

JOURNAL

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INDIAN POLITICAL THEORIES

The Rt. Hon'ble Srinivasa Sastri Lectures, 1936-37.

BY

SIR C. P. RAMASWAMI AYYAR, K.C.I.E.

It is a high privilege for an alumnus of the University to be called upon to deliver this course of lectures, associated, as they are, with the name of one whose ripe culture and many-sided experience have enabled him so consummately to fill the rôle of the unofficial ambassador of India.

Casting about for an appropriate subject, it occurred to me that it might be helpful, especially at this juncture, to gather and to collate some of the political and economic ideas that have been evolved in the India of the past. As early as 1928 when I was honoured by the University of Mysore with an invitation to deliver a lecture on Federation—a conception which was then only slowly emerging into life in India—I discovered a great deal of important and interesting material in our Nitisastras and our Puranas bearing on political life and political forms commonly supposed to have originated and undoubtedly developed vigorously in Western lands. It struck me then that a careful study of our sources would be of assistance not only to the student and the philosopher but also to the man of affairs. After all, it is very true, in the words of the poet, that each age is a dream that is dying or one that is coming to birth. Is it not also manifest that the ideas and ideals of each country as they progress from age to age have and indeed ought to have something racy in them and that in politics as well as in literature and the arts, nothing that is not evolved from within and is not in harmony with inherited as well as individual traditions will be characteristic or essentially fit to live? To-day, we are producing and putting to practical use new constitutions. New thoughts are thundering at our doors and while we shall do well, as throughout our history, ever to be tolerant and hospitable to fresh views, nevertheless, we must also be alive to the need for assimilating them with our own culture and we may as well imitate the wise gardener when, for improving the yield, he skil-

fully inserts a graft. It is with this object that I concluded that it is not a work of supererogation to bring together in short compass some of the multiform theories that have been adumbrated in our country during many centuries. A great French critic, Henri Taine, declared: "*Quand on veut comprendre un art, il faut regarder l'ame du public auquel il s'adressait.*" Although this was said of art, it is equally true of a nation's philosophy and politics that they are outward expressions of national culture and sentiment and they use the symbols best understood in the country of origin. They bespeak an acquaintance with national life and thought. Our political ideas are a function of our intellectual and civic life and it may not be out of place to remember that during many millennia we have had a succession of thinkers who, like the medieval Churchmen in Europe, were founders and partakers of what may accurately be called a University tradition and an educational system which in India as in Europe until recent times was based on and culminated in religious training but included also in its scope an attempt at universal research born of catholic sympathies and curiosities.

The term Upanishad meant etymologically sitting near a person and is the exact synonym of the French Seance or Session. The Upanishads represent the outcome of sittings or gatherings which took place in the hermitages and forests. They not only profoundly influenced Indian thought and through China and Persia, all Asiatic thought, but filtered to Europe through Persia, Arabia and Asia Minor and left their impress on Thales and Pythagoras and the Gnostics and Neo-platonists and through the Universities of the middle ages and through Machiavelli, Descartes, Spinoza and Schopenhauer have become part of most European culture. These latter have been the progenitors of much of our modern thought and much, in truth, of the recent speculations of Freud and Jung as to psycho-analysis recalls the processes of Yoga regimen. It must be recollected that the University of Nalanda, over two thousand years ago, as we know from recent researches and the curriculum of that University as outlined by Hiuen Tsang, was a real teaching institution with a wide outlook, although its function was primarily religious. It enabled the students, in the words of a recent writer, "to form each other and it performed a most important function, namely, learning the great art of living and helping to form an intelligent society." The comprehensiveness of the studies at Nalanda and Valabhi and Vikramasila as well as Kanchipura was not rivalled in the early Universities of the West, Paris, Bologna and Salerno.

Nalanda which flourished in the early years of the Christian era was visited by the Chinese pilgrims Fa-Hien and Hiuen Tsang and it not only attracted learned men from different parts but the members of the University had even academic costumes as all the Pandits wore a red cap with pointed peak and long lappets. So universal was the appeal of these seats of learning that a Buddhist scholar from Kanchipura, Acharya Dingnaga, was, it may be remembered, thus referred to by Kalidasa in *Meghasandesa* : ¹

‘ दिङ्नागानां पथि परिहरन् स्थूलहस्तावलेपान् ’

i.e. “avoiding the buffets of Dingnaga on the way.” The line has a double meaning and hints at the exploits of Dingnaga who was a contemporary and critic of Kalidasa and subjected him to attacks which provoked the great poet to sarcasm in the Dunciad style. Controversy was not in those days a gentle affair. This Dingnaga was also the father of medieval logic and he taught at this University. The influence of such institutions and seats of learning was far wider than is generally supposed. In the history of the English people, Green proves that it was owing to the influence of the Crusades that a new fervour of study sprang up in Europe by the contact with the more civilised East attained by travellers who brought back science and philosophy from the schools of Bagdad and Cordova into the early European seats of learning like Paris, Salerno and Bologna, which were the precursors of Oxford and Cambridge. These European Universities were therefore in effect the products of the learning which extended from Central Asia to Spain and had celebrated nuclei in Samarkand and Bokhara, Fez and Cordova. In Southern India, Kanchipura as the home of Sanskrit learning and Madura as the seat and centre of Tamilian culture also exercised a profound influence on world thought. It is in such abodes of culture as well as in the realistic university of actual life and in the courts of discerning monarchs that Nitisastras like those of Chanakya and Kamandaka and Sukra were produced. The tradition therefore of political discussion and speculation has been longstanding and widespread.

The lineage of ideas is indeed a marvellous thing to contemplate and in a most suggestive lecture delivered at the Calcutta University Institute by one who was an active politician of Ceylon as well as a profound scholar and man of religion, Sir P. Ramathan, it was pointed out that in the *Harsha Charita* of Bana

occurs a passage relating to a royal visit paid in the seventh century A.D. to a Forest University. As the king approached the institution he left his suite behind and proceeded on foot attended by a few of his vassals. While still at a distance the king perceived a large number of "Buddhists from various provinces, perched in pillows, seated on rocks, dwelling in bowers of creepers, lying in thickets or in the shadow of branches, or squatting on the roots of trees—devotees dead to all passions, Jains in white robes, mendicants, ascetics, followers of Kapila, Lokayatikas (materialists), followers of Kanada (of the Atomic School), followers of Upanishads, students of legal institutions, students of the Puranas, adepts in sacrifices, adepts in grammar, followers of Pancharatra and others besides, all diligently following their own tenets, pondering, urging objections, raising doubts, resolving them, expounding etymologies and disputing, discussing and explaining most points".² Can there be a more thought-provoking and suggestive description of a true University with no exclusions and only preferences?

It has been our good fortune to be brought into touch with the currents of Western thoughts and speculation and we have been under their influence for nearly a century in our Universities. Owing to our natural anxiety to utilise the new opportunities which have come to us, we have perhaps overlooked, if we have not disdained, our past traditions and history. There is a great danger of our not securing the full benefit of the newer culture for lack of proper assimilation. Should it not be our aim to build on the foundations of our own accumulated lore and inherited stock of capacities and temperament, a stately and enduring structure with the full aid of Western learning and science and thus to develop our own soul? Especially is this process called for in the study and practice of politics, an art and a science more intimately connected with national aptitudes and national outlook than almost any other. What is in the bone cannot be eliminated and, as pointed out recently by a discerning thinker, the author of the "Dangerous Sea", one realises with a shock the cyclic character of life and of ideas. The French proverb "*plus ça change plus c'est la meme*" "the more it changes, the more essentially same it remains" is not a mere piece of blasé cynicism. The whole history of the French Revolution, its rise and fall, and the dictatorship which followed it, as the author of the "Dangerous Sea"

indicates, constitute really a transplanted chapter of Roman history. The Fascists, the Spartacists and the Nazi revolution of our own times have also had their prototypes in the past. The curious student may also discover analogies between certain developments of communism at the present moment and similar phenomena which are observed by the compilers of the Puranas, not to mention incidents in the history of the later Roman Empire and the Middle Ages. It was in these so-called dark ages that there arose the idea of a League of Nations fulfilling the functions which were part of the programme of the Holy Roman Empire and which were elaborated by medieval theorists both regal and private who strove to bring about an effective policing of the nations. No nation building its future political habitation can afford to ignore its past racial culture or the lessons of its history. My endeavour, therefore, has been to try and to find out how far in the various departments of political and socio-economic theory we can get guidance from our own heritage of speculation and action. In this task which naturally involves considerable labour, I am immeasurably indebted to that well-known scholar of Travancore, Mahakavi Ullor S. Paramesvara Aiyar, who is largely responsible for enabling me to place these materials before the University, as also to my son C. R. Pattabhiraman. I was stimulated to perform this task after I read the scholarly analysis of the social and political life in the Vijayanagara Empire which we owe to the research of Dr. Saleatore and, later, it became necessary for me to deal with one aspect of the subject in its practical application when I was endeavouring, as Head of the Administration of His Highness the Maharaja of Travancore and for reasons connected with the formulation and carrying out of His Highness' historic Temple Entry Proclamation, to discover the sources and methods of legislation in the old days. I then saw that the monarch who, in the Code of Manu, is described as embodying in himself the four ages, was understood by the medieval philosopher, Sukra, to be the maker of the age so that if customs, usages, and movements are not assimilated to the needs of the times the fault is said to lie in the king himself. Sukra avers that "the king is the maker of the age as the promulgator of duties and sins. He is the cause of the setting on foot of the customs and usages and hence is the cause or maker of the times". The same principle of politics and social legislation was enunciated by Bhishma in the Santiparva thus: "Whether it is the king that makes the age or the age that makes the king, is a question about which you should not entertain any doubt. The truth is that the king makes the age". As Dr. Saleatore aptly observes in the book

to which I have already alluded, national regeneration was regarded by the great kings of the Vijayanagara dynasty as achievable only when the Ruler created the proper environment both political and cultural. It is evident that other Rulers of whom there are records in our sacred and secular literature from which we can construct a fairly coherent political philosophy have adopted the same view—a view which may be made suitable to modern times and conditions. Beginning with the times prior to recorded history, we find as an indisputable fact that the evolution of what are termed Kerala Acharas is a conclusive proof of the flexibility of ancient law-givers and pristine laws. It is incontestable that *there are laws, customs and observances prevalent among the Namputiris on the West coast which are not followed by the Brahmins of other parts of the present day, which furnish clear evidence that the Hindu Acharas or laws have been modified to suit special or local conditions.* The form of marriage known as Sarvasvadanam which is not recognised by the Mitakshara, the adoption of a son in the Dvamushyayana form as the son of two fathers (the natural and the adopted), the difference in the custom regarding the marriage of girls, the absence of any rigid insistence on the early marriage of women under penalty of forfeiture of caste—obviously a later innovation in Hindu law forced on the people on account of foreign invasions and the insecurity of the times, the possibility of a woman remaining unmarried to the end of her days, the modification of the rule that every male should marry within his own caste in order to lead a Grhastha life, the importance given in worship and ritual to Tantras as distinguished from the Mantras,—all these and many other differences in social usages, etiquette and practices, relating to daily life which taken together distinguish the Acharas of Parasurama's country indicate that there was no crystallisation of social or even religious law and practice and that there was abundant scope for changes to meet altered situations and conditions. This policy was not confined to pre-historic ages but was followed even later, as was triumphantly demonstrated by what is historically known regarding Ramanuja's gospel and that of the Tenkalai saints by their adoption of Tamil as a concurrent sacred language with Sanskrit, their remodelling of the society of their days by virtue of a process of religious fusion and the consequent and inevitable unification of sects and communities. We notice attempts actively supported and fostered by the sacerdotal castes during the reign of the Vijayanagar kings for the purpose of bringing about State regulations enabling the Ruler to deal with problems of social growth and adaptation. It is

proved that the Brahmins of a prominent part of the Vijayanagar Empire went to the extent of seeking the active assistance of the State for implementing an agreement which they themselves had made for the purpose of dealing with the pernicious dowry system. In 1424-25 we learn that a concordat was arrived at by representatives of the Kannadika, Tamil, Telugu and Lata communities laying down that those who do not adopt *kanyadana*, that is, those who give away a girl after receiving gold and those who conclude a marriage after giving gold, shall be punished by the king. This document bears the signature of the great men of all branches of sacred studies in the kingdom.³

The author of the Sukraniti asserts that the Ruler has been made a servant of the people getting his revenue as remuneration, and that his sovereignty is for protection. It was from this point of view that the great Krishnadeva Raya set before himself the difficult task of the protection of what he considered to be the Hindu Dharma. The theories as to the division of responsibility as between the king and the ministers and the limitation on the authority of the king were very elaborately developed by the two Madhavas that flourished in Vijayanagar. The theories and forms of central government, the gubernatorial charges and the village administration which were, at least in Southern India, characterised by a remarkable spirit of co-operation and displayed great vigour in the local units were features that enabled the Vijayanagar kings to consolidate and maintain their empire. But what was most remarkable about these wise rulers and is most instructive to us at present was their attempt to bridge the gulf between the Hindus and the Mahomedans not only by promoting harmony between the royal houses professing these two religions but by the practice distinctly proclaimed and realistically developed by the Vijayanagar Emperors of enlisting Mahomedans in Hindu service and fostering the interests of Islam in that great Hindu Empire. To such an extent did this harmony go that when Aliya Rama Raja who flourished in the 16th century lost one of his sons, his wife is stated to have adopted Sultan Ali Adil Shah as her son.⁴ Not only did the Hindu kings build mosques and entertain Muslims in their service but it is noticeable that the Vyasarayya Mutt received large donations from Mahomedan Rulers.

3. Social and Political Life in the Vijayanagar Empire, Volume II, p. 189.

4. Social and Political Life in the Vijayanagar Empire, Volume I, pp. 407-408.

The Chola kings Rajadhiraja II and Kulottunga I also definitely laid down rules for the settlement of communal problems which then arose mainly with reference to marriages and on occasions when some of the so-called lower classes claimed equality with the higher classes as regards marriage, and certain honours and privileges.⁵ On some of these occasions the Hindu kings even appointed mediators vested with exceptional powers and privileges to deal with socio-religious problems.

According to our law-givers it is, in fact, not open to a king to take shelter under the plea that he is living in the Kali Yuga, the decadent age, and hence is unable to uphold the basic ideals based on righteousness. The Mahabharata explains, as has been indicated above, that it is the king that makes the age, and that the view that the age makes the king is incorrect.⁶

ORIGIN OF KINGSHIP

There are certain passages in ancient Hindu Literature pointing to a condition of society without a king. In the *Aitareya Brahmana*, it is stated: "The Devas and the Asuras were fighting The Asuras defeated the Devas The Devas said: 'it is on account of our having no chief that the Asuras defeat us. Let us create a King'. All agreed".⁷ The political evolution of Rgvedic India according to Radha Kumud Mookerji may be traced in the following ascending series of groups, viz., (1) the family (kula), (2) the village (grama), (3) the clan (vis), (4) the people (jana), and (5) the country (rashtra).⁸ A family was composed of several members living under a common head. An aggregate of several families made up a village. Vis was a larger formation

5. Social and Political Life in the Vijayanagar Empire, Vol. II, pp. 192-193.

6. Mahabharata, Santi, Chapter 69:

“कालो वा कारणं राज्ञो राजा वा कालकारणम् ।

इति ते संशयो मा भूद् राजां कालस्य कारणम् ॥” ८९

7. Aitareya Brahmana (Anandasrama Edition), Book I, Chapter 3:

“देवासुरा वा एषु लोकेषु समयतन्तः तांस्ततोऽसुरा अजयन् देवा अब्रुवन्, अराजतया वै नो जयन्ति; राजानं करवामह इति; तथेति ।”

8. R. K. Mookerji's Hindu Civilisation (1936), page 78. Mookerji is not sure who the Vis are. It seems to me that they are the bulk of the Aryans, excluding Brahmanas and Rajanyas.

implying settlement, while Jana was even a more comprehensive term, embracing as it did the entire population occupying a particular area which subsequently converted it into a Rashtra or State. Society in those days had to keep itself in constant readiness for combat not only to quell external aggression but also internal dissension, and the origin of the Rajanya (Kshatriya) class has to be traced to this circumstance. The invocation of the blessings of unseen powers through an adept agency was a necessary incident of that arrangement and this gave rise to the Brahmins as a distinct class. The bulk of the Aryan community not included in either of these categories were known as the *vis* or Vaisyas, while the exigencies of conquest led to the absorption of numerous non-Aryans into the Aryan fold, who eventually became Sudras.

LATER THEORIES

The Mahabharata narrates the following story on the origin of kingship. In ancient days men were ruined in consequence of the prevalence of anarchy. They devoured one another as stronger fish devour the weaker ones in water. A few men then assembled together and agreed among themselves that the bombastic, the cruel, the voluptuous and the greedy among them should be renounced. That arrangement worked for some time. Seeing that it was also not satisfactory, they approached Brahma with a prayer to grant them a king. Brahma thereupon induced Manu to take up the kingship. The people agreed to pay certain taxes and prayed that in return the king should destroy their enemies to enable them to lead peaceful lives.⁹ Bhishma, who relates this incident to

9. Mahabharata, Santi, Chapter 67 :

“ अराजकाः प्रजाः पूर्वं विनेशुरिति नः श्रुतम् ।
 परस्परं भक्षयन्तो मत्स्या इव जले कृशान् ॥
 समेत्य तास्ततश्चक्रुः समयानिति नः श्रुतम् ।
 वाक्शूरो दण्डपरुषो यश्च स्यात् पारजायिकः ॥
 यः परस्वमथादद्यात् त्याज्या नस्तादृशा इति ।
 विश्वासार्यं च सर्वेषां वर्णानामविशेषतः ॥
 तास्तथा समयं कृत्वा समयेनावतस्थिरे ।
 सहितास्तास्तदा जम्बुरसुखार्ताः पितामहम् ॥
 अनीश्वरा विनश्यामो भगवन्नीश्वरं दिश ।

Yudhishtira gives a slightly different version of the same in a previous chapter. He therein says that in the Krtayuga there were no sovereignty, no king, no punishment and no punisher, and that all men used to protect one another actuated by a sense of righteousness. They, however, soon found that this work was too much for them and became gradually a prey to error (Moha), greed (Lobha), desire (Kama) and lust (Raga). When such confusion set in and righteousness perished, men sought the help of Brahma who thereupon composed a stupendous treatise on the *purusharthas*, of which the works of Brhaspati, Sukra, etc., were but abridgments. The Devas then prayed for a king to rule over men and Vishnu created Virajas. Virajas, however, did not relish the kingship conferred on him, and Ananga, his great-grandson, became the first king of Bharatavarsha.¹⁰ Both these stories show,

यं पूजयेम सम्भूय यश्च नः प्रतिपालयेत् ॥
 तमब्रुवन् प्रजा मा भैः कर्तृनेनो गमिष्यति ।
 पशूनामधिपञ्चाशद्विरण्यस्य तथैव च ।
 धान्यस्य दशमं भागं दास्यामः कोशवर्धनम् ॥
 स त्वं जातबलो राजा दुष्प्रधर्षः प्रतापवान् ।
 सुखे धास्यसि नः सर्वान् कुबेर इव नैर्ऋतान् ॥ ” १७-२६

‘Matsyanyaya’ has been explained by many writers.
 Kamandaka says :

“ परस्पराभिषतया जगतो भिन्नवर्त्मनः ।
 दण्डभावे परिध्वंसी मात्स्यो न्यायः प्रवर्तते ॥ ”

Nitisara (Trivandrum Sanskrit Series) II, 40.

10. Mahabharata, Santi, Chapter 59 :

“ नैव राज्यं न राजासीन्नच दण्डो न दाण्डिकः ।
 धर्मेणैव प्रजाः सर्वा रक्षन्ति स्म परस्परम् ॥ १४
 पाल्यमानास्तथान्योन्यं नरा धर्मेण भारत ।
 खेदं परमुपाजग्मुस्ततस्तान् मोह आविशत् ॥ १५
 अथ देवाः समागम्य विष्णुमूचुः प्रजापतिम् ।
 एको योऽर्हति मर्त्येभ्यः श्रेष्ठं वै तं समादिश ॥ ८७
 प्रजापतेः कर्दमस्य त्वनङ्गो नाम वै सुतः ।
 प्रजा रक्षयिता साधुर्दण्डनीतिविशारदः ॥ ९१

as also the passage cited from the Aitareya Brahmana, that the Aryans had no ruler in the olden days and that kingship with them was regarded as a comparatively late institution. There are certain passages in the Vedas pointing to the king's divine origin and this had become an accepted belief by the time Manu's Dharma-sastra was composed. Manu states that when men were without a king and dispersed through fear in all directions the Lord created a king for the protection of all of them and that the essence of the Dikpalas was used for his creation.¹¹

KING'S DIVINE ORIGIN

There is, however, no doubt that this was in reality a metaphorical description of the paramountcy of the monarch designed to enforce obedience from the subject. In a striking passage Kautilya says that the vulgar opponents of a king may be silenced by the argument that the duties of Indra (the rewarder) and Yama (the punisher) are blended in him and that whoever disregards him will be visited with divine punishment.¹²

The Buddhistic *Digha Nikaya* also says that mankind was righteous at the beginning and that on sinfulness gradually creeping into human society men selected one who was the most handsome, gracious and powerful among them and made him king. He was called Mahasammata because he was selected by the great.¹³ From a passage in the Aitareya Brahmana it is seen that the Puro-

11. Manu, Chapter VII :

“ अराजके हि लोकेऽस्मिन् विदुते सर्वतो भयात् ।
 रक्षार्थमस्य सर्वस्य राजानमसृजत् प्रभुः ॥
 इन्द्रानिलयमार्काणामग्रेष्व वरुणस्य च ।
 चन्द्रवितेशयोश्चैव मात्रा निर्हृत्य शाश्वतीः ॥ ३-४
 बालोऽपि नावमन्तव्यो मनुष्य इति भूमिपः ।
 महती देवता ह्येषा नररूपेण तिष्ठति ॥ ” ८

12. Kautilya's Arthashastra, Trivandrum Edition, Vol. I, pages 63-64.

“ मात्स्यन्यायाभिभूताः प्रजां मनुं वैवस्वतं राजानं चक्रिरे.....इन्द्रय-
 मस्थानमेतद् राजानः प्रत्यक्षहेडप्रसादाः । तानवमन्यमानं दैवोऽपि दण्डः स्पृशति ।
 तस्माद् राजानो नावमन्तव्या इति क्षुद्रकान् प्रतिषेधयेत् । ”

13. D. R. Bhandarkar's Carmichael Lectures (1918), page 121.

hita took a promise from the king to the following effect at the time of the Mahabhisheka (great coronation) ceremony: "Between the night I am born and the night I die whatever good I might have done, my heaven, my life and my progeny, may I be deprived of, if I oppress you."¹⁴ The ritual of the Rajasuya sacrifice described in the *Satapatha Brahmana* requires that the king should take the consent of the earth in the following words: "Mother Prthvi, Injure me not, nor I thee."¹⁵ The commentator interprets this passage as meaning that the king and the country must enter into friendly relations with each other like son and mother. Somadeva in his *Nitivakyamrta* states that the king should recite a hymn every day to the following effect:

"I am protecting this cow (earth) which bears the milk of the four oceans, whose calf is Dharma, whose tail is enterprise, whose hoofs are Varna and Asrama, whose ears are Kama and Artha, whose horns are diplomacy and valour, whose eyes are truth and purity, and whose face is law. I shall not be patient with any one who injures her."¹⁶

Sukra who also propounds the theory of the divine origin of kings is careful to explain at the same time that they only resemble Indra and other Gods in the performance of certain functions.¹⁷

14. Aitareya Brahmana, Book VIII, Chap. 4:

"यां च रात्रीमजायेऽहं यां च प्रेतास्मि ; तदुभयमन्तरेणेष्टापूर्तं मे लोकं
सुकृतमायुः प्रजां वृञ्जीथा यदि ते द्रुह्येयम् ।"

15. Satapatha Brahmana, V, iv, 11-11.

16. Nitivakyamrta (Jainagranthamala edition), Page 256:

"चतुःपयोधिपयोधरां धर्मवत्सवतीमुत्साहबालधिं वर्णाश्रमखुरां कामार्थ-
श्रवणां नयप्रतापविषाणां सत्यशौचचक्षुषं न्यायमुखीमिमां गां गोपायामि ; तमहं
मनसापि न सहे योऽपराध्येत् तस्यै इतीमं मन्त्रं समाधिस्थो जपेत् ।"

17. Sukranitisara, I, 73-77:

"भागभाग् रक्षणे दक्षो यथेन्द्रो नृपतिस्तथा ।

वायुर्गन्धस्य सदसत्कर्मणः प्रेरको नृपः ॥

धर्मप्रवर्तकोऽधर्मनाशकस्तमसो रविः ।

दुष्कर्मदण्डको राजा यमः स्याद् दण्डकृद् यमः ॥

अग्निः शुचिस्तथा राजा रक्षार्थं सर्वभागभुक् ।

SOME LIMITATIONS ON HEREDITARY SOVEREIGNTY

Although the early rulers were elected, kingship in course of time became hereditary. But some vestiges of popular control are still visible in epic and puranic literature. The story of Prthu, one of the greatest of the early kings of India, as narrated in Srimadbhagavata and Mahabharata, is worthy of note in this connection. Vena, a descendant of Ananga referred to already, was invested with regal power by Bhrgu and other sages, according to Bhagavata, when there was no king to govern men, although their choice was contrary to the will of the people. Vena, who like Charles I of England was a firm believer in the divine right of kings, and an atheist to boot, began to oppress his subjects. The sages thought that Vena was preying on his people as a serpent fed with milk bites the person who nourishes it and told him: "Righteousness is of supreme worth and compasses the welfare of the subjects. Do not suffer it to run to waste. If righteousness is lost, the kingdom and wealth of a king come to nought. The king who protects his people from thieves, etc., and gathers due tribute attains good fortune both in this world and the next." Vena turned a deaf ear to their entreaties, whereupon he was slain by them and Prthu was created out of his arms.¹⁸

पुष्यत्यपां रसैः सर्वं वरुणः स्वधनैर्नृपः ॥

करैश्चन्द्रो हृदयति राजा स्वगुणकर्मभिः ।

कोशानां रक्षणे दक्षः स्यान्निधीनां धनाधिपः ॥ ”

These functions may be summed up as follows:— (1) Levying taxes and fully protecting the subjects (Indra); establishing virtue and eradicating vice (Vayu); spreading Dharma and dispelling Adharma (Surya); impartial administration of justice (Yama); realisation of revenue for public protection (fire); expenditure of revenue for the good of the public (Varuna); procuring means for the delight of the people (Chandra); and security and increase of national wealth (Kubera). (Vide Dr. Balakrishna's paper on the Evolution of the State in the *Indian Historical Quarterly*, Vol. III, page 324). Sukra further proceeds to compare the king with a father (endowing virtue), mother (pardoning offences and nourishing), preceptor (teaching good lessons), brother (taking his share from the people's wealth), friend (confidant), etc.

18. Srimadbhagavata (Kumbakonam edition), IV, Chapt. 14:

“ प्रकृत्यसम्मतं वेनमभ्यषिञ्चन् पतिं भुवः ।

अराजकभयादेव कृतो राजाऽतदर्हणः । २

ततोऽप्यासीद्वयं त्वद्य कथं स्यात् स्वस्ति देहिनाम् ? ॥ ९

Prthu, according to the Mahabharata, asked the sages what he was expected to do, and on those assembled advising him that he should fearlessly perform all righteous acts, he promised to do so and became king.¹⁹ Other instances of the election of kings are also mentioned in the Mahabharata. Thus Kuru was elected on account of his virtue.²⁰ Again Janamejaya, although he was only a child, was installed as king by the people, on the death of Parikshit.²¹ Ordinarily the crown descended from father to the eldest son; but if that son was a minor, if a younger son had to be preferred to an elder, if an heir-apparent had to be ordained, or if an interregnum had to be avoided by the appointment of a temporary ruler, the express consent of the people was imperative. The same was the case in the event of a king's desire to abdicate. Thus Devapi, although he was the eldest son of Pratipa, was prevented by the people from succeeding him, as he was a leper, and Santanu had to be preferred by the father, much against his natural inclina-

राजन्नसाध्वमात्येभ्यश्चोरादिभ्यः प्रजा नृपः ।

रक्षन् यथाबलिं गृह्णन्निह प्रेत्य च मोदते ॥ १७

हन्यतां हन्यतामेष पापः प्रकृतिदारुणः ।

नायमर्हत्यसद्वृत्तो नरदेववरासनम् ।

इत्थं व्यवसिता हन्तुमृषयो रूढमन्यवः ।

निजघ्नन्हुङ्कृतैर्वेनं हतमच्युतनिन्दया” ॥ ३२-३४

In Harivamsa (V. 10) it is stated that the sages taunted Vena with the remark that he was acting contrary to the promise made by him at the time of his coronation.

19. Mahabharata, Santi, Chapter 59 :

“ यन्मां भवन्तो वक्ष्यन्ति कार्यमर्थसमन्वितम् ।

तदहं वै करिष्यामि नात्र कार्या विचारणा ॥ १०२

नियतो यत्र धर्मो वै तमशङ्कः समाचर ।

प्रियाप्रिये परित्यज्य समः सर्वेषु जन्तुषु ॥ ” १०३-४

20. Mahabharata, Adiparva, Chapter 94 :

“ राजन्नेतं प्रजाः सर्वा धर्मज्ञ इति वन्निरे ।

तस्य नाम्नाभिविख्यातं पृथिव्यां कुरुजाङ्गलम् ॥ ” ४९

21. Mahabharata, Adiparva, Chapter 44 :

“ नृपं शिशुं तस्य सुतं प्रचक्रिरे समेत्य सर्वे पुरवासिनो जनाः । ” ६

tions.²² Dasaratha proposed the anointment of Srirama as Yuvaraja after taking the people into his confidence and discussing the question with them in all its bearings.²³ Of nothing were our ancestors more afraid than anarchy and the consequent prevalence of the law of the fish. This fear has been portrayed by Valmiki in his own matchless way in Chapter 67 of the Ayodhyakanda. As soon as the sages came to know of Dasaratha's death, they approached Vasishtha and requested him to elect a king forthwith. Vasishtha, however, thought that nothing could be lost by awaiting the arrival of Bharata from Kekaya and despatched swift-footed messengers for fetching him therefrom.²⁴ Kautalya says

22. Mahabharata, Udyogaparva, Chapter 148 :

“ तं ब्राह्मणाश्च वृद्धाश्च पौरजानपदैः सह ।

सर्वे निवारयामासुर्देवापेरभिषेचनम् ॥ २२-३

23. Ramayana (Kumbakonam edition), Ayodhyakanda :

“ नानानगरवास्तव्यान् पृथग् जानपदानपि ।

समानिनाय मेदिन्याः प्रधानान् पृथिवीपतीन् ॥ १-४५

यदीदं मेऽनुरूपार्थं मया साधु सुमन्त्रितम् ।

भवन्तो मेऽनुमन्यन्तां कथं वा करवाण्यहम् ॥

यद्यप्येषा मम प्रीतिर्हितमन्यद् विचिन्त्यताम् ॥ II. १५-१६

अनेकवर्षसाहस्रो वृद्धस्त्वमसि पार्थिव ।

स रामं युवराजानमभिषिञ्चस्व पार्थिवम् ॥ II. २१

अद्य प्रकृतयः सर्वास्त्वामिच्छन्ति नराधिपम् ।

अतस्त्वां युवराजानमभिषेक्ष्योमि पुत्रक ॥ ” IV. १६

24. Ramayana, Ayodhyakanda, Chapter 67 :

“ एते द्विजाः सहामात्यैः पृथग् वाचमुदीरयन् ।

वसिष्ठमेवाभिमुखाः श्रेष्ठं राजपुरोहितम् ॥ ४

इक्ष्वाकूणामिहाद्यैव कश्चिद् राजा विधीयताम् ।

अराजकं हि नो राष्ट्रं न विनाशमवाप्नुयात् ॥ ८

यथा ह्यनुदका नद्यो यथा वाप्यतृणं वनम् ।

अगोपाला यथा गावस्तथा राष्ट्रमराजकम् ॥ ” २९

Sukranitisara contains the observation that like Indrani who is never a widow, subjects should never be without a king :

“ यथा न विधवेन्द्राणी सर्वदा तु तथा प्रजाः ॥ ” I. ९५

that when a king dies in the land of an enemy, the chief minister should instal his son if he is possessed of amiable qualities, and if such a son cannot be had, even a bad prince, princess or even a pregnant woman, and tell the other ministers: "This is your pledge. Look to the father of this (boy) as well as to your own valour and descent; this (boy) is merely a flag, and yourselves are the lords; pray, how shall I act?", and that if he does so the other ministers will surely accede to his wish.²⁵ When Dhrtarashtra eventually decided to settle down in the forest he took the consent of the people.²⁶

CHECKS ON DESPOTISM

Apart from these rights which include the tacit assent of the people even in cases of regular succession, there were several other ways in which the king's possible leaning towards the exercise of unbridled authority was kept in check. In the first place, the right to oust an unrighteous king was emphasised although seldom exercised in practice in India. In the Anusasana Parva of the Mahabharata it is stated that a king who tells his people that he is their protector, but who does not or is unable to protect them, should be killed by his subjects in a body like a

25. Kautalya's Arthashastra, Vol. II, page 221:

“ राजपुत्रमात्मसम्पन्नं राज्ये स्थापयेत् । सम्पन्नाभावे व्यसनिनं कुमारं
राजकन्यां गर्भिणीं देवीं वा पुरस्कृत्य महामात्रान् सन्निपात्य ब्रूयात्
—अयं वो निक्षेपः; पितरमस्यवेक्षध्वं सत्त्वाभिजनमात्मनश्च; ध्वज-
मात्रोऽयं; भवन्त एव स्वामिनः; कथं वा क्रियतामिति ॥ ”

26. Mahabharata, Asramavasaparva, Chapter VIII:

“ ततः प्रतीतमनसो ब्राह्मणाः कुरुजाङ्गलाः ।
क्षत्रियाश्चैव वैश्याश्च शूद्राश्चैव समाययुः ॥
ततो निष्क्रम्य नृपतिस्तस्मादन्तःपुरात् तदा ।
ददृशे तं जनं सर्वं सर्वाश्च प्रकृतीस्तथा ॥ ११-१२
अरण्यगमने बुद्धिर्गान्धारीसहितस्य मे ।
व्यासस्यानुमते राजस्तथा कुन्तीसुतस्य मे ॥
भवन्तोऽध्यनुजानन्तु मा च वो भूद् विचारणा ॥ १७-१८

rabid dog.²⁷ In the Santiparva we come across a passage to the effect that a king who follows the advice of bad ministers and becomes a destroyer of righteousness deserves to be killed by his subjects with all his family.²⁸ The appellation 'Naradeva', a God among men, applied only to virtuous kings. Sukra, in his Nitisara, has stated that, while a virtuous king is a part of the gods, a vicious king is a part of the devils.²⁹ Manu says that a king who does not afford protection but receives his tax will soon sink into hell and that he takes upon himself all the foulness of all his people.³⁰

KING AND SUBJECT

The most common name used for a king in Sanskrit is Rajan. The Mahabharata says that seeing Prthu his subjects exclaimed

27. Mahabharata, Anusasanaparva, Chapter 61 :

“ अहं वो रक्षितेत्युक्ता यो न रक्षति भूमिपः ।
स संहत्य निहन्तव्यः श्वेव सोन्माद आतुरः ॥ ” ३२

28. Mahabharata, Santiparva, Chapter 92 :

“ असत्पापिष्ठसचिवो वध्यो लोकस्य धर्महा ।
सहैव परिवारेण क्षिप्रमेवावसीदति ॥ ९

An unrighteous king need not be obeyed (Ibid., 96).

