom of which there is no access. Wherefore the men who go in search of the diamonds take with them pieces of flesh, as lean as they can get, and these they cast into the bottom of a valley. Now there are numbers of white eagles that haunt those mountains and feed upon the serpents. When the eagles see the meat thrown down they pounce upon it and carry it up to some rocky hill-top where they begin to rend it. But there are men on the watch, and as soon as they see that the eagles have settled they raise a loud shouting to drive them away. And when the eagles are thus frightened away the men recover the pieces of meat, and find them full of diamonds which have stuck to the meat down in the bottom. For the abundance of diamonds down there in the depths of the valleys is astonishing, but nobody can get down; and if one could, it would be only to be incontinently devoured by the serpents which are so rife there.

There is also another way of getting the diamonds. The people go to the nests of those white eagles, of which there are many, and in their droppings they find plenty of diamonds which the birds have swallowed in devouring the meat that was cast into the valleys. And, when the eagles themselves are taken, diamonds are found in their stomachs.

So now I have told you three different ways in which these stones are found. No other country but this kingdom of Mutfili produces them, but there they are found both abundantly and of large size. Those that are brought to our part of the world are only the refuse, as it were, of the finer and larger stones. For the flower of the diamonds and other large gems, as well as the largest pearls, are all carried to the Great Khan and other Kings and Princes of those regions; in truth they possess all the great treasures of the world."

It would appear that diamonds produced by nature in Telengana were being collected by its people and traded globally - some eight centuries ago.

15.6 TEMPLES

If village had been the microcosm of Indian society, the caste system had been its basic structure. It would be appropriate to have a brief look at this social realty during the Kakatiya times.

The institution of caste, with all its social and economic implications was accepted almost universally, and the upholding of the social order organized on its basis was held to be the primary duty of the ruler. This explains at once the prevalence of social categorization in matters of food and marriage. It also, at the same time, explains the readiness with which various groups came together and cooperated in matters of common concern like the management of a temple and its adjuncts, the regulation of land and irrigation rights in the village and the administration of local affairs, including periodic fairs and festivals. The emphasis was throughout on the performance of duties attaching to one's place in the socio-economic hierarchy, rather than on the rights of

individual or a group. The general atmosphere was one of social harmony and contentment with the existing order. Differences and disputes were surely there, but they were seldom acrimonious. Social violence was rather unknown.

Given this stable social edifice, the cultural effervescence during Kakatiya times was quite impressive. The temple construction was a sustained activity encouraged by the rulers.

The temple was much more than a place of worship. It filled a large space in the cultural and economic life of the people. Its construction and maintenance offered employment to several architects, and craftsmen who vied with one another in its bold planning and skilful execution. The making of idols in stone and metals gave scope to the talents of best sculptors in the kingdom and even beyond. The daily routine of the temple gave constant employment to a number of priests, choristers, musicians, drum beaters, dancing girls, florists, cooks, petty shopkeepers and many other classes of servants. The periodical festivals were occasions marked by fairs, contests of learning, wrestling matches and every other form of popular entertainment. Schools and hospitals with dispensaries were often located in temple precincts. It also served often as the town hall where people assembled to consider local affairs or to hear the exposition of sacred literature. The endowments in land and cash bestowed on each temple by successive generation of pious rulers tended to make it at once a generous landlord and a fair banker whose aid was always available to anyone who needed it. The practice of decorating the deity and other images, especially during processions encouraged the jeweller's art to a considerable extent. In short, a temple was a social nucleus around which revolved a diversified economy with its attendant employment and assured incomes. **It would not be an exaggeration to say that the temple gathered around itself all that was best in the arts of civilized existence and regulated them with the humanness born of the spirit of "Dharma'. As an agency of social wellbeing, the temples of India in the bygone age had few parallels across the world.**

The famous, Thousand Pillar Temple in Anumkonda, a fine example of Chalukyan architecture was constructed during Rudradeva's times. Its inspiration appears to have come from the temple at Vardhamanapura seen by him during his military campaigns. He won the battle, left the temple intact, returned to his kingdom and replicated the same. This temple at Vardhamanapura seen by him was dedicated to the three Gods; Shiva, Vishnu and Surya. So is the case with the Thousand Pillar Temple. One of the important features of the temple is a beautifully carved monolithic bull (Nandi) placed on the platform. Emulating his example, other chiefs and ministers also built several temples and endowed them with gifts. The mantri Gangadhara too needs special mention. He assisted in Rudra's wars as well as his pious deeds. Prola-II regarded him to be a warrior of great valour and a man of upright character. "He built temples for the God Prasanna Kesava in the capital and other places and endowed them with Vrittis (land tenures)."[63]

