

can include them in its roll of distinguished degree-holders. We have pleasure in offering our felicitations to all these eminent scholars.

The Punjab University celebrated its Jubilee Convocation last month at which delegates from other Universities and Learned Societies were represented. The occasion was utilised for conferring honorary degrees on literary men and distinguished Scientists, mostly residents of the Punjab. Sir Shadilal who is an eminent Jurist and Sir Fazli-i-Hussain, the distinguished Education Member of the Viceroy's Council, received the LL.D. degree. The Degree of Doctorate of Oriental Learning was conferred on Sir

Sikander Hayat Khan and Sir Sundarsingh, and the Degree of Doctorate of Literature, on Sir Mahomed Iqbal and Mr. S. C. Woolner. Rai Bahadur Professor Shiva Ram Kashyap received the D.Sc. Degree. Dr. Kashyap is a leading Botanist whose explorations of the Western Himalayan regions have added greatly to our knowledge of the flora of the ice-covered higher altitudes and the honour now conferred on him is a fitting recognition of his long and honourable service as an Educationist and Scientist. We take this opportunity of felicitating all the recipients of the Jubilee honours of the Punjab University.

### Recent Advances in Anthropology, Ethnology and Ethnography in India.

By Rao Bahadur L. K. Ananthakrishna Iyer, B.A., L.T.

**D**URING the latter part of the nineteenth century, materials for the study of Anthropology, Ethnology and Ethnography were collected mostly by officials in the course of their official duties, by scholars like Dr. T. A. Wise and others, and by missionaries. Their researches were published as articles in the volumes of the *Indian Antiquary*, *Asiatic Researches*, *Calcutta Review*, *Madras Journal of Literature and Science*, *Proceedings of the Asiatic Society of Calcutta and Bombay* and in the District Manuals. Historians like Mountstuart Elphinstone, Sir H. H. Elliot and others working on the borderland of the subject preserved incidentally much material for those who would follow them. In 1872, appeared the monumental work of E. T. Dalton on the "Descriptive Ethnology of Bengal". To these were added the volumes of "The Tribes and Castes of the Provinces of India and the Indian States", all subsidised by the Government of India and the States in accordance with the comprehensive scheme of Ethnographic Survey inaugurated by the late Sir Herbert Risley. The materials thus collected belong mainly to the domain of Cultural Anthropology.

Sir Herbert Risley's "Anthropometric Statistics for Bengal", North-West Provinces (the United Provinces of Agra and Oudh), and Bombay opened new enquiries. Dr. Thurston and others in similar fields did excellent work. But Dr. John Short was the first to make systematic observations in Physical Anthropology. His methods were unsatisfactory

and his achievement small. He was a pioneer, and therefore, his name should not be forgotten. The late Rai Bahadur Gupte, an assistant of the late Sir Herbert Risley, and subsequently a lecturer in the Calcutta University, did excellent work both in Physical and Cultural Anthropology. His volume on "Fasts and Festivals" along with numerous other monographs is very popular.

It is only during the last fifteen years that the enormous and invaluable mass of Anthropological materials which India offers to the student has begun to be systematically utilised. In the Calcutta University, was established, in 1921, a school of Anthropology on the model of this department in the London University with the same syllabus of study. It has been equipped with a fine library of Anthropological literature, and an excellent laboratory of up-to-date Anthropometric instruments. In this respect the University enjoys the unique distinction of being the only one, where Anthropology with all its allied subjects has been prescribed for the M.A. and M.Sc. Degree Examinations. In this connection some observations are called for as to the progress of work done by this department. On the Cultural side the present writer was the senior lecturer and Chairman of the Board of Higher Studies in Anthropology. Since its introduction in 1921-1932, apart from the lectures on the major branches of the subject, special training on research has been given by taking the students annually to the various parts of Bengal and Chota