अथ चेल्ङ्घयेदेनां मर्यादां क्षत्रियब्रुवः ।
असङ्ख्येयस्तदूर्ध्वं स्यादनादेयश्च संसदि ॥ ” ९-१०

29. Sukranitisara, I. 70 :

“ यो हि धर्मपरो राजा देवांशोऽन्यश्च रक्षसाम् ।
अंशभूतो धर्मलोपी प्रजापीडाकरो भवेत् ॥

The Mahabharata has a similar passage in Udyogaparva, Chapter 131 :

“ राजा चरति चेद्धर्मं देवत्वायैव कल्पते ।
स चेद्धर्मं चरति नरकायैव गच्छति ॥ ” १३

30. Manu, VIII. 307-08 :

“ योऽरक्षन् बलिमादत्ते करं शुल्कं च पार्थिवः ।
प्रतिभागं च दण्डं च स सद्यो नरकं व्रजेत् ॥
अरक्षितारं राजानं बलिषड्भागहारिणम् ।
तमाहुः सर्वलोकस्य समग्रमलहारकम् ॥ ”

“we love him”, and on account of their loving attachment he was called Rajan.³¹ Kalidasa expresses the same idea in *Raghuvamsa* when he states that Raghu's appellation of Rajan became possessed of meaning when he made himself lovable to his subjects.³² If a king without doing violence to the dictates of righteousness does what is good to all his subjects he stands as firm as a rock,³³ and everybody thinks of him: “He is mine”. Manu says that he should behave towards his subjects as a father to his children.³⁴ Kalidasa expands this idea in *Raghuvamsa* when he says that Dilipa was the real father of his people because he led them along the path of righteousness, protecting and feeding them.³⁵ It is also stated in the Mahabharata that he is the best of kings in whose realm every subject moves fearlessly as a son in the house of his father.³⁶ From the constant comparison instituted between the

31. Mahabharata, Santi, Chapter 29 :

“पृथु वैन्यं प्रजा दृष्ट्वा रक्ता स्मेति यदब्रुवन् ।

ततो राजेति नामास्य अनुरागादजायत ॥ ” १३९

The idea is repeated in Santi, Chapter 59, with reference to the same king :

“रञ्जिताश्च प्रजाः सर्वास्तेन राजेति शब्द्यते । ” १२५

32. *Raghuvamsa*, IV :

“यथा प्रह्लादनाच्चन्द्रः प्रतापात् तपनो यथा ।

तथैव सोऽभूदन्वर्थो राजा प्रकृतिरञ्जनात् ॥ ” १२

33. Mahabharata, Santi, Chapter 120 :

“धर्माणामविरोधेन सर्वेषां प्रियमाचरेत् ।

ममायमिति राजा यः स पर्वत इवाचलः ॥ ” २५

34. *Manusmṛti* (*Nirayasagara* edition), Chapter VII, 80 :

‘वर्तेत पितृवन्तृषु’

35. *Raghuvamsa* :

“प्रजानां विनयाधानाद् रक्षणाद् भरणादपि ।

स पिता पितरस्तासां केवलं जन्महेतवः ॥ १-२४

36. Mahabharata, Santi, Chapter 57 :

“पुत्रा इव पितुर्गेहे विषये यस्य मानवाः ।

निर्भया विचरिष्यन्ति स राजा राजसत्तमः ॥ ” ३३

Kamandaka says that the king protects his people while the people cause him to thrive, and that the former is more important than the latter, since

king and a father in ancient works, some scholars have come to the hasty and unwarranted conclusion that his position was that of a benevolent despot. This is by no means correct. The actual conception was that the king should live for his subjects and not for himself. It is stated in the Markandeyapurana that the prince was entitled to enjoy himself only up to the moment when the sacred abhisheka water fell on his head.³⁷ How the king should conduct himself thereafter is well explained in the Mahabharata by the observation that just as a mother who, even not caring for the objects which she likes best, seeks the well-being of her child alone, so the king should sacrifice what he loves best for securing the well-being of his subjects.³⁸ The same idea is repeated in the Agnipurana.³⁹ In the Mahabharata it is stated that everywhere all the people from Brahmans to swains were more attached to Yudhishtira than to their own parents.⁴⁰ Kautalya says : " In the happiness of his subjects lies the king's happiness, in their welfare his welfare ; whatever pleases himself he shall not consider as

if the former were to disappear, the latter even if it existed would be an evil :

“ प्रजां संरक्षति नृपः सा वर्धयति पार्थिवम् ।

वर्धनाद् रक्षणं श्रेयस्तन्नाशेऽन्यत् सदप्यसत् ॥ ” १-१४

37. Markandeyapurana (Calcutta edition), Chapter 130 :

“ तावत् सुखं भूपतिर्भोगं प्राप्यते नृप ! ।

अभिषेकजलं यावन्न मूर्ध्नि विनिपात्यते ॥ ” २७

38. Mahabharata, Santi, 56 :

“ यथा हि गर्भिणी हित्वा स्वं प्रियं मनसाऽनुगम् ।

गर्भस्य हितमाधत्ते तथा राजाप्यसंशयम् ॥

वर्तितव्यं कुरुश्रेष्ठ सदा धर्मानुवर्तिना ।

स्वं प्रियं तु परित्यज्य यद्यल्लोकहितं भवेत् ॥ ” ४५-६

39. Agnipurana (Calcutta edition), Chapter 222 :

“ नित्यं राजा तथा भाव्यं गर्भिणी सहधर्मिणी ।

यथा स्वं सुखमुत्सृज्य गर्भस्य सुखमावहेत् ॥ ” ८

40. Mahabharata, Sabha, Chapter 13 :

“ यत्र राजन् दश दिशः पितृतो मातृतस्तथा ।

अनुरक्ताः प्रजा आसन्नागोपाला द्विजातयः ॥ ” १८

good, but whatever pleases his subjects he shall consider as good.”⁴¹ In a touching scene in the Asramavasaparva of the Mahabharata, Dhrtarashtra on the eve of his departure for the forest informs the people assembled as follows. “I make over to you this Yudhishtira as a pledge; I entrust you also as a pledge to Yudhishtira.”⁴² Elsewhere in the same work it is stated that the king is the best body of his subjects and the subjects the best body of their king.⁴³ The eternal duty of the king is to make his subjects happy.⁴⁴ If he performs the duty of protecting his subjects well no other penance or sacrifice is needed for him.⁴⁵ Manu says that a king who protects his subjects righteously and punishes the

41. Kautalya's Arthasastra, Vol. I, page 97 :

“ प्रजासुखे सुखं राज्ञः प्रजानां च हिते हितम् ।
नात्मप्रियं हितं राज्ञः प्रजानां तु प्रियं हितम् ॥ ”

42. Mahabharata, Asramavasa, Chapter 9 :

“ अवश्यमेव कर्तव्यमिति कृत्वा ब्रवीमि वः ।
एष न्यासो मया दत्तः सर्वेषां वो युधिष्ठिरः ॥
भवन्तोऽप्यस्य वीरस्य न्यासभूताः कृता मया । ” १३

43. Mahabharata, Santi 97 :

“ राजा प्रजानां प्रथमं शरीरं
प्रजाश्च राज्ञोऽप्रतिमं शरीरम् । ” ५९

In the Agnipurana, Chapter 220, it is stated that the king should do such acts as are liked by his subjects and desist from such acts as are likely to cause displeasure to them :

“ अनुरागकरं कर्म चरेज्जह्याद् विरागजम् ।
जनानुरागया लक्ष्म्या राजा स्याज्जनरञ्जनात् ॥ ” २४

Again it is emphasised in Chapter 224 of the same work that a king's kingship, kingdom and treasury are born of his people's love :

“ जनानुरागप्रभवा राज्ञो राज्यमहीश्रियः । ” ३४

44. Mahabharata, Santi, Chapter 57 :

“ लोकरञ्जनमेवात्र राज्ञां धर्मः सनातनः । ” ११

45. Ibid., Chapter 69 :

“ किं तस्य तपसा राज्ञः किं च तस्याध्वरैरपि ? ।
सुपालितप्रजो यः स्यात् सर्वधर्मविदेव सः ॥ ” ७३

wicked duly offers sacrifices at which lakhs are given as fees.⁴⁶ Kautalya expresses the same idea when he says: "The religious vow of a king is his readiness for action; the discharge of duties is the performance of his sacrifice; and equal treatment of all is his offer of fee and ablution at consecration."⁴⁷ Somadeva also points out that the sacrifice to be performed by a king is the protection of his subjects and not the killing of animals (which is incidental to ordinary sacrifices).⁴⁸

PROTECTION

"Paripalanam" or all-round protection is an expression embracing a very wide meaning. It is not merely the preservation of law and order. It is the administration of the State in such a degree of perfection as to enable the king and every one of his subjects to pursue undisturbed the paths of Dharma, Artha and Kama. The king himself is to be the exemplar of his subjects, since whatever Dharma is respected by him will be respected everywhere and since the subjects will generally like to move only along the path trodden by him.⁴⁹ Righteousness should therefore

46. Manu, VIII :

“रक्षन् धर्मेण भूतानि राजा वध्यांश्च घातयन् ।
यजतेऽहरहर्यज्ञैः सहस्रशतदक्षिणैः ॥ ” ३०६

47. Kautalya's Arthashastra, Vol. I, page 97 :

“राज्ञो हि व्रतमुत्थानं यज्ञः कार्यानुशासनम् ।
दक्षिणा वृत्तिसाम्यं च दीक्षितस्याभिषेचनम् ॥ ”

48. Nitivakyamrta, page 273 :

“प्रजापालनं हि राज्ञो यज्ञो न पुनर्भूतानामालम्भः । ”

49. Mahabharata, Santi, Chapter 75 :

“राज्ञा हि पूजितो धर्मस्ततः सर्वत्र पूज्यते ।
यद्यदाचरते राजा तत् प्रजानां हि रोचते ॥ ” ४

Kamandaka says that if a king discharges his duty justly he procures "Trivarga" for both himself and his subjects, but kills it otherwise :

“न्यायप्रवृत्तो नृपतिरात्मानमथ च प्रजाः ।
त्रिवर्गेणोपसन्धत्ते निहन्ति ध्रुवमन्यथा ॥ ” I. १५

In Ramayana, Ayodhyakanda, Chapter 109, Srirama says :

“यद्वृत्ताः सन्ति राजानस्तद्वृत्ताः सन्ति हि प्रजाः । ” ९

be first practised by him before he enforces it on his subjects. The king, according to the Mahabharata, was created in order that righteousness might emanate from him, and that if he was devoid of it, he should be called a Vrshala.⁵⁰ One becomes a king for advancing the cause of Dharma and not for acting capriciously. All creatures depend on Dharma, and Dharma depends on the king. He is therefore the true king who maintains Dharma.⁵¹ The question what is Dharma has been clearly answered in Chapter 109 of Santiparva. Dharma is what is conducive to the advancement of everybody, what prevents injury to everybody, and what is capable of upholding everybody. It need not be precisely what is stated in the Vedas, because everything has not been ordained in them.⁵²

50. Mahabharata, Santi, Chapter 90 :

“ उमौ लोकावभिप्रेक्ष्य राजानमृषयः स्वयम् ।
 असृजन् सुमहद् भूतमथ धर्मो भविष्यति ॥
 यस्मिन् धर्मो विराजेत तं राजानं प्रचक्षते ।
 यस्मिन् विलीयते धर्मस्तं देवा वृषलं विदुः ॥
 वृषो हि भगवान् धर्मो यस्तस्य कुरुते ह्यलम् ।
 वृषलं तं विदुर्देवास्तस्माद्धर्मं विवर्धयेत् ॥ ” १४-१६

Kamandaka says that the king should first practise self-content. He should then impose it on his ministers, next on his servants, next on his children, and lastly on his subjects :

“ आत्मानं प्रथमं राजा विनयेनोपपादयेत् ।
 ततोऽमात्यांस्ततो भृत्यांस्ततः पुत्रांस्ततः प्रजाः ॥ ” I. २३

This verse is repeated by Sukra (I. 93), who further says that a king's precept without practice is useless :

“ परोपदेशकुशलः केवलो न भवेन्नृपः । ”

51. Ibid :

“ धर्माय राजा भवति न कामकरणाय तु ।
 धर्मे तिष्ठन्ति भूतानि धर्मो राजनि तिष्ठति ।
 तं राजा साधु यः शास्ति स राजा पृथिवीपतिः ॥ ” ३-५

52. Mahabharata, Santi, Chapter 109 :

“ प्रभवार्थाय भूतानां धर्मप्रवचनं कृतम् ।
 यः स्यात् प्रभवसंयुक्तः स धर्म इति निश्चयः ॥

ADMINISTRATION

From the earliest days of which we have any record, it seems obvious that the Indian village organization was always powerful and generally self-governing; and, like the City States of Greece and of medieval Italy, these villages in India had often their own military equipment and officers. At the same time, it is equally clear that, just as obtained till recently under the Soviet Constitution and is easily discernible under cover of the authoritarian constitutions of Italy and Germany, an oligarchy or aristocracy under different forms, seemed always to force itself to the front in ancient and medieval India. This is not surprising for even in the highly individualistic polity of the United States of America the aristocracy of wealth and of commerce takes the place of the aristocracy of birth and military prowess in Egypt, Greece and Rome. Thus, even in the case of the many republics whose names and achievements are set out in the Vedic chronicles under the names of Vratas, Ganas and so forth, there was observable this system of elder statesmen and noblemen.

In certain places we find mention not only of ministers or Amatyas and Sachivas, but ministers are sometimes even called Rajakartarah in the Buddhistic texts as having been vested with power to elect a new king. The Mahabharata mentions in the Santiparva a list of 54 members, of a variety of Legislative Council, selected on a caste basis, in which there was less representation of the Brahmins and the warrior castes than that of the commercial men; four Brahmins, eighteen Kshatriyas, twenty-one Vaisyas, three Sudras and eight ministers composed the body. The net result was that the warrior classes and the commercial classes if they did or could combine had the legislative authority and it is noticeable

धारणाद् धर्ममित्याहुर्धर्मेण विधृताः प्रजाः ।

यः स्याद्धारणसंयुक्तः स धर्म इति निश्चयः ॥

श्रुतिर्धर्म इति ह्येके नेत्याहुरपरे जनाः ।

नच तत् प्रत्यसूयामो नहि सर्वं विधीयते ॥ ” १०-१३

Karnaparva (Chapter 69) also contains a passage to the effect that Dharma is so called because it upholds the people.

“ धारणाद्धर्ममित्याहुर्धर्मो धारयते प्रजाः । ”

The Brhadaranyakopanishad (I. iv) states distinctly that Dharma is the king of kings and that there is nothing higher than Dharma :

“ तदेतत् क्षत्रस्य क्षत्रं यद् धर्मस्तस्माद् धर्मात् परं नास्ति । ” १४

that those at the top and the bottom of the social ladder namely the Brahmins and the Sudras had very small representation. In actual fact we learn that the warriors and traders served as a mutual counterpoise. The Executive Council or the inner council consisted of eight Amatyas whose functions and portfolios are described in the Ayodhyakanda of the Ramayana and the Santiparva of the Mahabharata.

When we pass away from the earliest times, monarchy became more and more civil in character and was neither based on the patriarchal theory nor on military primacy. Whatever the effect of such a teaching was and however little the teaching was followed in ancient times (or in the modern days of disarmament conferences), we find to our astonishment that Brhaspati has laid down that a king should, as far as possible, refrain from war for annexing territories. Moreover, consultation of popular opinion was a live feature of the post-Vedic kingship. At the time of the coronation, subjects were consulted as well as feudatory chiefs and princes.⁵³ Kingship therefore partook in those days the nature of a quasi-constitutional monarchy. In the south of India, we have a fairly complete account of administration by the kings in the Chola days and they, like their contemporaries in the north, ruled through an elaborate secretariat organisation with eight heads of departments; but the main feature of governments in the south was the very healthy development and organisation of village assemblies which were the nuclei of governmental activity. These assemblies had both consultative and executive functions and were in charge of temples and charities, collected the taxes, managed the tanks and were in charge even of currency operations. They worked through committees which were of an elective character and it is remarkable that not only do their rules lay down knowledge of business and honesty as requisite for membership but they also insist on property qualification and emphasise that the relatives of dishonest officers were to be disqualified from membership. These "Nadus" were aggregated in Kottams and Mandalams which became provinces in the Chola empire.

That bureaucracy throughout the ages develops along similar lines is evident from the elaborate rules as to privilege leave con-

53. Ramayana, Ayodhyakanda, 1, 45 :

“ नानानगरवास्तव्यान् पृथग् जानपदानपि । ”

tained in the Sukranitisara and as to pensions and compassionate allowances in the case of premature death of officers. Indian diplomacy, it may be added, did not overlook cypher writing and codes and largely used espionage as described elaborately by Kautalya.

TAXATION

Sukra says that tax is the price for protection paid by the subjects to the king who is only their servant, though he appears to be their lord.⁵⁴ The king has to openly admit this position when he addresses his army on the eve of a battle, as may be seen from an observation of Kautalya when he says : " I am a paid servant like yourselves ; this country is to be enjoyed by me together with you ; you have to strike the enemy specified by me."⁵⁵ Markandeyapurana also contains a passage to the effect that the tax received by a king is the salary drawn by him for protecting his subjects.⁵⁶ Manu says that the king derives not only one-sixth of the tax in grain but also of the righteousness and unrighteousness of his subjects.⁵⁷

In order that the subjects might pursue their occupations peacefully and earn a sufficient competence for pursuing the other two Purusharthas included in Trivarga, it was imperative that the tax imposed on them should not be heavy. In the Mahabharata it is observed : " A king should milk his kingdom

54. Sukranitisara, I. 188 :

“ स्वभागभृत्या दास्यत्वे प्रजानां च नृपः कृतः ।
ब्रह्मणां स्वामिरूपस्तु पालनार्थं हि सर्वदा ॥ ”

55. Kautalya's Arthasastra, Vol. III, Page 115 :

“ तुर्यवेतनोऽस्मि, भवद्भिः सहभोग्यमिदं राज्यं ; मयाभिहितः
परोऽभिहन्तव्यः । ”

56. Markandeyapurana, Chapter 69 :

“ त्वं रक्षिता नो नृपते ! षड्भागादानवेतनः ।
धर्मस्य तेन निश्चिन्ताः स्वपन्ति मनुजा निशि ॥ ” २४

57. Manu VIII, 304 :

“ सर्वतो धर्मषड्भागो राज्ञो भवति रक्षतः ।
अधर्मादपि षड्भागो भवत्यस्य ह्यरक्षतः ॥ ”

like a bee collecting honey from trees. He should act like the cowherd who takes milk from a cow without injuring her udder and without starving the calf. He should, like the leech, take in the blood mildly. He should treat his subjects like a tigress carrying her cubs, touching them with her teeth but never biting them. He should behave like a mouse which although it has sharp and pointed teeth nibbles at the feet of sleeping animals in such a manner as to keep them unaware of it.”⁵⁸ Again it is laid down that the tax should vary according to the capacity of the tax-payer. No tax should be levied without determining the outturn and the amount of labour needed for production, because no one can be expected to work without incentive.

SOME DUTIES OF THE KING

The Kachchit Sargas of the Mahabharata and the Ramayana contain numerous suggestive allusions to the duties of kings. Thus in the Mahabharata, Narada asks Yudhishtira whether agriculturists were being kept away, whether all men were not being allowed to approach the king without fear as if he were their father and mother, whether the cultivators were not contented, whether for purposes of irrigation large tanks filled with water were not being maintained at convenient distances, whether loans of seed-grain were not being advanced to agriculturists, whether officers in charge of the municipal and military departments, as also those of trade, agriculture and justice, were not working in unison, and whether villages were not being converted into towns and hamlets into villages.⁵⁹

58. Mahabharata, Santi, Chapter 88 :

“ मधुदोहं दुहेद् राष्ट्रं भ्रमरा इव पादपम् ।
वत्सापेक्षी दुहेच्चैव स्तनांश्च न निकुञ्चयेत् ॥
जलौकावत् पिबेद् राष्ट्रं मृदुनैव नराधिपः ।
व्याघ्रीव च हरेत् पुत्रान् सन्दशेन्न च पीडयेत् ॥
यथा शल्यकवानाखुः पदं धूनयते सदा ।
अतीक्ष्णेनाभ्युपायेन तथा राष्ट्रं समापिबेत् ॥ ” ४-६

59. Mahabharata, Sabhaparva, Chapter V :

“ कच्चिदर्थेन वा धर्मं धर्मेणार्थमथापि वा ।
उभौ वा प्रीतिसारेण न कामेन प्रबाधसे ? ॥ १९

Kautalya mentions Utsavas and Samajas as popular institutions to be encouraged by the king.⁶⁰

DANDA OR PUNISHMENT

The protection of subjects necessarily involves, as a correlative, the punishment of the wicked. There were very few cases of theft in ancient India. That is due to the fact that thieves were brought to book and the stolen property recovered promptly. Otherwise the king had to make good the value of that property from the State coffers. Even so late a writer as Vijnanesvara emphasised this duty.⁶¹

Ibn Battuta, the well-known Muhammadan traveller, referring to the conditions prevailing in Kerala in the second quarter of the 14th century, writes : " On this road which, as we have said, extends for a two months' march, there is not a foot of ground but

कच्चित् त्वमेव सर्वस्याः पृथिव्याः पृथिवीपते ! ।
 समश्चानभिषङ्क्यश्च यथा माता यथा पिता ? ॥ ५६
 कच्चिन्न चोरैर्लुब्धैर्वा कुमारैः स्त्रीबलेन वा ।
 त्वया वा पीड्यते राष्ट्रं? कच्चित् तुष्टाः कृषीबलाः? ॥
 कच्चिद् राष्ट्रे तटागानि पूर्णानि च बृहन्ति च ।
 भागशो विनिविष्टानि ? न कृषिर्देवमातृका ? ॥
 कच्चिन्न बीजं भक्तं च कर्षकस्यावसीदति ।
 पादिकं च शतं वृद्ध्या ददास्यृणमनुग्रहम् ?
 कच्चिच्छूराः कृतप्रज्ञाः पञ्च पञ्चस्वनुष्ठिताः ।
 क्षेमं कुर्वन्ति संहत्य राजन् जनपदे तव ?
 कच्चिन्नगरगुप्त्यर्थं ग्रामा नगरवत् कृताः ।
 ग्रामवच्च कृता घोषास्ते च सर्वे त्वदर्पणाः ॥ ” ७६-८१

60 “ यात्रासमाजोत्सवप्रवहणानि च दशवर्गिकाधिष्ठितानि गच्छेत् । ”

Kaut. I. p. 108 :

61 “यदा त्वन्यतोऽपहृतं द्रव्यं दापयितुं न शक्नोति तदा स्वकोशादेव राजा दद्यात् । चोरहृतमवजित्य यथास्थानं गमयेत्, स्वकोशाद् वा दद्यादिति गौतमस्मरणात् । ”

is cultivated. . . . I have never seen a safer road than this, for they put to death anyone who steals a single nut, and if any fruit falls no one picks it up but the owner. Indeed we sometimes met infidels during the night on this road, and when they saw us they stood aside to let us pass. . . . In the Mulaybar (Malabar) lands, there are twelve infidel sultans; some of them strong with armies numbering fifty thousand men and others weak with armies of three thousand. Yet there is no discord whatever between them, and the strong does not desire to seize the possessions of the weak. At the boundary of the territories of each Ruler there is a wooden gateway on which is engraved the name of the ruler whose territories begin at that point. This is called the "Gate of Security" of such and such a prince." ⁶²

A king should neither be too lenient nor too severe, but administer such punishment as may be deemed fit and proper. Kautalya says: "Whosoever imposes severe punishment becomes repulsive to the people while he who imposes mild punishment becomes contemptible. But whoever imposes punishment as deserved will be respected."⁶³ In the Mahabharata it is stated: "Although the most impregnable fortress of a king is the love of his subjects and it is therefore essential that he should be merciful, if he is always forgiving, the lowest of men may guide him as a mahout an elephant. Nor should he be ferocious. He should be like the vernal sun, neither too hot nor too cold."⁶⁴

This aphorism is very like what a medieval monarch demanded of a king, namely that he should not be too salty lest he be spit out

62. Ibn Battuta's Travels, translated by H. A. R. Gibb, p. 232.

63. Kautalya, Vol. I, page 33:

“ तीक्ष्णदण्डो हि भूतानामुद्वेजनीयः ; मृदुदण्डः परिभूयते ; यथार्हदण्डः पूज्यः । ”

64. Mahabharata, Santi, Chapter 56:

“ दुर्गेषु च महाराज षट्सु ये शास्त्रनिश्चिताः ।

सर्वदुर्गेषु मन्यन्ते नरदुर्गं सुदुस्तरम् ॥ ३५

क्षममाणं नृपं नित्यं नीचः परिभवेज्जनः ।

हस्तियन्तां गजस्येव शिर एवारुरुक्षति ॥

तस्मान्नैव मृदुर्नित्यं तीक्ष्णो नैव भवेन्नृपः ।

वासन्तार्क इव श्रीमान् न शीतो न च घर्मदः ॥ ३९-४०

nor too sweet lest he be swallowed. Markandeyapurana says that the Kshatriyas take up arms in order that the oppressed may not weep or wail.⁶⁵ This part of the subject may well be concluded with the following amusing observation made in the Mahabharata, viz., "These six persons should be abandoned like a leaky boat on the sea, viz., a teacher who does not teach, a priest who does not study the scriptures, a king who does not afford protection, a wife who utters disagreeable words, a cowherd who wishes to live in a village and a barber who desires to live in a forest."⁶⁶

KING AND MINISTERS

The activities of the State covered a very wide range. As observed by Dr. Beni Prasad: "While there was much which had been fashioned by other associations and on which the State could only set its *imprimatur*, the seal of its force, there was much else which it essayed to perform by means of its own resources. From time to time it elected to propagate Dharma, to inculcate and enforce morality, to maintain or improve the social order, to encourage learning, education and art, to subsidise various academies, to regulate industry and commerce, to foster agriculture, to relieve the distress from famine and other calamities, to establish hospitals, rest houses, charity halls, etc. All this it essayed to do in addition to its primary functions of defence, order and justice."⁶⁷ The seven constituent elements of the State were (i) the king (Svami), (ii) the ministers (Amatyas), (iii) allies (Suhrat), (iv) treasure (Kosa), (v) territory (Rashtra),

65. Markandeyapurana, Chapter 114 :

“ क्षत्रियैर्धार्यते शस्त्रं नार्तशब्दो भवेदिति । ” ३६

Kalidasa expresses the same idea in Abhignasakuntala, Act 1 :

“ आर्तत्राणाय वः शस्त्रं न प्रहर्तुमनागसि । ” १०

66. Mahabharata, Santi, Chapter 57 :

“ षडेतान् पुरुषो जह्याद् भिन्नां नावमिवार्णवे ।

अप्रवक्तारमाचार्यमनघीयानमृत्विजम् ॥

अरक्षितारं राजानं भार्यो चाप्रियवादिनीम् ।

ग्रामकामं च गोपालं वनकामं च नापितम् ॥ ”

67. The State in Ancient India, page 505.

(vi) fortress (Durga) and army (Bala).⁶⁸ The ministers form an important and indispensable part of this constitution. The Mahabharata says that it is impossible for a king to look after all his duties and that hence he should devolve his duties on his ministers.⁶⁹ Kautilya also points out : "Sovereignty is possible only with assistance. A single wheel can never move. Hence a king should employ ministers and hear their opinion."⁷⁰ Kautilya draws a distinction between Amatyas (Officers) and Mantrins (Councillors). Manu says that the king may appoint seven or eight ministers who are learned in the sciences, heroes skilled in the use of arms, descended from noble families and well-tried. It is impossible for one man to discharge even an easy duty singly and much less the duties relating to kingship. The king should there-

68. Manu varies the list slightly and substitutes capital (pura) for fortress, but really there is no difference, since what he means is a town enclosed by a fortress, as explained by Kullukabhattacha :

“स्वाम्यमात्यौ पुरं राष्ट्र* कोशदण्डौ सुहृत् तथा ।
सप्त प्रकृतयो ह्येताः सप्ताङ्गं राज्यमुच्यते ॥” XI. २९४

Kulluka :

“पुरं राज्ञः कृतदुर्गनिवासनगरं.....
दण्डो हस्त्यश्वरथपादात् ।”

Their interconnection is explained by Sukra in a beautiful passage which means that the king is the root of the State, the councillors are the trunks, the commanders are the branches, the troops are the leaves and flowers, the subjects are the fruits and the lands are the seeds :
(Sukranitisara, v. 12).

“राज्यवृक्षस्य नृपतिर्मूलं ; स्कन्धाश्च मन्त्रिणः ।
शाखाः सेनाधिपाः ; सेनाः पल्लवाः कुसुमानि च ।
प्रजाः फलानि ; भूभागा बीजं ; भूमिः प्रकल्पिता ॥”

69. Mahabharata, Santi, 93 :

“नैतान्येकेन शक्यानि सातत्येनानुवीक्षितुम् ।
तेषु सर्वं प्रतिष्ठाप्य राजा भुङ्क्ते चिरं महीम् ॥” २६

70. Kautilya's Arthasastra, Vol. I, page 40 :

सहायसाध्यं राजत्वं ; चक्रमेकं न वर्तते ;
कुर्वीत सचिवांस्तस्मात् तेषां च शृणुयान्मतम् ”

fore hold deliberations with his ministers, ascertain each minister's opinion separately as also their conjoint opinion and then decide upon the course that may be the best. He should also appoint as many other officers as may be needed for the due transaction of business and see that they are honest, wise, firm, etc.⁷¹ Numerous other qualifications for ministers are enumerated in the Mahabharata and the Agnipurana.⁷² The Mahabharata says that a king who is angry at the advice tendered by a well-wisher, merely because his views are not to his taste, and who does not follow the conduct of the wise, deviates from the duty of a Kshatriya.⁷³ Kautilya states that a cabinet of ministers may consist of as many members as the needs of a kingdom call for, that they should start what is not begun, complete what is commenced, improve upon what has been accomplished, and enforce strict obedience to orders. He further observes that one thousand sages form Indra's cabinet of ministers and hence he is called Sahasraksha although he has

71. Manu, VII :

मौलान् शास्त्रविदः शूरान् लब्धलक्षान् कुलोद्भवान् ।
 सचिवान् सप्त चाष्टौ वा प्रकुर्वीत परीक्षितान् ॥
 अपि यत् सुकरं कर्म तदप्येकेन दुष्करम् ; ।
 विशेषतोऽसहायेन; किन्तु राज्यं महोदयम् ? ॥ ५४-५५
 तैः सार्धं चिन्तयेन्नित्यं.....
 तेषां स्वं स्वमभिप्रायमुपलभ्य पृथक् पृथक् ।
 समस्तानां च कार्येषु विदध्याद्धितमात्मनः ॥ ५७
 अन्यानपि प्रकुर्वीत शुचीन् प्राज्ञानवस्थितान् ।
 सम्यगर्थसमाहर्तृनमात्यान् सुपरीक्षितान् ॥ ” ६०

72. Agnipurana, Chapter 238.

73. Mahabharata, Santi, Chapter 93 :

“ योऽर्थकामस्य वचनं प्रातिकूल्यान् मृष्यते ।
 शृणोति प्रातिकूल्यानि सर्वदा विमना इव ॥
 अग्राम्यचरितां वृत्तिं यो न सेवेत सर्वदा ।
 जितानामजितानां च क्षत्रधर्मादपैति सः ॥ ” २९-३०

only two eyes.⁷⁴ Somadeva insists on ministers giving correct advice to kings although for the time being such advice may be distasteful to them. His commentator quotes a Smrtikara, Bhaguri, who is of the opinion that the minister who represents what ought to be done as untruth and what ought not to be done as truth is his enemy, though he puts on a minister's appearance. He asks : " When a child refuses to drink milk, are not slaps given on its cheek ? " ⁷⁵ The king should not have one or even two ministers ; three should be the lowest number of members of his cabinet.⁷⁶ At the same time he should himself look into matters affecting his subjects.⁷⁷ Somadeva advises the king not to act against the advice of his ministers.⁷⁸ He should not create a situa-

74. Kautalya's Arthasastra, Vol. I, page 76 :

“ यथासामर्थ्यमिति कौटल्यः.....अकृतारम्भमारब्धानुष्ठानमनु-
ष्ठितविशेषं नियोगसम्पदं च कर्मणां कुर्युः.....इन्द्रस्य हि मन्त्रिपरिषद-
षीणां सहस्रं ; स तच्चक्षुः ; तस्मादिमं द्यक्षं सहस्राक्षमाहुः । ”

75. Nitivakyamrta, page 123 :

“ स मन्त्री शत्रुर्यो नृपेच्छयाऽकार्यमपि कार्यरूपतयानुशास्ति । ”

Bhaguri : (Ibid., page 123)

“ अकृत्यं सत्यरूपं च सत्यं चाकृत्यसंज्ञितम् ।

निवेदयति भूपस्य स वैरी मन्त्रिरूपधृक् ॥ ”

“ वरं स्वामिनो दुःखं ; न पुनरकार्योपदेशेन तद्विनाशः पीयूषमपिबतो
बालस्य किं न क्रियते कपोलहननम् ? । ”

76. Ibid., page 127 :

“ एको मन्त्री न कर्तव्यः ; एको हि मन्त्री निरवग्रहश्चरति मुह्यति च
कार्येषु कृच्छ्रेषु । द्वावपि मन्त्रिणौ न कार्यौ ; द्वौ मन्त्रिणौ संहतौ राज्यं विनाशो
यतः ॥ ”

77. Ibid., page 182.

“ प्रजाकार्यं स्वयमेव पश्येत् । ”

78. Ibid., page 124 :

“ स खलु नो राजा यो मन्त्रिणोऽतिक्रम्य वर्तेत । ”

The commentator quotes a verse from the Smrtikara Bharadvaja, in sup-
port of this position :

“ यो राजा मन्त्रिणां वाक्यं न करोति हितैषिणाम् ।

न स तिष्ठेच्चिरं राज्ये पितृपैतामहेऽपि च ॥ ”

tion in which the country would rise against him, because, of all dangers to which he is liable, prakrtikopa or the anger of ministers, servants, etc., is the most formidable.⁷⁹ He should, says the Mahabharata, employ each of his officers in such work as he is fit to perform and act in unison with them, as the string of a musical instrument with its respective notes.⁸⁰

FEUDALISM

Even in the Vedic days there were gradations among the kings importing some kind of paramountcy or a feudal integration. The expressions Virat, Sarvabhauma and Samrat occurring in the Rgveda indicate this. But even more significant than these gradations or hierarchies is the mention of Svarat who, after having renounced the glories of conquest, was concentrated on peace and the consultation of peaceful activities. This thesis has been developed with great acumen by Mr. S. V. Venkatesvara in his *Indian Culture through the Ages* where he cites a passage : "Ayam Indro raja ; ayam Indrodhirajah ; asau Indrah svarat."⁸¹

The expressions "Panchajanah" and "Saptajanah" that occur in the Vedas are now taken to signify a combination of federation of peoples either monarchical or quasi-republican in character.

One of the most remarkable features apparent in the indigenous systems of administration was the recognition of the rights of conquered kings. After annexation it is laid down that local rights and usages should be respected. Samudragupta always openly proclaimed that whenever he conquered any territory, the defeated king was, after submission, restored to his place and power. Raghuvamsa, in fact, says that the king of Kalinga, who was defeated by Raghu, only lost his wealth but not his country.⁸²

79. Ibid: page 157 :

“सर्वकोपेभ्यः प्रकृतिकोपो गरीयान् । ”

80. Mahabharata, Santi, Chap. 120.

“अथ दृष्ट्वा नियुक्तानि स्वानुरूपेषु कर्मसु ।

सर्वोस्ताननुवर्तेत स्वरांस्त्रयीरिवायता ॥ ” २४

81. Taittiriya Samhita, II, 6.

82. Raghuvamsa, IV, 43 :

“गृहीतप्रतिमुक्तस्य स धर्मविजयी नृपः ।

श्रियं महेन्द्रनाथस्य जहार न तु मेदिनीम् ॥ ”

The conception of a super-state or Empire loomed large even in Vedic times. According to the Gopatha Brahmana, one became a Rajan by performing the Rajasuya, Samrat the Vajapeya, Svarat the Asvamedha, Virat the Purushamedha, and Sarvarat the Sarvamedha sacrifice.⁸³ The ideal to be followed by Rajanyas as described in the Aitareya Brahmana is to win all victories, find all worlds, attain superiority (Sreshthata) pre-eminence (Pratishtha) and supremacy (Paramata) over all kings, achieve overlordship (Samrajya), paramount rule (Bhaujya), undivided rule (Svarajya), sovereignty (Vairajya), supreme authority (Parameshthya), kingship (Rajya), great kingship (Maharajya), and suzerainty (Adhipatya) encompassing all, and to be the ruler of all territory (Sarvabhauma), the sole single ruler (Ekarat) of the earth up to the limits of the ocean.⁸⁴ Sukra describes Samantas as those who derive a revenue of one to three lakhs of rupees, Mandalikas four to ten lakhs, Rajans ten to twenty lakhs, Maharajas twenty-one to fifty lakhs, Svarats fifty-one to one hundred lakhs, Samrats one to ten crores, Virats eleven to fifty crores and Sarvabhaumas above fifty-one crores.⁸⁵ Several rulers sometimes selected the most powerful among them as overlord and became subordinates to him, as when Sisupala became the commander-in-chief of the forces of Jarasandha, and Dantavakra and others became his vassals.⁸⁶ Sometimes new kingdoms were created for the

83. Mookerji's Hindu Civilisation, p. 98.

84. Aitareya Brahmana, Book VIII, Chapter 4:

“स य इच्छेदेवंवित् क्षत्रियोऽहं सर्वा जितीर्जयेयमहं सर्वान् लोकान् विन्देयम् ; अहं सर्वेषां राज्ञां श्रेष्ठ्यमतिष्ठां परमतां गच्छेयं साम्राज्यं भोज्यं स्वाराज्यं वैराज्यं पारमेष्ठ्यं राज्यं माहाराज्यमाधिपत्यम् ; अहं समन्तपर्यायी स्यां सार्वभौमः सार्वयुष आन्तादा परार्धात् पृथिव्यै समुद्रपर्यन्ताया एकराडिति स न विचिकित्सेत् स ब्रूयात् ॥”

85. Sukranitisara, I, 184-86:

“सामन्तः स नृपः प्रोक्तो यावल्लक्षत्रयावधि ।

तदूर्ध्वं दशलक्षान्तो नृपो माण्डलिकः स्मृतः ॥

तदूर्ध्वं तु भवेद् राजा यावद् विंशतिलक्षकः ।

पञ्चाशलक्षपर्यन्तो महाराजः प्रकीर्तितः ॥

ततस्तु कोटिपर्यन्तः स्वराट् सम्राट् ततः परम् ॥”

86. Mahabharata, Sabha, Chapter 14.

sake of royal favourites as when Karna was made the king of Anga by Suyodhana.⁸⁷ During Digvijaya all that the conquering hero desired was that his suzerainty should be respected and there was no other kind of subjugation. There were also other grounds than valour on which a king was accepted as a suzerain of many. The Mahabharata says that the king Yauvanasvi became a Samrat by the remission of taxes, Bhagiratha by giving protection, Kartavirya by his austere life, Bharata by victory and Marutta by advancing the prosperity of his subjects, and that Srikrishna advised Yudhishtira that he should aim at Samrajya from not one, but all those points of view.⁸⁸ Sisupala himself went to Indraprastha to attend the Rajasuya of Yudhishtira not because he was really conquered by the Pandavas, but because he thought that Yudhishtira deserved that honour by reason of his righteousness.⁸⁹ The duties of a dependent king are thus enumerated in the Arthasastra: "He should behave like a servant to his master by serving the protector's occasional needs. Forts and other defensive works, celebration of marriages in his household, installation of the heir-apparent, purchase of horses, capture of elephants, construction of covert places for battle, marching against enemies and holding sports—all these he should undertake only with the permission of his protector On all occasions of worshipping God and offering prayers, he should cause the people to pray for the long life of his protector."⁹⁰

87. Ibid., Adiparva, Chapter 139.

88. Ibid., Sabha, Chapter 15:

“ हित्वा करान् यौवनाश्विः पालनाच्च भगीरथः ।
 कार्तवीर्यस्तपोवीर्याद् बलात्तु भरतो विभुः ॥
 ऋद्ध्या मरुत्तस्तान् पञ्च सम्राजस्त्वनुशुश्रुमः ।
 साम्राज्यमिच्छतस्ते तु सर्वाकारं युधिष्ठिर ॥ ” १५-१६

89. Ibid., Chapter 37:

वयं तु न भयादस्य कौन्तेयस्य महात्मनः ।
 प्रयच्छामः करान् सर्वे न लोभान्न च सान्त्वनात् ॥
 अस्य धर्मप्रवृत्तस्य पार्थिवत्वं चिकीर्षितः ।
 करानस्मै प्रयच्छामः सोऽयमस्मान्न मन्यते ॥ ” १९-२०

90. Kautilya's Arthasastra, Vol. II, p. 341:

“ लब्धसंश्रयः सामयाचारिकवद् भर्तरि वर्तेत । दुर्गादीनि च कर्माण्यावा

FEDERATION

This feudalism was more or less of the federal type. The Mandala was a circle of States, generally twelve in number, some of which had not full sovereign powers. In this connection some observations made by Dr. Beni Prasad as a result of his close study of ancient Hindu States are worthy of quotation. He says : "The State in ancient India was not unitary in the strict sense of the term. It was saturated through and through with the principles of what for convenience may be called federalism and feudalism. They are only meant to imply that as a general rule, a Hindu kingdom comprised a number of feudatories who enjoyed varying degree of autonomy, that they might have themselves sub-feudatories of a similar status under them and so to the third, fourth or fifth degree. A big empire was partly a series of alliances, partly a series of relationships of suzerainty and vassalage and partly an area of directly administered territory. The high-sounding 'Digvijayas' could only lead to such a result on a large or small scale. The tie which held an empire together was not very strong. Under every regime, suzerain or feudal, the village was the ultimate unit of society. Finally there were a number of associations and corporations, religious, economic and social, which enjoyed a fair degree of autonomy. Sovereignty *de facto* was diffused among all these organisations and influences which supported them."⁹¹

Of the republican organisations, it is necessary only to mention the Sakyas of Kapilavastu whose leader was elected by the people and who was delegated with powers of administration. In Panini several republics are mentioned amongst whom, as pointed out by Mr. Venkatesvara, there was even a separation of powers, the judiciary from the military and executive as amongst the Lichchavis, for instance, who flourished in the Vajra country with their capital at Vaisali.

About the time of Megasthenes who was a contemporary of Alexander the Great, there were many republics in India, two of which attracted the special notice of the Greeks—the Audeyas and the Ambashthas—and the Brahmins themselves seem to have

हविवाहपुत्राभिषेकाश्चपण्यहस्तिग्रहणसत्रयात्राविहारगमनानि चानुज्ञातः कुर्वीत ।
दैवतस्वस्तिवाचनेषु तत्परा आशिषो वाचयेत् ॥ ”

91. The State in Ancient India, pp. 504-5.

founded a republic of their own as observed by Appollonios of Tyana.

Dr. Radha Kumud Mookerji points out : "The administration of the Mauryan empire was possible because it did not cherish the ambition of setting up a centralised government consciously legislating for and controlling the life of every part of that vast whole, but aimed only at an elastic system of federalism or corporation in which were incorporated along with the central government at the metropolis, as parts of the same system, the indigenous local administrations. The essence of this imperial system was thus a recognition of local autonomy at the expense of the authority of the central government, which was physically unfit to assert itself except by its enforced affiliation to the pre-existing system of local Government.."⁹² There are also passages in the ancient texts leading to the inference that our ancestors were not for the wholesale destruction of alien nations. Kamandaka says that peace may be concluded by Aryan kings even with non-Aryan because by such alliance an Arya can never become a non-Arya even in times of calamity.⁹³

NON-MONARCHICAL STATES

Hitherto we have been speaking of monarchical States. There were also certain States in ancient India which were non-monarchical. Sangha, according to Panini, was the designation given to a combination of people organised for a specific purpose.⁹⁴ From one of Katyayana's Vartikas it is seen that there were monarchical and non-monarchical States in his time⁹⁵ (3rd century B.C.).