"During Ganapathi Deva's times, several temples sprouted in the Kingdom. However, Palampet and Ramappa temples are the unique specimen of those times. They

were completed in 1213 by Recherla Rudra, the commander-in-Chief of Ganapathi Deva. The marvellously sculpted dancing damsel has been described as poetry in stone. G.Yajdani has remarked that what we are trying now to express in the west was perhaps expressed in India 800 years before."[64]

"Prataparudra too, like all his predecessors, erected several temples. Some of them are Nagesvara temple in Pedakallupalli in Krishna district. Bhimnath temple at Pinnali in Guntur district, Gopinatha temple at Motupalli in the same district and Gautmeswar temple at Manthena on the bank of Godavari. This Gautameswara temple deserves special notice. It is a trikoote and a thousand pillared type in red sand stone."[65]

These temples in a certain manner also became the centre of education. The endowments provided for the recitations and exposition of the epics and puranas. An intelligent and popular expositor, mostly a Brahmin, seldom confined himself to the words of his text. He amused his audience by also ranging over a variety of topics, including shrewd comments on current affairs. The singing of devotional hymns in temples by choirs regularly maintained for that purpose in schools generally attached to the mathas was another aspect of education.

The construction of Warangal Fort was another feather in the ruler's cap. The double walled solid granite fort has all the appurtenances of a state in full bloom. The imposing gates, towering bastions, wide treads to enable garrison to rush in large numbers to counter a sudden enemy's attack and several temples inside the fort provide rich proof of a golden era in Telangana lands, some eight centuries ago.

All Kakatiya rulers, paid considerable attention to learning also. The rulers and their ministers were not only scholars but they encouraged men of learning as well. During Rudradeva's times, we are informed that, "In the houses of excellent Brahmins, clever parrots join the students, though prevented, and study the vedas, which contain all vedangas, all appropriate subjects, beautiful histories and well studied in Pada order." Rudradeva himself was a great scholar. He was having several recreations, bestowed great Brahamanas, destroyed the cities of enemies, moved with the poets and was resorted to with love by all learned men. In one place, he is called 'Vidyavibhushana.'[66]

An all round visionary like Ganapathi Deva could not have remained aloof from the pursuit of knowledge. He made lavish endowments to Brahmans and founded several Agraharas. These Agraharas were important centers of higher learnings. Once, on the auspicious occasion of solar eclipse, he donated a village named, Kolavennu situated on the banks of river Krishna to 130 Brahamanas. The record states, "Ganapathi, having named after his father a big Agraharam of great renown on the banks of the river Krishna, gave with pleasure the Agraharam to the best of Brahamanas who were well versed in the Vedas and all the branches of knowledge and who had specialized in that branch, namely Sukla, Yajurveda, which has been reputed to be the first among all the branches of the Veda and which had the honour of having Yagnavalkya as their progenitor."

The ruler also patronized a number of poets and scholars who were renowned for their knowledge. Iswarsuri was well versed in Yajurveda and had mastery over Panimi's

grammar. Racin was another poet who composed highly artistic poetry. Jayapa Nayaka, the son of Divi ruler after Ganapathi Deva's victory was appointed as Gajasenapathi. He wrote a book 'Nritta Ratnavali' which throws light on the pattern of native dances.[67]

Rudramba's achievement was most notable in the social arena. She herself was a sudra, but married one of her daughters Rayyamma to a Brahamin minister of Induluri family. That is perhaps understandable as there must have been many willing suitors from other castes to marry queen's daughter even if born in a different caste. But, what Rudramba achieved as a woman ruler in those distant times is unparallel. As a queen who died while defending her empire in the midst of battlefield, she is remembered by posterity, even today. Born in around 1220, participating in administration from 1259 onwards, ascending the throne as the queen in 1262and finally dying as a fighter in 1289 was her total life span.But her legacy has transcended her times and continues to live on, even today.