Nagpur for a first-hand study of the aboriginal tribes in Physical and Cultural Anthropology. Their researches have appeared in the form of articles in the various current periodicals. The present writer carried during this period his studies on "The Cochin Tribes and Castes" further by the publication of the "Anthropology of the Syrian Christians," as Superintendent of Ethnography in the Cochin State, and also brought out his Readership Lectures on Ethnography. During the last six years, he also issued the three volumes of the Mysore Tribes and Castes, as Officer in Charge of Ethnographic Survey of Mysore. The final volume will be ready for publication early next year. Rai Bahadur Ramaprasad Chanda, who was a member in the Department of Anthropology, published an interesting volume on the Indo-Aryan Race. Mr. Sarat Chandra Mitra, another member in the department who retired some years ago, is a specialist on Folk-Lore. He has published his numerous contributions in the *Journal of the Anthropological Society of Bombay*. Dr. P. Mitra, who is now in charge of the department, is a specialist in Pre-historic Archaeology and published a volume on the subject some years ago. Among his other contributions, he has recently published an interesting paper on "Indian Elements in Polynesian Culture," and the "History of American Anthropology". Mr. Tarak Chandra Das, another lecturer in the department, has published an interesting monograph on the Bhumjis of Mayurabhanj. He has some important papers to his credit, some of which are in the press, and will soon appear. Mr. Haren Chakladar has published a paper on the "Aryan Occupation of Eastern India". He is now studying the Fishermen on the coast of Orissa. Mr. Tarak Ray Choudhuri, one of the old students and now a lecturer, has published two interesting papers, one on "the Khasias," and the other on "the Barendra Brahmans of Bengal". Mr. A. N. Chatterji who is the lecturer in Physical Anthropology trains the students in physical observations and measurements. His "First Studies on the Growth and Health of the Bengali Students" is an interesting monograph containing valuable information. It must be said in this connection, that some of the students preparing for the M.A., and M.Sc. degree examinations have contributed theses as an alternative to answering two papers; and they have, in several instances, reached a high standard.

Some of the successful M.A. and M.Sc. students have been doing research work in the University under the guidance of lecturers, and have contributed valuable articles in various periodicals. Lucknow University has also introduced Social Anthropology in the curriculum of studies. The Reader who is a graduate of this University, has been contributing interesting papers on social topics to the leading periodicals.

Another important institution for research in Anthropology in Calcutta is the Indian Museum. Since the appointment of Dr. B. S. Guha, as Anthropologist to the Zoological Survey of India, a well-equipped laboratory was installed therein, and systematic researches have been taken in hand. These investigations relate to the prehistoric human and animal remains that are being excavated by the Archaeological Survey in different parts of India, (1) in the Indus Valley, and (2) to the skeletal materials belonging to the various races of modern India. Lt.-Col. R. B. Seymour Sewell, Director of the Zoological Survey, who started his anthropological career in India, published his standard work on the *Astragilus*, while at Cambridge, collaborated with Dr. Guha in the first part of this work, and they jointly published elaborate memoirs on the Nal Skull (*Mem. Arch. Survey of India*, No. 35), the human remains excavated in Mekran by Sir Aurel Stein (*Mem. Arch. Survey in India*, No. 43), and Mohenjo-Daro by Sir John Marshall (*Mohenjo-Daro and the Indian Civilisation*, Vol. II, London, 1931). The Report on the human remains excavated by Mackay in Mohenjo Daro has also been completed, and is now in the press. Of the skeletal materials of the tribes now living in India, and her frontiers, the most important work has been the publication of the study of the transfrontier Naga Crania recovered by the Dewar expedition, by Dr. B. S. Guha and Mr. P. C. Basu (*Bulletin of the Zoological Survey*, No. 1, Calcutta, 1931). Besides the contributions mentioned above, Dr. Guha who was sent to Kaffiristan to work in collaboration with the Norwegian Institute for comparative study of human cultures under Dr. Morgenstierne, has collected all available materials on the tribe before they are wiped out. His study of the Kadars have also appeared in *Nature* (May 19, 1928, and June 22, 1929). Further, his study of the Chenchus, Bhils and other aborigines, as also most of the important



racial groups in India on behalf of the Census operations will give a connected account of the racial history of India. It must also be said in this connection that the students of the University working under him in Physical and Cultural Anthropology have produced excellent monographs.