92. Local Government in Ancient India (1919), p. 10.

93. Kamandaka's Nitisara, Chapter IX :

सत्यायौ धार्मिकानायौ भ्रातृसङ्घातवान् बली ।
अनेकविजयी चेति सन्धेयाः सप्त कीर्तिताः ॥
सत्योऽनुपालयन् सत्यं सन्धितो नैति विक्रियाम् ।
प्राणबाधेष्वपि व्यक्तमार्यो नायात्यनार्यताम् ॥

94. Panini's Ashtadhyayi, III, 3. 86 :

“ सङ्घोद्धौ गणप्रशंसयोः । ”

95. Ibid., IV. I. 166 :

“ जनपदशब्दात् क्षत्रियादञ् । ”

Katyayana states :

“ क्षत्रियादेरोजात् सङ्घप्रतिषेधार्थम् । ”

Kautalya speaks of two classes of corporations, Kshatriyasrenis who lived by agriculture, trade and arms, and Rajasabdopajivins. While the Kambojas and the Saurashtras came under the former category, the Lichchhivikas, Vrajikas, Mallakas, Madras, Kukuras, Kurus, Panchalas, etc., fell under the latter class.⁹⁶ The Andhakas and the Vrishnis, to which latter corporation Srikrishna belonged, also came under the latter category. From a Buddhistic work, *Avadanasataka* (C. 100 B.C.), quoted by D. R. Bhandarkar, it is seen that some States in Madhyadesa were ruled by kings and others by Ganas.⁹⁷ Gana was the technical name ordinarily given to a political sangha. A Gana was drawn from various Rajakulas and the heads of these Rajakulas formed the Gana.⁹⁸ The real power of the Ganas was nevertheless vested in the Ganamukhyas who were the chiefs of the Gana, composed of two, three or five members, according to Brhaspati, who were both able and willing to look after the welfare of the whole community.⁹⁹ The Lichchavis referred to already formed a confederation of Ganas. They were in power from the seventh to the fourth century B.C. They recognised no distinction as between them and each of them was in a position to feel that he was a king.¹⁰⁰ In the days of Gautama Buddha they were noted for their high national character. As stated in the Mahabharata, however, it was essential for the success of such States that there should be no internal dissensions

96. Kautalya's Arthasastra, Volume III, p. 144 :

“ काम्बोजसुराष्ट्रक्षत्रियश्रेण्यादयो वार्ताशस्त्रोपजीविनः ; लिच्छिविकव्रजिक-
मल्लकमद्रकुकुरकुरुपाञ्चालादयो राजशब्दोपजीविनः । ”

97. D. R. Bhandarkar's Carmichael Lectures, p. 147 :

“ केचिद् देशा गणाधीनाः केचिद् राजाधीनाः । ”

98. Katyayana, the Smrtikara, says :

“ कुलानां तु समूहस्तु गणः स्यात् परिकीर्तितः । ”

99. Vivadaratnakara, p. 179 :

“ सर्वकार्ये प्रवीणाश्च कर्तव्याश्च महत्तमाः ।

द्वौ त्रयः पञ्च वा कार्याः समूहहितवादिनः ॥

कर्तव्यं वचनं तेषां ग्रामश्रेणिगणादिभिः ॥ ”

100. Lalitavistara, Calcutta Edn., p. 23 :

“ एकैक एव मन्येत अहं राजा, अहं राजेति । ”

among the Ganamukhyas.¹⁰¹ Kautilya also emphasises the need for internal harmony and for vigilance against foes who may sow seeds of discord among them.¹⁰² In course of time the Ganas became an easy prey to Ekaraja invaders on account of such discords. Sukra is positive that Ekaraja rule alone is beneficial to society, and that if a king has several sons, the eldest among them should succeed to the throne, provided that he is not deaf, dumb or blind, a leper or a eunuch, in which case his younger brother or brother's son may become ruler. A kingdom should on no account be partitioned.¹⁰³

It is an agreeable feature of ancient India that the fissiparous tendencies which, later on, manifested themselves in the form of personal jealousy amongst the rulers, racial and communal jealousies amongst the people and religious dissensions subsequent to the stream of foreign conquests, were singularly rare in the earlier days. At the same time, from the Vedas we learn that the Samiti

101. Mahabharata, Santi, Chapter 107 :

“ कुलेषु कलहा जाताः कुलवृद्धैरुपेक्षिताः ।
गोत्रस्य नाशं कुर्वन्ति गणभेदस्य कारणम् ॥ २७
भेदाच्चैव प्रधानाच्च भिद्यन्ते रिपुभिर्गणाः ।
तस्मात् सङ्घात एवाहुर्गणानां शरणं महत् ॥ ” ३१

102. Kautilya's Arthasastra, Vol. III. Page 152 :

“ सङ्घाश्चाप्येवमेकराजादेतेभ्योऽतिसन्धानेभ्यो रक्षयेयुः । ”
“ सङ्घमुख्यश्च सङ्घेषु न्यायवृत्तिहितः प्रियः ।
दान्तो युक्तजनस्तिष्ठेत् सर्वचित्तानुवर्तकः ॥ ”

103. Sukranitisara I :

सदैकनायकं राज्यं कुर्यान्न बहुनायकम् ।
राजकुले तु बहवः पुरुषा यदि सन्ति हि ।
तेषु ज्येष्ठो भवेद् राजा शेषास्तत्कार्यसाधकाः । ३४०-४२
ज्येष्ठोऽपि बधिरः कुष्ठी मूकोऽन्धः षण्ड एव यः ।
स राज्याहो भवेन्नैव भ्राता तत्पुत्र एव हि ॥ ३४३
राज्यविभजनाच्छ्रेयो न भूपानां भवेत् खलु ।
अल्पीकृतं विभागेन राज्यं शत्रुर्जिघृक्षति ॥ ” ३४६

was an active political body sometimes enjoying royal patronage and not unoften full of discussion and controversy. There are prayers invoking the assistance of the unseen powers for conducting the deliberations with wisdom and helping to the formulation of unanimous resolutions; and the Atharva Veda, in fact, contains special charms and spells to secure unanimity. It is perhaps a pity that those charms and spells are neither invoked nor efficacious at the present moment. The Samiti then and the smaller Sabha which was a kind of quasi-executive body as well as the various Parishats which were attended by women as well as men and were gathered together for the purpose of sport or educational, social or religious purposes and the Sadas which was entirely religious in character, were all symptomatic of the active social life of those days. In addition, of course, there were professional and caste guilds and what almost takes one's breath away is the existence of an assembly of ladies who are described in the Taittiriya Samhita of having discussed women's problems and women's rights and obligations in those days.

In the days of the epics, it is obvious that there were city corporations, merchant guilds and Sanghas. There were popular leaders who were evidently as articulate as the leaders of to-day who were called ग्रामवोषमहत्तराः, the principal men in Gramas and Ghoshas.

Both in the Buddhist and post-Buddhist times, city life and village life were very vigorous and there was developed even a theory of progressive scaled taxation by way of a tax on surpluses or by way of analogy to the present supertax. By the time of Kautilya, all these systems became highly evolved, the king leading a very strenuous and active life and elaborate regulations being promulgated down with regard to the ministry and the various departments of the State, the Central Government alone having eighteen departments or Tirthas, and rules being laid down for survey and settlement as well as remissions of revenue as we find in the time of Asoka as well as periodical tours and inspections to keep in touch with local Governments.

VILLAGE LIFE

The village was the unit of ancient Hindu society, since agriculture was the main occupation followed by the people. The desertion of villages in favour of town life was viewed with dis-

favour by Smṛtikaras. "Let him avoid going into towns",¹⁰⁴ says Apastamba, while Baudhayana says: "It is impossible for one to attain salvation who lives in a town covered with dust".¹⁰⁵ While towns were enclosed by high walls, villages had no such artificial enclosure. Rules have been laid down by Kautilya for the formation of new villages. He states: "Either by inducing foreigners to immigrate or by causing thickly populated centres of his own kingdom to send forth the excess 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 agriculturists, mainly of the Sudra caste, with boundaries extending as far as a krosa (2,250 yards) or two and capable of protecting each other, shall be formed."¹⁰⁶ R. K. Mookerji correctly remarks: "India presents the rare and remarkable phenomenon of the State and the society co-existing apart from, and in some degree of independence of, each other as distinct and separate units or entities, as independent centres of national, popular and collective life and activity."¹⁰⁷

GUILDS

Guilds of various kinds were formed. Puga was an association of men of different castes who, having no fixed means of livelihood, united themselves for the pursuit of wealth and pleasure, while Vrāta was an association of such men living by bodily labour or violence. Sreni was an assembly of persons following a com-

104. Apastamba's Dharmasutra, I, 32:

“नगरप्रवेशनानि च वर्जयेत् ।” २१

105. Baudhayana's Dharmasutra, II. 3:

“पुरेणुकुण्ठितशरीरस्तत्परिपूर्णनेत्रवदनश्च नगरे वसन् सुनियतात्मा सिद्धिमवाप्स्यतीति न तदस्ति ।” ५३

106. Kautilya's Arthashastra, Vol. I, p. 109.

“भूतपूर्वमभूतपूर्वं वा जनपदं परदेशापवाहनेन स्वदेशाभिष्यन्दवमनेन वा निवेशयेत् । शूद्रकर्षप्रायं कुलशतावरं पञ्चशतकुलपरं ग्रामं क्रोशद्विक्रोशसीमान-मन्योन्यारक्षं निवेशयेत् ।”

107. R. K. Mookerji's Local Government in Ancient India, p. 3.

mon craft or trading in a common commodity.¹⁰⁸ Arts and crafts were generally the occupation of Sudras. Each craft had its own separate centre in the village. Merchant guilds were a later growth than craft guilds. Each guild had its own economic, administrative, social and municipal functions to perform. Elaborate rules guided the procedure relating to election and conduct of business. As regards apprenticeship, Narada, the Smrtikara, says that if a young man wishes to be initiated into his craft he should go with the sanction of his relatives to a master-craftsman and live with him, the duration of the apprentice course being fixed beforehand, that the latter should teach him in his own house, feed him and treat him like his own son, and that even if his instruction is completed before the stipulated period the apprentice should continue to live in the master's house and leave him only at the end of that period after paying remuneration.¹⁰⁹ Gautama states that the special laws of countries, castes and families which are not opposed to the sacred texts have also legal authority, and that cultivators, traders, herdsman, money-lenders and artisans are

108. Kasika on Panini, V. 3. 112 and 113 :

“ नानाजातीया अनियतवृत्तयोऽर्थकामप्रधानाः सङ्घाः पूगाः, नानाजातीया अनियतवृत्तय उत्सेधजीविनः सङ्घा व्राताः । ”

Katyayana says :

“ एकेन शिल्पेन पण्येन वा ये जीवन्ति तेषां समूहः श्रेणिः । ”

109. Narada V :

“ स्वशिल्पमिच्छन्नाहर्तुं बान्धवानामनुज्ञया ।
 आचार्यस्य वसेदन्ते कालं कृत्वा सुनिश्चितम् ॥
 आचार्यः शिक्षयेदेनं स्वगृहे दत्तभोजनम् ।
 न चान्यत् कारयेत् कर्म पुत्रवच्च समाचरेत् ॥
 शिक्षयन्तमदुष्टं य आचार्यं सम्परित्यजेत् ।
 बलाद् वासयितव्यः स्याद् वधबन्धौ तु सोऽर्हति ॥
 शिक्षितोऽपि कृतं कालमन्तेवासी समाप्नुयात् ।
 तत्र कर्म च यत् कुर्यादाचार्यस्यैव तत् फलम् ॥
 गृहीतशिल्पः समये कृत्वा चाचार्यदक्षिणाम् ।
 शक्तितश्चानुमान्यैनमन्तेवासी निवर्तते ॥ ” १६-२०

authorised to lay down laws for their respective guilds.¹¹⁰ The king was bound to obey these laws and give his decisions in accordance with them.¹¹¹ He was also obliged to see that the members of the guilds themselves did not break these laws.¹¹² In the Mahabharata the Kekaya king asks the demon why he should possess him when he has obeyed all special and local customs.¹¹³ The State at the same time was competent to interfere when the guilds formed combinations prejudicial to corporate life, armed themselves without sufficient cause, quarrelled with one another, took steps which implied hostility to the king, wasted public money, etc.¹¹⁴ New guilds could not be established without the sanction of the State,¹¹⁵ and even changes in the constitution of existing

110. Gautama's Dharmasastra, II. 2; 20-21 :

“ देशजातिकुलधर्माश्चान्नायैरविरुद्धाः प्रमाणं ; कर्षकवणिकूपशुपालकुसीदि
कारवः स्वे स्वे वर्गे । ”

111. Manu, VIII, 41 :

“ जातिजानपदान् धर्मान् श्रेणीधर्माश्च धर्मवित् ।
समीक्ष्य कुलधर्माश्च स्वधर्मं प्रतिपादयेत् ॥ ”

112. Yajnavalkya, II, 34 :

“ कुलानि जातीः श्रेणीश्च गणान् जनपदांस्तथा ।
स्वधर्मचलितान् राजा विनीय स्थापयेत् पथि ॥ ”

113. Mahabharata, Santi, Chapter 77 :

“ कुलदेशादिधर्माणां ग्रथितानां यथाविधि ।
अव्युच्छेत्तास्मि सर्वेषां मामकान्तरमाविशः ॥ ” १९

114. Narada :

“ मिथः सङ्घातकरणमहेतौ शस्त्रधारणम् ।
परस्परोपघातं च तेषां राजा न मर्षयेत् ॥
प्रतिकूलं च यद् राज्ञः प्रकृत्यवमतं च यत् ।
बाधकं च यदर्थानां तत् तेभ्यो विनिवर्तयेत् ॥ ”

115. Sukranitisara, I :

“ नवं समाजनियमं निर्णयं जातिदूषणम् ।
मनसापि न कुर्वन्तु स्वामिद्रोहं तथैव च ॥ ” ३०५

guilds required the sanction of the king.¹¹⁶ The village assemblies were also invested with certain municipal functions, as already stated. These functions are stated by Brhaspati to be the maintenance and improvement of public halls, water-sheds, temples, tanks and gardens, poor relief and alleviation of distress in times of scarcity.¹¹⁷ Thus the purposes for which such corporations were brought into existence embraced a wide variety of useful public activity.

I have now completed a rapid and necessarily imperfect survey of some of the political ideas and theories that were evolved and obtained currency at various periods of Indian history. To summarise, they point to a continued tradition of a strong central government where the king was a real factor to be counted with and not a *roi fai ne ant*. His authority and powers were however exercised after constant consultation with a ministry and through heads of departments whose jurisdiction was extensive and who, under wise kings, were always encouraged to speak their minds. Kingship was mainly hereditary but often elective. The pulse of the public was felt not only through the espionage system of those days but also by means of assemblies which, especially in the south of India, flourished in great abundance and with much vigour. Provincial or rather local autonomy was, however, the main feature of Hindu India and the essence of Government lay in the formation and functioning of village groups, taxing themselves, expending their revenues on works of public utility and governing themselves. Political speculation was active and the theory of a compact with the king, the idea that taxation is the return for good administration and protection, the formulation of the need for a cabinet system of Government with Dharma or *vox populi* as the ultimate sanction—these were some of the conspicuous features of Indian polity. The resort to popular opinion

116. Yajnavalkya, II :

“ श्रेणिनैगमपाषण्डिगणानामप्ययं विधिः ।

मेदं चैषां नृपो रक्षेत् पूर्वपङ्क्तिं च पालयेत् ॥ ” १९६

117. Brhaspati :

सभाप्रपादेवगृहतटागारामसंस्कृतिः ।

तथानाथदरिद्राणां संस्कारो यजनक्रिया ॥

कुलायननिरोधश्च कार्यमस्माभिरंशतः ॥ ”

was in the nature of a referendum as in Switzerland, a referendum which on two occasions, namely, when Dasaratha took the fateful decision regarding Rama's exile and when Rama put aside Sita, seemed to have been very articulate and very powerful. The old dispensation was outwardly and in later theory and practice actually unfettered and autocratic but nevertheless, by reason of the grant of complete local freedom and the practice of what, in effect, was a form of State socialism, the king acted as being ever in the great task-master's eye—the task-master being what was indifferently called Dharma or the voice of the people, which latter, when it expressed itself, was clear and unequivocal. Popular gatherings, if the Atharva Veda furnishes an accurate picture, were full of life but at the same time animated by a lively desire to achieve concord.¹¹⁸ The greatest contribution to posterity made by the Hindu tradition was the broadmindedness of sympathy and the toleration of different view-points exhibited almost alone in India amongst the civilised communities of the earlier days. When Egypt persecuted and hounded out the Jews, when racial and communal conflicts disfigured the history of Babylon and Nineveh, when, later on, we see that the slav states in Greece and Rome formed the basis of those marvellous cultures and when in the medieval ages the baiting of Jews alternated with the baiting of Roman Catholics by Protestants and *vice versa*, we had the spectacle in India of unfailing hospitality to foreign religions and foreign cultures. It would be unfair and inaccurate not to mention that the Buddhists and Jains suffered many pains and penalties especially in the south of India; but which country can show anything like the treatment of the Parsees who, flying from oppression in their own country of Persia, asked for and obtained succour of the wise west-coast king to whose protection and active encouragement of their faith and tradition, the Parsees ultimately owe their dominant position in the India of to-day? Which country can furnish a parallel to what happened in Travancore under

118.

“ अन्यो अन्यस्मै वल्गु वदन्त एत
सग्रीचीनान् वः संमनसस्कृणोमि ।
समानी प्रपा सह वोऽन्नभागः
समाने योक्ते सह वो युनज्मि ॥ ”

(Kanda 3, sukta 30, RK. 5-6).

the rule of extremely conservative and religious-minded monarchs ? From the days when Christian congregations were split into innumerable and warring factions owing to the Arian controversy at the Council of Nicaea and the question of images, the Chera kings of Travancore gave a wholehearted welcome to the followers of the Eastern Church whose Patriarch of Antioch even now boasts of a larger following in Malabar than perhaps anywhere else in the world ? Which king outside India has surpassed the monarchs of Travancore and Malabar who conferred sacerdotal honours, presents, lands and dignities on the ministers, bishops and Arch-bishops of the Christian Church with the result that to-day the largest Christian population in India is found in the State of Travancore ? Which ruler in the world's chequered history has enunciated in more moving and powerful language than is found in the Edicts of Asoka the Great, the principles of tolerance and comprehension of differing creeds and ideals co-existing with a spiritual urge towards the consolidation and regeneration of the Ruler's own faith ? Such have been the marks and the characteristics of Indian civilisation not only at its peak points but through the centuries until recently and it is not too much to say that the recent Proclamation of His Highness the Maharaja of Travancore has an authentic Hindu background and lineage. Can this instinct of universality, this understanding of all points of view and the feeling that the realisation of the Supreme must connote a sympathy with and a reconciliation of many forms of thought and belief be better expressed than in the words of Tayumanavar in his Hymn to Parvati :

“ நதியுண்ட கடலெனச் சமயத்தையுண்டபர ஞானவானந்தவொளியே ” 119

“ The light and bliss of supreme knowledge that envelopes and absorbs all forms of belief and thought as the ocean absorbs all rivers ? ”

In Rock Edict 12, the Emperor Asoka declares that he does reverence to men of all sects whether ascetics or house-holders and he adds that he who does reverence to his own sect while disparaging the sects of others wholly from attachment to his own

119. Compare Kalidasa :

“ बहुधाप्यागमैर्भिन्नाः पन्थानः सिद्धिहेतवः ।
त्वय्येव निपतन्त्योधा जाह्नवीया इवार्णवे ॥ ”

Raghuvamsa, X, 26.

with intent to enhance the splendour of his own sect, in reality, by such conduct inflicts the severest injury to his own sect ; and he ends the Edict with these ever memorable words : “ Concord is the supreme good ”.

‘ समवाय एव साधुः’

May this spirit of concord animate our social and political life in the exacting years ahead of us !

“OPHTHALMOLOGY IN ITS RELATION TO CLINICAL MEDICINE”

*The Maharaja of Travancore Curzon Prize Lectures
(Medicine) 1936-1937.*

By

RAO BAHADUR DR. K. KOMAN NAYAR, L.R.C.P. & S., D.O.M.S.
*Assistant Superintendent and Second Ophthalmic Surgeon,
Govt. Ophthalmic Hospital, Madras and Part Time
Lecturer in Ophthalmology, Medical College,
Madras.*

LECTURE I

OPHTHALMOSCOPIC APPEARANCES IN SOME OF THE COMMON GENERAL DISEASES

It is said that von Graefe, when he first saw the fundus of the living eye, exclaimed “Helmholtz has unfolded to us a new world ! What remains to be discovered ?” One can very well imagine with what amount of enthusiasm the invention of the ophthalmoscope was received by the master-minds of ophthalmology in the year 1851 A.D. and what future possibilities they expected of it in those olden days. Later years brought on several improvements in the construction of the ophthalmoscope until at the present day we have several highly useful and convenient models, with which magnified and clear views of the fundus of the living eye are obtained. This has enabled the ophthalmologist to correlate and corroborate his findings with those of the clinician, and to be of help to him in the better elucidation of the diagnosis of certain diseases. Very early changes in the vascular system of an individual can be observed in the fundus of his eye before they can be detected by the clinician and also the effects of several affections occurring in the cranial cavity, on the nerve elements in the fundus. Many of the common general constitutional diseases or disorders show their characteristic changes in the eyes, and often it is found that the patient is aware of his defective vision and seeks the help of the ophthalmologist first, who is then in a position to send him to the physician with valuable data for the proper diagnosis and treatment of his condition. The value of the ophthalmoscopic examination of cases in general medicine has been recognised

to such an extent that every physician appearing for the higher professional examinations is now-a-days expected to be able to use the ophthalmoscope as a routine in his examination of cases.

Now we shall consider what valuable information the ophthalmoscope gives us in the examination of some of the common general diseases.

ARTERIOSCLEROSIS

The retinal vessels are typical of the vessels of similar size throughout the body ; hence sclerotic changes can be well observed from its very early stages in the fundus of the eye. The important changes to be looked for are :—

1. *Changes at the Arteriovenous Crossings.* The arteries are most often in front of the veins at the crossings ; in these cases, the veins are invisible, not only the portion lying under the artery but also a little distance on either side of the artery ; later, the course of the vein is diverted, it gets a “sigmoid twist”, i.e., passing under the artery at right angles to it. This is the result of compression and is a pathognomonic sign of arteriosclerosis. “Banking” of the peripheral portion of the vein as a result of compression by the artery is said to be “of quite unusual occurrence.” In cases where the vein crosses above the artery, it is flattened and raised up over the sclerosed artery.

2. *Irregularities of the Lumen* of arteries is also a sign of a high degree of arteriosclerosis. The lumen of the artery is narrowed in places and normal in between, and often towards the periphery of the fundus the artery assumes its normal calibre. This is ascribed to localised proliferation of subendothelial tissues taking place in an eccentric manner.

3. *“Copper wire” Arteries.* There is first seen an increase in the brightness of the light reflex from the surface of the arteries, giving the appearance of burnished copper wire. It is due to a thickening of the middle coat of the artery and is of diagnostic value chiefly in cases where secondary and tertiary branches of the artery are involved ; if this wide light reflex shows a beaded appearance, it is of great value in diagnosis.

4. *Tortuosity of Arteries.* (or “corkscrew” arteries, as termed by De Schweinitz). This sign is of value when seen in the finer branches near the macular area.

5. *Haemorrhages.* These are mostly seen in the posterior part of the fundus and are small and flame shaped usually.

6. *Retinal Exudates*. This is a late manifestation in arteriosclerosis. The exudates occur usually as small bright white spots with no oedema around them. They are situated in the outer molecular or reticular layer and are formed of a hyaline looking material. Rarely, the exudates form into plaques and sometimes they are seen arranged in the form of a star or fan shaped figure in the macular region. According to Foster Moore, the condition is unilateral in about 40% of cases.

7. "*Pipestem sheathing*" around the arteries is seen in very advanced cases; in these cases, the perivascular sheaths are affected, but the arterial lumen is not interfered with. In other advanced cases, some of the small arteries may be converted into and appear as thin white cords with no blood in them.

Reduction of blood supply to the retina may cause a gradual atrophy of the retina and optic nerve; sometimes a mild oedematous condition of the optic disc is seen. Paroxysmal attacks of dimness of vision or even blindness, lasting for short periods, may occur as a result of angiospasm or a sudden decrease of general blood pressure in a patient with sclerosed arteries. In advanced cases, the kidney is also secondarily affected, when the ophthalmoscopic picture will be altered to some extent, as will be described later.

In considering "some aspects of vascular change in the fundus oculi and of retinal arteriosclerosis in particular," *Evans*¹ (Birmingham) states that though retinal arteriosclerosis occurs in conjunction with similar general vascular changes it is no reliable indication of the degree of generalised arteriosclerosis. He says that the earliest changes are seen in the veins; that the gross changes of arteries occur usually late; and that retinal exudate is not a common feature of the arteriosclerotic fundus, is usually late in appearance, but of grave prognosis.

*Williamson Noble*² says "The condition of the small vessels passing to the macula may be of great importance in cases of arteriolar sclerosis. In fact, in some cases of vascular disease of the most serious type, these may be the only vessels showing any visible change," such as alteration in their course (cork-screw like) and an increase in brightness of their reflex (silver wire like).

Regarding the retinal vessels in hypertension *Sallmann* and *Kahler*³ state "narrowing and straightening of the arteries, accom-

panied by bright and clean cut reflexes are the most important ophthalmoscopic signs of hypertension : the nicking of the veins and its higher degrees, as also tortuosity of macular veins indicate arteriosclerosis. These are seen in hypertension of central origin ; but also in arteriosclerosis without hypertension. Tortuosity of macular veins is commonly found in patients with hypertension ; but also in patients with cardiovascular diseases without hypertension." They are inclined to consider tortuosity of macular veins a sign of a congenital anomaly of the vascular system.

*Guist*⁴ speaks of two types of vascular changes in the retina in hyperpiesia. (1) Primary hyperpiesis in which the blood vessels are healthy to start with, the later stages coming on in the following sequence ; corkscrew tortuosity of small veins,—distension and tortuosity of larger veins—narrowing of arteries—white stripes along arteries ; arterio-venous compression is a relatively early sign. (2) Toxic hyperpiesis, in which the arteries are thin from the beginning, white stripes along arteries are present early, smaller arterioles are seen with difficulty, tortuosity of vessels is not so marked as in primary hypertension and white stripes and marked arteriovenous compression are the most significant features.

*Adams*⁵ considers the arteriosclerotic changes in the eye to be "the result of several different pathological processes, some of which are but dimly understood." He however groups them under the following three headings :—

GROUP I

Hyperpiesia in which there is simple high tension without signs of arterial or renal disease.

He calls this the presclerotic stage, which he says may be made to disappear, without arteriosclerosis developing, in many cases. The main symptoms complained of by the patient and for which he may be referred to the eye specialist are headaches on waking in the morning and pain in the muscles at the back of the neck. The two earliest signs of high blood pressure before the onset of arteriosclerosis are (1) the small size and the pale colour of the arteries, quite apart from thickening or exaggeration of the light reflex and (2) at arteriovenous crossings, the absence of the light reflex for some short distance up and down the vein—seen even before the appearance of obvious pinching or indentation at crossing.

GROUP II

Arteriosclerosis with associated high tension, renal and heart changes.

The important signs are :—

1. Irregularity of calibre of arteries with a general diminution in their size : considered a most certain and valuable sign of arteriosclerosis when present.
2. Tortuosity of arteries, a rarer and less valuable sign : corkscrew vessels near the macular region is a corroborative sign.
3. Exaggeration of the central light reflex—a hard sharply defined bright streak indicates high blood pressure ; but several cases of high blood pressure do not show this sign.
4. Loss of translucency of arterial wall.
5. Changes at arteriovenous crossings.
6. In later stages, arteriosclerotic retinitis of Foster Moore, retinal exudates.

GROUP III

Chronic nephritis with secondary high blood pressure, arteriosclerosis and heart changes.

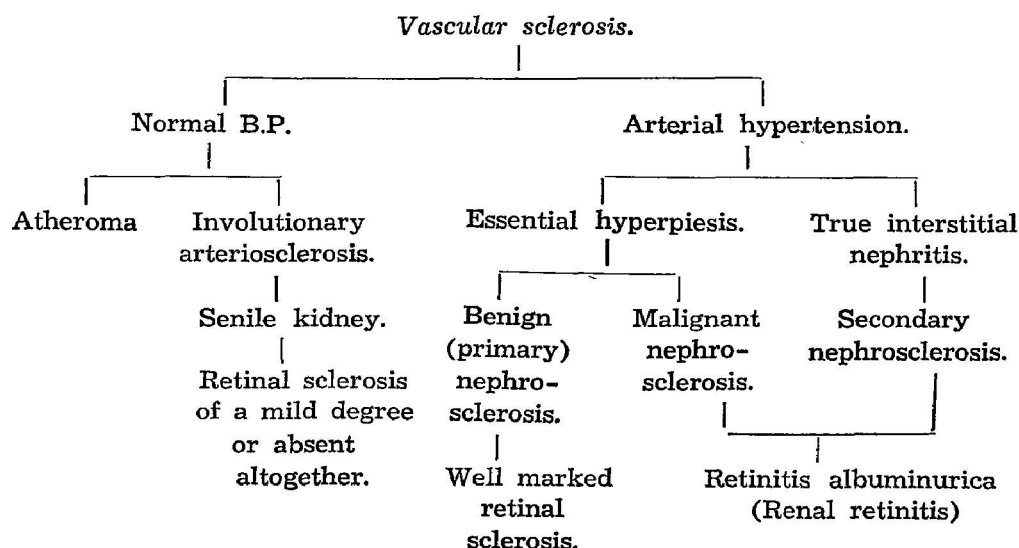
The primary lesion is in the kidney ; the other changes are secondary.

Barlow⁶ in an article on “fundus changes in hypertension” mentions that the best classification of fundus changes in cardiovascular renal disease is that of Wagener of the Mayo Clinic, who divides the cases into four groups : (1) Arteriosclerosis of hypertension type with hæmorrhages but no actual retinitis (2) arteriosclerotic retinitis, probably the result of severe endarteritis, showing the small white spots (3) retinitis of hypertension with nephritis in which a toxic factor is also present, and which shows slight oedema of retina, scattered hæmorrhages and few exudates and (4) retinitis of nephritis with its classical fundus picture.

Pines⁷ who made a careful study of 464 cases of arteriosclerosis makes the following observations regarding the order in which the fundus changes were noted by him :—“Translucency of the retinal vessels is the first to disappear when any pathological change occurs in them. They change their colour next ; then “dot” their

light reflex ; next the sclerotic perivascularis appears, first as white lines at crossings and later taking a leading part in arteriovenous compression." He is of opinion that essential hypertension aggravates and greatly increases all the sclerotic signs of retinal vessels and that the sclerosis of the perivascular channel of the arteriole is the cause of the centripetal deflection of the vein, where crossed by the artery.

*Pines*⁸ has shown in the following table in a graphic way the interrelationship between vascular sclerosis and retinal lesions, with and without affection of the kidneys. In late stages of vascular sclerosis the kidney often gets affected.



*Zavalia and Brandan*⁹ observe that ophthalmoscopic changes are constant and early in the hypertension of arteriosclerosis without renal insufficiency and that they are seen at a stage when few symptoms are present in other viscera. In 40% of cases of hypertension, sclerotic changes are seen in the choroidal vessels, which they consider a very important factor in enabling one to distinguish essential arteriosclerotic from nephritic hypertension.

Next we shall consider how far the different signs and symptoms indicate the progress or prognosis of these cases.

*Pines*¹⁰ gives a good summary of his views which is quoted below :—"Involutionary arteriosclerosis implies only limitation of function ; essential hyperpiesis is much more dangerous ; interstitial nephritis (malignant or secondary nephrosclerosis) means a quick and tragic end. In the retina the first is seldom seen and

may be absent altogether ; the second means sclerosis of the perivascularis, change in lumen of vessels, hæmorrhages and exudation ; the third is accompanied by inflammation of the parenchyma, oedema and its special form of exudation. One cannot rely upon the blood pressure, retinal picture or the kidney efficiency tests alone in the prognosis ; they must all be combined. Retinal hæmorrhages are less important if the blood pressure is steady ; but if they increase, in spite of the blood pressure being steady or even lower, the outlook is gloomy. The silvery wire and tortuous independent small vessels around the disc are a bad omen. Worst of all is oedema of the retina which shows as a fine veil covering the vessels on the retina which may disappear but come on again and again. In the majority of cases the kidney efficiency tests will coincide with this oedema, which is always connected with arterial hypertension."

*Gager*¹¹ says that hæmorrhage into the retina with arteriosclerosis indicates progress of hypertension and if excessive suggests the malignant character of the process ; further, that exudation is exclusively associated with hypertension and that if it occurs without vascular sclerosis, a purely inflammatory process including nephritis is likely. In retinal arteriosclerosis, exudation is not often inflammatory but is evidence of an advanced stage, or with hæmorrhage and oedema, of the malignant type of hypertension.

*Evans*¹ is of opinion that the prognostic significance of retinal arteriosclerosis is very unreliable, it being often only a localised lesion and that if properly treated, it is not so serious a condition as recent literature would have us to believe.

*Bailliant*¹² considers the prognosis of these cases in terms of the proportion between the local retinal arterial pressure and the brachial diastolic pressure. In hyperpietics, the local retinal arterial pressure remains usually 0.45 or 0.5 of the brachial diastolic but in nephritics it may reach 0.7. The progress in hyperpietics will be more grave, in his opinion, if the retinal pressure exceeds the usual proportion, even when the usual signs of renal retinitis are not present.

*Brana and Schiff*¹³ divide the cases into three groups as regards their prognosis :—

(1) High blood pressure without corresponding ophthalmoscopic changes, in which he says the prognosis is good, (2) blood pressure not high, but ophthalmoscopic examination shows positive

changes, prognosis bad, (3) optic atrophy with hæmorrhages and retinal degeneration—indicates predisposition to apoplexy.

It has been recorded by *O'Hare and Walker* that "retinal arteriosclerosis with a normal or low blood pressure indicates the existence of a previous hypertension, with a subsequent myocardial weakening or loss of vascular tone." Such patients undergo the risk of getting thrombosis of cerebral vessels or retinitis exudativa.

HYPOTENSION IN THE RETINAL ARTERIES has been studied by *Bailliant and Tillie*. They have demonstrated that "a retinal artery hypotension is of as much importance as hypertension."

*Laignier*¹⁴ (Paris) reports a case in which the patient complained of difficulty in reading printed characters. The only abnormality found in the eyes was that the left eye had a retinal arterial tension of 28 mm. while the right one was normal at 55 mm. The patient's vision was normal, but he had alexia with left homonymous hemianopia; the pupillary light reflex was preserved in the hemianopic area; he had also valvular disease of the heart. Another case is reported in which a patient complained of spots before his right eye and loss of memory; he had also a systolic aortic murmur. His retinal arterial tension was 30 mm. in the right eye and 60 mm. in the left. This question of retinal arterial hypotension does not come into one's practical work on account of difficulty in its estimation, but it is interesting to know the bad effects produced by this condition.

Atheroma of the heart or large vessels does not cause any changes in the retinal vessels, unless there is an added essential hyperpiesis, when there are found marked and advanced retinal changes, depending chiefly on the degree of arterial hypertension. (Pines.)

RENAL DISEASE

Retinitis is a common feature in cases of renal disease. We have already considered the part played by vascular sclerosis and hypertension in producing renal disease and how the fundus changes in the former are often mixed up with those in the latter. According to Foster Moore, retinitis is present in one-third of the cases of nephritis sufficiently advanced to require in-patient treatment,—excluding cases of acute nephritis, trench nephritis, pregnancy cases, and arteriosclerosis,—ordinarily the presence of retinitis is an indication that the renal disease is of considerable standing. It is very frequently seen in cases of chronic interstitial neph-

ritis, but not so common in chronic parenchymatous nephritis ; it is very rare in children. High blood pressure is most often present in cases of renal retinitis, but as stated previously, retinitis is often absent though the blood pressure is high.

We shall first consider the typical ophthalmoscopic changes found in a case of renal retinitis. They consist of exudates, oedema and hæmorrhages.

(i) *Exudates*, mainly of the variety known as "cotton wool patches"—dull white, soft edged and woolly looking patches, found mostly in the central region of the retina. These are seen in large numbers in cases of nephritis where there is a preponderance of the toxic element, such as in pregnancy cases, parenchymatous nephritis, etc. The exudates are mostly in Henle's layer where there is extensive infiltration with fibrinous material, which becomes hyaline later. They may get absorbed but new ones keep on forming.

In many cases, the exudates form a partial or complete star figure at the macula ; when partial or fan shaped it is seen as lines radiating from the macula to the optic disc. The figure is made up by dense white narrow rods, with sharp edges, in complete or, more often, broken lines radiating from the macula; the exudate is composed of hyaline material or, according to some, formed by patches of varicose nerve fibres. Although a star figure at the macula is considered a very characteristic feature of renal retinitis. it must be mentioned that it may occur also in cases of syphilitic retinitis, thrombosis of central vein, papilloedema of brain tumour, especially in children etc. In later stages, these exudates are to some extent absorbed, leaving a white powdery residue.

(ii) *Oedema*. Some amount of oedema is said to be present in all cases; in some cases, there may be seen neuritis with blurring of the optic disc margins. The oedema is due largely to a toxic effect on the capillary endothelium. In some cases, especially pregnancy cases, the oedema and effusion of fluid is so great as to cause detachment of the retina.

(iii) *Haemorrhages*. These are always present and are seen mostly in the central region of the retina ; often in the superficial layers and hence flame shaped. They get absorbed but fresh ones keep on forming.

Besides the above main features, one may see, in long standing cases, evidences of arteriosclerosis in the fundus.

A reduction in the size of the veins is the earliest sign that the retinitis is subsiding; the veins develop white lines along them; similar changes are seen in the arteries. The optic disc shows atrophic changes, the disc margins being hazy; the exudates become powdery in appearance; and there may be seen irregular spots of pigment scattered in the retina.

Two types of retinitis are mentioned, the vascular and the toxic varieties. The toxic prevails in parenchymatous nephritis; the arteriosclerotic kidney is primarily of vascular origin; and the secondary contracted kidney is said to be an intermediate form between these two.

*McAlpine*¹⁵ suggests that the term "Hypertensive retinitis" should replace "albuminuric or renal retinitis" inasmuch as the retinal changes usually described under these names may occur in the absence of any appreciable renal disease. He is of opinion that in certain cases of hypertension with albuminuria, "the kidney is merely sharing in the effects of a widespread arteriolar constriction, the result of which may be apparent also in the fundus, brain, heart and extremities."

The same view is held by *Elwyn*¹⁶ who says that the changes in renal retinitis can be ascribed primarily to arterial constriction; for, retinitis is absent in those forms of renal disease where there is no generalised arterial narrowing, i.e., those forms of nephrosis due to pregnancy.

*Huber*¹⁷ quotes Volhard, Kahler and Sallmann as having shown that hypertension was the essential etiological factor for albuminuric retinitis, while the function of the kidneys may be perfectly normal.

Pines,¹⁸ writing about "Retinitis nephritica or albuminurica", makes the following observations:—

The fine veil seen covering the larger retinal vessels in oedema of the retinal anterior layers, when fully developed, leads to the "wool patches" in the retina. As mentioned before, this oedema is in proportion to the extent and degree of the renal insufficiency and invariably it is seen that arterial hypertension is also present. With a normal blood pressure, retinal oedema means only a deficient oxygenation of the retinal cells. Retinitis albuminurica always means an inefficient kidney, although biochemical tests may be satisfactory; roughly speaking, increase of blood urea means only an incomplete oxidation by the tissue cells. Pines suggests

that, as it is not yet proven that retinitis albuminurica is caused by disease of the kidney, it may be that both the organs may be suffering from the same toxin.

*Kleiber*¹⁹ has reported a case of albuminuric retinitis in a 14 year old girl with generalised arteriosclerosis and very high blood pressure, who died, nine months later, of uraemic coma. Postmortem examination revealed the presence of haemorrhagic nephritis with marked contraction of both kidneys.

*Cannady and O'Hare*²⁰ writing about the retinal lesions in chronic glomerular nephritis says, that ophthalmoscopic differentiation between lesions of nephritis and of primary vascular hypertension was impossible in most cases. In 30 out of 32 cases observed, retinal changes developed before death; 25 of them showed advanced arteriosclerotic retinopathy or hypertensive neuroretinopathy. Elevation of blood pressure preceded the appearance of retinal arteriosclerosis in 13 out of 17 cases. All the above patients developed uraemia and died, the minimum period of life after the observation of the fundus changes being 7 months and the maximum 23 months.

RETINITIS OF PREGNANCY may be mentioned here. The ophthalmoscopic signs in the fundus are the same as in ordinary renal retinitis but on account of the severe toxæmia, copious exudates and a severe form of oedema are present. The oedema and formation of fluid in the retina may be so severe as to cause detachment of the retina. The prognosis in these cases is much less grave; the retinitis may get resolved to a great extent and some recovery of vision is possible; even the detached retina may settle down by itself.

*Morris Jaffe*²¹ of New York says that retinal detachment is not rare in eclampsia and that spontaneous reattachment takes place in a large number of these cases; he mentions retinitis and papillitis as being responsible for the deterioration of vision in most of the cases.

In an article published by Lt.-Col. R. E. Wright^{21-a} and others from the Government Ophthalmic Hospital, Madras, a case was reported of a girl of 18 who lost her vision after eclampsia at nearly full term and in whose eyes, ophthalmoscopic examination failed to reveal any abnormal fundus changes. It was a case in which the lesion was in the upper neurone and attributable to eclampsia. In 37 cases of eclampsia and pre-eclampsia examined at the Government Hospital for Women and Children, Madras, detach-

ment of the retina was not observed. In two instances, recent retinal haemorrhages were seen. One case had marked deterioration of vision; and later had pale discs and distinctly narrowed arteries. Spasm of arterioles, as described by recent observers, was not seen in the cases reported; but there was slight oedema of the retina in some.

*Clapp*²² observed six cases of detachment of retina in less than two years at Baltimore, but does not seem to have seen any during the previous 14 years.