Prataparudra took equal interest in the promotion of education and encouraged learned personalities. "He himself was a great scholar. He wrote "two famous books namely the Yayati-charitra and the Usharagodana in Sanskrit and a commentary on Amarasulra. He has been characterised as Vidyasati vidite-vinava-virarudra abhidhanah, a learned sovereign of lofty character, and his capital Warangal has been described thus:

"Vidyaviara padaviti cha labdhavarnah

Sri Kakatinarendra nagarimnisam stuvanti."

He patronised several famous scholars and poets such as Vidyanathi, Rudrabhatta, Tripurantaka, Sivadevaiah. Vidyanatha wrote several volumes of books, in which the Prataparudra Yesobhusanar or the Prataparudriya is of much historical value and deserves special notice. Though it is a work on Alankara Sastra (Poetics), all the illustrative verses are eulogies of his patron. Naturally it gives us some pieces of information of historical value."[68]

Narsimha was another court poet of Prataparudra. He was son of Visesvara Pardita, the Rajaguru of Rudrambadevi. His greatness is inscribed on the damaged gate in the Warangal fort in which he is compared with the God Narsimha --

"The God Narsimha came out of the pillar of the assembly hall with an ugly face having the well-known forms and killed Hirankasipa whereas the poet Narasimha, without (facing) any suppression in the assembly (of scholars), not being deprived of gold (hiranya) and clothing (Kasapu) and not being defaced (due to shyness).He wrote several books such as the Rikchchaya, some treatise on Sastra, the Kakarira Charitra in eight sargas. His other works were the rupakas (plays) and a prose work (Gadya Kavya) the malayavali. Another poem composed by him is lying on a boulder in Urusugutta in Warangal taluk. The title is not mentioned, but the editor has called it as 'Sidahodvaha'. Though it is in Sanskrit, its script is Telugu, only the first line is in nagari character. It starts with a mischievous Yaksba seeing a Siddha couple sporting on the sands of the Ganges, causes them to be separated from each other with the objective of enjoying fun out of their state of sorrow (virah) on separation. The Siddha surprisingly found his wife

absent from his bed. He started to search for her with heavy heart and he began to narrate in soliloquy the story of their love from beginning to the first union."[69]

A look at the evolution of Telugu literature through the vicissitudes of these centuries would be appropriate. The beginnings of the Telugu literature, in fact goes back to eleventh century when Nannaya Battu, the court poet of Eastern Chalukyas began to translate the famous epic Mahabharata from Sanskrit into Telugu. He could translate only a part of the epic in his life time. After a long wait of around two centuries, arrived Tikkanna who completed the translation of the epic in his life time. A national epic for Telugu people had been created and therefore, Tikkanna Somayajulu is reckoned as one of the greatest poets of Telugu. He laid down his pen by around 1290 CE. After Mahabharata, it was naturally the turn of Ramayana, the most popular epic amongst the masses to be translated. During the thirteenth century at the heaight of Kakatiyas, many poets attempted it successfully. Gona Buddha Reddy, a tributary of Kakatiyas was the first to translate Ramayana into Telugu in 1250 CE. The work is known as 'Ranganatha Ramayana'. Quite close on the heels of this work, came another translation of Ramayana known as 'Bhaskara Ramayana' which is attributed to Mantri Bhaskara. The classical period or the age of Puranas was at its height.

At this juncture, there arose in Tilangana a rhetoric Shaivite poet, Palakurthi Somanatha. The Shaivism, which emanated from its home in the Kannada country was spreading its vigour into Telugu land. King Prataprudra, the last Kakatiya monarch himself was a Shaivite, like most of the poets and rulers during the Kakatiya period. But Palakurthi Somanatha was radically different. He revolted against the existing order as defined by the Vedas, the Brahmana, the caste system and the time honoured models of Sanskrit language. He chose the lives of Saivite and dealt with the known persons to describe the contemporary life. He was indeed a pioneer for realistic poetry. He was followed by Ranganatha, Bhaskara, Yerrana and Nachanna who were the highlights of the fourteenth century. During the times of Prataprudra II a Vaishnava devotee, Krishnamachari, inspired by Kannada devotional compositions, introduced Telugu lyrics. These kind of devotional lyrics were to be perfected latter by the famous Tallapaka poets.Similarly, Srinatha, Bammera Potharaju and a galaxy of others illuminated the fifteenth century."[70].