Dr. Hutton, Honorary Director of the Ethnographical Survey of Assam, and the Census Commissioner for India, has made very important contributions to the Cultural Anthropology of India. Besides being the author of two excellent monographs on the Angami and Sema Nagas, his Report on the Census of India, Vol. I, Part I, is a monumental work. Mr. Mills and other colleagues of his in Assam have been issuing individual monographs on the aboriginal tribes of Assam, all of which form very important contributions to the Social Anthropology of India.

Dr. Baron Egon von Eickstedt, Leader of the Saxon Institute, Leipzig, came to India in 1926. He has made an intensive study of the aboriginal tribes, and castes of India, and the Indian States, and took measurements of the types and as many as or even more than 7,000 photographs. After his return to Germany, he made use of his materials, and published the two volumes on *Rassenkunde und Rassengeschichte* (History of Mankind). His Racial History of India is a valuable contribution to the Science of Anthropology.

Rai Bahadur Sarat Chandra Roy, M.A., B.L., M.L.C., Editor of "Man in India", is an indefatigable student of Anthropology. Besides being the author of several volumes (Orans, Mundas, Birhors), his Journal contains excellent articles relating to India.

Thus far we have been dealing with the anthropological activities in the two institutions of Calcutta, and those outside it. The Anthropological Society of Bombay is the only institution of its kind, on the West Coast. It has been long in existence, and its contributions form valuable additions to the Cultural Anthropology. Dr. Ghurye, who is the Reader in Sociology, Bombay University, has recently published an interesting volume on "Race and Caste" in addition to his other contributions on social topics.

It will not be out of place in this connection to mention the names of Mr. G. S. Sitapati, B.A., Sasankasekhara Sarkar and L. A. Krishnan. The former was a research scholar of the Andhra University, made a

first-hand study of the Sauras of the Ganjam and Vizagapatam districts, the second of the Malpaharias of the Rajmahal hills, and the third of the aborigines of Travancore. The manuscripts of the first two when published will form excellent monographs; and the researches of the third have already appeared in the *Travancore Census Report*. All the scholars were working under my guidance.

In the Presidency of Madras with one old and two infant Universities the importance of anthropological research for which there is ample scope, leaves very much to be desired. Dewan Bahadur K. Rangachary, once an assistant in the Madras Government Museum under Dr. Edgar Thurston, recently published a monograph on the Sri Vaishnavas. The present assistant Mr. Iyappan is contributing some articles which are published in the Museum Bulletins. The Mysore University has revived the Ethnographic Survey of the State, the three volumes of which, dealing with the descriptive account of tribes and castes, have been already published. The final volume will appear early next year. But there still remains another side of the subject for which anthropometric survey is necessary. As a premier and very enlightened State in India in point of culture, it is hoped that the Mysore University will be the centre of research in South India, as Calcutta is in the North. Besides the University, the Mythic Society of Bangalore helps research by its monthly meetings and valuable contributions in its journal.

Last but not the least, is the part played by the subject of Anthropology (Physical and Cultural) in the Indian Science Congress, an organisation for the advancement of Science in India, in all its branches, like that of the British Association in England. It has been meeting at the different University Centres. The Anthropological Section was presided over by the leading Anthropologists whose presidential addresses, and the papers read during its sittings, and their publications in the annual reports are extremely valuable contributions to stimulate the study of the subject.

From what has been said, it may be seen that much has been already done on the subject. But it must be remembered that India is a vast sub-continent, and that a great deal more remains to be done by way of collecting materials from unexplored regions of which there are many, like Travancore, Coorg, portions of Telugu districts and many



more in South India as well as those in the North. The workers are still very few. A band of young men must be trained in Universities on the various departments of the study of man, and sent out to collect materials from hitherto unexplored fields.