*Kyrieleis and Schroeder*²³ published an article on their observations on the changes in the retinal vessels in the last few months of pregnancy, from which the following is taken. "In 35% of normal pregnancy women, a tonic contraction of retinal vessels is seen, without retinal exudate, haemorrhage or loss of vision. In one group, it was associated with an increase in the blood pressure; in another, a sudden increase in body weight without oedema developed along with fundus changes and in a third class, increase in both blood pressure and body weight occurred. After delivery, the vessels returned to normal in a short time.

URAEMIA.

A few words may be said about the changes in uraemia, in which blindness sets in. It is usually sudden in onset, pupils react to light and the retinal changes (of renal retinitis) are disproportionate to the gravity of the general condition. The lesion in these cases is cortical in origin. Very few cases die of uraemia without showing retinal changes. If recovered from, the sight is recovered to a great extent and that fairly quickly.

DIABETES AND DIABETIC RETINITIS.

The question has been often discussed whether there is such a separate entity as "diabetic retinitis." For, retinitis is very rarely seen in the severe types of diabetes occurring in young people; and, in most cases, there is present albuminuria and arteriosclerosis with high blood pressure in association with the diabetes. But Foster Moore contends and the view is accepted by many ophthalmologists that there are certain distinctive features which characterise diabetic retinitis. The retinal exudates are described as solid, soapy, or waxy looking, with sharp, clear cut margins, and they are distributed irregularly in a circle well wide of the macula. "Cotton wool" patches are not seen. Haemorrhages are seen generally in the deeper layers of the retina and are

roughly circular in outline ; a star figure is uncommon nor is there any appreciable amount of oedema. The optic discs look normal and have clear cut margins. Retinal pigment spots are not seen.

Several cases of diabetic retinitis have been recorded in which albumin never appeared in the urine and the blood pressure was not raised. In many cases, it has been noted that the immediate cause of death was diabetic complications. Prognosis is much less grave in diabetic retinitis as compared with renal retinitis. As a rule, diabetic retinitis does not occur in persons under 35 years of age.

It must be borne in mind that diabetics are more liable to intraocular haemorrhages. *Humphrey Neame* says that diabetic patients, free from retinitis, frequently get intraocular haemorrhages, either subhyaloid or into the vitreous. It has been observed that fresh patches of retinitis may form even during periods when the urine is sugar free or the patient is undergoing insulin treatment ; some patches may get absorbed ; but they have not been observed to disappear while the patient was under active treatment.

*Bessiere*²⁴ (Bordeaux) discusses the question "Does diabetic retinitis occur in the absence of renal disease ?" and says that of 18 cases of diabetic retinitis that he saw, practically all of them had evidences of a greater or less degree of chronic nephritis. Retinal changes did not parallel the severity of glycosuria. In his opinion Insulin treatment may cure glycosuria but has little effect on the progress of a diabetic retinitis. He goes so far as to draw the conclusion that retinitis in a diabetic who shows no albuminuria "should be considered a premonitory sign of approaching renal insufficiency." He says that "every diabetic who is the subject of an exudative retinitis is in reality an undiscovered renal case," but is of opinion that though the question demands further investigation, diabetic and albuminuric retinal lesions are analogous.

*Williamson Noble*²⁵ says that the haemorrhages and exudates in diabetic retinitis are characteristic ; that "arterial sclerosis and renal disease are concomitant, possibly contributory, but not causative of diabetic retinitis." He thinks that the essential lesion in the retinitis is the recurrence of the deep seated retinal haemorrhages.

*Dirion*²⁶ (Cleveland) says that out of 68 cases examined by him for ocular complications, 58 showed pathological changes in the

retina; there was albuminuria in 33 patients, and hypertension in 34. Practically all the retinae showed vascular pathological changes. He observed that the amount of haemorrhage had no relation to the degree of vascular sclerosis present; that improvement of the diabetic condition did not improve the retinal condition; and came to the conclusion that diabetic retinitis is not a definite entity.

*Hogg*²⁷ (Tasmania) considers that retinitis is usually associated with the type of diabetes in which there is only defective storage of carbohydrates; and that the multiple punctate haemorrhages scattered over the fundus, sometimes at the periphery, and few in number, are pathognomonic of diabetes.

*W. A. Gray*²⁸ in an article on "ocular conditions in diabetes mellitus," states that "a characteristic form of retinitis occurs in diabetes" and that "the small amount of sclerosis of retinal vessels is an important point of differentiation from retinitis of other origin." He thinks the "haemorrhages may be due to the effect of toxins causing secondary changes in the vessels or to hypertension, the latter being probably a mechanical factor."

Commenting on the above paper of Gray, *Pines*²⁹ said as follows:—"Predominance of capillary degeneration is sufficient to explain the peculiarities of diabetic exudates and haemorrhages. The same or perhaps another missing factor eventually produces as a rule, an arterial hypertension. It is seldom as pronounced or as advanced as in essential hyperpiesis and correspondingly the sclerosis of the retinal vessels is not so marked. In diabetes, the sclerosis of the retinal vessels is a phase intermediate between senile and hyperpietic changes." He says that even mild diabetes attacks the retinal vessels, but retinal oedema is a deciding factor in the diagnosis of nephritis.

*Cohen*³⁰ in a paper on "The eye in diabetes mellitus," draws the following conclusions:—"Diabetic retinitis is due mainly to disease of the retinal vessels and in some cases, diabetes influences the fundus picture in an early stage. Diabetic retinitis is either a retinal arteriosclerosis in diabetes, or if the vascular lesion is severe, an arteriosclerotic retinitis in diabetes." Of course, the distinction between the two is very fine.

*Adams*³¹ reported an interesting case of diabetic retinitis in a patient aged 22 years, which is a rare condition. In this case, there were retinal exudates in the macular region in one eye and small

punctate haemorrhages about the fundus in the other. The blood pressure was normal, and there was no obvious sign of diseased blood vessels. The urine sugar was 2.2% and the blood sugar 0.3%. There was also noted, a very faint trace of albumin in the urine.

*Wagener, Dry and Wilder*³² gave statistics of 1052 cases of diabetes examined by them. 5.5% of these showed only retinal haemorrhages; 12.2% showed haemorrhages and exudates in the retina. 12% were entirely free from vascular disease. Retinal lesions were usually associated with hypertension or other evidence of vascular disease. They came to the conclusion that diabetes injures the finer arterioles and venules, probably the latter; and that if hypertension is also present, the lesion characteristic of diabetes is superimposed.

Gresser,³³ on an examination of 100 cases of diabetes, found clinical signs of hypertension and retinal vascular sclerosis in 38% of them, and associated nephritic lesions in 23.5%. He found that "the duration of the diabetic state was not apparently a direct factor in the production of retinal pathology." 30% of his cases showed signs of retinal vascular sclerosis without any other vascular or retinal changes; and 32% showed no alterations in the retinal vessels or tissues.

*Folk and Goskin*³⁴ made a comparative study of the fundus oculi in 150 diabetic and 150 non-diabetic patients of the same age group. They found that the incidence of retinitis in diabetics was greater, but the incidence of sclerosis of retinal vessels was only little higher in the diabetics.

Analysis of the records of 1917 fundus cases observed at the Government Ophthalmic Hospital, Madras, during the five years 1931-1935 showed 26 cases of albuminuric retinitis, 10 cases of diabetic retinitis and 4 cases in which both the conditions were seen mixed together. Only 13 cases of pure arteriosclerotic changes in the fundus were noted, although there were 83 cases recorded in which the blood pressure was raised. Of these 83 cases with high blood pressure, 40 had albumin in the urine, but only 14 of them showed signs of albuminuric retinitis; 6 had glycosuria but 5 of them showed signs of diabetic retinitis and 3 had both albumin and sugar in the urine, of which 2 showed signs of both albuminuric and diabetic retinitis in the fundus.

From the above, it is seen that the fundus lesions in the arteriosclerotic, nephritic and diabetic cases show many points of similarity

and all of them with rare exceptions occur after the middle period of life. Some amount of vascular degeneration is met with in most cases; one or more of the factors may be present in a single case; at the same time, cases are seen in which the distinctive features of only one variety are present in each case. Whichever factor is predominant in a particular case has to be found out by ophthalmoscopic and clinical examination of the patient, and the value of the results assessed as regards prognosis, course and treatment of that case. Some idea can be obtained about the duration of life and the final complications that are to be expected, or looked for, before the death of the patient. Although different observers have given different opinions regarding the existence of such a separate entity as diabetic retinitis, there is no doubt that in several cases, special typical features are seen in the fundus picture which are characteristic of the diabetic affection and there are many cases in which there is no suspicion of the existence of an arteriosclerotic or nephritic condition along with the diabetes. Anyhow, ophthalmoscopic examination gives very valuable information to the clinician in these diseases and should never be neglected.

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LECTURE II

OPHTHALMOSCOPIC APPEARANCE IN SOME GENERAL DISEASES (Contd.)

We shall now consider the ophthalmoscopic appearances in some of the blood diseases and see how they vary in the different kinds of anaemias.

PERNICIOUS ANAEMIA. Retinal haemorrhages are seen in plenty; and it is said that it is unusual to find a case without haemorrhages. They are mostly small and flame-shaped or may be sometimes roughly circular in outline. They occur in the central region of the fundus; often haemorrhages with pale centres may be seen. Tendency to retinal haemorrhages is said to commence when the corpuscles have dropped to 32% of the normal or thereabouts. Sir Humphrey Rolleston suggested that a low platelet count is responsible for this. Retinal haemorrhages "imply a pathological condition of the endothelium of the blood vessels" and is usually the result of a diseased state of the blood; a reduction of blood platelets to less than 50,000 per c.mm. (instead of a normal of 200,000 to 300,000 per c. mm.) is said to bring on liability to haemorrhage, on account of defective and insufficient formation of fibrin. According to some observers, the first and most important sign of an anaemic fundus (especially in pernicious anaemia) is the translucent column of blood. Besides haemorrhages, small rather woolly looking areas are sometimes seen. The retinal vessels are engorged and there may be seen an opalescent haze over the retina and optic disc. The optic disc is rather pale; there is some disparity between the pallor of the fundus and the anaemia.

CHLOROSIS. Haemorrhages are said to be of quite unusual occurrence in chlorosis. Papilloedema is often present but, of course, one must be careful to exclude other causes of this sign.

Secondary anaemia. There is a faint general haze over the disc, with a general pallor of the fundus. Retinal vessels are distended, but contain pale blood—the colour of the arteries and the veins nearly approximate each other. The more important fundus changes are retinal haemorrhages and white patches; haemorrhages are few and superficial and are situated close to the optic disc; they do not bear any definite proportion to the degree of anaemia present; few soft edged white patches are seen in the nerve fibre layer. Both the haemorrhages and white patches may get absorbed, leaving no traces,

LEUKAEMIA. The ocular changes in this disease are "grosser and more constant in the myelogenic variety." Foster Moore divides the fundus changes seen in leukaemia into three stages. The earliest change noted is an engorgement of the retinal veins. In the next stage, which is more common, there is distension of either the veins alone or both the veins and the arteries. The vessels are paler than normal; and the veins and arteries approximate each other in colour. The veins are "cut into" where the arteries cross over them, but are not altered in their course as in cases of arteriosclerosis. Haemorrhages occur in the retina; they are either small or of medium size and may be either extensive or scanty; subhyaloid haemorrhages may also occur. Some of the patches of haemorrhages are diamond-shaped with a pale centre. There is seen also a broad sheathing of veins due to perivascular infiltration, the sheaths being widest along the convexity of their curves. In the third stage, which is rarely seen, there is a general leucocytic infiltration of the retina and the choroid in addition to the changes noted above. The fundus reflex acquires a pale yellowish or orange colour.

LOSS OF VISION FROM SEVERE BLEEDING may be considered here. Though rare, the most common cause is gastrointestinal haemorrhage; next comes uterine haemorrhage. It is worthy of note that traumatic bleeding does not cause loss of sight. In the early stages, the fundus changes consist of slight oedema of the optic disc with very few small retinal haemorrhages; the retinal vessels are pale but full. Later stages show an optic atrophy, with pale discs and very narrow retinal vessels.

RETINAL HAEMORRHAGES. A few points regarding the significance of retinal haemorrhages may be mentioned here, in spite of a little repetition in some cases. The presence of retinal haemorrhages always signifies a pathological condition of the endothelium of the blood vessels. In some cases it is due to a diseased state of the blood, as in the anaemias; in others, it may be the result of the toxins circulating in the blood, as in infectious diseases, and other general diseases mentioned previously; diseases of the vessel walls, as in arteriosclerosis, is responsible for some cases; arteriolar bleeding may be embolic in origin, as in cases of endocarditis, pyaemia, etc., venous obstruction, as in thrombosis of the central retinal vein or of one of its tributaries; papilloedema, etc., is another cause. Other cases may be traumatic in origin, either direct injuries such as birth injuries, fracture of the skull, sudden relief of intraocular tension during operations, or any severe strain on the part of the patient. The haemorrhages are subhyaloid when

they are on the anterior surface of the retina between the nerve fibre layer and the internal limiting membrane; flame shaped, when they are in the nerve fibre layer; roughly circular in outline when in the layers of the retina, deeper than the nerve fibre layer, which have a retiform structure. All haemorrhages tend to get absorbed gradually, the time taken depending on their size. During absorption, the patches appear mottled (red and white) as a result of the separation of the blood constituents. It is of interest to remember that if the haemorrhage is confined between the two limiting membranes of the retina, it may completely disappear without any pigmentary disturbance.

Wüllenweber¹ writing on the significance of retinal haemorrhages makes the following remarks:—

“Retinal haemorrhage in sepsis may be the one manifestation that the disease has begun to metastasize. In endocarditis, it makes the prognosis much worse. The retinitis of pregnancy is a manifestation of arterial spasm. In essential hypertension, retinal haemorrhage is to be evaluated like cerebral haemorrhage.”

SYPHILIS.

Next we shall consider the ophthalmoscopic appearances produced in the eyes of persons as a result of *syphilis*. Kirkpatrick² mentions an incidence of over 60% of cases of venereal disease in over 500 fundus disease cases recorded in the Govt. Ophthalmic Hospital, Madras. Thus it is seen that a very large proportion of cases of fundus disease are directly or indirectly due to venereal disease in this country.

Congenital syphilis, is responsible for retinochoroidal affections. *Huguenin*³ describes three forms: (1) Mild cases, in which there are scattered, small reddish yellow spots with fine pigment points, usually seen only in the periphery of the fundus; the optic disc may be pale; the disease shows little tendency to progress. (2) Pigmented patches, isolated or conglomerate, situated mostly in the periphery, and found after the subsidence of interstitial keratitis. These are usually stationary. (3) Round or oval light yellow areas with a heavily pigmented border, in most cases peripheral, but may spread to the posterior pole of the eye; hence the prognosis in these cases is less favourable—a widespread diffuse chorio-retinitis with narrowed retinal vessels and pigment proliferation.

In *acquired syphilis*, an acute syphilitic retinochoroiditis may occur. Very fine dusty vitreous opacities give a hazy fundus view.

with the ophthalmoscope. The optic disc may show some hyperaemia and slight swelling; there may be seen fine white streaks along the arteries; a partial star figure of exudates may be seen at the macula. Rounded spots of choroiditis due to lymphocytic infiltration of the choroid are seen scattered over the fundus, with the overlying retina appearing gray and cloudy. There may be seen few fine haemorrhages. Later on, when the condition quietens down, we get a picture of general atrophy of the retina and the inner layers of the choroid. There may be discrete white patches, round or irregular in shape, with plenty of pigment around them, and the retinal vessels are often found passing over them. The retinal vessels may show narrowing with slight perivascular exudates along them. Typical disseminated choroiditis is rarely seen in this country.

Optic neuritis and postneuritic atrophy are fairly common and the commonest cause of these conditions is syphilis, especially when the inflammation has affected the meninges. In optic neuritis, the optic disc is hyperaemic, and assumes almost the same colour as the rest of the fundus, the margins of the optic disc become blurred, and exudate fills the physiological cup on the disc; the retinal vessels are full; exudates may be seen along the vessels outside the optic disc; there may be exudates poured out into the vitreous also. There is also some oedema of the optic papilla but the swelling is seldom more than 2 D. The retina surrounding the optic papilla is also frequently involved. Small haemorrhages may be present on the disc surface. This condition of optic neuritis has to be diagnosed from a pseudo-neuritis which is a congenital condition seen in cases of high degrees of hypermetropia and astigmatism; in pseudo-neuritis there are no exudates or haemorrhages, the condition does not change and there is no deterioration of vision, proper glasses bringing the vision up to normal. Optic neuritis has also to be diagnosed from papilloedema, about which mention will be made later.

Cases of optic neuritis go on to a secondary atrophy in which the destroyed nerve fibres are replaced by newly formed connective tissue. The optic disc is whitish, its margins are hazy and the physiological cup is filled with organised exudate; retinal vessels are narrowed, especially the arteries; organised exudate is seen along the retinal vessels in places, as a perivascular sheath. According to Kirkpatrick, the most common variety of optic atrophy seen in the Govt. Ophthalmic Hospital, Madras is "a deeply pale disc, with clean edges and a complete absence of cupping."

He considers it as "apparently following a very mild inflammation or one situated behind the globe."

TABES AND GENERAL PARALYSIS.

In some of these cases, optic atrophy may be a very early sign; diminution of vision complained of by the patient leads to an ophthalmoscopic examination which may reveal the optic atrophy; in these cases, it is a true primary or simple optic atrophy that is met with. The optic disc is grayish white, its margins are clear, the lamina cribrosa is well seen; there is present, in late stages, a shallow atrophic cupping of the optic disc and the retinal vessels may remain normal in size and calibre for a long time. A similar kind of optic atrophy may result from direct injuries to the optic nerve or compression of the optic nerve by new growths, such as tumours in the region of the hypophysis, etc.

DISSEMINATED OR INSULAR SCLEROSIS which usually affects persons between the ages of 15 and 35, is occasionally seen. In the majority of cases, the fundus of the eye shows a temporal pallor of the optic disc, a descending atrophy following a chronic retrobulbar neuritis. Of course, a note of warning should be given here that normally in every eye, the temporal side of the optic disc is paler than its nasal side. So, a temporal pallor should be diagnosed with great caution and only when there is a definitely well marked pallor. The papillomacular bundle of nerve fibres is often affected and marked disproportion has been noted between the colour of the optic disc and the defect in vision. In some cases, an active lesion may occur just behind the optic nerve entrance, when the fundus appearance is that of an acute retrobulbar neuritis, i.e., a slightly swollen optic disc with perhaps a few fine haemorrhages and exudates on the disc. There is some tenderness when the eye is moved or pressed back into the orbit. These fundus changes may remain only for a short time, and may be followed later by signs of optic atrophy. The optic disc may show varying degrees of atrophy; but very rarely complete atrophy is seen. Optic neuritis is seen in about 5% of the cases of disseminated sclerosis. It is said that the optic nerves are more affected in this disease than in tabes or any other disease of the central nervous system except brain tumours. In this disease there may be great variations in the eye affection, in that there may be periods of partial recovery, quiescence or recurrence intermingled.

Harold Gjessing,⁴ discussing the value of eye symptoms in the diagnosis of general diseases, says: "The new diagnostic triad for

multiple sclerosis should be, (1) pronounced fatigue following insignificant body exercises and accentuation of symptoms already present, (2) increase in tendon reflexes and (3) passing eye symptoms with a tendency to recurrence. According to him, acute scotomatous retrobulbar neuritis is the most important eye symptom, and is seen in about 50% of the cases.

RETROBULBAR OPTIC NEURITIS occurs in other diseased conditions also, which may be considered in this connection. *Williamson Noble*⁵ says that at one time it was thought that the majority of cases of retrobulbar neuritis were due to nasal sinus disease, but that it has been proved to be not so. He quotes Davis as having found that out of a series of 76 cases, only 5 were due to sinus disease and that, of 46 cases of which the cause was definitely ascertained, 14 were due to disseminated sclerosis and 7 to syphilis. He came to the conclusion that disseminated sclerosis is the commonest single cause of retrobulbar neuritis. He also warns against the varying colour of the optic disc as seen with different forms of illumination and says that "an apparent pallor may be noticed when using an electric ophthalmoscope with a new lamp and battery."

*Benedict*⁶ quoting from the Mayo Clinic figures, says that out of 225 cases of retrobulbar neuritis, 155 were due to insular sclerosis, 28 to alcohol and tobacco, 14 due to diabetes, 14 due to pernicious anaemia and tobacco, and only one to nasal sinus disease; the rest were due to other causes.

*Lillie*⁷ gives meningo-encephalitis also as an important cause of retrobulbar neuritis.

NASAL SINUS DISEASE as a cause of retrobulbar neuritis has been belittled by many observers and there has been a great controversy regarding this in the ophthalmic literature. The Mayo Clinic figures show it as one of the rare causes. *Benedict* says that sinus operations which are largely resorted to in cases of retrobulbar neuritis, are "not justifiable unless obvious suppuration is present. He adds that "the beneficial effects reported may be due to (1) congestion of the nasal mucosa—a late result of adrenalin packing and (2) an autovaccination effect of absorption of the patients' own blood. *Von Hippel*⁸ says that the "so called successes of nasal therapy are produced by spontaneous recovery and not the result of nasal operations." There are others who hold quite an opposite view, among whom may be mentioned *L. C. Peter*,⁹ who

gives the following "clinical types of ocular pathology due to disease of para-nasal sinuses":—

(1) Retrobulbar neuritis, of which he says "infection from the spheno-ethmoid is a more common cause than insular sclerosis."

(2) Neuro-reinitis and papillitis (3) Papilloedema (4) Chiasmal and tract disease and (5) Residual optic atrophy in a large number of cases. He mentions that the likely path of infection is through the central vein of the retina as a result of stasis occurring in the cavernous sinus which allows the toxins to pass back into the venous circulation, and he points out the "importance of sinus exploration even in the absence of signs."

Such divergence of opinion, as regards the role played by nasal sinus disease in causing retrobulbar neuritis, should make the clinician alive to the importance of a very careful examination of the patient in looking for and eliciting signs of disseminated sclerosis or sinus disease in the patient, before coming to a diagnosis.

TOBACCO AND ALCOHOL AMBLYOPIA may be mentioned here as another cause of retrobulbar neuritis, showing a temporal pallor of the optic disc. The scotometric signs of retrobulbar neuritis will be discussed in a subsequent lecture. The condition is rather rare but should be thought of as a possible cause of retrobulbar neuritis.

*Carroll*¹⁰ (New York) reported 55 cases of tobacco—alcohol amblyopia and said that 0·3 to 0·5% of all new eye patients in one New York hospital were found to be suffering from this complaint. The rate of incidence seems to be high indeed, as compared with our figures. He says that only two out of the 55 were women, and that susceptibility is of more importance than the quantity of tobacco or alcohol used.

TUBERCULAR DISEASES affect the choroid and produce characteristic ophthalmoscopic appearances. Three types have been described:—(1) *Miliary type* in which small spots, 1 to 2 mm. in diameter, are noted in the choroid in both eyes, more often near the optic disc. They start in the choriocapillaris and the overlying retina is normal. They occur in very young subjects, and are the result of an haematogenous infection in the late stages of generalised miliary tuberculosis. (2) *Solitary conglomerate tubercle* in the choroid—an endogenous infection occurring in the young. It is often surrounded by small nodules. (3) *Diffuse tuberculous choroiditis* in which there is extensive development of granulation tissue throughout the uveal tract. This tends to progress affecting

the retina and vitreous and later perforates the eyeball, either at the limbus, along the exits of the venae vorticosae or at the optic nerve entrance. These conditions are rarely seen in this country in the ophthalmic clinics.

Foster Moore says that the presence of tubercles in the choroid is of great diagnostic value in miliary tuberculosis ; but not so their absence.

INCREASED INTRACRANIAL PRESSURE, the result of brain tumours or brain tumour equivalents, and the effect it produces on the ophthalmoscopic appearance of the fundus may next be considered. If the increase in pressure is directly communicated by fluid from the cerebral subarachnoid space to the subarachnoid space of the vaginal sheath of the optic nerves, a condition of papilloedema (or choked discs) is produced ; but if the new growth exerts its pressure in such a way as to block this communicating passage, direct pressure is brought to bear on the optic nerves, producing a primary optic atrophy. Other pressure effects such as changes in the field of vision will be dealt with in the next lecture.

We shall first consider what is papilloedema, how it is produced and in what conditions it is met with. It is an oedematous condition of the optic disc, the result of "a physically produced odema, due to obstruction to the outflow of blood and lymph from the eye." The increased pressure from the cranial cavity is communicated directly to the vaginal sheath of the optic nerve, through which the central retinal vessels have to pass in traversing between the optic nerve substance and the orbital cavity before joining the parent vessels. The pressure markedly narrows the veins and lymph vessels on account of their very thin walls, thus affecting the outflow ; the inflow is not much affected as the arterial wall can stand the pressure much more. This obstruction to the outflow produces partial stasis and consequent oedema. The tissues of the optic disc and the anterior layers of the lamina cribrosa are infiltrated with fluid and the optic disc is swollen ; the amount of this swelling can be measured accurately with an ophthalmoscope. As the swelling increases, the retina is automatically displaced laterally and is thrown into concentric folds around the optic disc. The peripheral nerve fibres are more curved, and the central fibres are raised up, thus filling the physiological cup, which is also filled up further by fluid under the internal limiting membrane. In severe cases the swelling of the optic disc may go up to 6 or 7 D. Small haemorrhages may be seen on the disc surface and also quite

close to it. On account of the extreme swelling and bulging forward of the optic disc, the retinal vessels are bent and take a curved course as they come over to the edge of the disc; the vessels are seen interrupted in places on the disc surface and also show local loss of the light reflex. Fine radial streaks may appear on the papilla. The retinal veins are dilated.

The earliest sign of papilloedema according to *Foster Moore* is a haziness of the optic disc margin in the superior nasal quadrant; sometimes a star figure, most often only a partial one, is seen at the macula especially in children; the dots comprising the star figure are much finer than those seen in renal retinitis.

*Leslie Paton*¹¹ says that the earliest changes in papilloedema are seen at the upper and lower borders of the optic disc, and that it is only at a later stage that nasal margin is affected; he attributes this to the fact that normally there is more overcrowding of the nerve fibres, above and below in the disc.

Koeppe and Meesman say that the first sign of papilloedema is a veiling of the centre of the optic cup caused by forward protrusion of the central vessels which is seen as gray streaks along these vessels. *van der Hoeve* says that both the above processes are possible.

Regarding the formation of papilloedema *Lauber*¹² says, "Low diastolic blood pressure in the retinal arteries with normal intra-ocular tension and simultaneous rise of venous retinal pressure are the main conditions leading to formation of papilloedema. The proportion of the retinal venous to the arterial pressure is of importance not only for the formation but also for the further development of papilloedema. In low arterial pressure even a comparatively slight increase of intracranial and consequently, of retinal venous pressure, leads to great prominence of the optic disc, pronounced venous stasis, and retinal haemorrhages, and an early appearance of secondary inflammatory symptoms. Early decompression is especially necessary in these cases."

The papilloedema may be present for months or even years, according to *van der Hoeve*, without causing any decrease in vision. It may disappear completely or more often relapse. In the later stages of the disease, degeneration of the nerve fibres takes place with the result that the fundus shows a condition of post-papilloedemic atrophy with a pale optic disc, blurred margins, and retinal vessels showing a marked curving on the surface of the disc.

The chief cause of papilloedema or choked disc is increased intracranial pressure, especially brain tumour (in about 70% of cases); other causes are cerebral syphilis, cerebral abscess, meningitis, thrombosis of cavernous sinus, etc. Among brain tumours, the largest numbers are among those of the cerebellum and corpora quadrigemina.

Papilloedema has to be diagnosed from papillitis or severe intraocular neuritis; in some cases it may be very difficult to do so, especially in early cases of papilloedema. In early choked discs, there is oedema without signs of inflammation, the vision is often normal, and the swelling of the optic disc is usually high. In papillitis, there is oedema with inflammation of the nerve, disturbance of vision and the swelling of the optic disc is not high.

*Parsons*¹³ introduced the term "papilloedema" first in 1908 for cases showing more than 2 D swelling of the papilla. In 1911 *Holmes and Paton* adopted the term to describe all cases of oedema due to increased intracranial pressure and distinguished between papilloedema with no primary inflammatory changes and papillitis in which swelling of the disc was associated with inflammatory changes and loss of function. Of course, one cannot lay down any arbitrary limit of swelling required to distinguish the condition as belonging to one group or the other. *Van der Hoeve* has laid down the following data as a guide in diagnosis:—

1. Slight swelling of the optic disc + great loss of vision
= Papillitis and not choked disc.
2. Marked swelling of optic disc + no loss of vision = Choked disc and not papillitis.
3. Great swelling of optic disc + diminution of vision
= Usually a choked disc; very rarely papillitis.
4. Slight swelling of optic disc + no loss of vision = Usually early choked disc: but may be early papillitis.

The importance of distinguishing papilloedema from papillitis depends on the great difference in the prognosis and treatment of these two conditions; and the earlier the condition can be correctly diagnosed, the better for the patient. Of course, increased intracranial pressure manifests itself in other valuable cerebral symptoms such as severe headache, giddiness, vomiting, etc., which help in the diagnosis. Diagnosis of the cause of the trouble can also be helped by ascertaining the mode of onset of the disease: for

example, a sudden onset is more in favour of a vascular lesion, such as spasm, embolism or haemorrhage; a rapid onset signifies an inflammatory disease, such as retrobulbar neuritis or an acute toxic amblyopia, and a slow onset, a slowly advancing interference, such as a tumour or a chronic toxic amblyopia (Traquair).

It has been suggested above what the general principle underlying the production of papilloedema or primary optic atrophy is in the case of brain tumours or brain tumour equivalents. Here mention may be made of the effects produced on the fundus of the eye by the different kinds of new growths, etc., occurring in the cranial cavity. The following is extracted from *Hartmann's article* on the "Eye and its diseases" by Berens. Gliomata developing in the frontal lobe and meningiomas attached to the vault or the falx cerebri, usually cause no ocular symptoms. Meningioma growing from the sphenoidal ridge causes optic atrophy and impairment of vision on the same side as the tumour; in some large tumours, papilloedema may be observed on the opposite side. Meningioma growing from the olfactory groove often causes papilloedema; and if it extends backwards may produce the same symptoms as a supra-sellar or sphenoidal ridge meningioma (i.e., optic atrophy). Intraseellar tumours are mostly adenomata or cystic new growths of the pituitary gland; in these, primary optic atrophy is the usual result; papilloedema is of unusual occurrence (Foster Moore). Cushing and Walker say that in a few cases, where the subarachnoid spaces are not cut off completely, a low grade of oedema with new tissue formation may be superimposed on the primary optic atrophy. Suprasellar tumours, which include meningioma from the olivary eminence, craniopharyngioma, adenoma and glioma of optic nerves or chiasma, produce primary optic atrophy; but if they extend upwards and backwards, papilloedema may be superimposed on the optic atrophy. In tumours of the cerebello-pontine angle, and of the occipital lobe, choked discs appear early. Pineal and quadrigeminal tumours, tumours in the region of the fourth ventricle and cerebellar tumours produce marked increase of intracranial pressure with early appearance of papilloedema, which increases very rapidly. Sub-cortical and pontine tumours produce papilloedema only if they have involved the basal nuclei or cerebellum respectively. Aneurysmal angiomas are usually seen with papilloedema but venous angiomas are rarely accompanied by a choked disc. Brain tumour equivalents, such as cysts, aneurisms, localised arachnoiditis, gumma, tuberculoma and slowly developing abscesses show the same symptoms as cerebellar tumours.

Kennedy and Cushing mention that papilloedema is always more pronounced in hypermetropes than in myopes. Foster Moore says that it is a "great rarity in myopic eyes, on account of the peculiar relations of the optic disc with the nerve sheaths."

Though papilloedema is a very important sign in the diagnosis of increased intracranial pressure, its localising value is not much; for this, other signs have to be looked for. Osler says "choked disc is constant in tumours of the corpora quadrigemina, present in 89% of cerebellar tumours and absent in nearly two-thirds of the cases of tumour of the pons, medulla and corpus callosum." Its absence, however, cannot be said to negative the existence of a new growth; occasionally, it appears very late—after other definite signs and symptoms have appeared to establish the diagnosis; in such cases, according to Gowers, "it is a sign of impending death."

Victor Horsley¹⁴ thought that in 95% of cases, the tumour was located on the side where the greater amount of oedema of the optic disc was found. But *Paton and Hirschfeld* deny this contention. *Parker* says that if there is a difference in intraocular pressure in the two eyes, the papilloedema is situated on the side where the pressure is lower. Paton is of opinion that a plain papilloedema, in connection with continuous headache, which varies in intensity, confirms the diagnosis of an intracranial tumour. *Foster Kennedy*¹⁵ says: "optic atrophy in one eye and papilloedema in the other denotes location of the tumour in the anterior end of the temporo-sphenoidal lobe or in the base of the frontal lobe, on the side collateral with the atrophy."

From the above, it is seen that an ophthalmoscopic examination of the fundus of the eye is invaluable in all cases of continuous headache, giddiness, vomiting or other cerebral symptoms, so that early attention may be drawn to the existence, if any, of increased intracranial pressure, which is of serious import and which can be dealt with more satisfactorily the sooner it is diagnosed.

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LECTURE III.

PERIMETRY IN SOME GENERAL DISEASES

Perimetry or the examination of the visual fields has been recognised for a long time as a valuable adjunct in the diagnosis of several general diseases and in some cases has been found to be of immense help.

It is said that the early Greeks and Romans knew that the visual fields had definite limits; but the first person who tried to find out exactly these limits was Venturi,¹ who gave the vertical extent as 112° and the lateral as 135° . Boerhave recognised the presence of scotomata or areas of blindness in the visual field in the year 1708 A.D. In 1723 A.D., Vater and Heinecks wrote that the bright side of the retina of each eye received filaments from the right hemisphere of the brain and the left side from the left hemisphere. The credit for the earliest reliable observations regarding the area of the visual fields and the zone of acutest vision goes to Thomas Young, who in 1801 A.D. gave the limits as 50° upwards, 60° inwards, 70° downwards and 90° outwards. Contractions of the visual fields were first described by Beer in 1817 A.D. But the actual employment of the results of visual field examinations was reported by von Graefe, who published in 1855 A.D. his classic work on "Examination of visual functions in amblyopic affections." Hemianopic and sectoral defects, ring scotomas and superior hemianopsias of retinal detachments were familiar to him. It is mentioned that examinations of visual fields were done prior to the invention of the ophthalmoscope and made use of in differentiating diseases like retinitis pigmentosa, glaucoma, retinal detachment and optic atrophy due to brain lesions, including those of the optic tract and chiasm. von Graefe used a simple blackboard for the purpose. The idea of having a curved arm for the perimeter for marking out the limits of the visual fields first occurred to Aubert and Foerster in 1856 A.D. and they determined with greater accuracy the limits of the fields for white and for colours. De Wecker used the simple blackboard of von Graefe, but had it marked off in concentric circles of 10° each, thus bringing in definite measurements within the total field. Other improvements, i.e., Steven's registering device and McHardy's mechanical propelling of the test object on the arm of the perimeter were introduced later. Priestley Smith introduced his scotometer in 1883 A.D. and described the principle of scotometry and the value of the test object being made to move in a circular direction instead of from

the periphery to the centre. An improvement and modification of this instrument was brought out by Elliot in his scotometer much later, working on the same principle. In 1889 A.D. the central areas of the visual fields began to receive more careful attention as a result of the work of Bjerrum and his assistants in his Copenhagen clinic. He used the screen popularly known by his name and different sized test objects. This technique was popularised in Great Britain chiefly by Sinclair and Traquair and in America by Duane. Perimeters have been greatly improved, some of the latest models being Lister's and Ferree and Rand's, in which illuminating devices have been added besides other valuable improvements.

With these improved instruments and apparatuses, and also a thorough knowledge of anatomy of the visual organs and their connections, perimetry and its interpretation have become an art and a great aid in the diagnosis of several diseases.

Peter says "Perimetry is a valuable aid in the diagnosis of intraocular diseases and a *sine qua non* in the diagnosis of disease of the visual pathway posterior to the eyeball." Field study is of great help in cases where there is disproportion between the ophthalmoscopic signs observed and the vision of the patient; also in cases where confirmation of the exact significance of the ophthalmoscopic appearance is required; further, decrease in functional activity can be observed long before optic atrophy or other ophthalmoscopic or ocular evidence manifests itself. For example, retrobulbar neuritis or the different kinds of hemianopsias often cannot be diagnosed without careful studies of the visual fields because changes in the optic discs occur either late, or, as in the case of lesions above the primary optic centres, not at all.

NORMAL FIELD OF VISION

The acuteness of vision differs in the different parts of the field, as a result of their difference in structure. At the fovea only cones are present in the neuroepithelial layer of the retina; in the macular region, rods also appear; beyond the macular region cones get fewer and rods increase in number, while at the extreme periphery, cones are found in increasing numbers. In the macular region each cone is connected with the primary optic centres by a single axis cylinder while beyond the macula, a number of rods or cones are attached to one axis cylinder (Peter). This arrangement makes the following differences in visual acuity in the central and peripheral portions of the field. In central vision, visual acuity

is more acute, details of objects at rest are more pronounced, and images are sharpest in good light ; in peripheral vision, there is less visual acuity, but moving objects are seen with greater accuracy than those at rest and light adaptation is better. Acuteness of peripheral vision gradually increases towards the centre of the field ; it rapidly begins to increase at about 10° from the visual axis. It is this fairly large pericentral area that enables one to read swiftly along a line of print. Loss of central vision alone prevents a person from being able to distinguish the details of the object seen ; reading or doing any fine work is rendered very difficult or almost impossible ; while loss of peripheral vision manifests itself in the inability to walk about freely without bumping into things in the room and also a loss of the power of orientation. Ferree and Rand have shown that " the nasal and superior retina is more responsive to stimuli than are points on the same meridian located in the temporal and inferior parts of the retina."

The visual field is affected by various factors :—(1) *Anatomical factors*, such as the configuration of the bony prominences around the orbital cavity, overhanging eyebrows, high cheek bones, a high or prominent nose, relative position of the eyeball in the orbital cavity, etc. (2) *Refraction of the eye* :—Traquair says that the field is slightly larger in hypermetropes than in myopes, but he considers it as of no practical significance clinically. He says that this difference is seen only when small visual angles are made use of. Ferree and Rand² say that " emmetropic and hypermetropic subjects have the widest fields in the eight meridional quadrants considered separately, myopics next widest, and presbyopes the narrowest ". The wider the pupil, the bigger is the field if small visual angles are used. (3) *Illumination* :—In normal cases, slight variations of illumination do not produce any appreciable change ; but in pathological conditions and for colour tests, marked changes will be noted. In diseases affecting the outer retinal layers, test in dim light will be found advantageous to elicit relative blue blindness. Seven foot candles is said to be the normal intensity of illumination required for accurate work. (4) *Intelligence of the patient* is of course a necessity in getting accurate results. A slower rate of movement of the object is required in persons with slow cerebration. (5) *Fatigue* on the part of the patient.

Now we shall see what one may consider as the *normal* field of vision, making allowances for the factors noted above. According to Traquair, " For clinical purposes, we may regard a field as normal when the extent of its boundaries and its sensitiveness over

its whole area attain the standard found in the average healthy individual by adequate and practical methods of examination,"—a definition full of meaning. He says that "the extreme limits may be found by using a test object so large that an increase in its size produces no further extension." For this, an object subtending an angle of 9° at the nodal point of the eye is enough. The average normal field for white is usually given as 60° up, 60° in, 75° down, and 100° or a little more out, but the lower inner margin may recede to 50° or even 45° depending upon the configuration of the nose. With a Bjerrum's screen, the normal field for a 1/2000 test should extend to about 26° all round, which will be almost the whole of the surface of the screen. The nasal edge of the field is very steep, but the temporal edge slopes gradually.

Colour fields. Normally the field for colours is smaller than that for form or white; a much larger object is necessary to get a similar sized field as with white or a shorter working distance should be employed. With objects of the same size, the field for blue is the biggest, red is smaller, and green is the smallest. If the test object is sufficiently big, the colour is seen up to the periphery of the form field. The fields for complementary colours are similar in size (Traquair). A field for white 10/2000 is approximately equal to that for red 10/300. Ferree and Rand say "the peripheral retina is sensitive to red, blue and yellow to the extreme limits, but not so green. The limits of any colour field are always irregular because of retinal sensibility varying in the different meridians." They say that variations are found in each individual and even in the two eyes of the same person. It must be noted that the limit of the colour field should be marked only when the patient sees the coloured object with the colour fully saturated.