THE POET'S VISION

Poets are the authentic witnesses of their times. Their work provides a glimpse through the vicissitudes of history.

In 1162-63 CE, during the reign of Rudradeva, the Thousand Pillar Temple complex was built. Apart from several important features, a remarkable balustrade sculpture from a ruined mandapa symbolizes the great queen Rudramba devi, shown on lion trampling elephant like enemies (daya-gajakesari). The epigraph gives a graphic description of Hanumkonda, its learned scholars and damsels of this beautiful city. A translation from Sanskrit stanzas is as follows:

> A capital city named Anumakonda which was like the capital of the goddess of fortune raised to a great state by the rise of the excellent and full grace (lila) of

God Siva who was there: which was full of delight (Rati) like the city of Cupid: and it is like Mahendri in being possessed of temples Jishnu and Vishnu (as image in its temples) and (which was) beautiful with the charm of plantain trees (with the amorous play of Rambha):"

"Where, the women were indeed the metropolis of Cupid, having eyes like the petals of the blue lilies and slim bodies; ornaments to the women of the three worlds and had bodies weighed down by the weight of big and high breasts:"

"(Where) in the houses of the excellent brahmins clever parrots join the students, though prevented and study the Vedas (which contain) all the Vedangas all appropriate subjects, beautiful histories and (which are) in well studies pada and krama methods:"

"(and where) in the house of courtesans the loud and sweet sound of young parrots make all the quarters resound - (parrots) imitating the sounds of amorous sports in sexual enjoyment, which are during day-time like full moon of the tremulous ocean of the excitement of love."[71]
(http://asihyd.ap.nic.in/Warangal_monuments.html).

Yet another inscription belongs to the period of Prataprudra. It consists of thirty six stanzas. It describes the socio-pastoral and agricultural scenario in lyrical details. The translation from Sanskrit to English is as follows.

"There is the great Andhradesa full of rice (fields) of golden hue, resembling the dales of the golden mountain (i.e., Meru) with gems.

There, the rice-fields, containing waving waters inside, resemble the shores of the sea with dark-tinged verdant.

The parrots (that come to eat the grains) fly away being frightened by the sounds produced from the bangles due to the clapping of the hands by the women-guards of the rice-fields and also being overcome by their utterances.

In the groves of trees like rasala (the mango), sala, himtala (the marshy date), tala (the palmyra) and ketaka {Pandanus odoratis simus), youthful couples are engaged in amorous activities.

There, the bees, being blind-folded due to (intoxication) of the strong smell emanating from the honey of mango trees, could not see even their consorts.

The bees, there, are not only attracted by the smell of the creepers of the Santana forest but also by the odourless Karnikara trees (due to their attractive colours).

Some of the peasant youths of the place, having been attracted by the bewitching glances of the peasant maidens, forget (their work of) ploughing.

The gaits of the peasant maidens of the place seem to serve as lessons to the swans while their glances serve as models for the female deer.

The entire country (seems to be) covered by a blue raiment because of the spreading of the sheen of the crops in the fields.

The sound produced by the group of conch-shell bangles (seen) in the hands of the damsels of the country has outstripped (that of) the innumerable swans.

The multitudinous heaps of paddy seen in the courtyard of the houses, there, look like the clouds in the sky, possessing lightning.

Where the fallow land protected by thrones (i.e., full of thorns) and containing un-demarcated with interspaces with cattle beside them, become bashful (i.e., become objects of pity).

There the parrots, thinking that they belong to their own group, resort always to the groves of plantain trees with attractive green leaves.

The honey that flows always from the innumerable mango trees, there, seems to suggest that it is intended for the peacocks to dance without pain.

The golden-hued pollen of the mango trees, there, resemble the dusts of the sun produced by chiselling.

The hair of the peasant woman in the act of being dressed by their dart – like hands give the appearance of the spread-out plumes of the peacock.

The countless big cities of the country outshine the numerous divine cities: because, instead of the Nandana (the pleasure garden of Indra) and the Chaitraratha (the sporting park of Kubera), its entire forests constitute the Nandana and the whole (of the wooded land) constitute the Chaitraratha here.

The male elephants of the country, with their half-closed eyes caused by their being with their mates look like the couples of elephant-headed (gods) possessing also elephant's body.

The heavy chariots covered with numerous blue clothes and resounding with the (jingling sounds) of the small bells (attached to them), resemble the clouds with groups of shining lightning's (accompanied by thunder).