Scientific work of this nature can be best done only by Universities which would give it, its proper place in the courses of studies. The Science of Anthropology with its many approaches and aspects will afford abundant opportunities for original research.

### Polymegalous Spermatids in a Grasshopper.

By T. Ramachandra Rao,

*Department of Zoology, Central College, Bangalore.*

THE studies of Paulmier,<sup>1</sup> Zweiger,<sup>2</sup> Davies<sup>3</sup> and others have shown that in certain insects the spermatids exhibit double and quadruple complements of centrosomes, as a result of pathological dimegaly or polymegaly. The sizes of these abnormal spermatids vary according to the number of centrosomes present. Montgomery<sup>4</sup> has also described in *Euschistus* that the same testis produces sperms of three sizes varying with their positions in particular follicles. His observations have been confirmed by Bowen<sup>5, 6, 7</sup> who has studied a large number of Pentatomids.

Two explanations have so far been offered for the occurrence of these abnormal sperms. For those of the first kind, *i.e.*, those with 2 or 4 centrosomes the usual explanation is that they are due to the suppression of one or both of the spermatocyte divisions. Wilson<sup>8</sup> writes: "It is practically certain that the double forms are due to a suppression of the second spermatocyte division, the quadruple ones to a suppression of both the divisions in respect to all the sperm-forming elements excepting the centrioles and the chondriosome apparatus. The latter have completed their allotted number of divisions and subsequent differentiations." Cannon<sup>9</sup> has discovered atypical sperms in the louse which he says are regularly

provided with two axial filaments; Bowen suspects that here also the two tail filaments may arise from doubled centrioles, since in these forms only one spermatocyte division is said to occur.

The explanation offered for the polymegaly in Pentatomidæ is a physiological one. Montgomery suggested that the size differences may be due to variations in nutritional factors though the exact sources of these variations have not been traced. Bowen's view in respect to this is that the number of centrosomes varies with the size of the cytosome. Similar studies in plants of giant sperms have yielded very interesting observations, especially in the gigas forms of *Solanum* where the abnormal size of the pollen as well as of certain cytoplasmic inclusions were directly attributed to the tetraploid nature of the nucleus (Winkler).<sup>10</sup> Gates<sup>11</sup> has also come to similar conclusions in *Oenothera*. The experiments of Boveri, the Marchals and others have also led to similar conclusions, namely, that the size of a cell varies with the number of the chromosomes which enter into the constitution of the nucleus. The present position, as briefly stated above, shows that the problem is many-sided and requires further study.

In my study of the spermatogenesis of Pyrgomorphinæ I have come across certain giant spermatids which seem to provide us some interesting information. Fig. 1 shows a normal spermatid of *Aularches*. Here the nucleus is seen to have on one side a centrosome from which has arisen a tail fibre which bends around a mass of clear substance and is apparently attached to another dark body which may correspond to the centrosome derivative migrating to the periphery

<sup>1</sup> Paulmier, F. C., *Journ. Morph., Suppl.*, 15, 1899.

<sup>2</sup> Zweiger, *Zeit. F. Naturw.*, 42, 1907.

<sup>3</sup> Davies, H. S., *Bull. Mus. Comp. Anat. Harvard*, 1908.

<sup>4</sup> Montgomery, T. H., *Zool. Jahrb.*, 1898.

Montgomery, T. H., *Arch. Zellforsch.*, 1910.

<sup>5</sup> Bowen, R. H., *Proc. Amer. Acad. Arts and Sci.*, 57, 1922.

<sup>6</sup> Bowen, R. H., *Biol. Bull.*, 42, 1922.

<sup>7</sup> Bowen, R. H., *Journ. Morph.*, 39, 1924.

<sup>8</sup> Wilson, E. B., *Cell in Dev. and Inherit.*, 1925.

<sup>9</sup> Cannon, H. G., *Quart. Journ. Mic. Sci.*, 66, N. S., 1922.

<sup>10</sup> Winkler, *Zeit. Bot.*, 8, 1916.

<sup>11</sup> Gates, R. R., *Bot. Gaz.*, 44, 1909.