Methods of examination. Next, we shall consider what methods are to be employed in plotting out the visual fields, and what are the important points to be looked for or elicited during the examination, so that the maximum help may be secured in arriving at a diagnosis of the diseased condition. Plotting the fields may be done either with a periméter or on a screen as mentioned previously. Perimetric examination is mainly done for marking out the peripheral and intermediate zones of the field beyond about 25° from the centre; detailed examination of the central area is best conducted on the screen at a longer distance, by which a magnified projection of the defect present may be marked out. Being a flat surface, the screen test introduces an error which increases the farther you go from its centre; the error

increases rapidly beyond about 25° or 30° from the fixation point, as compared with the perimeter and the results are not of any value beyond this central region. The ease with which the test object can be manoeuvred on the screen is a great advantage and helps the test very much. The screen is ordinarily used either at one metre or preferably at two metres distance, whereas in the perimeter the distance from the patient's eye to the fixation point is 33 cm.

Perimetric examination is of two kinds, *quantitative* and *qualitative*. To quote Traquair "*Quantitative perimetry* is based on the recognition of the principle that the peripheral sensibility of the retina can be graphically expressed by isopters representing the extent of field corresponding to the visual angles subtended by the tests employed." The visual angle subtended at the nodal point of the eye by the object, is made the basis for comparison; fields taken with the same visual angle, at different distances vary little in a normal eye, but much more in pathological conditions. If the peripheral field shows no abnormality with a particular sized object, we have to gradually reduce the size of the object and see whether any defect is noticeable. Use objects, whose isopters do not ordinarily lie close together, in making the different tests. Traquair advises the plotting of the following three isopters for white $3/330$, $1/330$ and $1/2000$ or $2/2000$; and one or two for colour i.e., $5/330$ and $10/2000$ or $5/2000$. From these isopters, one ought to be able to say whether a field is normal or not.

Qualitative perimetry with form and colour fields for comparison is very useful in some cases. Reduction of the field for blue in excess of that for red or green indicates impairment in the neuro-epithelial layer of the retina, while, a greater reduction of the field for red or green than that for blue indicates impairment of the conducting path, i.e., the nerve fibres. In examining the relation of the field for white to that for colours, use test objects whose normal isopters are almost equal. It may be noted that colour fields are more sensitive to changes than form field; so colours of a standard hue which do not fade should be used. Ordinarily with colours the largest object which will show the defect should be used,—5 to 15 mm. usually (Traquair). In plotting the fields, the rule to be followed is to pass the test objects from the blind to the seeing area, whether it be the defining of the limits of the periphery or of the blind spot. Nothing but the object should be seen by the patient, the handle on which it is mounted being black in colour and sufficiently long. Move the object slowly in

any meridian, at the same time giving it a slow zig-zag movement across that meridian. The difference between the limits found by centripetal or centrifugal movements of the objects should always be noted and verified by movements "to and fro, across and at right angles," to the margin. In working near the periphery of the screen, it is advisable to hold the object several inches in front of the screen to reduce errors.

Particular attention should be paid to the outside limits to see whether there is any peripheral contraction; to the presence of any sectoral defects, or scotomata, in the fields. Specially search for scotomata near or around the fixation area, above, below or around the normal blind spot, and also between the fixation area and the blind spot. Having spotted a scotoma, its exact boundaries should be defined. Fixation of the patient's head and visual axis should be carefully observed so that the results are not vitiated.

Accurate interpretation of visual field defects requires a thorough knowledge of the minute anatomy of the nerve paths from the eye to the cortical centres in the brain and the structures adjoining them, including the disposition of the fibres from different portions of the retina, at different levels in this pathway. In the diagnosis of lesions in the cranial cavity, accurate knowledge of the position of the optic chiasm in the floor of the cranial cavity and its relation to the neighbouring important structures is of great value. Equally so is the relationship of the optic tract and optic radiations to the neighbouring ventricles, internal capsule, etc. It may be possible to differentiate lesions of the choroid from those of the retina at a time when ophthalmoscopic signs are doubtful, by carefully noting the nature of the colour fields, blue being more affected in choroidal diseases and affections of the rod and cone layer of the retina, and red and green more in the inner retinal lesions. These are only possible in the early stages of the disease. Another difference noted is the character of the scotoma, when present in the macular region; there is a positive scotoma in choroidal and outer retinal layer affections, and a negative one in the inner layer retinal lesions. Peter says that "if in choroidal lesions, we see a contraction for red and green equal to or greater than that for blue and also a negative scotoma instead of a positive one, the probability is that the inner layers of the retina are also involved in addition to the outer neurones and the choroid." If the defect is greater in dim illumination, it is characteristic of a lesion of the outer layers of the retina. A one sided field defect situated on both sides of the vertical meridian is always of sub-chiasmal

origin ; a one sided defect sharply defined in the vertical meridian denotes a lesion at one angle of the chiasm, usually at the junction of the chiasm and optic nerve ; chiasmal lesions are usually of the bitemporal hemianopic type ; whereas lesions of the optic tract and optic radiations cause homonymous hemianopia. In the latter, if the scotomata are incongruous, the lesion is often in the tract ; but if congruous, it is most frequently above the external geniculate body and as a rule, mostly in the posterior pole of the occipital lobe. Bilateral defects are due to affection of both nerves (rare) or if quadrantic, chiasmal or supra-chiasmal in origin. A homonymous hemianopia becoming bitemporal suggests a lesion commencing between the optic tracts. The most common cause of a binasal hemianopsia is distension of the third ventricle due to a brain tumour, which forces the optic nerves against the vessels of the circle of Willis. We shall go into more detail later when dealing with lesions in the different portions of the visual pathway.³

The proportion between the fields for colour and for white is important. "Disproportion" shows that the lesion is in an active condition which may be either advancing or recovering, but if "proportion" is present, the lesion may be considered to be stationary or only changing very slowly. The greater the degree of disproportion the more rapid is the change taking place and vice versa. Traquair says "The field for red 10/300 should be approximately equal to 10/2000 white ; if red field is slightly smaller than this, say as small as 5/2000 white, no special inference need be drawn ; but if markedly smaller, there is "disproportion" and it indicates an actively progressive process. "Field changes which suddenly appear or alter also indicate correspondingly active lesions ; rapid change in the position, shape, extent or intensity means that the lesion in the nerve path is of an acute type,—inflammation or rapidly growing tumour. When a field defect has a very sloping edge, the lesion is more progressive than one with a steep edge. The mode of onset also gives some idea of the progress and nature of the lesion ; a sudden onset indicates usually a vascular lesion ; a fairly rapid onset, an inflammatory lesion and a slow onset, a slowly advancing one, for example, a tumour. The visual pathway may be affected by the following conditions, which produce different results :—

(1) *Toxic and inflammatory conditions.* These usually affect the sub-chiasmal path, less often the optic tracts and bring on retrobulbar neuritis and toxic amblyopias. The field defects are mostly central. Tendency to recover is often a predominant feature.

(2) *Pressure.* Any part of the visual path may be affected ; usual sites are the optic disc, which is affected in glaucoma and the optic chiasm in tumours. Here both central and peripheral fields are affected ; the lesion is progressive and recovery may be rapid if pressure is relieved early.

(3) *Vascular disease* affects more commonly, the geniculocalcarine portion, the retina and optic nerve ; haemorrhage, thrombosis, and angiospasm may occur. If the haemorrhage is not into the visual tract but sufficiently near it, a pressure effect is noticed. Field defects depend on the nerve fibres affected at the particular site.

(4) *Trauma.* Mostly, as fracture of base of skull and injuries in the occipital region. Some amount of recovery is possible. If the lesion is sub-chiasmal, central field defects are seen along with peripheral defects ; if there are only central defects, the lesion is more likely to be cortical.

Traquair summarises the incidence of the above conditions as follows :—

The optic nerve has a monopoly of toxic and inflammatory conditions. Traumatism frequently affects the nerve ; pressure and vascular disease uncommon in the nerve. In the chiasma, tumour pressure is the commonest, syphilis and multiple sclerosis less common. The optic tracts are affected in the same manner as the chiasma, but less commonly ; pressure from temporal lobe tumours are more frequent in this region. In the geniculocalcarine pathway, vascular lesions are more frequent ; tumour pressure is not uncommon ; toxic and inflammatory lesions do not occur except from meningitis or abscess.

Having considered so far the general effects produced by diseased conditions on the visual field, we shall now proceed to the consideration of the peculiarities of the field in some of the ordinary general diseases.

SYPHILITIC AFFECTIONS

Tabes and progressive primary optic atrophy. There is a general depression all over the field ; early and rapid deterioration of red and green fields, with concentric contraction for blue and yellow and later for white. The concentric contraction is progressive. Peter says that the nasal field is affected first and that central scotomata, at first relative and later absolute, are not unusual. One may see sector defects of irregular types also in this

condition, with the affected area sharply marked out from the rest of the field.

Behr and Wilbrand say that energetic anti-syphilitic treatment is contraindicated in the following conditions :—

“(1) Impairment of central vision ; early failure for colour with a normal or nearly normal field for white.

(2) Extreme concentric contraction, boundaries for white and colour same, normal or nearly normal central vision.

(3) Slight field changes which affect white rather than colour, normal or nearly normal central vision, well developed pallor of the optic disc and pronounced subjective light sensation.” In tabetic progressive optic atrophy it is very doubtful any good will result from treatment, most cases ending blindness.

Post-neuritic atrophy. In the stage of neuritis, there are noted enlarged blind spot with early changes in the peripheral field ; but in the atrophic stage, irregular contraction of both the fields for white and for colours is seen. Sometimes there are “large entering angles” leading to the fixation point. In optic atrophy following diseases of the retina and choroid, “a most varied and irregular field” is seen with scotomata either central, peripheral or annular. In *Leber's disease or hereditary optic atrophy*, the central vision is badly affected ; there is a large central scotoma, almost round or oblong, situated mostly around the fixation point or may be centrocaecal, covering the fixation area. The edge of the scotoma is fairly steep. The peripheral vision is also depressed both for colours and for white ; there may be a “breaking through” inwards or up and in from the periphery. The central scotoma always remains and is not recovered from.

Gummatous meningitis. Syphilitic processes in its neighbourhood affect the optic tracts ; but field changes do not show as a typical isolated tract lesion.

Multiple sclerosis. The field changes vary very much as may be inferred from the nature of the disease. The changes are of the toxic and inflammatory type. There is an irregular contraction of the form field ; but the more characteristic change is the presence of central scotomata. In some cases, multiple small relative scotomata are seen, which may be central or paracentral, with sloping edges ; small colour objects may have to be used for detecting these. In other cases, a single absolute central scotoma is seen. The characteristic feature of these is their variable and

fluctuating course with frequent alterations. Tendency to recovery is well marked. Traquair says "a sudden or rapidly developing homonymous quadrant defect, especially in a young woman, and soon disappearing indicates multiple sclerosis of a primary nerve lesion in the optic tract."

TOXIC AMBLYOPIA

Uhthoff divides the toxins producing amblyopia into two classes :

(1) Those which also produce peripheral neuritis, like lead, arsenic, carbon bisulphide, etc., endogenic poisons like beri-beri, diabetic, etc.,—in these there is central scotoma without peripheral defect of the field.

(2) Those in which peripheral neuritis is rare, like quinine, salicylic acid, felix mas—in these there is peripheral and general depression of the field.

There are some variations from the above. The field changes in tobacco amblyopia are the same as those in the first group, although no association with peripheral neuritis has been noted. Inorganic arsenic compounds produce central scotoma which show a tendency to recover, whereas toxic organic arsenic compounds such as atoxyl bring on peripheral contraction which often leads to blindness.

Tobacco amblyopia. The typical scotoma is a centrocaecal one ; it is never pericentral ; usually bilateral but may be more advanced in one eye than in the other. It is horizontally oval in shape. Peter describes its shape as that of a closed hand with the forefinger extended towards the fixation point and he says that a true finger scotoma is a diagnostic sign of toxic amblyopia. This scotoma is easily elicited by using small red and white objects. There are often small areas of greater intensity within this scotoma, which are the original starting points ; these gradually increase in size and may coalesce ; its margins are very sloping ; defects for colour are more marked than that for white. At a later stage, impairment of colour field is noted on the temporal side ; the scotoma enlarges and may break through the upper and outer quadrant and later at the lower temporal quadrant. In very bad cases, only a small field may remain on the nasal side, for red. Complete blindness has never been seen to result though there is a general depression of the field for white. Recovery gradually takes place in the reverse order. The poison has a cumulative

effect and so it may take some weeks before recovery is seen, although the tobacco has been stopped. Idiosyncrasy and power of resistance of the nerve elements are marked features. In very severe cases, a small central scotoma remains permanently.

Alcohol amblyopia, usually the result of impurities in the alcohol. Both eyes are suddenly affected and rapid, complete, or almost complete blindness comes on. After a varying period, clearing of the field begins gradually from the periphery, finally leaving a very dense central scotoma. The defect is mostly pericentral. Guarded prognosis should be given as there is likelihood of a secondary atrophy supervening.

Lead. In lead poisoning, there are seen pericentral, circular, bilateral scotomata. Periphery of the field is usually unaffected although sometimes a breaking through of the central scotoma to the periphery may be demonstrated in the colour fields. The onset is gradual usually ; complete blindness is rarely seen.

Carbon bisulphide. Bilateral central scotomata usually pericentral but may extend more towards temporal side. Red-green blindness is a prominent feature. The changes in the periphery are more pronounced, (peripheral contraction and general depression of the field), and these distinguish it from tobacco amblyopia.

Quinine amblyopia. In mild cases, there is only slight diminution of vision which passes off soon ; but in the severe cases, rapid and complete blindness usually occurs. After a variable period, which may extend even to some weeks, the vision begins to improve ; the improvement is more marked centrally ; and finally peripheral contraction with a general depression of the field remains. Even though the central vision recovers to the normal, peripheral contraction may still be present. The edges of the field are steep and there is noted disproportion between the white and the colour fields, which last only till the recovery comes to a standstill. Very rarely, a central scotoma has been recorded, but it is not the usual feature. Permanent total blindness has not been recorded. Idiosyncrasy is a marked feature.

ACUTE RETROBULBAR NEURITIS, unilateral usually, with rapid onset and gradual recovery. Paracentral scotoma, with the fixation point eccentrically placed in it is present. Sometimes sector defects are seen. The peripheral field is usually not affected but may show indentation towards the place where the scotoma extends

farthest. Defects gradually get smaller in size and finally disappear.

CHRONIC RETROBULBAR NEURITIS apart from toxic amblyopia; field defects same as in acute form; macular disease should be excluded. Bilateral field changes denote a toxic cause due to systemic disease or are a local manifestation of a general disorder, i.e., syphilis, diabetes, insular sclerosis, etc.

NASAL ACCESSORY SINUS DISEASE. Peter mentions an enlargement of the blind spot with a central scotoma as the characteristic feature. He says that recurrent attacks of temporary central amblyopia must make one investigate the condition of the nasal sinuses. Usually the condition is unilateral; it is a rare cause of retrobulbar neuritis. Traquair divides the cases into two groups:

(1) Those referred by the rhinologist in which there is an enlargement of the blind spot with slight peripheral contraction, and

(2) Those seen by the oculist, i.e., cases of central scotoma with or without peripheral depression.

TRAUMA

In *commotio retinae* with an oedematous appearance of the macula, "there is seen an excellent demonstration of the relative central scotoma for blue with well-preserved red perception." (Traquair). In severe cases, a small central scotoma for white is also present, in which case, there may be permanent impairment of vision. Peter says that in *commotio retinae*, there is a positive central scotoma or more frequently a ring scotoma.

Detachment of the retina. In the early stages, there is a corresponding indistinct scotomatous area, with blue blindness or a qualitative change in blue, in the later stages, an absolute scotoma appears which is always surrounded by an indistinct scotomatous area, with a sloping margin and varying intensity. When the retina is elevated by serous fluid, blue defect is more marked than red; in fact, in some cases the red field may be seen to overlap the blue. Peter says that blue-yellow blindness is an early symptom of retinal detachment. The blue may appear as green or black, and the yellow as white. In early and in recovering cases, it may be valuable to test in dim illumination. After subsidence of the detachment, the field for white may become normal but not so the colour defects. Traquair says that, in cases of recent detachment

of doubtful origin, the presence of a circumscribed more intense scotoma within the relative defect, or of two separate defects one above and one below, is suggestive of tumour.

Eclipse blindness or solar injury. A central or paracentral small scotoma is seen. It is a positive scotoma. This may be temporary or more often may remain permanent. This absolute scotoma is often surrounded by an area of relative colour defect. A large and dense scotoma indicates a bad prognosis, though one may later be able to read fine print if the scotoma becomes fairly small.

FUNCTIONAL DISEASES. If gross inconsistencies are found by quantitative perimetry, in the absence of optic atrophy or other objective evidence, functional disease should be suspected. This is done by using the same visual angle at different distances or different angles at the same distance and watching for gross discrepancies in the field of vision. Reversal of colour fields is a characteristic sign of functional disease.

Hysteria. Bilateral concentric contraction of the visual field is seen. But there is no change in size of the field even when taken with different sized objects or at different distances (a tubular field). The field has steep edges which is contrary to what is usually seen in other conditions with concentric contraction. Fields may be altered by suggestion. Though the field is often very much contracted, peripheral vision is present as seen from the fact that the patient walks about freely and seldom stumbles or falls. Reversal of colour fields is noted; often a form and colour field of the same size are seen.

Neurasthenia. The fields are characterised by instability and exhaustion;—typical “fatigue field” or “spiral field” of von Reuss. The field though contracted, goes on varying as it is repeatedly taken. If the object is moved from within outward, an enlarging spiral is obtained and if moved from without inward, a contracting spiral is the result. Sometimes the red field may be found larger than that for blue. In some cases, the object is seen and lost alternately as it is traversed along each meridian—an “oscillatory field.”

FIELD DEFECTS IN PREGNANCY. Many observers have reported field defects in the later months of pregnancy, as a result of enlargement of the pituitary gland. *Finlay*⁴ (Havana) reports that of 108 cases examined by him, 67% showed definite bitemporal loss

of the fields, 21% showed no field changes and in 12% the changes were doubtful. He says that there was some tendency to limitation of the field loss to a quadrant or intensification in a quadrant; and that bitemporal contraction is more marked with small objects in the later stages of pregnancy and in multiparae. He did not note any tendency for concentric contraction except in some when tested with colours. *Carvill* and *Lancaster* are also of the same opinion. On the other hand, *Dr. Johns* of Boston, who examined a large series of cases, did not find bitemporal hemianopsia, but in abnormal cases found only concentric contraction, for form and colour, of varying degree with enlargement of the blind spot. Endocrine and X-ray studies also were made by her in her cases, the results coinciding with her field findings. There was noted a general lowering of the vital processes with consequent lowered retinal sensibility in the periphery and around the blind spot.

PRESSURE SIGNS AS SHOWN ON THE VISUAL FIELDS

(1) *Increased intracranial pressure producing papilloedema.* An enlarged blind spot without peripheral contraction is the earliest sign in papilloedema; or sometimes a relative scotoma surrounding the normal blind spot. If the oedema extends to the macular region, a small central relative scotoma will also be present. In these, if blue is well seen in relation to red, it is an optic nerve defect but if blue is badly seen, the defect is retinal. In the later stages as atrophy sets in, there is general depression of the whole visual field with peripheral contraction. If in the early stages, there is found to be peripheral contraction, it signifies an inflammatory process.⁵

(2) *Local pressure effects on the optic nerve.* Wide sector-shaped defects are noticed in the visual field. Obviously the defect is unilateral. It may be one-sided quadrantic or hemianopic to start with, but very soon the defect crosses the vertical meridian. A local orbital source is to be suspected if there are no obvious hemianopic changes in a unilateral case.

*Evans*⁶ says that in frontal lobe lesions near the middle line, central scotoma is seen on the side of the optic atrophy and enlargement of blind spot on the side of the papilloedema (Foster Kennedy syndrome.)

*Gjessing*⁷ says that the lesion is below the chiasma if there is one sided central scotoma or complete one sided blindness and the direct pupillary reaction is lost but consensual reaction is present. He advises in these cases careful examination of the field of the other eye with small objects; and if any defect is found, he says the lesion is situated close to the chiasma. Bilateral altitudinal

inferior hemianopic changes are attributed to the nerves being pressed upwards against the sharp margins of the optic foramina. In cases of constriction of the upper surfaces of the nerves by the circle of Willis, pressed upwards by a sub-chiasmal tumour, we may expect to see in one or both fields, defects of inferior altitudinal hemianopsia with signs of chiasmal interference.

(3) *Lesions of the optic chiasma.* Bitemporal hemianopsia is the characteristic defect found in the visual fields. Traquair mentions two types of progress of the defect.

(a) *Scotomatous type*: In this, the earliest change is a depression in the superior temporal quadrant, which gradually increases; the whole quadrant shows some depression; and a scotoma appears at the apex of this quadrant which increases and advances to the peripheral depression; it also extends downwards into the inferior quadrant, thus cutting off a temporal island of vision. Next the lower nasal quadrant is affected, the scotoma also invading the apex. The temporal island gradually disappears and the upper nasal quadrant is then affected; the scotoma extending to its apex also. Colour changes similarly occur, but precede the field changes for white. The fixation area may or may not be spared.

(b) *Non-scotomatous type*: Field changes are similar but the apex scotoma is absent. The isopter for 1/2000 does not encircle the blind spot, but leaves its upper part bare and is deflected inwards in the upper temporal quadrant. The progress of the loss of field is similar to that in the previous type. Fixation area is spared. The lower nasal quadrant may not be affected.

The changes noted above are typical of pressure on the chiasma from below, which may be seen in pituitary disease and sometimes in basal meningitis of gummatous origin. The scotomatous changes are most marked in affections of the posterior edge of the chiasma. The "temporal island" field is absent when the lesion is pre-chiasmal and affects the inner sides of the two optic nerves. Scotoma is usually present only in inflammatory cases and actively growing tumours. Intracellular growths give the typical field noted above; while suprasellar and basal growths unconnected with the pituitary give typical and aberrant field changes. As mentioned previously a homonymous hemianopia developing into a bitemporal one indicates the position of the tumour to be between the optic tracts, such as infundibular cysts or extending pituitary adenomata. Sudden improvement or alteration in the field changes indicates a change in the position of the growth.

Lesions affecting the chiasma from above i.e., a distended third ventricle, craniopharyngeal tumours, etc., produce partial or complete bitemporal hemianopsia, one or both of the inferior temporal quadrants being affected first. Binasal hemianopsia indicates either an advanced sclerosis of the internal carotid arteries or brain tumours pressing the chiasm against the arteries. Altitudinal hemianopsia is often due to pressure on the chiasma from above or below or gummatous meningitis affecting the upper or lower surfaces. It must be noted that the dividing line for form and colours is the same in all cases except the altitudinal variety in which the colour fields fall short of it.

“Bitemporal hemianopsia or quadrantic defects of central field, which are rapid in onset, variable and wandering in character, help to distinguish a chiasmal retrobulbar neuritis from a tumour; while, slow developing bitemporal hemianopsia, often without central scotoma suggests intrasellar pituitary adenoma; and, similar but rapidly developing defects indicate tumours of more rapid growth.”

(4) *Lesions of the optic tracts.* A homonymous hemianopsia sharp and limited to one half is the typical picture of the fields. The hemianopsia in its typical form is an incongruous, relative, incomplete and progressive one and in the final stages becomes complete and absolute. In the seeing areas, normal fields for form and colours are present. Wernicke's pupil reaction which is present is a valuable diagnostic sign. Scotomata may be present at the apex of the quadrant.

(5) *Lesions of the optic radiations and visual cortex.* Irregular homonymous hemianopsia with a tendency to loss of half vision in the later stages is seen. The macular area is preserved, especially so the more posterior the lesion. The defects in the affected fields vary greatly as regards position, size, shape and intensity. They are sudden in onset, complete and absolute, often stationary or showing signs of more or less recovery. Homonymous quadrant defects indicate damage to the upper or lower lip of the calcarine fissure or to the upper or lower segment of the optic radiations. Small central hemianopic scotomata are very suggestive of cortical or subcortical damage if they occur suddenly in otherwise normal fields and without other signs.

Globus and Silverstone⁸ discussing the “diagnostic value of defects in the visual fields in supratentorial tumours of the brain,” state that the defect on the side opposite the lesion was greater

than that on the same side in homonymous cases. They are of opinion that without doing ventriculography, it is not possible to differentiate between tumours of the posterior temporal and of the occipital lobes; but if cerebellar signs are also present, the lesion is more likely to be in the occipital lobe. In 171 cases verified by them, they expected visual field defects in 99 cases; but only 41 showed field changes which were of assistance in diagnosis; of course there were some others who were blind and others who were not in a fit general condition to allow of careful perimetric tests.

Traquair writing on "intracranial growths" says "cases with negative fields of vision require repeated examination. If normal, the tumour is not situated in the neighbourhood of the visual path." He continues, "I am aware that the value of perimetry as an aid to diagnosis is regarded with scepticism by some surgeons and physicians. This attitude I believe to be mainly due to inadequate perimetry. Employment of quantitative perimetry is essential."⁹

It must be said that careful perimetry gives one very valuable signs which help in the diagnosis of some diseased conditions, but they have to be considered along with the ophthalmoscopic appearances seen and also the presence of other valuable central nervous system signs and symptoms elicited by the physician; all these put together have made a considerable advance in the art of accurate diagnosis in the conditions referred to above. Specially, neurosurgery owes a great deal to the help given by careful perimetric examination.

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THE PROBLEM OF SEX IN THOMAS HARDY'S NOVELS

BY

PROF. K. R. SRINIVASA IYENGAR, M.A.,

Lingaraj College, Belgaum.

Thomas Hardy's novels—the more important among them—appeared in the following chronological order: *Under the Greenwood Tree* in 1872, *Far from the Madding Crowd* in 1874, *The Return of the Native* in 1878, *The Mayor of Casterbridge* in 1886, *The Woodlanders* in 1888, *Tess of the D'Urbervilles* in 1891 and *Jude the Obscure* in 1895. One and all of them tackle the eternal problem of sex—the intriguing, and often tragic, problem of the mutual reactions between Man and Woman. It is interesting and instructive to trace the vicissitudes of Hardy's statement of the problem in the seven novels listed above.

In prose and poetry Hardy has given vigorous and stark expression to his views on that strange and sinister thing we are all agreed upon calling Love. When he is describing Eustacia,—“she had mentally walked round love, told the towers thereof, considered its palaces; and concluded that love was but a doleful joy. Yet she desired it, as one in a desert would be thankful for brackish water”—is Hardy generalising on Love? Again, Hardy says in his earliest novel, *Desperate Remedies*:

“Love is a sowre delight, and sugred grieve,
A living death, and ever dying life.”

Elsewhere in his poems he paints no rosier picture:

“But—after love what comes?
A scene that lours,
A few sad vacant hours,
And then the curtain . . .”

“The paths of love are rotigher
Than thoroughfares of stones . . .”

“You should have taken warning,
Love is a terrible thing; sweet for a space
And then all mourning, mourning.”

How these passages seem to jar upon our ears! How they shock our equanimity, accustomed as we are to rhapsodies like Jacob

Boehme's : " Love is higher than the Highest. Love is greater than the Greatest. Love is the principal cause of all created beings, both spiritual and corporeal . . . " ! Yet this is the thesis—that love is fickle, love is futile, love is disastrous,—which Hardy seems to develop in his novels, the more ruthlessly the more mature the novel !

In the two early masterpieces—*Under the Greenwood Tree* and *Far from the Madding Crowd*,—in which as yet Hardy is only fumbling to express himself, the sex problem is a simple triangular contest. In the first, Dick Dewy, Farmer Shinar and Parson Maybold seek the hand of Miss Fancy Day ; in the second, Gabriel Oak, Farmer Boldwood and Sergeant Troy are all of them Bathsheba Everdene's lovers. With minor variations the plot works out alike in these two novels. The farmers Shinar and Boldwood are easily eliminated : their entry into the contest is due, in the earlier novel, to Fancy's father's susceptibility to Shinar's wealth, and, in the later novel, to a thoughtless and impulsive act on the part of Bathsheba herself. The real contest is between Dick and Maybold in the first novel and between Gabriel and Troy in the other. On the one part, the splendid honesty of a thoroughly devoted lover, his external clumsiness, his lack of " culture ", nevertheless with his heart that is pure gold ; on the other part, social position, apparent gentility, seductiveness and dash : the heroine must needs choose between the two. As may be expected, she chooses wrongly in either novel : it is as though Hardy would imply that a woman is attracted by showiness and demonstrativeness rather than by the unexpressed depth of a sterling affection and love. Fancy chooses Parson Maybold for her husband ; but she retracts her promise before it is too late, and marries Dick. Bathsheba, however, smothers her inner desire and persists in her decision to marry the more obviously romantic Troy,—and Hardy makes her take the consequences. Thus the later novel offers Hardy more possibilities for exploiting the resources of his irony and humour. The deflection of Troy, Farmer Boldwood's repeated advances, Bathsheba's engagement to Boldwood, the sudden re-appearance of Troy, his murder and Boldwood's imprisonment, and the belated marriage between Gabriel Oak and Bathsheba,—all these, woven into the narrative subtly and with a hopeless inevitability, make *Far from the Madding Crowd* more comprehensive a human document than *Under the Greenwood Tree*. The ebullitions and violences of love cannot last long ; simple sex attraction and union are not self-sustaining ; the blind, mad passion of mere youth and the fascination of elegance and social position are frothy and

illusory ; fellowship, a profound sympathy and understanding, that knits together appetites and occupations and inclinations, and that is rooted in the earth, these form a more enduring bond in marriage.

In his brief survey of the English Novel, Mr. J. B. Priestley writes : " If, in a Hardy novel, A falls in love with B, this is the signal for B to fall in love with C, C with D, and D with A, a state of affairs that gives our ironist the opportunity he needs, but that takes us a long way from real life, in which people are not so obligingly perverse and interest calls out to interest, love replies to love." Though this is a wild exaggeration, it cannot be denied that there is a grain of truth in the indictment as applied to the *Return of the Native*, *The Mayor of Casterbridge* and *The Woodlanders*. In the first of these novels, the tangle of love can be described thus : Diggory Venn, the Reddleman, is in love with Thomasin ; Thomasin likes Venn, but is in love with Wildeve, the Inn-keeper ; Wildeve likes her as a good wife, but is maddeningly fascinated by Eustacia ; Eustacia, who has once loved Wildeve and is still occasionally dazzled by memory of him, is deeply in love with Clym Yeobright ; and there is nothing abnormal or artificial ; Hardy has traced these developments with a sure art carrying conviction ; what, however, makes us incredulous is not the paradoxical pattern of love but the string of mere chances in the progress of the plot. Wildeve and Mrs. Yeobright calling upon Clym and his wife at the same time ; Johnny Nunsuch meeting Mrs. Yeobright on her way to and from her son's house ; Eustacia meeting Wildeve, accidentally at the village picnic ; Clym's last letter to Eustacia being delayed through Fairway's forgetfulness ;—these coincidences prove utterly tragic and it is these coincidences in the story, rather than the psychology in characterisation, that make us conclude that the picture is overdrawn.

The tragedy of *The Return of the Native* is a complex one. After her marriage with Clym, Eustacia tells him bitterly : " If you had never returned to your native place, Clym, what a blessing it would have been for you ! . . . It has altered the destinies of—" Clym completes her sentence with, " Three people " but Eustacia mentally corrects it with a " five ". Eustacia, of course, is the dominant character in the novel ; she, with Egdon Heath for her antagonistic background, is the novel. The clash in the novel, in the ultimate analysis, is the clash between the gay, town-bred spirit of Eustacia and the dourness, grimness and sinister vastness of Egdon Heath itself. Eustacia loves Wildeve, and then Clym, as an escape from the Heath : but everything is against

her. Mrs. Yeobright and Clym and Nunsuch and all the Heath dwellers are ultimately up against the too ethereal Eustacia. Clym in his love for Eustacia is divided within himself; it is the spirit revolting from the flesh, the animation of Paris asserting itself even in Egdon Heath. Wildeve in his love for Eustacia is also divided within himself; it is the assault of sheer unearthly loveliness subduing the common-sense attachment towards the earth-like, Egdon-heath-like, enduring and quiet Thomasin. Eustacia, caught between Clym and Wildeve, is destroyed; Wildeve, similarly caught between Eustacia and Thomasin, is destroyed also; and Mrs. Yeobright is in a different way the jest of fate, and the very move intended to bridge the gulf between herself and her son, jerks her into death, and parts Clym and Eustacia finally. Thomasin is a widow, Clym a widower, and Venn a chronic bachelor; here appropriately the story ought to end, and would have, Hardy explains in a foot-note, but for "certain circumstances of serial publication." To us the sixth Book of the novel, "After-courses", is strictly superfluous; it spoils the five-act tragedy reared by the previous books.

Consider only the first five books of *The Return of the Native*! The first act introduces us to Venn and Thomasin, Mrs. Yeobright, Wildeve and Eustacia; we wonder if Wildeve will marry Thomasin or Eustacia; we wonder if the native antagonism between Eustacia and Egdon Heath will result in her annihilation or in their superior synthesis and harmony. With Book Second we are in the second Act of the Aeschylean tragedy. Thomasin's marriage takes place; Wildeve has acted; and Eustacia and Clym have met. With the third Act, the second marriage too takes place; Clym has braved fate, has braved his mother, and has married Eustacia. In the fourth Act, affairs come to a crisis; both the marriages have been sad mistakes; the creatures of the earth have married the creatures of the air and fire, banking on love and against common-sense, against the serious advice of Mrs. Yeobright; and things inevitably turn out ill, turn out disastrous. Eustacia's disappointment, Clym's stoic contentment, Wildeve's frenzy, Thomasin's unruffled good-sense, Venn's interferences and Mrs. Yeobright's peace manoeuvres,—these diverse currents and cross-currents come to a head in that perfect jest of fate—"the closed door"—and the resulting death of Mrs. Yeobright. The last Act makes manifest the preordained solution of the tangle, the destruction of both the marriages, the vanishing away of the disturbing elements of air and fire, and the reconciliation of Clym and Thomasin to themselves and to Egdon Heath. Clym just says, "I am getting used to the

horror of my existence. They say that a time comes when men laugh at misery through long acquaintance with it. Surely that time will soon come to me ! ” And appropriately enough, the drama begins with the apparition of the Reddleman and it ends also with the same.

Eustacia is a more rarefied character than Bathsheba and Wildeve is a more credible and complex character than Troy ; and Venn is a less pleasant but not a less patient wooer than Gabriel Oak. Speaking of Eustacia, Hardy says : “ Whenever a flash of reason darted like an electric light upon her lover—as it sometimes would—and showed his imperfections, she shivered thus. But it was over in a second, and she loved on . . . She had the passions and instincts which make a model goddess, that is, those which make not quite a model woman . . . The subtle beauties of the heath were lost to Eustacia ; she only caught its vapours.” And what about Wildeve ? “ To be yearning for the difficult, to be weary of that offered ; to care for the remote, to dislike the near ; it was Wildeve’s nature always.” He knows that the “ curse of inflammability ” is upon him, that a fatality is brooding over him to give him no peace. Eustacia rising “ from the semi-globular mound like a spike from a helmet ” and Wildeve self-torturing himself like another Rousseau—they both are anachronisms in Egdon Heath and their being drowned in the pond together, with a tempestuous rain for their dirge, is in keeping with their lives. Consuming, passionate love like theirs and magnificent, Platonic love like Charley’s are both out of place in Egdon Heath. In Egdon only one love can be tolerated, the love of the Heath itself “ in all its changing moods and unchanging majesty ” (Sylvia Lynd) ; the five books of the novel take us through one complete year, beginning with a fifth of November and ending the day after the next fifth of November ; and we watch the Heath in its sombreness and grey-ness and “ swarthy monotony ” ; Thomasin loves the Heath and understands it, Venn knows it through and through, and as for Clym, “ he was permeated with its scenes, with its substance, and with its odours.” The inhabitants of the Heath are content to accept it and to “ be reduced to pygmy size against its sombre background.” Eustacia and Wildeve alone had rebelled ; and had bitterly paid for it.

If *The Return of the Native* is cast in the form of an Aeschylean tragedy, *The Mayor of Casterbridge* partakes rather the character of an epic. It is about the “ life and death ” of the Mayor of

Casterbridge, "a man of character." Michael Henchard under the influence of drink sells away his wife, Susan, and his daughter, Elizabeth-Jane, to a sailor by name Newson. Next morning he comes to himself and realises what he has done; he takes a vow to give up drink for 21 years. He prospers well at Casterbridge till he rises to the position of Mayor of the Town. Nineteen years have passed since the fatal evening; Susan returns to Casterbridge with her daughter, Elizabeth-Jane. Henchard receives them into his house, formally remarries Susan, promotes Elizabeth's marriage with his assistant Farfrae. Now of a sudden things go wrong; Henchard envies Farfrae's popularity and dismisses him from service; Farfrae sets up business independently and does better than ever; Susan dies leaving a note informing Henchard that Elizabeth is Newson's and not Henchard's daughter, but already he has taken the trouble to convince her in good faith that she is his own daughter; meanwhile Lucetta, Henchard's former mistress, takes her residence in Casterbridge, and just as Henchard thinks of marrying her, Farfrae fascinates her and *they* are married; Henchard speculates rashly and is declared a bankrupt and is even forced to work under Farfrae; all the while Elizabeth is ignorant of the truth about her parentage and looks upon Henchard as her father; at this juncture Newson returns, and though he is sidetracked once by a lie, the truth comes out at last and Henchard leaves Casterbridge; Lucetta is dead in the meanwhile and Farfrae marries Elizabeth with Newson's consent; Elizabeth is bitter against Henchard for the "deceit" practised on her; her kind thoughts towards Henchard come too late to save him.

Henchard is another Jean Valjean; he is one of those who have been more sinned against than sinning; Susan and Lucetta, Elizabeth and Farfrae, all people whom he has loved not wisely but too well, *they* bring about his tragedy! Friendship fails; marriage fails; "his attempts to replace ambition by love had been as fully foiled as his ambition itself"; when Elizabeth accuses him of dishonesty and deceitfulness, he is only tongue-tied: "How could he, there and then, set before her with any effect the palliatives of his great faults—that he had himself been deceived in her identity at first, till informed by his mother's letter that his own child had died; that, in the second accusation, his lie had been the last desperate throw of a gamester who loved her affection better than his own honour? . . . he did not sufficiently value himself to lessen his sufferings by strenuous appeal or elaborate argument." Is it any

wonder Henchard's last moments spend themselves out in the Timon-like bitterness and cynicism of the Will ?

Hardy calls *The Mayor of Casterbridge* "more particularly a study of one man's deeds and character than, perhaps, any other of those included in my Exhibition of Wessex life." By the side of the titanic figure of Henchard all the other characters nearly fade into insignificance. One would rather be frustrated with Henchard than succeed with others. In this novel, love as an overmastering emotion or passion is little displayed. Susan is simple and foolish, Elizabeth-Jane is simple and cold, Lucetta is frivolous and fickle, Farfrae is too business-like, and Henchard himself is prey to too many corroding and viperous regrets and reprisals to think long of love. It is friendship that is on trial, good intentions that are crucified, the conscientious urge to reform and to repent that is defeated. In this novel Hardy touches the Nādir of his faith in humanity ; he seems to arraign the dubious He

" by whose strange laws

That which mattered most could not be " ;

he seems to imply that

" life would signify

A thwarted purposing :

That we come to live and are called to die."

In *The Woodlanders* the love theme is once again to the forefront. The chief characters are five, two men and three women. Dr. Fitzpiers is a member of an ancient but at present quite impecunious aristocratic house, who has settled down in Little Hintock and who is pursuing anatomical, metaphysical and literary studies, besides attending to his moderate practice. He is a minor Don Juan beloved of the ladies. The rich Mrs. Charmond, the "cultured" Grace Melbury, the bare chip of femininity, Suke Damson, they are all madly in love with Fitzpiers. Grace is his wife and the other two are his mistresses ; when the word gets round that he is seriously wounded, all three of them, "wives all", are anxious : "In their gestures and faces there were anxieties, affection, agony of heart—all for a man who had wronged them—had never really behaved towards either of them anyhow but selfishly. Neither one but would have well-nigh sacrificed half her life to him, even now." At the other end of the scale are Marty South and Giles Winterborne, both children of the soil, both poor,

both working with their hands for their very livelihood. Marty's pure-hearted, self-effacing love for Giles is only matched by the equally hopeless love of Giles for Grace. To complete the joke of destiny, Grace marries Fitzpiers; she finds that her husband is faithless; she realises how futile education has been to her if all it has done is to separate her from her true love, the noble-minded Giles; she tells her father in uncontrollable anguish and disillusion: "I wish I worked in the woods like Marty South! I hate genteel life, and I want to be no better than she! . . . Civilization has only brought me inconveniences and troubles. I say again, I wish you had never sent me to those fashionable schools you set your mind on. It all arose out of that . . ." Fitzpiers and Mrs. Charmond try life together in Europe till she is shot dead by one of her disappointed admirers of old. Fitzpiers returns to Little Hintock in visible contrition to make it up with his wife. Grace on her part wishes to run away from the scene; storm and tempest force her to take shelter in Giles's cottage, Giles giving it up to her entirely and himself sleeping on dry sacks and hay. This brings the fever on and he dies contented, with the feeling that "there was one man on earth in whom she believed absolutely, and he was that man." Ultimately Fitzpiers and Grace are reconciled and Marty is left alone to keep Giles's memory green. Of Marty's love it might be said:

"She never told her love,
But let concealment, like a worm i' the bud,
Feed on her damask cheek; she pin'd in thought,
And with a green and yellow melancholy
She sat like patience on a monument
Smiling at grief. Was this not love indeed?"