In the country are hundreds of tanks and thousands of rivulets; and they indeed appear to be the ocean and his consorts respectively.

The young cows of the country resemble the rays of the sun; the former by giving milk become the removers of suffering (of the people) of the three worlds, while the latter (by causing the rains) become the purifier of the three worlds.

Here is the great city called Ekasila which by its splendour seems to spread over the entire region up to the shores of the ocean.

The melodious speech, the deep sound of the small bells of the waist-band, and the anklets, of the tender-limbed damsels of the place are responsible for the sleeplessness of the goddess of Prosperity.

The assemblage of numerous damsels with moonlike faces, on the top-most floor of the houses of the city, makes it difficult to know about the existence of the real moon in the sky.

The heaps of camphor seen in the shops of the bazaar look like a collection of moon-beams…….

The houses of the city with never-diminishing (heaps of) sapphire and moon-stones appear to show simultaneously the darkness and moonlight together.

In this city, the beloved, by their bewitching glances, cause affliction to their lovers; (similarly) the lovers, by their beautiful sights, cause affliction to their beloved.

Whom do not the glances of the women of the place, (like those of the gopis on the bank of the Yamuna), which excel (in beauty) the collection of crawling waves of the daughter of Kalinda (i.e., the Yamuna) attract (or make into a Krishna)?

The glances of the women with curved eyes, made tremulous by the power of liquor, look like the rows of swords held in the hands of Rati-natha (i.e., Cupid).

The lips of the women of the city have rendered everything else inferior to them; and their side-looks (appear to) suggest that they have blessed the groups of lotuses (i.e., excelled them in beauty).

By the gestures of their hands (adorned) with bangles, the women of the city frighten the swans in the sporting ponds for having stolen their gaits.

The damsels of the city, the rays of whose ear-rings become merged into the spaces of the quarters, listen to music appreciatively.

The bees that are attracted by the drip lets of honey in the water-lilies serving as ear-rings of the ladies of the city, are frightened away by the sounds of the bangles in their hands (produced by the gesture of waving).

Do not the lotus-eyed damsels of the city by their (enchanting) smiles resembling the moon marked by the (dark) sheen of their glances mock at the daughter of their lords?

By the rays of their moon-like faces, the pupil of their eyes serving as the dark patch of the moon, the women of the city seem to feed the birds which feed upon the moonlight (i.e., Chakoras).

The women, with their faces resembling the full moon and their forehead resembling the half-moon, demonstrate that all the arts are acquired by themselves (i.e., by looking at their faces it is easy to know that they are kalaratis).[72]

The poets' imagination is too vivid to need any explanation. The overall political ambience witnessed just five sovereigns ruling the imperium spreadover one hundred and sixty five years. Political succession was orderly without any bloodshed. Kakatiya times were perhaps closest to the 'Golden Age' for the land and people of Telengana.

15.7 A GLIMPSE OF THE KAKATIYA TIMES

During the second half of the first millennium, the present day Telangana lands came under the sway of Chalukyas and Rashtrakutas. They belonged to Kanarese stock and ruled from Vatapi, Manyakhet and Kalyana, all lying outside Telangana. But the beginning of the second millennium witnessed the rise of Kakatiyas who controlled areas including the present day Telangana from its midst. Ruling from Anumkonda and then Warangal as their capital, the Kakatiyas were the first native rulers to have brought such immense glory to the lands.No wonder, their reign is reckoned as the golden age in the millennial history of Telangana.

What were the essential ingredients which distinguished Kakatiyas from others? Well, eternal loyalty to the throne was one such virtue. Prola-II, as a feudatory remained loyal to his chief at Kalyani. While others revolted, he remained steadfast. This loyalty laid the foundation of future dynasty. The virtue percolated amongst army generals. When Ganapathi Deva was captured by the Yadavas of Devgiri, many feudatories declared their independence. But, the loyal general, Recherla Rudra, put down the revolts, protected the Kingdom and handed it over intact to Ganapathi Deva after negotiating his release. Loyalty to Kingdom begot loyalty amongst subordinates who ensured its sustained glory. Such vibrant description of land, flora, fauna, people and cities are hard to find in post Kakatiyan times. If poets are to be trusted, as territories expanded, the loyal chiefs, irrespective of their social background were allowed to govern without undue interference from the centre. This was the basis of Nayankara system of administration which evolved during Kakatiya's rule. Loyalty to the throne was its essence. Parricide, fratricide or murderous intrigues to capture throne were unknown.