During those hours when Grace and Marty together visit Giles's grave, Grace has to realise that "she had never understood Giles as Marty had done. Marty South alone . . . had approximated to Winterborne's level of intelligent intercourse with Nature . . . They had been possessed of its finer mysteries as of commonplace knowledge; had been able to read its hieroglyphs as ordinary writing; to them the sights and sounds of night, winter, wind, storm, amid those dense boughs, which had to Grace a touch of the uncanny, and even of the supernatural, were simple occurrences, whose origin, continuance and laws they foreknew . . ." Grace impulsively adds: "He ought to have married *you*, Marty, and nobody else in the world! . . . you and he could speak in a tongue that nobody else knew . . . the tongue of the trees and

fruits and flowers themselves." Can such love as Marty's for Giles or such understanding as Giles's of Marty be severed by death? Even Grace forgets to visit Giles's grave, as she has been doing for some weeks past in the company of Marty; but Marty does not and never can forget; she visits the grave alone, and Hardy writes one of the most moving passages he has ever written: "Now, my own, own love," Marty whispers, "you are mine, and only mine; for she has forgot 'ee at last, although for her you died! But I—whenever I get up I'll think of 'ee, and whenever I lie down I'll think of 'ee again. Whenever I plant the young larches I'll think that none can plant as you planted . . . no, no, my love, I never can forget 'ee; for you was a good man, and did good things."

The Giles of *The Woodlanders* is only Gabriel Oak and Diggory Venn expanded to tragic proportions. Distrust of sophistication and "culture", mooted in the previous novels, is yet more vehemently underlined here. Grace's remarks on the mischief wrought on her by her "education" recall Clym's similar asseverations in *The Return of the Native*: "I found that I was trying to be like people who had hardly anything in common with myself. . . . the more I see of life the more do I perceive that there is nothing particularly great in its greatest walks, and therefore nothing particularly small in mine of furze cutting." High-flown ideas of life distort our everyday vision and help us to wreck our lives the sooner. If love abides at all, it is either with persons like Marty with whom it is a vital religion or with the sobered Grace and Fitzpiers who base their life on comradeship more than on sexual passion.

In the three great novels of the middle period of Hardy's career, the sex problem is stated with some complexity and confusion. The problem, however, is once again stated in its bald and rude urgency in the two final masterpieces, *Tess of the d'Urbervilles* and *Jude the Obscure*. In an illuminating study of the subject, M. d'Exideuil points out that "as conceived by Hardy, in its most absolute and most brutal significance, the human pair emerges with special clearness in the great diptych formed by the stories of Tess and Jude." The difference between Tess and Jude is practically nothing more than the biological one: Tess is a woman and Jude is a man. Otherwise their destinies and careers are most alike. Both are unsophisticated beings; both have inward urges towards some form of spirituality and yet they are essentially animal till the last; in short, the milkmaid and the mason are just the feminine and masculine halves of suffering, crucified

humanity. Tess is ground between the upper and nether millstones which are, in the story, Angel Clare and Alec d'Urberville; in exactly the same way, Sue Bridehead and Arabella manage, between themselves, to destroy Jude. In this matter the conscienceless Alec and Arabella are no worse than the refined and genteel Angel and Sue. Professor Abercrombie rightly brands Angel Clare "the villain of the piece": Angel's desertion of Tess immediately after marriage, solely on a sentimental pretext, and his prolonged silence afterwards, are mainly responsible for Tess's tragedy. It is a sad and unedifying sight to see Tess ("the pure woman") being hit like a shuttlecock backwards and forwards, the sportsmen Alec and Angel thoroughly unconcerned about it the while. Similarly it is with Jude: Arabella irritates him with her gross sensuality and torments him with her cruelty, while Sue more than irritates him with her tall talks of a simple spiritual union and later on torments him and quite annihilates him with her remorse, her misplaced sacrifices and her religious ravings. In order to be able to run after Angel, now that at last he has come back, Tess in a frenzy goes to the extent of murdering Alec in cold blood; she has a few days' dream-like happiness with Angel and then is hanged to expiate her crime. Jude also risks his life that he may see his dear Sue just once more, sees her, kisses her, falls seriously ill and so dies. Angel marries Tess's sister; Sue gives her all to Phillotson, that being her duty. As for Tess herself and Jude—what remains? 'Justice' has been done, and "the President of the Immortals, in the Aeschylean phrase", has at last ended his sport with them!

It can be seen from the foregoing account how the nature of the sex impulse and the methods employed towards its gratification are set down by Thomas Hardy without any irrelevant romancing about them. When love is craving for a union of the sexes,—and generally it is no more—an unholy war between members of the opposite sexes is unescapable. Lying, coquetry, fraud, heartlessness, seduction, and every conceivable art and artifice is brought into operation to gain the end of either physical satisfaction or the perpetuation of the species. Even if Angel Clare's and Sue Bridehead's and Eustacia's fascination for the opposite sex be not purely physical attraction, it has enough of bland egotistical craving to brand it selfish and ultimately self-defeating. On the question of the perpetuation of the species as sufficient justification for sex union, Hardy's attitude is none too clear. Eustacia commits suicide; Tess's illegitimate child dies soon after its birth; in *Jude the Obscure*, Father Time, Jude's son, kills his brother and sister

and takes away his own life "because we are too menny". From these instances M. d'Exideuil deduces that an apology for non-existence is the view-point held by Hardy. He continues in similar strain: "In Hardy's eyes those heroes who incarnate the disgust for life are forerunners . . . For this writer, as for Schoepenhauer, to elude the desire to live is to give proof of a deeper knowledge of the real nature of life . . . After Leopardi, Schoepenhauer, von Hartmann, Le Conte de Lisle and Madame Ackermann, Hardy questions himself regarding the purpose of existence and finds his answer in these terms of negation."

It is curious that in the earlier novels Hardy makes man the pursuer, woman the pursued; Dick, Shinar and Maybold are all after Fancy Day; Gabriel, Sergeant Troy and Boldwood are all equally under the spell of Bathsheba; but in *The Return of the Native* the pursuit may be said to be on both sides, Eustacia at once pursuing and being pursued by Wildeve and Clym. In *The Mayor of Casterbridge* it is the woman, whether in the person of Susan or Lucetta, who tries to win back Henchard, or Lucetta who artfully fascinates Farfrae. This counter-movement in the arena of sex is maintained in *The Woodlanders*; Mrs. Charmond and Suke shamelessly pursue Fitzpiers, and though Marty never speaks openly, her great love is not noticed by Giles only because he is blinded by his "other" love. In *Tess of the d'Urbervilles* three girls besides Tess are simultaneously enthralled by Angel Clare: but in this novel, again, the attraction of the sexes is fairly mutual. In *Jude the Obscure* the woman's chase of the man is for the last time made manifest, a chase that proves quite disastrous to the man. It is perhaps instructive to compare Hardy's presentation of this problem with that of his continental compeers like Ibsen, Strindberg and Tolstoi. In Ibsen's earlier plays, woman is depicted as the underdog or rather the hunted, persecuted and slighted animal: Solveig, Nora, Mrs. Alving, Hedvig, they all belong to this type. But in the later plays it is woman who calls the tune and man who is the mute sufferer: Miss Hilda, Rebecca, Hedda Gabbler, Rita, even Irene, they are almost fiendish and ruthless like the worst of Strindberg's women. The difficulty in solving the immortal puzzle of sex relationship between man and woman lies in the preeminence attached to the institution of marriage. This clinging together till death and beyond death, however numerous the incompatibilities of temperament and spiritual vision, is the root cause of most domestic tragedies. As Hardy confesses in the preface to *The Woodlanders*: "no thinking person supposes that on the broader ground of how to afford the greatest happiness to the units of

human society during their brief transit through this sorry world, there is no more to be said on this covenant (of marriage).” Perhaps Hardy’s ripe judgement on this matter was not unlike that expressed by a character in Tolstoi’s *Kreutzer Sonata*: “To love some man or woman all one’s life is tantamount to saying that a candle can go on burning for ever. Only genuine comradeship can last; when such a thing is impossible, divorce would be the only rational solution.”

KÖPPERUNJĪŅGA—HIS LIFE AND TIMES

BY

MR. S. R. BALASUBRAHMANYAN, M.A., L.T.

Chidambaram

INTRODUCTION.

The Cōlas of the Vijayālaya line rose to power on the ruins of the Pallavas of Kāñcī, and the conquest of Tonḍaimaṇḍalam in the days of Āditya Cōla I, in the 9th century A.D. marked the decline of the Pallavas and the rise of the Cōlas. It is an irony of fate that the decline and fall of the later Cōlas should have been, in some measure, due to the great power wielded, and the crushing blow dealt, by one who claimed Pallava descent, and who in the very region of Tonḍaimaṇḍalam reversed in the 13th century the verdict of the ninth. We shall consider the part played by the later Pallavas in bringing about the decline and fall of the later Cōlas and in particular the achievements of the most illustrious member of the later Pallavas—Kōpperunjīṅga—a powerful chief who rose from the rank of a petty local chief to the position of a ruler of a considerable extent of territory in Southern India, assumed all the high-sounding titles of royalty and called himself *Mahārājasimha* (the lion among great kings) whose Tamil equivalent is Kōpperunjīṅga—a name justified by his great exploits.

[NOTE.—On representation from the Editor of this Journal that he was pressed for space, Chapters I and II of this thesis have *not* been included in this publication.—S. R. B.]

CHAPTER III

THE HOME OF KÖPPERUNJĪŅGA

The land south of Tirupati and north of the Northern Vellar was, from historical times, known as Tonḍaimaṇḍalam. It became known after the Cōla conquest, as Jayaṅgoṇḍa Cōlamaṇḍalam.

After the overthrow of the Pallavas of Kāñcī in the 9th century A.D. this region especially, 'the modern Arcot' region had

been the home of powerful chiefs—The Malaiyamans of Tirukkoi-lur, the Śambavarāyas of Rājagambira, and the Kāḍava chiefs of Śendamangalam.

The home of Kōpperuñjiṅga was the southern region of Ton-ḍaimaṇḍalam. This region is for the most part a flat plain sloping gently to the sea on the east.

About the scenery of this region, we have the following account in the District Gazetteer. “Along the eastern side of the District there is little in the way of scenery. Such beauty as this tract possesses is due less to the liberality of Nature than to the handiwork of man, who has diversified the country with broad tanks and pleasant groves of trees. The contrast between red soil and green crops is, however, always effective, and during the cultivation season the rich lands in Cuddalore and Villupuram taluks have at least the charm produced by a prosperous, if not romantic, landscape. The most uninviting parts of all this uninteresting side of the district are perhaps the barren lands, covered with dwarfed date palms and stunted thorn bushes, which stretch to the north of Tindivanam. ”¹

In the centre of this almost uninviting district, (in the Tirukkoilur Taluk) twelve miles West by South of Panruṭi and very near the banks of the Gaḍilam lies the ruined and neglected village of Śēndamaṅgalam which was about 800 years ago, the capital of this great chief.

There is a ruined temple in the place, which we learn, from the inscriptions on its walls, to be a Siva temple whose pre-siding deity was called Āpatsahāyēśvara.² This should have been a well fortified place.³ The remnants of the walls of defence and of the ditch and the temple in ruins are the only survivals reminiscent of its former glory.

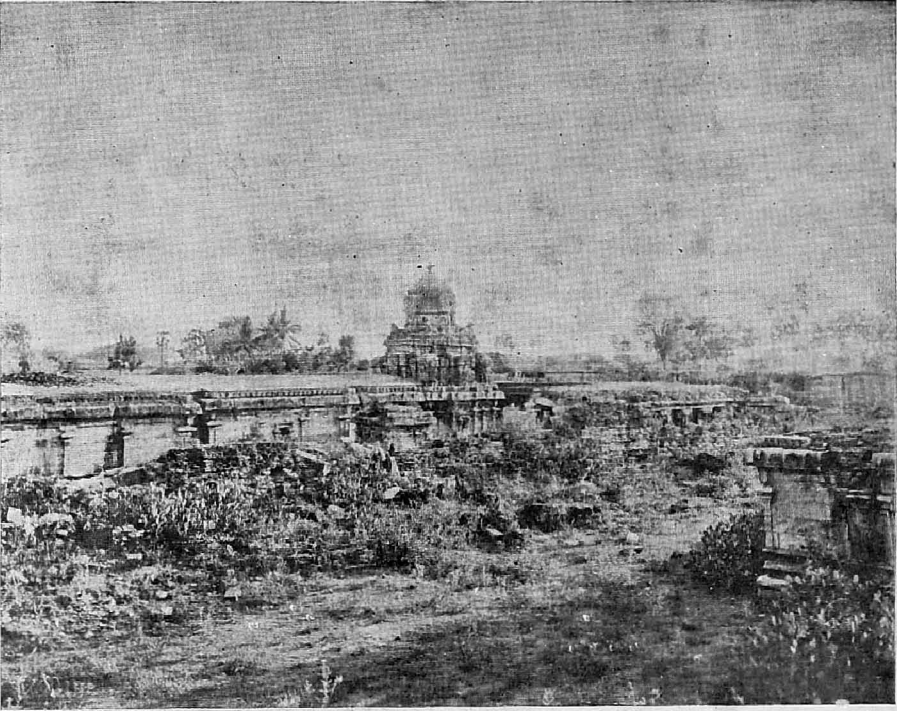
This was the stage of Kōpperunjiṅga's activities.

1. South Arcot District Gazetteer, page 6.

2. 68/1903.

3. “Vēndaṛ kandariyā viṇṇipuriśaic
Śēdamangalacceḷumpati.”

“வேந்தர்கண்டறியா விற்றிண்புரிசைச்
சேந்தமங்கலச்செழும்பதி”



[*Copyright, Archaeological Survey of India.*]
Āpatsahāyēśvara Temple, Śēndamangalam.



[Copyright, Archaeological Survey of India.]

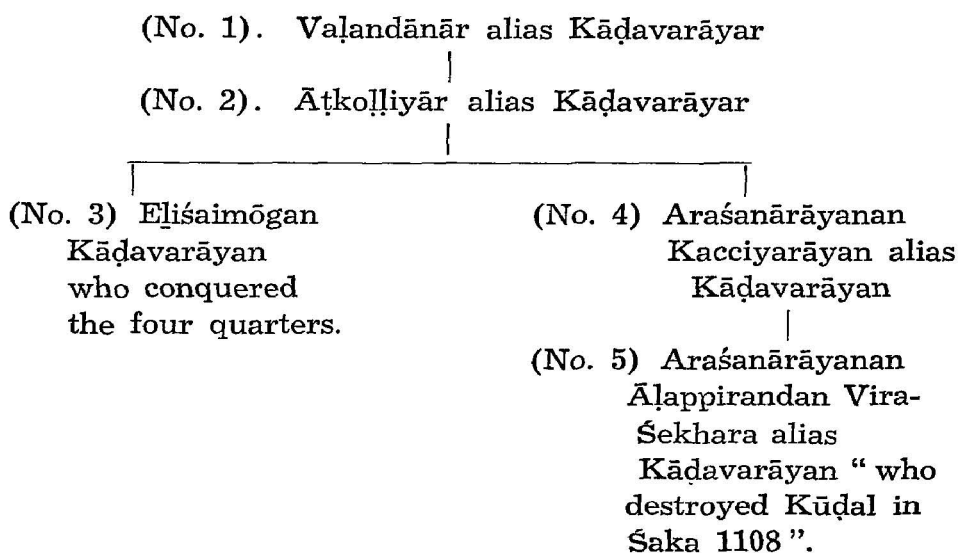
A *Nāṭya* pose with inscribed label—
one of the decorative sculptures of
the East Gopuram, Chidambaram.

CHAPTER IV

KÖPPERUNJĪŅGA AND HIS PLACE AMONG THE KĀḌAVĀS

Before taking up the career of Köpperunjiṅga, it is necessary to fix his place among the various Kāḍavā chiefs of this age. Of the various records about the Kāḍavās who figure in the later Cōla period, there is one record which can be definitely attributed to the ancestors of Köpperunjiṅga. It is the inscription from Vrddhācalam (74 of 1918) consisting of Tamil verses by various authors which has been engraved on the Gandharadittan Gateway under the orders of Arśanārāyanan Ālappirandan Viraśēkhara alias Kāḍavarāyan. It gives his genealogy and mentions his destruction of Kūḍal and his conquest of the region round about belonging to Karkaḍaga Mārāyan and the Adiyaman. A copy of the same inscription is found at Tiruveṇṇainallūr (463 of 1921). This family represents a race of warriors.

The following is the genealogy found therein :



As these members belong to the Kāḍava race and the last member of this genealogy claims the capture and destruction of Kūḍal in 1186 A.D., and as Köpperunjiṅga claims to have inherited the legacy of the achievement of Kūḍal by prefixing it to his name as the chief exercised power over the very region later on ruled by Köpperunjiṅga, and as the further claim that he was born a king in order that Tamil might flourish in the land is in keeping with the greatness of the members of this genealogy who are both

warriors and patrons of Tamil, it may be presumed that these chiefs are the ancestors of the later Kōpperunjiṅga. The chief No. 5 and Kōpperunjiṅga's son claim the flag of Monkey.

Note. "Anumanum porittān"—74 of 1908—"Nilaiuñ-kurangum vijaya-mumtittiya"—of Tiruvannāmalai record.

No. 1. Aḷagiya Vaḷandān alias Kāḍavarāyan.

There is a Tamil verse composed in honour of Vaḷandānār alias Kāḍavarāyar which contains the eulogy of the military achievements of Aḷagiya Vaḷandān. He claims to have driven the *Singalar* (the Ceylonese) to the sea and forced the *Gangas* (Kangarkaḷ) retire to the region of the hills.

No. 2. Āṭkolliyār alias Kāḍavarāyar son of No. 1.

The verse composed in his honour records that Āṭkolli Kāḍavar Kōn was so powerful that he let loose his netting elephants in all directions and that many crowned heads came round the streets of his capital accompanied by the jingling sounds of their chains.

No. 3. Ēḷisaimōgan (Mōgar) alias Kāḍavarāyar who conquered the four quarters, the son of No. 2.

The verse describes the terror of his arms, (Chiefly his elephants — ?) to the enemy kings.

No. 4. Araśanārāyanan Kacciyaarāyan alias Kāḍavarāyar, younger brother of No. 3.

There are two verses in praise of this chief. They say that his sway — "āṇai"— spread from Mēru in the north to the Malaya mountains in the south.

Formerly he conquered the three hills of the three Tamil Kings — 'Mummalai'. Then he destroyed Vātāpi which belonged to the fierce *Iraṭṭars* (i.e. Rāṣṭrakūṭas). Lastly he captured the hill of *Pinnī*. It is not possible to say definitely that the three conquests refer to the achievements of this chief or whether it embodies those of the early Pallava Kings. It may be a reference to Narasimha Varman who destroyed Vātāpi. Even then it was Vātāpi of the Cāḷukyās not of the Rāṣṭrakūṭas. Lastly, this chief conquered the *Pinnī* hill. We are not in a position to say what hill is meant by it and where it is. But it may be mentioned that the Vāya'ūr verses

called Kōpperunjiṅga the lord of *Pinni* washed by the sea (*Kadaṛ-pinnikāvala*). It should be located in *Toṇḍaināḍu* and it should be a hill near the sea.

No. 5. *Araśanārāyanan .Āḷappirandān Vīraśēkaran alias Kāḍavarāyar* son of No. 4.

Says the prose passage, "This chief started *westwards* from the gate of *Gaṇḍharādittan* in the latter part of the month of *Āḍi* in Śaka year 1108, destroyed *Kūḍal* of *Karkaḍamārāyan*—(No. 588 of 08 ;—*Tiruppathur*—38th year of *Tribhuvana Vira deva*, i.e., *Kulōttunga III*. It refers to a gift of a gold ornament by this chief who is said to be a subordinate of *Kulōttunga Vāṇa Kōvarayar*. No. 214 of 03—*Guḍimallam*—19th year of *Rājarāja deva*—*Karkaṭarāya* built a well for the sacred bath—We are not sure if No. 359 of 1919 mentioning *Mahārājan Rājadevan* also refers to this chief.)—and the land of *Adhigaman* and raised the flag of victory and engraved the Monkey (*Hanuman*)."

In the three stanzas devoted to him, we are told about his victory over the northern kings.—*Vaḍamannar* and his great power is praised in hyperbolical language that he walked over the seven worlds, his army passed to the ten directions, and his umbrella was spread over the world—' *Aṇḍakūḍam* '.

The destruction of *Kūḍal* of *Karkaḍamārāyan* seems to be the greatest achievement of this chief and ever since "*Kūḍal-Āḷappirandān*" appears as a prefix to the names of his son and grandson, a title in which they took great pride.

Which is *Kūḍal* destroyed by him ? According to this inscription, we have a clue as to its location—but it is not very conclusive. We are told that he advanced westwards from the gate of *Gaṇḍharadittan* and destroyed *Kūḍal* of *Karkaḍamārāyan* and the land of the *Adhigaman*, a region to be located on the borders of *Arcot* and *Salem* districts. The gate may refer to that of his palace, wherever it might have been or more probably the temple tower of *Tiruveṇṇainallūr* or *Vrddhācalam*. So this cannot be *Cuddalore* (contra see 1913 Report). There is a place called *Kūḍalur* in *Kāḷḷakuricci Taluq* and it is west of *Tiruveṇṇainallūr* and Northwest of *Vrddhācalam*. And further *Kūḍalur* is said to be in *Kiḷ Āmūr Nāḍu* ; we also find a town called *Āmūr* in *Tirukkōyilur Taluk*. (See 307 of 10—*Āmūr* in *Tirumunaippāḍi Mēl Āmūr Nāḍu* ;

83 of 18—*Tirumunaippāḍi Kiḷ Āmūr Nāḍū*.

73 of 18—*Kūḍal* in *Kiḷ Āmūr Nāḍu*).

Owing to its proximity, Kūḍal might have been in Āmūr Nāḍu. Further, the wild hilly region of Kaḷḷakuricci should have been in possession of a powerful Cōḷa feudatory, who was ready to assert his independence at the exhibition of the least sign of weakness of the central government. The next campaign referred to in the record is against the Adhigāman—perhaps of Argalur or of Tagaḍur (modern Dharmapuri). If so after the destruction of Kūḍal, the chief should have taken the famous Āttūr pass in the Eastern ghats leading from the modern Salem to South Arcot district.

There is another Kūḍal (Gūḍalūr) on the banks of the Veḷḷār, west of Pennāgaḍam in the Vrddhācalam taluk, and is southwest of Vrddhācalam. This also satisfies the requirements of the case. Therefore considering all these facts, it is likely that Kūḍal whose destruction was of sufficient importance and magnitude as to make the victor and his descendants take a legitimate pride by using it as a prefix to their names should be one of the two places mentioned above. Owing to the lack of further details, we are unable to fix the identification in a more definite way.

To this last named Kāḍava chief (No. 5) should be attributed the following inscriptions :

1921—477—3rd year of Kulōttunga III.

1921—479—3rd do. do.

1921—391—8th do. do.

1921—467—8th do. do.

1921—254—11th do. do.

The first of these states that the 'Gopura' was erected by Kūḍal Mogan Ālappirandān Araśanārāyanan *alias* Kāḍavarāyan in the 3rd year of Kulōttunga III (477 of 21). Araśanārāyanan Pallavarāyan of Śēndamangalam an Agambaḍi Mudali of Uḍaiyār Kāḍavarāyar (perhaps to be identified with chief No. 5) makes a gift of cows for the God's sacred bath in the third year of Tribhuvana Vīra Rājendra, i.e., Kulōttunga III, (479 of 21). Evidently the title Araśanārāyanan of the Mudali was assumed after his master's name. Again in the eighth year of Kulōttunga III, Kūḍal Araśanārāyanan *alias* Ālappirandān Kāḍavarāyan presents a jewelled necklace to Tiru-Vīraṭṭānam Uḍaiyār at Tiruvadi (391 of 21). Another inscription from Tiruveṇṇainallūr in the eighth year of Kulōttunga III records the gift of a silver pot weighing 50½

Kalañju for the God's sacred bath by Kūḍal Araśanārāyanan Ālappirandān alias Kāḍavarāyar. No. 254 of 1919 registers a political compact between Kūḍal Araśanārāyanan Ālappirandān alias Kāḍavarāyan (chief No. 5) and Śengeṇi Vira Śōlan Attimallan alias Kulōttunga Śōla Śambuvarāyan, whereby both swore that they would not do anything that would be detrimental to the interests of either and that the latter should not form any alliance with Ālappirandān Eḍirili Śōla Śambuvarāyan, that he should confine himself to certain specified tracts of country which if transgressed the Mudalis would send up arms and horses and cause him injury and that if Kāḍavarāyan allied himself with the relatives of Kulōttungā Śōla Śambuvarāyan and with Ālappirandān Eḍirili Śōla Śambuvarāyan, against the interest of Kulōttunga Śōlā Śambuvarāyan, he (Kāḍavarāyan would demean himself to the position of carrying the sandals of his enemies and of eating the chewed betel leaves thrown out from their mouths." Thus it is clear that the Pallava chiefs and the Śambuvarāyas were rising into importance in the days of Kulōttunga III and that Araśanārāyanan Ālappirandān Kāḍavarāyan destroyed Kūḍal and conquered and brought under his control a large part of the modern Arcot Districts.

There are two inscriptions at Atti (269 of 1914) and Mōrijonai (178 of 1921) which are Tamil verses, and it is believed they carry on this genealogy further by a generation.

Atti (269/1914 & 296/1912)

No. 5. Kūḍal Ālappirandān alias
Kāḍavarāyan.

|
No. 6. Pallavāṇḍār alias
Kāḍavarāyar who
conquered Tōṇḍai-
maṇḍalam.

Mōrijonai 178/1921.

No. 5. Kūḍal Ālappirandān

|
No. 6. Pallavāṇḍār alias
Virar Viran Kāḍavarāyar
who conquered Tōṇḍaimaṇḍalam.

It should be mentioned at once that the verse found in the Mōrijonai epigraph is only the third out of the 6 verses of *Atti*. The *Atti* verse is a eulogy of Pallavāṇḍār Kāḍavarāyar (chief No. 6) son of Kūḍal Ālappirandān (No. 5). The epigraphist holds that the former is Kāḍava II and is to be identified with Perunjiṅga deva (Mahārājasimha). The only ground for this identification is the use of the surname Kūḍal Ālappirandān assumed both by this chief and Kōpperunjiṅga the King. But that alone is not the deciding factor. This will be discussed later. He was a predecessor of the later Kōpperunjiṅga. It is said that this chief No. 6 killed a very large number of his enemies at Śēvūr (probably the modern *Mēl-Śēvūr in the South Arcot District*) and created "mountains of dead bodies and swelling rivers of blood", and it is this victory that made him Lord of Toṇḍaimaṇḍalam. We are not able to understand who the enemy was against whom the Kāḍava fought in the battle of Śēvūr. It might have been waged against any of the local chiefs of Toṇḍaimaṇḍalam. This chief is described as the Lord of the land of the Peṇṇai and Tirumala hills (Vaḍavēngaḍam) Kūḍal and Kacci (Kāñcipuram). His elephant corps played a decisive part in the war. According to the chronology and the genealogy adopted here, these two records do not belong to Kōpperunjiṅga the king. We have assumed that Kūḍal Ālappirandān of *Atti* and Mōrijonai inscriptions is identical with the donor Ālappirandān Araśanārāyanan of Vrddhācalam and Tiruveṇṇainallūr inscriptions discussed above.

Pallavāṇḍār of *Atti* verses and the victor of Śēvūr and conqueror of Toṇḍaimaṇḍalam may well be the father of Kōpperunjiṅga, the king, who in the latter's records is called Ālagiya Śīyan or Jiya Mahīpati. The *Atti* verses may therefore be the *praśasti* of the father of Kōpperunjiṅga. A chief with the name Kūḍal Ālappirandān Ālagiya Pallavan *alias* Kāḍavarāyan figures in an inscription of the 33rd year of Kulōttunga III and he is said to have confirmed some gifts made by his grandfather. This may also refer to the same person namely the father of Kōpperunjiṅga (63 of 1919—Munnūr). According to an inscription from Uratti—modern Oratti (271 of 1904), a fight is said to have taken place about 1223-4 A.D. between Vira Narasinga deva Yāḍavarāya and the Kāḍavarāya and a soldier whose heroism is commemorated in the record, is said to have fought and fell in a charge on the Kāḍavarāya. The Kāḍavarāya of this record may refer to Kōpperunjiṅga or more probably his father whose achievement according to the *Atti* verse (296 of 12) is the conquest of Toṇḍaimaṇḍalam.

Now let us take the Tripurāntakam inscription. It furnishes the following genealogy.

(6 ?) Jīya Mahīpati = Śilāvati

(7) Mahārāja Simha.

It is very unfortunate we are not told who this Jīya Mahīpati is. Mr. Venkayya has held that Jīya Mahīpati may be equivalent to Aḷagiya Śīyan and his son Mahārāja-Simha be identical with Sakalabhuvana Cakravartin Avani Āḷappirandān Kōpperunjiṅga deva who assumed regal titles. We may safely accept his view.

Till future research could establish any definite connection between Pallavāṇḍār alias Kāḍavarāyar and Jīya Mahīpati, father of Mahārāja-Simha of Tripurāntakam inscription, it would be impossible to elucidate this point. The probabilities seem to be that Jīya Mahīpati may be the son of Kūḍal Āḷappirandān and perhaps also identical with Pallavāṇḍār and Aḷagiya Śīyan.

The Theory of the two Kōpperunjiṅgas

Since the publication of the unimpeachable accounts of Hultzsch and Venkayya, a new theory of two regnant Kōpperunjiṅgas, like the theory of the Ganga-Pallavas has been advanced and it is necessary at this stage to examine carefully the arguments in support of it.

1. *1913 Report.* The first attempt to hazard a dual theory was made in 1913. In the Epigraphical Report of that year, two rulers called respectively Kāḍava I and Kāḍava II are postulated. Kūḍal Āḷappirandān alias Kāḍavarāyar of Atti verses is called Kāḍava I and his son Kāḍava II. In order to follow the discussion, let us quote the relevant paras of the report:—

(Annual Report for South Indian Epigraphy, 1913—Part II para 66)

*Kāḍava I and Kāḍava II, the Pallava Chiefs of Kūḍal
(i.e., Cuddalore)*

66. No. 296 of Appendix B contains a eulogy (in Tamil verse) of Pallavāṇḍār Kāḍavarāyar, son of Kūḍal Āḷappirandān Kāḍavarāyar. From the introductory passage in prose, we learn that the former (i.e. Kāḍava II) was the conqueror of the Toṇḍaimaṇ-

dalam. It has been recorded in the Annual Report for 1905—'06, paragraph 6, that Perunjiṅgadeva (Mahārājasimha) also bore the surname Kūḍal Avani Ālappirandān. The same person must apparently also be meant in the inscription under reference which gives to him the additional title Kāḍava. This attribute with the title Pallavāṇḍār given to Kāḍava II shows that the father and son both claimed Pallava descent. *Kāḍava II is apparently also to be identified with that son of Kūḍal Avani Ālappirandān Perunjiṅga, who is dated in a Tiruvannāmalai record (No. 480 of 1902) (also in verse) 'to have driven the Telungar to the north so that they may perish in the north'.* If Kāḍava I, was already the Lord of Kūḍal-avani and the protector of Mallai (i.e. Māmalla-puram or Seven Pagodas almost on the borders of Toṇḍaimaṇḍalam, there is no reason why his son Kāḍava II must have conquered the Toṇḍaimaṇḍalam once again. Perhaps the Telungas (Kākatīyas) who had occupied the Toṇḍai country in the time of Ganapati after taking possession of Conjeevaram, were actually expelled from that province, by prince Kāḍava II and driven even as far north as Drākṣarāma in the Godavari district. This inference is now confirmed from what is stated in the record under reference, viz., that Kāḍava II killed a very large number of his enemies at Śēvūr and created 'mountains of dead bodies and swelling rivers of blood'. The inscription affords no clue as to who the enemies were with whom Kāḍava fought the battle. Śēvūr is probably the present Mēl-Śēvūr in the Tiṇḍivanam taluka of the South Arcot District. One of the verses in the record states that Toṇḍai conquered by Kāḍava II included Peṇṇai Nāḍu and the Tirumala (Vaḍa-Vēṅgaḍa) hills. It appears, therefore very probable that while Kāḍava I may have been the *hereditary chief of Kūḍal country under Cōḷa supremacy*, his son Kāḍava II apparently asserted independence, and extended his father's dominion north and south. This Kāḍava II must have been identical with the Perunjiṅgadeva (Mahārājasimha) who captured and confined the Cōḷa King Rājarāja III at Sēndamangalam in the South Arcot District. One of the bloody and decisive battles fought either in driving the northerners from the Toṇḍaimaṇḍalam or in extending his dominions over 'farther south' in face of the combined efforts of Cōḷa and Karnataka (Hoysala) forces to stop it (as suggested by Tiruvēndipuram record (Ep. Ind. Vol. VII, p. 160 ff.), must have taken place at Śēvūr. Kāḍava's invasion of the north and south, beyond his hereditary dominion,—the Toṇḍaimaṇḍalam—could not have amounted to anything like the occupation of all that territory."

Here two Kāḍavas called respectively Kāḍava I and II are postulated. Kūḍal Āḷappirandān *alias* Kāḍavarāyar is called Kāḍava I in this Report and he is the person who conquered Kūḍal in Śāka 1108 equal to 1186 A.D. referred to in Vṛddhācalam and Tiruveṇṇainallūr records. Next Kāḍavā II has to his credit the achievement of the conquest of Toṇḍaimaṇḍalam as a result of his victory at the bloody battle of Śēvūr over some unspecified enemy. The Mōrijonai record which contains only one of the six verses of Atti—refers to the same persons thus—Pallavāṇḍār *alias* Vīrar Vīran Kāḍavarāyar who conquered Toṇḍaimaṇḍalam, son of Kūḍal Āḷappirandān.

Both these chiefs are different from Kopperuñjinga the King, but the Government Epigraphist holds the view that Pallavāṇḍār Kāḍavarāyar is Kāḍava II. And a further step is taken that this Kāḍava II is identical both with Perunjiñga (Mahārājasimha who bore the surname of Kūḍal Avani Āḷappirandān' and further "Kāḍava II is apparently also to be identified with that son of Kūḍal Avani Āḷappirandan Perunjiñga who is stated in a Tiruvannāmalai record (No. 480 of 1902 also verse) to have driven the Telungar to the north so that they might perish." The battle of Śēvūr is attributed to him and this battle is taken to have been in the course of the combined Cōḷa-Hoysala campaign against Kōpperunjiñga. Says the Report :

"This Kāḍava II must have been identical with the Perunjiñgadeva (Mahārājasimha) who captured and confined the Cōḷa King Rājarāja III at Śēndamangalam in the South Arcot District. One of the bloody and decisive battles fought either in driving the northerner from the Toṇḍaimaṇḍalam or in extending his dominions over farther south in face of the combined efforts of Cōḷa and Karnataka (Hoysala) forces to stop it (as suggested by the Tiruvendipuram record—(Ep. Ind. Vol. VII, p. 160) must have genealogy :—

This is confusion worse confounded. Three generations of chiefs are "short-circuited" and the result is a *reductio ad absurdum*. It is impossible to find such a string of inconsistent statements anywhere else in the whole set of Epigraphical reports. The stand we take on this question may be indicated in the following genealogy :—

- (1) Kūḍal Āḷappirandān alias
Kādavarāyar
destroyer of Kūḍal-
Conqueror of Adhigaman.
- |
- (2) Pallavāṇḍar alias (Atti verse)
Kādavarāyar. (296 of 12.)
Victor of Śēvur who
conquered *Toṇḍaimaṇḍalam*.
(Perhaps identical with
Aḷagiya Śīyan or Jiya Mahīpati)
- |
- (3) Kūḍal Avani Āḷappirandān
Kōpperunjiṅga alias
Mahārājasimha—the king.
- |
- (4) Kāḍava Kumāran
(Son of the Kāḍava) who caused
the Telungar to perish (according
to Tiruvannāmalai verses 480 of '02).

The achievements of chiefs 2, 3 and 4 are claimed by the Epigraphist for one and the same person—an impossible position.

There is another passage that needs to be considered. "If Kāḍava I was already the lord of Kūḍal-avani, and the protector of Mallai (i.e., Māmallapuram or Seven Pagodas) almost on the borders of *Toṇḍaimaṇḍalam*, there is no reason why his son Kāḍava II must have conquered the *Toṇḍaimaṇḍalam* once again". "Kāḍava I" claims only to have destroyed Kūḍal. but how he became protector of Mallai and *Toṇḍaimaṇḍalam* as stated above is not easy to follow. The Battle of Śēvūr in which Pallavāṇḍar gained victory and won *Toṇḍaimaṇḍalam* is different from the war of the son of Kōpperunjiṅga against 'the northern Telungar'.

It is a sheer waste of time to consider this theory further. The best thing to do is to ignore this view altogether.

(2) In the Epigraphical Report for 1921-'22 the original theory was given up and a new theory was postulated. The reasons given therefor may be set down below. The report says "The later Pallava Kōpperunjiṅga deva figures both as a subordinate of the Cōḷas in the records of Tribhuvana Cakravarti Kulōttunga Cōḷa deva III under the name of Kūḍal Āḷappi-

randān Araśanārāyanan ālias Kādavarāyan (No. 391 of 1921) and later on as an independent sovereign who issued grants in his name From the 8th year of the reign of Kulōttunga Cōla deva III (1185 A.D.) wherein Avani Ālappirandan figures to an independent KōpperunjiŅga whose highest regnal year as hitherto discovered is 35. Corresponding to 1277 A.D. on the calculation that he ascended the throne in 1243 A.D. there is an interval of over 90 years, which is an impossibly long reign for a single sovereign."

It may be remarked in passing that "the highest regnal year as hitherto discovered" is 36, not 35. Further the inscription 391 of 1921 of the 8th year of Kulōttunga is a gift by Kūḍal Arasanārāyanan alias Ālappirandān Kādavarāyan. (8th year Kulōttunga, Tiruvadi). There is also another gift by the same donor at Tiruveṇṇainallūr (467 of 1921). There is really no evidence to show that Kūḍal Araśanārāyanan *alias* Ālappirandān is the same as Kūḍal Avani-Ālappirandān alias Aḷagiya Śiyan KōpperunjiŅga. Really they are not so. It will be seen from the scheme of genealogy that has been adopted by us, the donor of the grant of Tiruvadi (391 of 1921) and of Tiruveṇṇainallūr (467 of 1921) should have been an ancestor of the more famous KōpperunjiŅga. If we leave out these records as not belonging to KōpperunjiŅga, there is no interval of 90 years. The earliest reference to KōpperunjiŅga may be taken to be the Tiruveṇṇainallūr record of the 35th year of Kulōttunga III (487 of 1921). In this case there will be an interval only of 66 years between 1213 and 1279 and therefore the objection on the ground of an impossibly long reign for a single sovereign falls to the ground.

(3) 1923 Report.—Again in the Epigraphical Report for 1923, it is stated that "KōpperunjiŅga of Tiruvēndipuram inscription (142 of 1902 of the 16th year of Rājarāja III) is identical with Aḷagiya Śiyan Avani Ālappirandān rebel against the Cōla in 1221-22 A.D. but is different from Mahārājasimha of Tripurāntakam, son of Aḷagiya Śiyan or Jiya Mahīpati." We are not told on what grounds this inference has been made. Let us examine the two records.

The Tiruvēndipuram record furnishes the following particulars :—

(1) That the Cōla Emperor Rājarāja III was defeated and shut up a prisoner, by KōpperunjiŅga at his capital at Śēdamangalam.

(2) That Kōpperunjiṅga had an officer and was called 'Sōlakōn'—who was staying at Toḷudagaiyur to oppose the march of the Hoysala army.

The Tripurāntakam record gives us the following particulars :—

(1) That he had the title of (Sarvajña Kaḍgamalla—the equivalent of the tamil expression 'Vālvalla Perumal' of Tiruvannāmalai inscription.

(b) *Avaniyavanasambhava*—the King born to rule the earth—the equivalent of the Tamil 'Avani Ālappirandān.'

(c) the title of *Niśśankamalla*.

(d) the pilot in the ocean viz., the science of dancing (Bharata) of pure fame.

(2) That he was "like a bee in the lotus—viz., the feet of the Lord of the Golden Hall—i.e., Cidambaram and that he constructed in his own name with the wealth collected for their enjoyment by the heroic chiefs of the country round the daughter of Kavera (Kaveri) a tower (high) as Sumeru (mountain) on the east side of the Golden Hall".

A large number of inscriptions chiefly those at Cidambaram mention Sōlakōn as signatory to the gifts. 'Sōlakōn Ōlai' from the third to the 19th regnal years—3rd year 462 of 02, 465 of 02, 466 of 02, 85 of 18.

5th year—459 of 02, 464 of 02

6th year—296 of 13

7th year—305 of 13—304 of 13

8th year—460 of 02—Perumāḷ Pillai alias Sōlakōn.

9th year—318 of 13.

10th year—312 of 13

11th year—80 of 18

12th year—302 of 13, 326 of '13

16th year—467 of 02, 468 of 02, 432 of 24

(Śri Kailāsam Udayār alias Sōlakōn Pallavarāyar) 468 of 02.

19th year—319 of 13

These records should all be attributed to Kōpperunjiṅga 'of the Tiruvēndipuram record'. Further most of the Cidambaram records are gifts to the God and Goddess of Cidambaram, devotion to whom is referred to also in the Tripurāntakam record. The epithet Niśśankamalla is common both to the Tripurāntakam re-

cord and the Tiruvannāmalai verses. Kōpperunjiṅga of Cidambaram inscriptions is identical with that of Tiruvannāmalai verses. And among other *birudas* of his found at Tripurāntakam, Sarvajña Kaḍgamalla is found at Āttur and Tiruvakkarai and its Tamil equivalent Vālvallaperumāl is found at Tiruvannāmalai; and that of Bharatamalla at Āttur, Drakṣārāma and Tiruvannāmalai. Further granting there were two chiefs on what basis shall we assign the several records ranging from the 2nd to the 36th regnal year? This is not stated, nor has any attempt been made in that direction by those who postulate two Kings of the same name. Again the three *birudas* applied to the King of the Tripurāntakam records are also found in other records.

Sarvajña-Khaḍgamalla.

286 of 21—5 year—Āttur.

191 of 04—Tiruvakkarai.

Bharatamalla

286 of 21—5th year—Āttur.

419 of 1893 (*Nāṭṭyākkya Vēdām bhudhihi*)

Avaniyavanasambhava

419 of 1893—Drakṣārāma.

Niśṣankamalla—480 of 02—Tiruvannāmalai verses.

The name Śokkacciyan appears both in Vāyalūr verses and two of his Cidambaram records.

Both in the Drakṣārāma and the Tripurāntakam Sanskrit records the king is called Mahārājasimha which is more or less the Tamil equivalent of Kōpperunjiṅga. Thus it will be clear that on account of the oneness of achievements, title, and the king's officers who figure in the grants, these records are best explained on the basis that they have all to be assigned to one ruler—rather than two.

4. *Mr. Ranga Chari's view.*—The view of Mr. V. Ranga Chari will be clear from the following extracts from his Topographical List of Inscriptions :—

(1) “136 of 1900—Vrddhācalam—14th year of Rājarāja—Gift by “Ediri-gaṇāyan Pottappi-c-cōlan,” one of the bodyguard chiefs (Agambaḍi mudali) of the Pallava king Kōpperunjiṅga.”

This inscription shows that in 1229 he was still loyal to Rājarāja III. He was to rise against him in 1231 (S. A. 329).

Dr. Hultzsch says that he reascended the throne in 1243, but he who came to the throne in 1243 was another man, his son, in all probability." (See Ep. Ind. VII pp. 163-4).

p. 253, No. 1085—South Arcot Dist.—Topographical List Vol. I.

(2) No. 329—142 of 1902—p. 168.

"As 136 of 1900 distinctly says that in 1229 Perunjiṅga was a loyal vassal, Dr. Hultzsch ascribes the present rising to between 1229 and 1232, Perunjiṅga regained his power afterwards as No. 33 of 1890 at Conjeevaram says he ascended the throne in 1243. His epigraphs are very numerous in Tamil country, and one is as far north as Drākṣārāma (419 of 1893) which refers to his conquests sung by himself."

(3) No. 223—155 (115 ?) of 1904-p. 157, Tamil verse—Mentions Kāḍavar Kōn and records a remission of taxes. (The king might be Kōpperunjiṅga or his father who are called by the Government epigraphist Kāḍava II and Kāḍava I respectively. See Ep. Rept. 1912 pp. 126-7).

Hultzsch says that his accession is to be placed in 1243 A.D. not that he re-ascended the throne in that year. There is nothing improbable in a chief being loyal in 1229 A.D. and ascending the throne after revolt in 1243 A.D. This hardly proves the dual theory. He has no independent arguments except those of the Government epigraphist which have been already disposed of.

(5) *Sewell's view examined*.—Another scholar of great repute who has adopted this dual theory is the late Robert Sewell. In his posthumous work, published by Dr. S. K. Ayyangar, we find the following remarks. (Historical Inscriptions of Southern India p. 376 Genealogical Tables).

"The name of the elder Perunjiṅga (if there were two) was Aḷagiya Śīyan Avaniyāḷa-p-Pirandān Perunjiṅga. He appears to have revolted against his sovereign the Cōḷa king Rājarāja III about 1221 A.D. A battle was fought at Tellāru. The Hōysala king Naraśimha II intervened and saved the Cōḷa throne and put down the rebellions, after which Perunjiṅga returned to his allegiance a record at Vrddhācalam of 1229 A.D. (136 of 1900) speaks of Perunjiṅga as an officer under Rājarāja Cōḷa III." About the so-called Perunjiṅga I see also entry under date 1231, p. 140. 'About A.D. 1231 Perunjiṅga (possibly the son, but possibly the same) again revolted and made prisoner of his suzerain Rājarāja Cōḷa, carrying him to his own town Śēndamangalam. In 1243 A.D.,

the second Perunjiṅga (if there were two of the same) had himself crowned as a king, between May 9 and 13 in that year, under the title "Avanyavanōdbhava Rajasimha."

Sewell has stated the case in a very cautious way. He is very doubtful as to the position—and is not definitely in favour of the 'dual' theory—He has no proof to offer in order to substantiate the dual theory. So he rests content with a vague guess. "There were possibly, as has been suggested in E. R. 1923, p. 96 two chiefs of the same name, father and son". He has no fresh arguments except those of the Government epigraphist embodied in the 1923 report. This has been already examined by us.

We shall now consider what Sewell says about the same person in the body of the text. On page 147 the entry under date 1249 runs thus, "Inscription in Tanjore District of Perunjiṅga Pallava I on *July 30, 1249* in his 18th year. As there has been good evidence that Perunjiṅga II became chief in 1243-44, (above S.V. A.D. 1247), this must be a record of Perunjiṅga I, living in his 18th year but retired (V. R. II—Tan. 346; 135 of 1895—E.I., VII, 165)."

Evidently this is the record which has puzzled Sewell. If there was only one Kōpperunjiṅga, and if his accession was in 1243 A.D., how can we account for this record whose 18th regnal year falls in 1249 A.D.? Therefore there should be Perunjiṅga I whose accession may be about 1231 A.D. and he lived at least up to his 18th regnal year—but meanwhile Perunjiṅga II ascended the throne about 1243 A.D. This is the position of Sewell.

But unfortunately, even such a careful and painstaking scholar like Sewell has proceeded on wrong premises and arrived at unsound conclusions. If we refer to E.I.VII, we find that the date of the inscription No. 135 of 1895 found in the Mahālingasvamin temple at Tiruviḍaimarudūr is the 18th year of Sakalabhuvana Cakravartigaḷ Śrī Kōpperunjiṅga, and Kielhorn held the view that "The third date (c)—i.e., the above inscription is incorrect."

But by an oversight perhaps Mr. Ranga Chari has made a mistake by assigning the 18th year to "30th July 1249"—which is the date of 'B'—of the 7th regnal year of the Tiruveṇṇainallūr record (No. 320 of 1902)—which is perfectly correct. The wrong entry of Mr. Ranga Chari in his Topographical List will be patent by quoting the relevant passage.

“A record in the 18th year of Sakalabhuvana Cakravartin Kōpperunjiṅga Deva—Records gift of land—see E. I. Vol. VII, p. 165 where Dr. Kielhorn calculates the exact date to be Friday the 30th July A.D. 1249.” (V.R.II.—Tanjore District—Tiruvīḍaimarudūr—No. 346—135 of 1895).

It is a pity that an expert on astronomical calculations like Sewell, has been led to this error by his reliance on a secondary source of reference. Had he only verified the correctness of the data of Mr. Ranga Chari, he would not have come to this conclusion and his theory of two reigning Kōpperunjiṅgas, wedged in by a number of possibilities, would have been avoided. So even the hypothesis of Sewell is not supported by facts.

Thus, it follows that all the various theories put forward do not stand scrutiny and in the absence of more reliable data and unimpeachable arguments, it is safe to proceed on the assumption of a single Kōpperunjiṅga who began his accession in 1243 A.D. and had a reign of at least 36 years.

Vrddhācalam Inscription 74 of 1918

விருத்தாசலம்

ஸ்வஸ்திஸ்ரீ அரசநாராயணன் ஆளப்பிறந்தான் வீரசேகரனான
காடவராயர் கண்டராதித்த வாசலில் கல்வெட்டுவித்தபடி.
(சந்தவிருத்தம்.)

1. வரிவளை பொலம்பூண் கொடுத்த மங்கையர்

மயலுறு மனந்தான் துடக்கு கின்றன
மதிகதி நிரண்டா(டு)ங் கொண்டாங் கெனச் (சிறந்தொ)ளிர்
வயிரமு மிசைந்தாங் கிட்ட(டுச்) சிறந்தன
பரிமள தளந்தான் சமைத்த குங்குமம்
பரிவொடு பசஞ்சாந் தெழக்க மழ்ந்தன
பலிகொள விற்றாந் குமிக்க சிங்களர்
பரவையில் விழுந்துங் கெடத்தொ டர்ந்தன
கரிபரி யுடன்சேர்ந் தெடுத்த கங்கர்கள்
கருவரை யிடந்தான் புகக்க டந்தன
கனலெனவுகந்தான் சுடத்தொ டங்கிய
கலிவலி பிலந்தான் புகத்து ரந்தன
அரிபெற விரந்தான் தடக்கை யொன்றினில்
அகலி டமு கந்தான் புனற்சொ ரிந்தன

அவிர்தகை நெடுஞ்சாரங் கிடக்கை கொண்டன
அழகிய வளந்தான் திருப்பு யங்களே.
(இதுவளந்தானாரான காடவராயர்கவி.)

(கொச்சகக்கலிப்பா)

2. அலங்குலவும் வயற்பெறுகை யாட்கொள்ளி காடவர்கோன்
பலங்குலவும் மதயானை பதநிகளம் விடுகின்றான்
இலங்குமணி முடியரசர் யார்கொலோ விணையடியில்
விலங்குகலின் கலினென்ன வீதிதொறும் வருவாரே.

(இது இவர் மகனார் ஆட்கொள்ளியரான காடவராயர் கவி.)

(வெண்பா)

3. பொருகாம னம்பு புகுந்துயர்மே லன்றிச்
செருகா விடையாமஞ் செல்லா—தொருகாலும்
பாகை(கர்க்) கனலியானைக் கண்டு பணிந்தானே
மோகர்க்கவ் வந்திபடா முன்.

(இது இவர்மகனார் நாலுதிக்கும் வென்றாரான ஏழிசைமே மாகன்
காடவராயர்கவி.)

(கலிவிருத்தம்)

4. துடக்கு மாரன் சொரிசரப் பாயன்மேற்
கிடக்கு மிவ்வுல கென்பதுங் கேட்டுமே
வடக்கு மேருவுந் தெற்கு மலையமுங்
கடக்கு மாணையான் கச்சிய ராயனே.

(வெண்பா)

மும்மலை முன்பெறிந்தாய் பின்பு முரணிரட்டர்
தெம்மலை வாதாவி சென்றெறிந்தாய் —மெய்ம்மைச்
செருவரசேய் பின்னிச் சிலம்போ வெறிந்த
தொருவரைசே மேனா னுடன்று.

(இது இவர் தம்பியார் அரச காராயணன் கச்சியராயரான
காடவராயர் கவி.)

5. இவர்மகன் சகரர் யாண்டு ஆயிரத்தொருநூற்றெட்டினால் ஆடிமாஸ
த்துப் பிற்பத்தில் கண்டராதித்தன் வாசலுக்கு மேற்கே புறப்பட்டுக் கற்கடக
மாராயன் கூடலும் அதியமானும் அழித்து வெற்றிக்கொடி உயர்த்து அனு
மனும் பொறித்தான். ஆளப்பிறந்தான் வீரசேகரனான காடவராயன்.

(கட்டளைக் கலித்துறை.)

பாரள வல்ல பணைத்தோ ளளவு பகலவன் பொற்
தேரள வல்லரின் செங்கோ ளளவு திகிரிச்செங்கை
காரள வல்ல பரவீர சேகர காடவரின்

போரள வல்லவன் வாம் பரிவேந்தர் புறத்தளவே.

தாரார் மணிப்புயந் தண்ணந்துழாய்மண நாலுஞ்சந்தக்

காரார் திருநிறஞ் செய்யாள் திருமண நாலுங்கச்சி

ஆரார் திகிரிக்கை யாளப் பிறந்தாற் கசஞ்சலற்குப்

பாராள் வடமன்னர் பொன்முடி நாலும் பதாம்புயமே.

விடையள விட்ட கொழிவீர சேகர காடவரின்

நடையள விட்டது ஞாலங்க ளேழையும் வாழ்நின்பொற்(போர்ப்)

படையள விட்டது பத்துத் திசையும் பரியமுத்தக்

குடையள விட்ட திருசுடர் சூழண்ட கூடத்தையே.

ஸ்வஸ்திஸ்ரீ இக்கல் வெட்டழிப்பான் வல்லவரையன் சத்தியம்.

Atti verses 296 of 1912

அத்தி - பாட்டுக்கள்

ஸ்வஸ்திஸ்ரீ கூடல் ஆளப்பிறந்தானை காடவராயர் மகனார்

தொண்டை மண்டலங் கொண்ட பல்லவாண்டாரான

காடவராயர் கல்வெட்டு.

(கட்டளைக் கலித்துறை.)

1. தங்கோ நகர்பெறத் தம்புவி தாம்பெறத் தான்வணங்கிச்
செங்கோல் வளைக்கை யரிவைய ரோடும் அடியுங்கையும்
பங்கே ருகமன்ன பல்லவன் காடவன் பார்முழுதா
ளெங்கோன் னுபயபதந்தோளிடாமன்ன ரெம்மன்னரே.
2. பொருதிக்கி லுஞ்சென்று போர்வென்ற பல்லவன் காடவர்கோன்
கருதிப் பொரச்சென்று சேலூரி னிற்றிருக் கண்சிவக்கப்
பருதிக்கு மேலு முயர்பிணக் குன்றிற் பரந்திழிந்த
குருதிப் புனல்தொண்டை நன்னா டடங்கலுங் கொண்டதுவே.
3. கூராழி யேந்திய பல்லவற் குக்கூடல் மன்னவற்குப்
பாராழி சூழந் திசைபரிக் குப்பந்தி பண்டடைந்த
நீராழி வேழங்க ணீராடு மாமடு நின்ற கொற்றப்
பேராழி வெற்பிவன் செங்கோல் நடக்கும் பெருவழியே.

4. தொழுதிய லாமன்னர் தொண்டைத் திருநாடு கொண்டவருர்
கழுதிய லக்கண்ட காடவன் பல்லவன் காசினிமேற்
பழுதிய லாத்தனிச் செங்கோல் நடாத்திய பாரகஞ்சென்
றெழுதிய தூணங்க ளெண்டிசை யார்குல வேழ்கிரியே.
5. கைம்மலை வெள்ளக் கடற்படைப் பல்லவன் காடவர்தஞ்
செம்மலை வந்து பணியா வடமன்னர் சேனைவிட்டுத்
தம்மலை விட்டுப் புறமலை வேலித் தலத்துளஞ்சா
தெம்மலை யெச்சரத் துப்புரு வார்புக் கிருப்பதற்கே.
6. வண்டற் புனற்பெண்ணை நாடுடை யான்வடவேங்கடவெற்பன்
தொண்டைத் திருநாடு தோள்வலி யாற்கொண்ட தொண்டைமன்னன்
கண்டற் கடற்கச்சிப் பல்லவன் காடவன்காரிருளிற்
பண்டைப் பிறமன் னவர்க்கன்பி லாப்பொற் பதாம்புயனே.

இக்கல்வெட்டழிப்பான்தான் வங்சத்துத்தன்
பிதாவுக்குப் பிறவாதான்

Mōriṇonai—178 of '21.

ஸ்வஸ்திஸ்ரீ கூடல் ஆளப்பிறந்தார் மகனார் தொண்டை மண்டலங்
கொண்ட பல்லவாண்டாரான வீரர் வீரன் காடவராயர் தான(ங்)

[This is only the 3rd verse of *Attī*.]

Munnūr—S.Arcot.—63 of 1919—

33 year—300th day—(of Kul. III).

Munnūr alias *Rājanārāyaṇa Caturvedimangalam*.

Kūḍal Ālappirandān Āḷagiya Pallavan alias Kāḍavarāyan granted the gifts of devadana lands as per gifts made in the days of his grandfather.

ஸ்வஸ்திஸ்ரீ திருபுவனச் சக்கரவத்திகள் மதுரையும் ஈழமும்
கருவூரும் பாண்டியந் முடித்தலையுங் கொண்டு வீர அபிழ் செகமும்
விசெய அபிழ் செகமும் பண்ணி அருளிய சீ திரிபுவன வீரதேவற்
க்கு யாண்டு முப்பத்திமுன்னுவது முன்னூறன் இராசநாராயணச்சதூர்
வேதி மங்கலத்து ஆடவல்ல நாயநார் தேவதானங்கள் பாட்டந் கல்வே
ட்டி விட்டு வந்தபடி யேய் விட்டேன் கூடல் ஆளப்பிறந்தான் அழகியபல்
லவநான காடவராயனேன்.

CHAPTER V.

KÖPPERUNJĪŅGA—THE KING.

His parentage

Sakalabhuvana Cakravartin Avani Ālappirandān Kōpperunjiṅga deva was the son of Jiya Mahīpati, who may be identical with Āḷagiya Śīyan of Tamil inscriptions and Śīlāvati.⁴ His natal star was Tiruvōṇam.⁵

His Real Name

There has been some controversy whether his name is Perunjiṅga or Kōpperunjiṅga. Sewell, for example, has adopted the form of Perunjiṅga. He remarks, "Mention has been made of Kōpperunjiṅga, the Pallava chief of Śēndamangalam in South Arcot whom I shall, in future, call simply Perunjiṅga, 'Ko' being a prefix signifying royalty."⁶ The term Kōpperunjiṅga seems to be more probable. The Tiruvēndipuram record refers to him as Kōpperunjiṅga.⁷

This testimony from the side of the enemies clearly shows that his name was Kōpperunjiṅgan. Further a record from Āttur is styled an order of Kōpperunjiṅgan—"Kōpperunjiṅgan Olai."⁸ If his name had been only Perunjiṅga, there is every probability of his being called as such in this record. Further if, 'Ko' is only a prefix, then 'perum' meaning big is also a prefix; and his real name should then be 'Singa' (-lion). He was a lover of high

4. 197 of 1905.

5. 170 of '18— "ஆட்டைக்கு ஒரு திருநாள் ஆவணித்திருநாளாந நாம் பிறந்தநாள் திருவோணம் தீர்த்தமா (டி?) எழுந்தருளப்பண்ணவும் அழகிய பல்லவன் சந்தி என்று நாள் ஒன்றுக்கு பதக்கு அரிசி அமுதுப்படி செல்லவும் அமுதுபடிக்கும் திருநாளுக்கும் வேண்டும் உடல் நீக்கி நீக்கி நின்ற உடல் கொண்டு திருப்பணி செய்வதாகவும் சொன்னோம்"

6. p. 140 of Hist. Ins. of S. India.

7. 142 of 1902.

L. 2. "Cōḷa cakravarthiyai . . .

Kō(pp)erunjiṅgan(ś)ēndamangalattā piḍithu."

L. 5. "Kōpperunjingan—irunda."

L. 9. "Śēndamangalatte eduttuvidappu (ppō) gira aladi (vi) lē Kōpperunjingan Kuḷaindu."

8. 286 of 21.

sounding names and titles, and there is nothing improbable if we assume his name to be Kōpperunjiṅga whose almost identical Sanskrit equivalent was Mahārājasimha.

Titles of Aḷagiya Śīyan and Aḷagiya Pallavan

We have already seen that Aḷagiya Śīyan might have been the father of Kōpperunjiṅga. But that he had the term 'Aḷagiya Śīyan' prefixed to his name and that he was also referred to by that very name will be evident from the following inscriptions :—

Aḷagiya Śīyan alias Kōpperunjiṅga

(1) 5th year—500 of '02—Tiruvannāmalai—Sakalabhuvana Cakravartigaḷ Śrī Kōpperunjiṅga (before the date) and 'Kūḍal Ālappirandān Kāḍavarāyan Aḷagiya Śīyan alias Kōpperunjiṅgan (after the date).

"Aḷagiya Śīyan alias Kōpperunjiṅgan"

(2) 418 of '22—Vāyalūr verses—Introductory prose passage—"Sakalabhuvana cakravartigaḷ Śrī Kōpperunjiṅga *alias* Aḷagiya Śīyan" who after defeating the Cōḷa at Tellāru and capturing all his insignia of royalty kept him in prison and took Sōnāḍu (i.e. the Cōḷa country)."—and it ends with 'Śokkacciyan āṇai"—order of Śokkacciyan.

Aḷagiya Śīyan as a prefix to his Name

(1) 513 of '02—Tiruvannāmalai—4th year of Sakalabhuvana Cakravartin Kōpperunjiṅga devar'—Gift by "Aḷagiya-Śīyan Avani Ālappirandān Kōpperunjiṅgan."

(2) 285 of 1921—Āttūr (-463 of '02 of Cidambaram)—5th year of Sakalabhuvana Cakravarti Kōpperunjiṅga—Gift by Aḷagiya Śīyan Avani Ālappirandān Kāḍavan Kōpperunjiṅgan.

(3) 83 of 18—Vrddhācalam—6th year—Sakalabhuvana Cakravartigaḷ Śrī Kōpperunjiṅga devar—Gift by Kūḍal Ālappirandān Aḷagiya Śīyan Kōpperunjiṅgan of Tirumunaippāḍi in Kīl Amūr nāḍu.

(4) 496 of '21. Tiruveṇṇainallūr—6th year. Sakalabhuvana cakravartigaḷ Avani Ālappirandān Śrī Kōpperunjiṅga devar (at the beginning) and Aḷagiya Śīyan Kōpperunjiṅga devar (in the body of the inscription).

(5) 488-b of '02—Tiruvannāmalai—9th year—Sakalabhuvana cakravartigaḷ Kūḍal Aḷagiya Śīyan Kāḍavarāyan Avani Āḷappirandān.

(6) 512 of '02—Tiruvannāmalai—9th year. Sakalabhuvana cakravartigaḷ Śrī Kōpperunjiṅga deva—Order (Olai) of Kūḍal Aḷagiya Śīyan Kāḍavarāyan Avani Āḷappirandān Kōpperunjiṅgan.

(7) 517 of '02—Tiruvannāmalai—27th year. Sakalabhuvana cakravartigaḷ Kāḍavar Aḷagiya Śīyan Avani Āḷappirandān Śrī Kōpperunjiṅga devar.

(8) 511 of '02—Tiruvannāmalai—27th year. Sakalabhuvana cakravartigaḷ Kāḍavan Aḷagiya Śīyan Avani Āḷappirandan Śrī Kōpperunjiṅga devar.

(9) 489 of '02—Tiruvannāmalai—31st year. Sakalabhuvana cakravartigaḷ Kāḍavar Aḷagiya Śīyan Avani Āḷappirandan Śrī Kōpperunjiṅga devar.

Though the term “Aḷagiya Śīyan Kōpperunjiṅga” may be construed as “Kōpperunjiṅga, son of Aḷagiya Śīyan, still the text of the Vāyalūr verses and the Tiruvannāmalai record (500 of '02) make it conclusive that Kōpperunjiṅga had the surname of Aḷagiya Śīyan.

Śokkaccīyan is perhaps only a variant of Aḷagiya Śīyan and it is met with in the following records :—

(1) 285 of 21 (= 463 of '02)—Āttur and Cidambaram—Construction of the southern gopuram of Cidambaram called *Śokkaccīyan*.

(2) 467 of '02—Cidambaram—

“*Śokkaccīyan* kamugu tirunandavanam”—a flower garden (of areca palms) called *Śokkaccīyan*.

(3) 418 of '22—Vāyalūr verses—

“*Śokkaccīyan* Aṇai”—.

(4) 50 of '22—Tiruvāmāttur—

“*Śokkaccīyan* Kāl”—a standard weight.

(5) Unpublished Cidambaram inscription of the 19th year of the king—

Śokkaccīyan kōl (linear measurement),

‘*Śokkaccīyan* kamugu tirunandavanam,’

Śāḍum Perumal.

It seems that “Kūḍal Ālappirandān Kāḍavarāyan Śāḍum Perumāl” may refer to him. From the reference to his queen—*nam-pirāṭṭiyār*—it is possible to infer that it refers to Kōpperunjiṅga, unless we assume that he might be a general or a member of the royal family.⁹ From another Tiruvannāmalai record, we learn that Kōpperunjiṅga had the title of Perumāl. Hence it is likely Śāḍum Perumāl may be a surname of Kōpperunjiṅga.

Title of Aḷagiya Pallavan.

Mr. T. N. Ramachandran in his work on Tirupparuttikkunram and its temples, says that a Pallava called Aḷagiya Pallavan built the compound wall to the temple of Trailokyanathasvamin and remarks “Aḷagiya Pallavan appears to be the surname of a chief who bore also the surname of Aḷagiya Śōlan, a feudatory of Rājarāja III. He is also referred to as belonging to the Śēngeṇi family. Among the inscriptions copied by the Epigraphy Department, No. 487 of 1921 from Tiruveṇṇainallūr is helpful in determining the exact identity of the person indicated here by the surname “Aḷagiya Pallavan.” It associates this surname with the name Kōpperunjiṅga, who figures in a number of inscriptions in the Cidambaram temple. He had also other titles, chief of which is Avani Ālappirandan or Avanyavanodhbhava.”

Thus the Pallava king of the Tamil land is probably Kōpperunjiṅga—¹⁰

Except the name “Aḷagiya Pallavan” there is no conclusive evidence that it refers to Kōpperunjiṅga. But granting that it

9. (1) 488-a of '02—Tiruvannāmalai—31st year Rājarāja III—Gift of the wife (Nambirāṭṭiyar) of Kūḍal Ālappirandān Kāḍavarāyan Śāḍum Perumāl called Miṭṭandai nācciyar alias Nācciyar Uḍaiyār.

(2) 488-b of '02—9th year of Kōpperunjiṅga—some donor as in 488-a of '02.

(3) 508 of 2—15th year of Sakala-bhuvana cakravartigaḷ Avani Ālappirandān alias Kōpperunjiṅga devar.

Refers to the same donor as in 488-a and b of 1902.

(4) 480 of '02—See Vālvallaperumal, Tamil nadu Kāṭṭa Perumal and Perumal ēṇi—referred to in this inscription.

10. Inscription No. 12 of Tirupparuttikkunram and No. 383 of 1929—Text—1. Svasti Sri it-. 2. tirumadil a. 3. ḷagiya Palla 4. van.

may refer to Kōpperunjiṅga, we are unable to follow his arguments when he makes the suggestion that he is also identical with Aḷagiya Śōlan, a feudatory of Rājarāja III and that he is a member of the Śēngeni family. Let us go into the evidence :—

(1) S. I. I. I. No. 59—

22nd year of Rājarāja (III) Śaka 1160. It refers to

‘Śēngeni Virāsani Ammaiappan tanininru venrān tan vasi Kāṭṭuvan Aḷagiya Śōlanānana Edirili

(2) S. I. I. I. No. 61—

24th year of Rājarāja III. Śaka 1161.

‘Virāsini Ammaiappan Aḷagiya Śōlan alias Edirli Śōla Śambuvarāyan.’

No. 64—28th year of Rājarāja III. Śaka 1165. The same chief.

The only legitimate inference that can be made from this is that there was a feudatory of Rājarāja III called Aḷagiyan Śōlan and he belonged to the Śēngeni family of the Śambuvarāyas. But we are unable to grant that he was in any way identical with (Aḷagiya Pallavan) Kōpperunjiṅga. To establish an identity merely on the common factor of *Aḷagiya* between the two names is highly hazardous and historically unsound. The only reference to ‘Aḷagiya Śōla’ in Kōpperunjiṅga’s inscriptions is found in the damaged Ponnur inscription (392 of 1928—’9) where this place is called *Aḷagiya Śōlanallūr*. But the gift is by a *Śōlappillai* (Cōrapillai) and so the village might have been named after the donor. We therefore take it for the present the theory that Kōpperunjiṅga had the title of Aḷagiya Śōlan and that he was a Śambuvarāya is not proved. We also believe that the chief called Aḷagiya Pallavan Edirli Śōla Śambuvarāyan referred to in S. I. I. III No. 63 and who figures as a feudatory in the 3rd year of Vijayaganḍagōpāladevar is not identical with Kōpperunjiṅga. So far as we can see, we are not able to trace any evidence that Kōpperunjiṅga is identical with chief Aḷagiya-Śōlan (of S.I.I. I. Nos. 59., 61, 62 and 64) or Aḷagiya Pallavan of S. I. I. III No. 63 or that he belonged to the Śambuvarāya family.

That Kōpperunjiṅga had also the title of ‘Aḷagiya Pallava’ is evident from the following inscriptions :—

(1) 83 of 18—Vrddhācalam—

“*Aḷagiya Pallavan Toppu*”

- (2) 170 of 18—Brahmadeśam—
“Aḷagiya Pallavan Śandi.”

(3) 487 of 21—Tiruveṇṇainallūr—Aḷagiya Pallavan Śrī
Kōpperunjīṅga dēvar.

The other names and titles of the king are given below:—

1. *Avanyavanasambhava* (= Tamil—Avani Aḷappirandān)
197 of '05—Tripurāntakam—
419 of 1893—Drakṣārāma—
Avanyavanodhbhava
2. *Mahārāja Simha*.
197 of '05—Tripurāntakam.
419 of 1893—Drakṣārāma.
3. *Ānaikku—Arasu—vaḷangum Perumāl*.
432 of 21—Tiruveṇṇainallūr.
4. *Āḷiyār*.
462 of '02—Cidambaram.
“Āḷiyār tirunandavanam ”.
465 of '02.
“Āḷiyār tiruttōppu ”.
5. *Bhumipathi Krpanamallah*.
191 of '04—Tiruvakkarai.
6. *Kāvalar Tambirān*.
480 of '02—Tiruvannāmalai.
7. *Nrpatunga*.
418 of '22—Vāyalūr verses.
8. *Kaḷar-K-Kāḍavan* (The Pallava wearing the anklet of
hero).
480 of '02—Tiruvannāmalai.
9. *Minḍan Śīyan*.
418 of '22—Vāyalūr verses.
10. *Araśarkaḷ (or Rājākkal) Tambiran*.
418 of '22—Vāyalūr verses.
11. *Niśśanka Malla*.
480 of '02—Tiruvannāmalai—(Niccaṅgamallan)
197 of '05—Tripurāntakam.
12. *Tamiḷnāḍu Kāṭṭa Perumāl*.
480 of '02—Tiruvannāmalai.

13. "*Peṇu Śentamiḷ Vāḷappiranda Kāḍava*".
of Vāyalūr verses—418 of '22.
14. *Sarvajña (Khaḍgamalla)*
191 of '04—Tiruvakkarai.
197 of '05—Tripurāntakam.
480 of '02—Tiruvannāmalai (Vāḷvallaperumāl).
15. *Bharatamalla*.
286 of '21—Āttūr.
480 of '02—Tiruvannāmalai (Bharatam-valla Perumal).
197 of '05—Tripurāntakam.
419 of 1893—Drakṣārāma (Nāṭṭyakya Vēdāmbudhihi)
16. *Mallaipuri Vallabha*.
286 of '21—Āttūr.
480 of '22—Tiruvannāmalai (Mallai Kāvalan).
418 of '22—Vāyalūr verses (Mallai Vēndan).
17. *Kancīpuri Kāntakā*.
286 of '21—Āttūr.
18. *Kaveri—Kāmukha*.
286 of '21—Āttūr.
19. *Dakṣiṇā-nāyaka*.
286 of '21—Āttūr.
20. *Pennānadhi nātha*.
286 of '21—Āttūr.
21. *Pinni-Kāvala*.
418 of '22—Vāyalūr.

(See Vrddhacalam 74 of 1918.—verses-Pinnicilambu-Pinni hill).

Sources for the History of his Reign

The inscriptions (about 180 in number) are the main source of information for the history of Kōpperunjiṅga. His inscriptions bear regnal years ranging from the 2nd to the 36th. They are found mostly in the Tanjore (northern part), South Arcot, North Arcot and Cingleput districts. The inscription at Drākṣārāma in the Godavari district and at Tripurāntakam in the Kurnul district mark the utmost limits of the extension of his sphere of activity. But the region over which he might have exercised effective sway was the region corresponding to the old Toṇḍaimaṇḍalam—the home of the ancient Pallavas.

In addition to inscriptions, we have an historical romance in Sanskrit called the *Gadyakarnāmṛta* composed by Kalakalabha or Sakala Vidhya cakravarti. There is an incomplete copy of the same in the Manuscripts library of Mysore. The story is described in a highly dramatic setting. To God Māheswara, and in the presence of Parvati, Sarasvati and Narada, Vyasa and Valmiki are made to describe the great military achievements of Vira Narasimha. The captivity of Rājarāja by the Kāḍava, the Hoysala intervention under Ḡoppanṇa and Appanṇa, generals of Vira Narasimha, the release of the Cōla king, the battle of Mahendramangalam between the Hoysalas and the Pāṇḍya king ending in the defeat of the latter and the fitting end of diplomatic negotiations by a dynastic marriage between Sōmēśvara son of Vira Narasimha and the Pāṇḍya princess these facts mentioned in the romance are well confirmed by evidence from epigraphical sources.¹¹

His Accession

Fortunately, most of the inscriptions of Kōpperunjīṅga contain astronomical details which help us to fix the date of his accession. It has been fixed between May 9 and July 30, 1243 A.D. There is an inscription which contains both a regnal year and a Śāka date, his 18th year being equivalent to Śāka 1182¹². The following are other inscriptions which contain astronomical details for which equivalents in Christian era have been found :—

(1)	69/1915	— 2y.	—1244 A.D.
(2)	449/21	— 4y.	—1247 „
(3)	323/21	— 5y.	—1247 „
(4)	545/21	— 7y.	—1249 „
(5)	401/03	— 8y.	—1250 „
(6)	73/1918	—10y.	—1254 „
(7)	459/1921	—10y.	—1252 „
(8)	317/1921	—13y.	—1256 „
(9)	530/1920	—13y.	—1265 „
(10)	447/1921	—15y.	—1257 „
(11)	455/21	—16y.	—1258 „
(12)	465/21	—16y.	—1258 „
(13)	65/18	—16y.	—1258 „

11. See Mysore Archaeological Report, 1924, p. 12 and the article of Mr. Rangasami Saraswati—in Tirumalai—Śrī Venkatesvara, 1933, pp. 677-680.

12. See 38 of 1890, E. I. VII.

(14)	38/22	—16y.	—1258	„
(15)	320/1921	—17y.	—1259	„
(16)	316/1921	—19y.	—1261	„
(17)	62/1918	—25y.	—1268	„
(18)	431/1921	—27y.	—1268	„
(19)	170/1918	—27y.	—1269	„
(20)	159/06	—30y.	—1272	„
(21)	489/02	—31y.	—1274	„

His relations with Cōlas

The achievements of his ancestors, namely, the conquest of Kūḍal and Toṇḍaimaṇḍalam and the existence of a distracted state in South Indian politics should have fired the imagination of an able and ambitious youth to carve for himself an empire.

To start with, he was a vassal of the Cōla Emperor. The earliest inscription in which Kōpperunjiṅga figures is an inscription of the 35th regnal year of Kulōttunga III (—1214 A.D.—No. 487 of 1921). Sixteen years later, (1229—1230 A.D.) in the 14th year of Rājarāja III, we find a certain Edirigaṇāyan Pottappic-Cōla—one of the chiefs of the bodyguard of Pallavan Kōpperunjiṅgan making a gift of a lamp to god Tiru-mudukunramuḍaiya Nayanar at Vrddhācalam. Hence, it is very likely that about 1229-'30 A.D., Kōpperunjiṅga was a vassal of Rājarāja III and his revolt should have taken place after this date.

We are not in a position to state conclusively whether the Kāḍava and the Pallava referred to in Narasimha's inscriptions¹³ apply to Kōpperunjiṅga—but supposing they do, then we have to take it that he might have been the ally of the Pāṇḍya ruler in his war against the Cōla and the Pāṇḍya ruler should have been the chief enemy of the Cōla, and the Hoysala intervention should have been to protect the Cōla Emperor against the attack of the Pāṇḍya. After uniting with the Pāṇḍya and after having helped to cripple the power of the Cōla, Kōpperunjiṅga should have expected to reap the fullest advantage by the political chaos which would result therefrom. After this Hoysala intervention, the Pallava chief should have bided his time for his *coup-d'état*. And the Vrddhācalam record of his bodyguard shows the limit of his submission to Cōla power.

As we have seen already, the Cōla country was subjected in the southern frontier to a second invasion some time before

1227 A.D., by Māravarman Sundara Pāṇḍya I¹⁴ and it was at this critical period when the Cōḷa empire was weakest, an ambitious vassal like Kōpperunjiṅga would aim at independence and power.

Here the evidence as gleaned from the “*Gadyakarnāmrta*” enables us to fill up the gaps in the story of the Hoysala-Cōḷa—Pāṇḍya relations. It tells us that Rājarāja after he was defeated in battle by the Pāṇḍya ruler, left his capital. Then, with his retinue, he tried to reach his ally, the ruler of Kuṇṭala. On his way, he was attacked by the Kāḍava king now strengthened by fresh accession of troops from foreign lands—*mleccadēśa*—perhaps an allusion to the help from Ceylon. And after a fight, he was defeated in battle and taken captive.

It further adds that the King Rājarāja was dragged to his own city Jayantamangala (Śēndamangalam). When he heard this painful news, Narasimha started from his capital, reached the northern bank of the Kaveri and lay encamped in the neighbourhood of Srirangam. Then he despatched his *daṇḍanatha* to punish all the enemy *Sāmantas*, and caused the release of his friend the Cōḷa King.

These recitals from the romance are wonderfully confirmed by epigraphical evidence. As early as 1229 we learn from an inscription from the Mysore country (E.c. XII T.P. 42) that Narasimha II was “ruling from Kāṇḍipuram with the surrounding ocean as her boundary.” The defeat of Rājarāja referred to in the *Gadyakarnāmrta* must be none other than the battle of Tellāru fully described in the Vāyalūr verses; and his imprisonment at Śēndamangalam and his release by the Hoysala generals are graphically presented in the Tiruvēndipuram record.

The text and translation of the Vāyalūr verses are given below. (Some verses are in *Ahapporuṭurai*).

418 of 1922—Text of the Vāyalūr Verses.

1. ஸ்வஸ்திஸ்ரீ சகல புவன சக்கரவத்தி ஸ்ரீகோப்பெருஞ்சிங்கன் சோழனைத் தெள்ளாற்றில்

2. வென்று சகல பரிச்சின்னமுங்கொண்டு சோழனைச் சிறையிட்டு வைத்துச் சோனாடு கொண்ட அ

3. முகிய சீயன்

14. See 322 of 1914—277 of Pudukotah list—where he claims to have taken Śōnāḍu and to have celebrated Virābhiṣēkam and Vijayābhiṣēkam at Muḍikonḍa Sōlapuram.

[Then follow the Verses.]