Nobility was another virtue. It was perhaps embedded in their sovereign genes. Victory marches were followed by acts of nobility. Places of worship were neither destroyed nor desecrated. Rudradeva defeated Uday Choda. The latter became a vassal and married\ his daughter to the victorious King, who in turn celebrated by constructing a big irrigation tank, Rudrasamudram at Panagallu. Rudramba annexed Bidar and celebrated by constructing a temple in Warangal fort. Prataprudra after establishing his authority in Nellore and Cuddapah prayed at Srisailam and Tripurantakam. As areas were thickly forested, he undertook land reclamation and settlement of new villages. These acts of nobility, therefore, ran through the genes of Kakatiyas. That is what has made them immortal.

Tank construction was yet another feature of the dynasty. Rulers made it a point to construct at least one tank in every village. Huge tanks were constructed as well. Pakhala, Ramappa, Bayyaram, Kesamudram, Ghanapuram, Laknavaram and Kundavaram were constructed then. They have survived and serve the society even today. As well laid network of canals carried waters to parched fields, crops flourished, countryside flowered as the empire became food secure. Famines were unknown during those times.

Temple construction along with tanks was yet another feature. In fact, the two are organically related. Tanks ensured prosperity. And a part of the surplus wealth filled

temple Hundis. Kakatiya domains had innumerable tanks. It had innumerable temples too. The famous and well known temples like Thousand Pillar Temple, Swayambhu temple, Pillalamarri and Ramappa temples were constructed then. They have survived and attract devotees and tourists, even today.

Trade and commerce was also encouraged by rulers. Commercial complexes known as penta were built near big villages where weekly fairs were held. In course of time, they became petas or commercial street. Godowns and shops, built by rulers were given to merchants on hire. Roads were laid and goods were carried on highways by bullocks, horses and donkeys. Robberies were unheard of. The word 'pirates' or 'pindari' was yet to be reckoned by rulers. Societal peace ensured safe movements of goods, men and women across the empire.

Kakatiya rulers did not forget maritime trade. The vast eastern sea board gave them enough space to trade with Burma, China, Srilanka and Indonesia. Merchants from Rome and other cities of Italy visited famous ports like Motupalli, Machilipatnam and Krishnapatnam. Textiles, diamonds, spices and carpets were exported while horses, silk and glass were imported. 'Abhaysasanam' proclaimed by Ganapathi Deva guaranteed hassle free transaction, a sort of "green channel", to foreign merchants at Motupalli. As trade boomed, prosperity followed and the empire came to be dotted with several towns and cities. Alampur and Vemulwada developed as temple towns. Kollipaka, Potlacheruvu, Polavasa, Sanigram, Naganur, Pillalmarri, Kondaparthi and Palampet developed as administrative and commercial centers. The capital city of Anumkonda and then Warangal came to be known as Mahanagara, the biggest city of the empire.

A healthy respect for women was the most important social feature of those times. But, Kakatiyas had inherited it from their predecessors. Chalukyas were notably liberal in their treatment of women. They appointed royal ladies as provincial governors and district administrators. Queens and wives of high officials were allowed to wield power, openly and directly. Satavahanas were no different. They too, accorded high status to women. Royal ladies like Naganika and Balasri played a dominant role in state affairs. Satavahana Kings took pride in associating their names with their mothers like Gautamiputra and Vashisthiputra. Royal ladies during Satavahana times patronized Buddhism and made liberal grants to Chaityas and Viharas for Buddhist monks and mendicants. It all happened even when rulers were champions of Hinduism. Freedom of faith amongst royal ladies, even while at variance with their husbands was a unique feature of those times in Deccan lands.

Those women were fashion conscious too. They loved ornaments and bedecked themselves with a variety of jewels like earrings, necklaces, bangles, bracelets and anklets. They partook intoxicants and participated in entertainments like Madanotsava, Ghatam Bandhana, Kaumadi Yagam, where both sexes mingled freely. Society was open, not permissive. It had a rather healthy attitude toward religion, morals, sex and its women.