வாயலூர்ச் சிலாசாஸனச் செய்யுட்கள்
பண்ணிருசீர்க்கழி நெடிலடி ஆசிரியவீருத்தம்.

1. பொன்னி நாடனு முரிமையு மமைச்சரு மிருப்பதுன் சிறைக்கூடம்
பொருப்பி ரண்டென வளர்ந்ததோள் வலியினுற்கொண்டது சோனாடு
கன்னி காவிரி பகிரதி நிற்பரி யாடுதண் டுறைவாவிகாவன் மன்னவர்
திறையுட னுணங்குவ துன்பெருந் திருவாசல்
வென்னி டாதபோர்க் கன்னடர்வென்னிடப்பொருததுன்பெருஞ்சேனை
விளங்கு செம்பொனி னம்பலக் கூத்தனைவிரும்பிய தேவா கூடற்(கடற்)
பின்னி காவல அவனிநா ராயண பேணுசெந் தமிழ்வாழப்
பிறந்த காடவ கோப்பெருஞ் சிங்கநின் பெருமையார் புகழ்வாரே

(வெண்பா)

2. திறையிட் டிருமின்கள் தெவ்வேந்திர் செம்பொன்
துறையிட்ட பூம்புகார்ச் சோழன்—சிறைகிடந்த
கோட்டந் தனைநினைமின் கோப்பெருஞ்சிங் கன்கமல
நாட்டங் கடைசிவந்த நாள்.

(கலிவீருத்தம்)

3. மீளிவன் கொடிவிடை வேந்தர் மார்பினும்
தோளினும் தீட்டிய தொண்டை மன்னவா
வாளில்வென் றிடுசிறை வளவன் 'தூங்'கிய (வை?)
நாளினும் பெரியதிந் நள்ளென் யாமமே.
4. அறைகடலி னிசையுடனே யண்டர் வேயின்
ஆம்பலிசை செவிகவர வந்தி மாலை
நிறைமதியி னிலவென்னும் நெருப்புப் பட்டால்
நேரிழைநின் றுற்றுவளோ நிருப துங்கா
பிறைபொருத கனமகரக் கிம்புரிவன் கோட்டுப்
பெருங்களிற்றுச் சோழனையு மமைச்சரையும் பிடித்துச்
சிறையிலிடக் களிறுவிடும் பிண்டன் சீயன்
திருமிருந்த ராசாக்கள் தம்பி ரானே.

5. ஒருநாளும் விடியாத நெடிய கங்குல்
 ஊழியேன நீண்டுவர வலகிற் புன்கண்
 மருண்மலை யதுமுன்னே வந்த தென்றால்
 மடந்தையிவ ளிரங்காளோ மல்லை வேந்தே
 பொருமலை முடியரசர் கன்னி மாதர்
 போற்றிசெயும் புவனிமுழு துடையார் தாமும்
 திருமாதும் வளர்புயத்து மிண்டன் சீயன்
 திரிபுவனத் தரசர்தங்கள் தம்பி ரானே.
 இது சொக்கச்சீயன் ஆணை.

TRANSLATION.

1. Śri Sakalabhuvana cakravarti Śri Kōpperunjiṅgar *alias* Aḷagiya Śīyan who after defeating the Cōḷa king at Tellāru took all his insignia of royalty, captured him prisoner, and took Sōṇāḍu.

Thy prison is filled with the lord of Ponni (Cōḷa) his belongings including his consort (*urimay*) and ministers; The country conquered by your mighty arms equal in strength to the hills is Sōṇāḍu; Thy horses drink the water of Kanni (Kanyakumari), the Kaveri and the Ganges (Bhaghirati); Thy palace gate is full of ruling princes who suffer waiting in order to pay you tribute; Thy great army put to flight the *Kannaḍar* (Hoysalas?) the unconquerable in war. Oh Lord, who loves the Lord of Dance at Ponnambalam (i.e. Cidambaram), the *Lord of Pinni* (?) Lord of the Earth (Avani narayana), Oh Kāḍava who was born to make Sen Tamil flourish, Oh Kōpperunjiṅga! Who can sing thy praise?

Oh enemy kings! pay down the tribute of gold. Remember the fate of the Cōḷa king of Pumpuhar (Kaveripatnam) on the day when the lotus-like eyes of Kōpperunjiṅga became red with anger.

3. Oh Lord of Toṇḍai who caused to be engraved on the breast and the shoulders of enemy kings the emblem of the bull-banner. This dark hour of separation (of the lover from the love) seems longer and so is more intense in pain than the period of suffering in prison of the Cōḷa king defeated by you.

4. Oh Nṛpatunga (the best of kings) how can the *lady-love* bear the pangs of separation when the fiery rays of the full moon fall on her in the evening accompanied by the sound of the roaring sea and the *Āmbal* tune of the flute of the shepherds; Oh mighty lion! who with your elephants captured and put into prison

the Cōḷa king and his ministers who had a large corps of elephants whose tusks were adorned with heavy bands (Kimburi) Oh Lord of kings (Rājakkal Tambiran) of vast wealth.

5. Oh king of Mallai ! Will not the lady-love suffer intensely in the night seeming to last till the aeons ; while it is unbearable even in the twilight (*Maṟuṇmālai*) which precedes the night. Oh Miṇḍan Śīyan, in whose arms dwell Bhuvanamuḷududaiyāl served by the royal ladies of Kanni, i.e., Pandya country and Lakshmi, oh Rājakkal Tambirān of the three worlds.

The prose introduction to the verses mention that Kōpperunjiṅga *alias* Aḷagiya Śīyan defeated the Cōḷa king at Teḷḷāru, took all his insignia of royalty, made the Cōḷa king prisoner and took Śōnāḍu and this is confirmed by the verse which says “ Oh mighty Lion ! who with your elephants captured and put into prison the Cōḷa king and his ministers.” The unnamed battle referred to in the *Gadyakarnāmrta* should be the battle of Teḷḷāru of the Vāyalūr verses. As the Tiruvēndipuram record is dated 1231-2, and as Kōpperunjiṅga was loyal to the Cōḷa as late as the 14th year of Rājarāja III's reign, (-1229 A.D.) the battle of Teḷḷāru is to be placed in the year 1230 or 1231 A.D.

The inscription of the Vāyalūr verses describing the battle of Teḷḷāru is not dated. So we are not able to ascertain on what authority Sewell places this battle in 1222 A.D. Under date 1222, the entry runs, “ About this time the Pallava chief Kōpperunjiṅga rose against this Cōḷa sovereign, and a battle was fought at Teḷḷārū, after which it would seem that for a time Perunjiṅga overawed by the intervention of Hoysala Narasimha, returned to his allegiance.”

The choice of the date 1222 A.D. for the battle of Teḷḷāru is perhaps based on the Virakal inscription (Ep. car.—Vol. 6. cm. 56 —Śaka 1144) and as we shall show in the sequel this first Hoysala intervention was not to avert the danger from the Pallava Kōpperunjiṅga, but from the Pāṇḍya Māravarman Sundara I.

Again under date 1231, Sewell remarks—“ He (Perunjiṅga I) had revolted against Rājarāja Cōḷa III in 1221-'22 (above) and had been completely checked by Hoysala Narasimha II. But in this year 1231, or it may be a little earlier, he again rose against his sovereign and this time succeeded in capturing the person of Rājarāja III, and carrying him to Śēndamangalam where the king was imprisoned. Narasimha II, being on friendly terms with

Rājarāja and connected with him by marriage, and having been already recognised publicly as “the establisher of the Cōḷa kingdom,” owing to his earlier action, declared that he must at all costs maintain this reputation, and fitted out an expedition of rescue.” Then he adds the particulars found in the Tiruvēndipuram record.

The theory of two Kōpperunjiṅgas has been fully dealt with already and it is sufficient to remark that it is unnecessary to postulate a second revolt of Kōpperunjiṅga and two Hoysala interventions directed against Kōpperunjiṅga. The evidence of the *Gadya-karnāmṛta*, and the Tiruvēndipuram record enables us to establish that it was only the 2nd Hoysala intervention that was directed against Kōpperunjiṅga. There is a greater simplicity and naturalness in placing the battle of Teḷḷāru between 1230 and 1231, i.e., between the last year of his allegiance to the Cōḷa emperor—(136 of 1900—14th year of Rājarāja III—1229 A.D.) and the date of the Tiruvēndipuram record 1231—2. The postulates of Sewell and others who uphold the dual theory—the revolt of Kōpperunjiṅga I in 1222, the Cōḷa king’s defeat at Teḷḷāru, his submission after Hoysala intervention, his second revolt about 1231 and Perunjiṅga’s coronation about 1231, Perunjiṅga II’s coronation in 1243 A.D.—are all based on gratuitous assumptions regardless of the value of evidence available about the period.

Let us consider the recitals of the Tiruvēndipuram record. Here is Hultzch’s translation of the record :—

(Line 1.) Hail ! Prosperity ! In the year which was opposite to the 15th year (i.e. in the 16th year) of the emperor of the three worlds, the glorious Rājarājadeva,—when king *Pratapachakravartin*, the Hoysana, the glorious Vīra-Narasimhadeva, heard that *Kōpperunjiṅga* had captured the Cōḷa emperor at *Śēndamangalam*, that he destroyed the kingdom with his army, and that the temples of the God (Siva) and the places (*sacred to*) Vishnu were destroyed, he exclaimed :—“This trumpet shall not be blown unless (I shall) have maintained (my) reputation of being ‘the establisher of the Cōḷa country.’”

(L. 3.) He started from Dorasamudra, uprooted the Maha(ra) kingdom, seized him, his women and treasures, and halted at Pāccūr.

(L. 4.) Then the king was pleased to order :—“Destroy the country of Kōpperunjiṅga and liberate the Cōḷa emperor.”—Hail ! (We), the glorious great minister, the very confidential servant,

Dandinagopa Jagadobbaganda Appana-Dannakka and Samudra-Goppaya-Dannakka, took leave (from the king) and started.

(L. 5.) (We) destroyed (*the villages of*) Ellēri and Kaḷḷiyūrmūlai¹⁵ where Kōpperunjiṅga was staying, and Toḷudagaiyur (21. Toludur) where Śōḷakōn was staying; killed . . . among the king's officers Viraganganāḍālvān (and) Cinattarayan, and 4 officers including Parākramabāhu, the king of ḷam; seized their horses; and seized the horses of Kolli-Śōḷakōn.

(L. 6.) Having worshipped the god of Ponnambalam,¹⁶ (we) started (again), destroyed rich (?) villages including Toṇḍaimānallūr, caused the . . . forest to be cut down, and halted at Tiruppadirippuliyur.¹⁷

(L. 7.) (We) destroyed Tiruvadigai,¹⁸ Tiruvekkarai (Survey No. 222) and other villages; burnt and destroyed the port-towns on the sea and the drinking channels¹⁹ to the south of the Varanavasi river (Malattar?) and to the east of Śēndamangalam; and seized and plundered the women.

(L. 8.) When (we) advanced against Śēndamangalam and were going to encamp (*there*), Kōpperunjiṅga became afraid and submitted to the king that (he) would release the Cōḷa emperor.

(L. 9.) As he (Viz. the king) agreed and despatched a messenger to us, (we) liberated the Cōḷa emperor, went (with him), and let (him) enter (his) kingdom.

We have already argued (Chap. 11) that the first Hoysala intervention must have been in connection with the Pandyan invasion of the Cōḷa country by Māravarman Sundara. The earlier

15. In one of the unpublished inscriptions at Cidambaram, of the Vijayanagar king Acyuta Deva Raya dated Śāka 1451 expired equal to 1530 A.D., *Kaḷḷiyūr* figures also as one of the eighty-two villages granted for the celebration of the festival and the construction of the northern Gopuram and prākāras of the Nataraja temple at Cidambaram. This may be modern *Kaliyamalai* on the banks of the Viranāṁ tank near Kāṭṭumannarguḍi. Ellēri under the same name is also very near Kāṭṭumannarguḍi and both are in the Mannarguḍi division of the South Arcot District.

16. Ponnambalam = Cidambaram.

17. Tiruppadirippuliyur = Cuddalore.

18. Tiruvadigai = Tiruvadi near Panruṭi.

19. 'Burning of crops'—not "destruction of drinking channels"—as suggested by K. A. N. Sastriar.

Hoysala intervention is to be gathered from an inscription on a *Virakal* dated 1222 A.D., in which he is stated to be marching against the Ranga in the south "i.e. the island of Srirangam and from the Harihar inscription of 1224 A.D., where he gets the titles of "the uprooter of the Makara kingdom" and "the establisher of the Cōla kingdom" and of having opposed the Kāḍava and the Pāṇḍya rulers."

The defeat of the Cōla emperor by the Pāṇḍya, the revolt of Kāḍava, his defeat of the Cōla emperor and his imprisonment at Jayantamangalam (Śēndamangalam) as gleaned from the *Gadya-karṇāmṛta* very well fit in with the theory we have postulated that it was only the 2nd Hoysala intervention that was directed against Kōpperunjiṅga. The completion of the story of the Hōysala intervention leading to the release of the Cōla Emperor is found in the Tiruvēndipuram inscription. Hultsch has rightly said, "This first invasion of the Makara and Cōla kingdoms (1222-24 A.D.) was distinct from and prior to the conquest of the same two kingdoms which is related in the Tiruvēndipuram inscription and it is presupposed by the wording of the latter, which implies that the king started on his new campaign in order to vindicate his previously earned title "establisher of the Cōla country"—(E.I.VII).

The events described in the Tiruvēndipuram record are confirmed from an inscription from the Mysore Country (Ep. Car. XII, Gb. 45) dated 1233 A.D. It says:—

"The great minister raya daṇḍanatha guardian of the army, sole champion in the world, Appaya daṇḍanayaka and Goppayya daṇḍanayaka having made petition to Narasimha deva, destroyed (defeated?) the Kāḍavarāya and released and brought the Cōla there,—he being pleased, granted of his grace, Arakere belonging to Daṇḍinasirivara as a *Kodage*."

The actual restoration of the Cōla country to Rājarāja III is evident from the Nīḍūr record of the 16th year (15 + 1) of Rājarāja III which refers to a transaction by the *Perunguri Mahāsabha* of three nāḍus (536 of 1921). We learn that this region was in a state of confusion—and was formerly ruled by Kōpperunjiṅga—So the Cōla country should have been restored to Rājarāja soon after the Hoysala intervention and the release of the Cōla Emperor.

The release of Rājarāja III was soon followed by the eclipse though not the extinction of Rājarāja III. The waning power of

the Cōla Rājarāja and the growing power of Kōpperunjiṅga can be well illustrated from the records at Cidambaram which was then in the northern part of Śōlamanḍalam. Rājarāja's inscriptions at Cidambaram are found in his second, third, fourth, ninth, tenth, fourteenth and seventeenth years. (299, 303, 267, 306, 360, 280 and 266 of 1913) but not in subsequent years i.e. between 1216 and 1233. Kōpperunjiṅga's earliest record in Cidambaram is of his third year, 1246 A.D. (462, 465 and 466 of 1902, 390, 391, 392, 393, 395 and 399 of 1903). Kōpperunjiṅga was defeated but not suppressed. In 1243 he once more reasserted himself and assumed royal titles Sakala-Buhvana-Cakravartin and Avaniāḷappirandān.²⁰

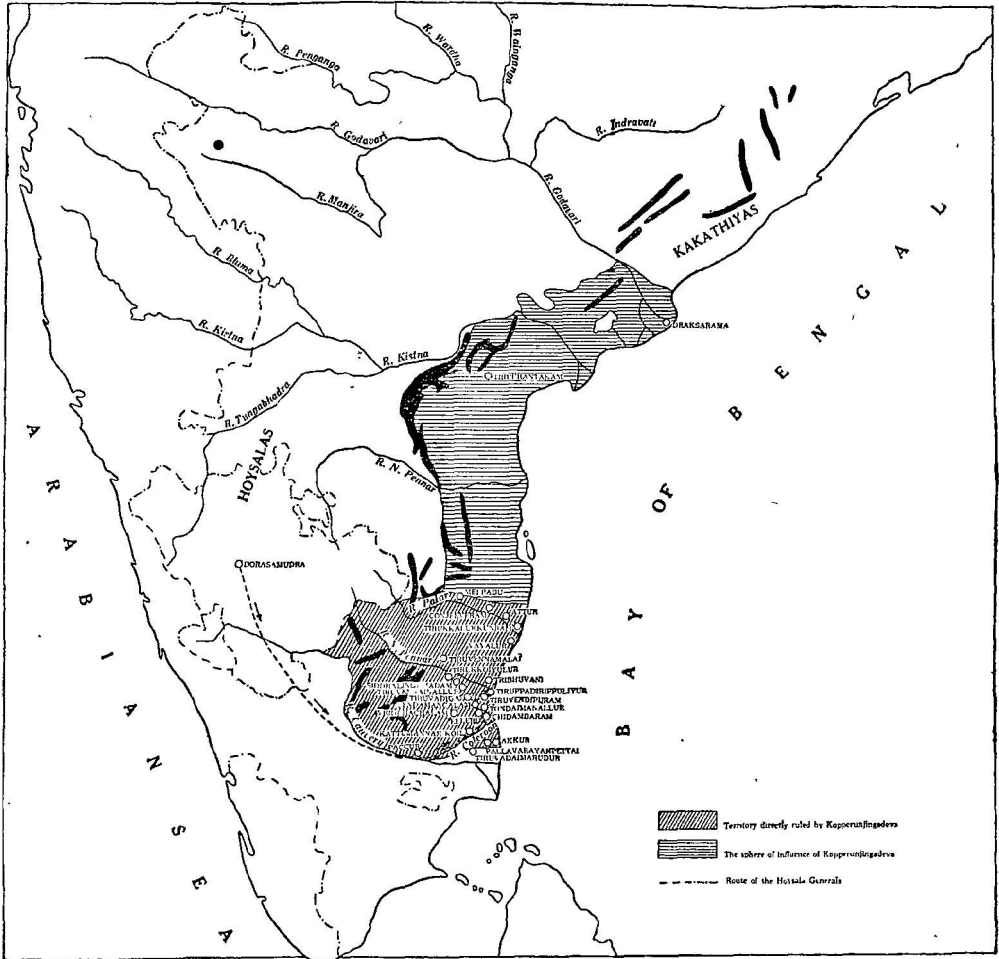
Kōpperunjiṅga and Rājendra Cōla III

Rājendra III was a contemporary of Kōpperunjiṅga. As has been pointed out already, most of his inscriptions are found only in the Tanjore and Trichinopoly districts and we do not find any evidence of any diminution of Kōpperunjiṅga's authority over Tonḍaimanḍalam nor of any direct conflict between Kōpperunjiṅga and Rājendra III. It is likely that Rājendra did not risk his fortunes by attempting a serious war with his more powerful rival.

(To be Continued.)

20. Following this halting theory of Sewell, which we have already examined in pp. 300-302, Mr. C. V. Narayana Ayyar, in his review of South Indian Inscriptions (Texts) Vol. VIII falls into the same error and confusion and unfortunately perpetuates this untenable dual theory. (Vide the Hindu Sunday Edition, Sept. 12, 1937). He writes:—"According to Sewell there were two Perunjiṅgas . . . He (Perunjiṅga I) revolted against his liege lord between 1221 and 1222 . . . he opened warfare again in 1231 and even took Rājarāja III as prisoner. . . . Sewell is in doubt as to whether the revolt of the year 1231 was that of Perunjiṅgan himself or that of his son . . . all the dated Perunjiṅga inscriptions relate to the son and not to the father. . . . The older Perunjiṅgan and the younger one are pointedly praised in one important inscription, i.e., No. 69 (Tiruvannāmalai inscription—480 of 1902). The younger Perunjiṅgan ultimately replaced the Cōla at least in some parts of the diminished Cōla empire. . . ." The worst feature of his reconstruction is that the achievements of Kōpperunjiṅga the real king (called by the reviewer the older or Perunjiṅgan I) are attributed to his son, Kāḍava kumāran of Tiruvannāmalai inscription, the younger Perunjiṅga (as he is called, though there is no evidence of his being called Perunjiṅgan) who does not seem to have ever reigned at all.

Map to illustrate the extent of the kingdom of Kōpperunjiṅga.



A STATISTICAL STUDY OF THE GROUND-NUT PRICES IN MADRAS.

BY

P. S. BHASKARAN PILLAI, M.A.,
Research Scholar in Statistics, Madras University.

INTRODUCTION

In this paper an attempt has been made to study the fluctuations in the prices of ground-nut, which is one of the principal commercial crops of this Presidency. The analysis is based on the monthly prices of the ground-nut kernels in Madras from 1922-1934. The figures are taken¹ from 'The Madras Price Current and Market Report' published fortnightly by the Madras Chamber of Commerce. The average price for each month is then calculated and the whole data is given in the appendix. The paper consists of three parts, the first dealing with the general trend, the second with the monthly fluctuations and the third with the influence of price on the subsequent acreage.

FLUCTUATIONS IN PRICES BY YEARS

The means and variances of the monthly prices for the individual years are calculated and given in table 1. Regarding the whole data as 13 samples of 12 observations each ($k = 13$, $n = 12$) Pearson and Neyman's L-tests² are used to judge whether the 13 yearly means and variabilities are statistically differentiated. Now the L-statistics L_0 , L_1 , and L_2 are given by the equations

$$\log L_0 = \log (s_g^2) - \log (s_0^2)$$

$$\log L_1 = \log (s_g^2) - \log (s_a^2)$$

$$\log L_2 = \log (s_a^2) - \log (s_0^2)$$

where s_g^2 is the geometric mean of the variances $s_1^2, s_2^2, \dots, s_k^2$, defined by

$\log (s_g^2) = 1/k [\log s_1^2 + \log s_2^2 + \dots + \log s_k^2]$ and s_a^2 and s_0^2 are the average variance and the general variance defined by

1. The prices of groundnut kernels were not quoted in the Reports from October 1928 to May 1929 and during those eight months the figures are taken from the Indian Trade Journal.

2. Tables for L-statistics by P. C. Mahalanobis Sankhya—Vol. I, Part I, pp. 109-122.

$$s_a^2 = \frac{\sum s_t^2}{k}$$

$$\text{and } s_0^2 = \frac{\sum S(x - m_0)^2}{nk}$$

$\sum$ denoting the summation for all k samples and $\sum S$ representing the summation for all $n.k$ values of x .

TABLE 1.

Year (1)	Mean value (m) (2)	Variance (s^2) (3)	$\log(s^2)$ (4)
1922	63.8	31.07	1.4924
1923	64.9	8.39	.9238
1924	64.7	24.04	1.3809
1925	58.1	25.76	1.4109
1926	52.0	22.32	1.3487
1927	52.8	9.02	.9552
1928	54.4	12.34	1.0913
1929	49.5	17.71	1.2482
1930	35.6	30.23	1.4804
1931	27.6	6.59	.8189
1932	35.1	14.29	1.1550
1933	24.9	13.14	1.1186
1934	20.9	17.59	1.2452
Total	604.3	232.49	15.6695
Mean	46.48	17.88	1.2053

The L-statistics now become

$$s_0^2 = 246.4$$

$$\log(s_0^2) = 2.3916 \quad \log L_0 = \bar{2}.8137 \quad L_0 = .0651$$

$$\log(s_a^2) = 1.2524 \quad \log L_1 = \bar{1}.9529 \quad L_1 = .8973$$

$$\log(s_g^2) = 1.2053 \quad \log L_2 = \bar{2}.8608 \quad L_2 = .0726$$

From the tables given by Mahalanobis³ it is seen that L_0 is appreciably less than unity while L_1 is not. The mean values are

3. One per cent values of L_0 for $n = 10$ and $k = 10$ is .6804 and for $n = 15$ and $k = 20$ is .8180

Five per cent values of L_1 for $n = 10$ and $k = 10$ is .8228 and for $n = 15$ and $k = 20$ is .8961.

thus clearly differentiated but the variabilities may be considered to be practically constant. Fisher's Z test can therefore be legitimately applied in this case. The analysis of variance is given below :

Variation.	Degrees of Freedom.	Sum of squares.	Variance	$\frac{1}{2} \log_e$ (variance).
Between years	12	35,661.87	2,971.82	3.9986
Within years	143	2,774.47	19.40	1.4826
Total	155	38,436.34	247.98	..

Now $Z = 2.5160$ while its one per cent. value as given in Fisher's Table⁴ is less than .4574. Thus the differences between the means are clearly significant or in other words the prices exhibit a definite secular trend.

We have 13 yearly figures as given in column 2 of table 1, on the basis of which we have to attempt to fit a trend line. But every curve, howsoever obtained, will have to be tested for its "goodness of fit". It will be sufficient if the variance of yearly figures about the fitted curve should be of the same order as the variance within years as obtained above. Thus any particular fit must be rejected if it is found that the variance about that curve is significantly greater than the variance within years.

On the basis of the 13 yearly figures a straight line is fitted, to represent the trend, by the method of least squares. If we measure the year x from the middle of 1928, the price in any year is given by the equation

$$Y = 46.48 - 3.86x.$$

The table for the analysis of variance about the fitted straight line may be shown as follows :—

Name of variation.	Degrees of freedom.	Sum of squares.	Variance.	$\frac{1}{2} \log_e$ (variance).
Between years	12	35,661.87	2,971.82	
Between graduated values	1	32,604.39	32,604.39	..
Due to deviation from curve	11	3,057.48	277.95	2.8138

$$Z = 1.3312$$

Thus of the total variation 35,662 the straight line has absorbed 32,604 and at the same time the degree of freedom has been reduced by unity. The result is that the average variance about the curve is only 278 whereas the variance about the mean is 2,972. In any case, even now the variance about the straight line is significantly greater than the variance within years.

Fitting a parabola of the second order to the above thirteen yearly figures we get a curve of the form

$$y = 48.86 - 3.86x - .17x^2.$$

The analysis of variance about the parabola may be thus exhibited:—

Nature of variation.	Degrees of freedom.	Sum of squares.	Variance.	$\frac{1}{2} \log_e$ (variance)
Between years	12	35,661.87	2,971.82	..
Between graduated values	2	33,344.55	16,672.28	..
Due to deviation from curve	10	2,317.32	231.73	2.7227

$$Z = 1.2401$$

The variance due to deviation from the curve has been reduced from 278 to 232. Still the variance about the parabola is significantly greater than the variance within years.

If we now go still further and fit a parabola of the second order to the logarithms of the yearly prices we get the equation as

$$\log y = 1.68623 - .04054x - .003331x^2$$

The variance about the fitted curve may be thus analysed:—

Nature of variation.	Degrees of freedom.	Sum of squares.	Variance.	$\frac{1}{2} \log_e$ (variance).
Between years	12	35,661.87	2,971.82	..
Between graduated values	2	33,427.11	16,713.56	..
Due to deviation from curve	10	2,234.76	223.48	2.7047

$$Z = 1.2221$$

Even now the deviation from the fitted curve is great i.e. the graduation is still not adequate, although there is some improvement. The deviation is mainly due to the sudden fluctuations in the prices during the years 1928-1932 and it is rather difficult to improve the graduation further.

FLUCTUATIONS IN PRICES BY MONTHS

The means and variances for the 13 Januaries, 13 Februaries, etc., are calculated and given in Table 2. Regarding the whole data as 12 samples of 13 observations each ($k=12$, $n=13$) the L-tests are used to judge whether the twelve monthly means and variabilities are statistically differentiated.

TABLE 2.

Month.	Mean value. (m)	Variance (s^2)	$\log(s^2)$
January	44.9	201.68	2.3047
February	46.2	210.67	2.3236
March	47.5	248.29	2.3950
April	47.1	253.77	2.4045
May	47.5	256.61	2.4092
June	47.0	276.47	2.4417
July	48.0	250.07	2.3981
August	47.9	238.96	2.3784
September	47.4	253.87	2.4046
October	47.4	278.26	2.4445
November	44.5	237.98	2.3766
December	42.5	218.92	2.3403
Total	557.9	2925.55	28.6212
Mean	46.5	243.80	2.3851

The L-statistics are then easily calculated.

$$\log(s_0^2) = 2.3916 \quad \log L_0 = \bar{1}.9935 \quad L_0 = .9851$$

$$\log(s_0^2) = 2.3870 \quad \log L_1 = \bar{1}.9981 \quad L_1 = .9956$$

$$\log(s_0^2) = 2.3851 \quad \log L_2 = \bar{1}.9954 \quad L_2 = .9895$$

For $n=15$ and $k=20$, the 5% point for L_0 is .8358. Hence the observed value of $L_0 = .9851$ (in this case $n=13$ and $k=12$) cannot be considered to be significantly less than unity. The

samples, may, therefore be considered to have been drawn from the same universe.

The test for L_1 also naturally fails. The 5% point for L_1 when $n = 15$ and $k = 20$ is $\cdot 8961$ while the observed value is $\cdot 9956$ (in this case $n = 13$ and $k = 12$).

Fisher's Z test completely fails as will be seen from the analysis of variance.

Variation.	Degrees of freedom.	Sum of squares.	Variance.
Between samples	11	401.61	36.51
Within samples	144	38,034.73	264.13
Total	155	38,436.34	247.98

It will be noticed that the variance between samples is actually less than the average variance within samples. Anyhow the high values of L_1 and L_2 clearly indicate that the mean values are not differentiated. Hence the prices do not exhibit any seasonal fluctuations at all.

RELATION BETWEEN THE PRICE AND THE SUBSEQUENT ACREAGE

It is naturally believed that the prices at the time of the last harvest and during the present sowing exert a significant influence on the subsequent acreage. It is examined here how far this belief is justified with the limited data available. The area data have been obtained from the 'Estimates of Area and Yield of Principal crops in India'. The price for January is taken to represent the price during the previous harvesting season and that for June during the current sowing season. All these data are shown in Table 3, the January and June prices having been paired with the acreage for the following crop season. Thus the prices in January and June 1920 have been related to the area under groundnut in 1920-21 and so on. The statistical device adopted, for studying the relative changes in the price and acreage, is the method of percentage of variation, in which each year's figure, whether for price or for area, is expressed as a percentage of the previous year's figure. In columns 5, 6 and 7 of Table 3 are given the percentage variations as compared with the previous year of (1) the area under groundnut (x_1), (2) the January price (x_2) and (3) the June price (x_3). The influence of January and June prices on the subsequent acre-

age is obtained by the method of multiple correlation. The observed statistical constants are :—

$$\begin{array}{lll} x_1 = 4.9 & \bar{x}_2 = -6.5 & \bar{x}_3 = -7.0 \\ s_1 = 20.4 & s_2 = 24.6 & s_3 = 20.2 \\ r_{12} = .63 & r_{13} = .81 & r_{23} = .75 \end{array}$$

$N = 14$ in all cases.

The regression equation may be written in the form :—

$$x_1 - \bar{x}_1 = a(x_2 - \bar{x}_2) + b(x_3 - \bar{x}_3)$$

where

$$a = \frac{r_{12} - r_{13} \cdot r_{23}}{1 - r_{23}^2} \cdot \frac{s_1}{s_2} = .043$$

$$b = \frac{r_{13} - r_{12} \cdot r_{23}}{1 - r_{23}^2} \cdot \frac{s_1}{s_3} = .779$$

The multiple correlation coefficient $R_{1.23}$ is given by

$$R_{1.23}^2 = \frac{r_{12}^2 + r_{13}^2 - 2r_{12} \cdot r_{13} \cdot r_{23}}{1 - r_{23}^2} = .6571$$

The coefficient of multiple correlation $R_{1.23}$ is therefore .81 which is significant.⁵ On simplification the regression equation becomes

$$x_1 = 10.63 + .043x_2 + .779x_3.$$

To judge the relative importance of the two variables x_2 and x_3 , it is necessary to transform the above equation in such a manner that each variable is expressed in terms of its own standard deviation. If this is done, the coefficient of x_3 is found to be decidedly greater than that of x_2 , showing thereby the June price exerting a greater influence than the January price on the subsequent acreage under ground-nut. The percentage changes derived from the above equation have been transformed into actual acreages and are shown in Column 8 of Table 3. It will be noticed that there is a fair amount of correspondence between the two sets of figures. The estimated and actual acreages are plotted for comparison in Chart 1 and the concordance between the two curves is fairly satisfactory. From the above analysis it is clear that in the case of groundnut there is a significant relation between the price and the subsequent acreage.

5. See Table of Significant values of the Multiple Correlation Coefficient by J. Wishart, *Quart. Jour. Royal Met. Soc.* Vol. 54, 1928 pp. 258-259. The one per cent value of multiple correlation coefficient for no association is .71 ($n = 13$).

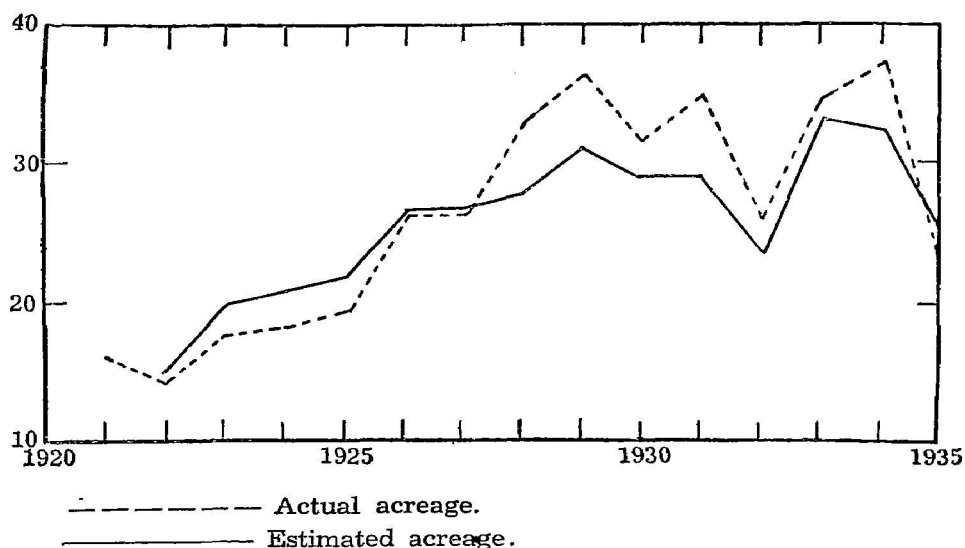
TABLE 3.

Years.	Area of ground-nut in the Madras Pre- sidency (in hund- reds of thousand acres).	Price of Ground-nut (Rs. per French Candy).		Percentage of variation as compared with previous years of			Estimated acreage.
		January.	June.	Ground- nut area. x_1	January price x_2	June price x_3	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1920-1921	16.00	83.0	66.3	..	..	..	..
1921-1922	14.59	45.3	54.5	- 9	-45	-18	15.15
1922-1923	17.54	55.3	69.3	+20	+22	+27	20.09
1923-1924	18.07	59.5	63.5	+ 3	+ 8	- 8	21.03
1924-1925	19.04	63.8	59.9	+ 5	+ 7	- 6	22.35
1925-1926	25.99	57.3	64.6	+37	-10	+ 8	26.02
1926-1927	26.80	47.3	60.0	+ 3	-17	- 7	27.19
1927-1928	33.37	46.0	55.5	+25	- 3	- 8	28.36
1928-1929	36.79	51.5	54.5	+10	+12	- 2	31.08
1929-1930	32.09	57.8	43.8	-13	+12	-20	29.71
1930-1931	35.72	41.5	37.5	+11	-28	-14	29.26
1931-1932	26.35	22.8	24.3	-26	-45	-35	23.82
1932-1933	35.17	30.8	34.0	+33	+35	+40	34.13
1933-1934	37.79	31.8	27.1	+ 7	+ 3	-20	32.49
1934-1935	23.51	18.4	17.5	-38	-42	-35	26.51

CONCLUSIONS

The present analysis shows that the prices of ground-nut do not exhibit any seasonal fluctuations at all but they exhibit a definite secular trend. On the basis of the 13 yearly figures, a straight line, a parabola of the second order, a parabola of the second order to the logarithms of the yearly prices are fitted in succession to represent the trend by the method of least squares. The analysis of variance in each case shows that the graduation is not adequate, although the deviation from the fitted curve is least in the third case. The deviation is mainly due to the sudden fluctuations in the prices during the years 1928-1932 and it is rather difficult to improve the graduation further. The influence of price on the subsequent acreage is determined by the method of multiple correlation and it is found that in the case of ground-nut there is a significant relation.

I take this opportunity to express my thanks to Mr. N. Sundararama Sastry, M.A., M.Sc., Lecturer in Statistics, Madras University, for his kind help in the preparation of the paper.



APPENDIX. Monthly prices of Ground-nut Kernels in Madras (Rs. per French Candy).

	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
January	..	55.3	59.5	63.8	57.3	47.3	46.0	51.5	57.8	41.5	22.8	30.8	18.4
February	..	57.0	63.8	65.0	57.0	47.0	52.8	50.5	56.9	40.5	23.9	38.0	17.8
March	..	68.5	67.0	64.0	58.6	51.1	55.7	50.7	50.4	38.8	28.5	41.4	16.4
April	..	70.0	66.3	62.0	58.8	54.3	54.5	50.3	47.6	41.5	28.5	37.8	16.7
May	..	71.5	63.0	59.8	64.0	56.0	55.5	51.4	49.5	40.4	26.5	35.5	18.4
June	..	69.3	63.5	59.9	64.6	60.0	55.5	54.5	43.8	37.5	24.3	34.0	17.5
July	..	69.3	64.3	64.3	60.1	57.5	54.5	56.0	48.0	36.8	29.3	39.0	17.5
August	..	64.8	61.9	70.8	62.5	54.5	53.0	54.5	50.0	36.1	29.8	37.8	22.5
September	..	60.8	65.6	72.0	62.4	52.0	53.2	54.3	52.0	33.5	27.8	35.7	25.0
October	..	62.5	68.5	74.2	53.0	54.0	54.0	61.2	47.7	28.8	31.5	32.8	27.5
November	..	60.0	68.8	63.3	51.8	45.5	51.3	58.6	45.0	27.3	29.8	29.3	27.3
December	..	57.0	67.0	57.1	47.3	44.8	48.0	58.7	45.0	24.8	28.5	29.3	25.8

ABSTRACTS OF TWO PAPERS

By

M. O. PARTHASARATHY IYENGAR.

- (1) *CHARACIOSIPHON*, A NEW MEMBER OF THE CHLOROPHYCEAE. (Preliminary note. Published in the Journal of the Indian Botanical Society, Vol. XV, No. 5, 1936, pp. 313-318.)

A peculiar cylindrical alga growing attached to stones in a stream at Vaiyampatti, near Trichinopoly, is described. The alga possesses a firm outer membrane closely investing a large number of separate naked cell-like protoplasts arranged in a single layer immediately below it and having a large hollow space filled with sap in the centre. Each protoplast has a more or less stellate chloroplast with a large pyrenoid embedded in it and a single nucleus below the chloroplast close to the central hollow space. Two or more contractile vacuoles are regularly working in each protoplast in the living alga. Asexual reproduction and sexual reproduction by means of biciliated zoospores and biciliated gametes, respectively, have been recorded. A new genus by name, *Characiosiphon*, is created for the alga and the genus is placed in a separate family, Characiosiphonaceae, close to the family, Characiaceae. The alga is named *Characiosiphon rivularis* Iyengar.

- (2) FERTILISATION IN *EUDORINA ELEGANS* EHRB. (Published in the Journal of the Indian Botanical Society, Vol. XVI, Nos. 1 & 2, 1937, pp. 111-118.)

The author observed the fertilisation in *Eudorina elegans* in Madras. The method of fertilization observed by him was very peculiar in that the spermatozoid fused with the egg backwards by first attaching itself by its posterior end to the egg and then sinking slowly into the egg backwards. The egg-cell retains its two cilia at the time of fertilisation and the zygote remains four ciliated for some time even after the formation of a wall round its protoplast. The cilia are finally lost.

REVIEW

THE ELEMENTS OF ANALYTICAL GEOMETRY—Part III—
Conic Sections. By J. T. BROWN, M.A., B.Sc. Macmillan. 2s. 6d.

This part deals with the conic sections and is a companion volume to the other two dealing with the straight line and the circle. In the first chapter of this book the author defines the conic sections and obtains the standard equations of the parabola, the ellipse and the hyperbola. Their special properties are discussed separately in detail in the three subsequent chapters, one for each of the three conic sections. The fifth chapter of this book deals with the polar equations of the conics and the final one with the general equation of the second degree and tracing of curves.

The author has done well in introducing the parametric representation at the beginning. This directly brings the reader into touch with the large class of problems which can be solved easily by this method. The examples at the end of each chapter and specially the revision exercises, are judiciously chosen so as to enable students to improve their knowledge by the direct applications of the principles explained. It would serve as a useful purpose as a handbook for beginners in the subject.

N. S. R.

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Biology: An Introductory Text-book to Matriculation Standard. By A. P. Graham and B. J. Marples. 4/6.

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