An overall healthy attitude towards women prevailed during the first millennium in peninsular India. It continued during Kakatiya times as well. Perhaps, a settled nature

of economy with faith based society without conflict had something to do with this. Tank was the pivot of rural economy, just as temple was the pivot of society. Neither Buddhism nor Hinduism encouraged loot of temple or chaitya wealth or its desecration. As long as tanks and temples remained safe and secure, the economic and social equilibrium remained stable. And, a healthy respect for women was a natural corollary of such a stable society.

The scenario in towns and capital city, of course was quite different. Trade and commerce brought prosperity to its inhabitants. But, faith in the gods remained intact in spite of power, pelf and riches. In fact, it got intensified. Kings prayed for prosperity of their kingdom as well as for their own victory. Big temples, therefore, were constructed. Nobility and chieftains followed. Temples multiplied. Then, the royal ladies prayed not only for themselves and their husbands but also continued to pray for their victory till the King would return from a military expedition. All in all, the entire society, be it Kings, royal ladies, nobility, chieftains, traders, peasants or commoners kept their faith intact around temples. As both, men and women visited temples, society developed a mutual and healthy respect. The thread of tank construction, temple worship and a healthy respect for women runs through all the peninsular Kingdoms, be it Satavahanas, Chalukyas, Rashtrakutas, Cholas, Pallavas, Pandyas, Cheras, Hoyasalas and Yadavas. There was no reason for Kakatiyas to be an exception to this golden rule.

Role of women did not remain confined to social sphere. It got embellished and reached the pinnacle of kingdom's glory. Rudramba Devi assisted her father Ganapathi Deva in state matters for several decades. Enthroned thereafter, she ruled as Queen for twenty seven long years. Attired in male dress, presiding over durbar, giving interviews to foreigners, holding consultations with her ministers, generals and other high dignitaries of state so as to promote the best interests of the people was one aspect of her personality. But, when required, taking to field in person, astride on a horse and leading her troops against enemies was another equally gripping aspect. A valiant and courageous fighter, she eventually died amidst the battle field. Her sacrifice is embossed in the minds and hearts of ever loyal posterity. Her memory fills their bosom with dignity, pride and self respect, even today.

ECONOMIC TRENDS

What about the estimates of GDP, population and per capita income during those times relating to the present day Telangana State as it stands carved out as the 29th state of the Indian Union from 2nd June 2014 onwards? It must be stated categorically that there was no separate Telangana polity known by this nomenclature way back in 1000 CE. During the first millennium, the present day Telangana lands were ruled by the dynasties of Satavahanas, Badami Chalukyas, Rashtrakutas and Kalyan Chalukyas. A few peripheral areas were ruled by Vakatakas, Vishnukundis, Ikshavakus and others. Its plateau geography would not have been the first choice of human settlements and the population density must have been quite sparse. Presuming the population ratios to have remained the same over time, we can derive comparative population of India and the present day Telangana lands and its people during those times, as follows:

POPULATION IN LAKHS

Year	1000 CE	1300 CE	1500 CE
India	750	960	1100
Telangana	18.75	24.00	27.50

The arrival of Kakatiyas and their rule lasting till 1323 CE gave a certain shape to the Telangana polity because its present day territories were substantially included in the then Kakatiya dominion. More than three centuries span (1000 CE – 1323 CE) witnessed a certain divide in the Indian sub continental polity. The areas north of Vindhyan mountains were controlled by the Islamic polity while the areas south of Vindhyas were under the control of Chalukyas, Seunas, Kakatiyas, Gangas, Hoyasalas, Pandyas and Cholas. The overall socio economic and cultural landscape in all these kingdoms were almost similar. The tank was the economic fulcrum of a village, while a nearby temple was its social fulcrum. An international trade in spices, cotton textiles, diamonds, steel and horses was yet another feature of peninsular kingdoms. Mutual conflicts amongst neighbouring kingdoms were no doubt there, but none attempted to subsume thy neighbour's kingdom. As political boundaries, by and large remained intact for more than a couple of centuries, it is quite reasonable to conclude that the economic prosperity of these peninsular kingdoms must have been a notch ahead of their north Indian counterparts by around 1300 CE.

The Per capita income figures for India are estimated as 450 dollars in 1000 CE, 510 dollars in 1300 CE & 550 dollars in 1500 CE. The corresponding figures for Telangana land & its people must have been a notch ahead of 510 dollars in 1300 CE.

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