

THE INDIAN STATISTICAL INSTITUTE

SIXTH ANNUAL REPORT: 1937-38

The year under review has been an eventful one in many ways, and progress has been made in many directions. One outstanding event was the visit of His Excellency the Viceroy.

VISIT OF HIS EXCELLENCY THE VICEROY.

His Excellency the Most Honourable Lord Victor Alexander John Hope, K.T., P.C., G.M.S.I., G.M.I.E., O.B.E., D.L., T.D., the Marquess of Linlithgow, Viceroy and Governor-General of India, visited the Statistical Laboratory on the 15th December, 1937 accompanied by the Private Secretary, Mr. J. G. Lathwaite, C.I.E., and Col. H. H. Stubb, the Military Secretary. His Excellency was received at the gate of the Presidency College by Mr. S. P. Mukerjee, Vice-Chancellor of the Calcutta University, Mr. J. M. Bostonley, Director of Public Instruction, Bengal, Principal B. M. Sen and Professor P. C. Mahalanobis (Hony. Secretary).

The Hony. Secretary explained that the work in the Statistical Laboratory was divided into three sections, namely, advisory, training, and research. A large number of statistical enquiries were received every year from all over India; and during the last four or five years about 80 officers, of whom about 80 were from outside Bengal, came to the Statistical Laboratory for training in analytic statistics. The Hony. Secretary added that, in research, the policy of the Laboratory was to emphasize the essential unity of statistical methods, based on the mathematical theory of probability and random sampling.

His Excellency was shown some of the investigations already completed or in progress in the Laboratory which included the study of Rainfall and Floods in North Bengal 1870-1922; Rainfall and Floods in the Orissa rivers; the Hooghly-Howrah Fishing and Irrigation scheme; the development of modern field technique in India including the introduction from the Laboratory of complex factorial, split-plot, and 'confounded' designs; soil deterioration under different manners; the response of the Indian cultivators to changes in the price of crops; survey of blood pressure in Calcutta, intelligence and educational tests and study of methods of examinations; and nutrition studies relating to height and weight of Bengali women belonging to different economic classes. His Excellency was greatly interested in the extension of the method of random samples for survey work of various types, and discussed with the Hony. Secretary details of the technique, with special reference to the survey of the handloom weaving industry, crop census, and village welfare work.

All the workers of the Laboratory were presented personally to His Excellency and at the conclusion of the visit His Excellency's photograph was taken with the profiloscope designed in the Laboratory for precision work.

Before leaving, His Excellency expressed his satisfaction with what he had seen, and assured the workers of his sympathetic interest. A special report describing the work of the Institute and the Statistical Laboratory had been prepared for His Excellency which is being published in the form of an appendix.

INDIAN STATISTICAL CONFERENCE.

The Institute took the initiative in organizing the First Indian Statistical Conference, which was held in Calcutta from the 7th to 9th January, 1938. The Conference was opened by His Excellency the Right Hon'ble Lord Irwin, G.C.I.E., M.C., Governor of Bengal, and was presided over by Prof. R. A. Fisher, Sc.D., F.R.S., Galton Professor in the University of London. A separate Report of the Conference is annexed.

EXAMINATIONS IN STATISTICS.

Arrangements had been made to hold the first examinations for the award of Statistician's Diploma Part I and Computer's Certificate Part I in December 1937. Owing however to heavy pressure of work in connexion with the Indian Statistical Conference and Prof. R. A. Fisher's visit, the examinations were actually held in Calcutta on the 22nd, 23rd, 24th and 25th April, 1938. Eight students appeared for the Diploma and three students for the Computer's Certificate examinations.

INDIAN STATISTICAL INSTITUTE

The theoretical portion of the examination was held in the Senate Hall of the Calcutta University by kind permission of the Vice-Chancellor and University authorities. The practical examinations were conducted by Professors K. B. Madhava and P. C. Mahalanobis in the Statistical Laboratory.

Our best thanks are due to Dr. A. C. Aitken, D.Sc., F.R.S. (University of Edinburgh), Dr. J. O. Irwin, D.Sc., (London School of Hygiene and Tropical Medicine), Prof. H. S. Pearson, D.Sc. (University of London), and Dr. J. Wishart, M.A., D.Sc. (University of Cambridge) for having helped as in setting the question papers, and Prof. A. J. Bowley, Sc.D. (London School of Economics) and Prof. R. A. Fisher, Sc.D., F.R.S. (University of London) for having agreed to act as Moderators.

VISIT OF PROFESSOR R. A. FISHER.

In co-operation with the University of Calcutta the Institute invited Professor R. A. Fisher to visit India in 1937-38. All arrangements in this connexion were made by the Institute.

Professor Fisher arrived in Bombay on the 17th December and visited the Cotton Technological Laboratory of the Indian Central Cotton Committee at Matunga, and gave a lecture on "Tests of Significance" at the University of Bombay. He went to Poona on the 19th December and stayed there for three days; gave one lecture and visited the Meteorological Office, the Agricultural College and other local institutions. To meet him a special reception was arranged by the Poona Branch of the Institute. He gave two lectures on "Co-ordination in Agriculture" and "Teaching of Statistics" in the Osmania University of Hyderabad on the 24th and 26th December and inspected the Statistical Department and Agricultural and Horticultural Stations of H. R. H. the Nizam's Government. On his way to Calcutta he visited the Rust Research Laboratory at Agra, the Imperial Institute of Sugar Technology and the Government Agricultural College at Cawnpore, and the Institute of Agricultural Research, Benares Hindu University, where he gave a lecture on "Field Experiments" on the 30th December.

He arrived in Calcutta on the 1st January, 1938 and stayed here up to the 17th January. He presided over the First Indian Statistical Conference from 7th-9th January; gave a course of special Readership lectures at the Calcutta University on the "Theory of Estimation"; two lectures on "Incomplete Randomized Blocks" and "Some Recent Problems in Theoretical Statistics" in the Statistical Laboratory; and one lecture on the "Application of Statistics in Medicine and Public Health" at the All-India Institute of Hygiene and Public Health. He also participated in various discussions and meetings of the Indian Science Congress.

Even more important than these public functions were informal discussions in the Statistical Laboratory with advanced research workers many of whom had come to Calcutta from different parts of India for this purpose. Besides the functions arranged in connexion with the Statistical Conference a farewell meeting was arranged at the garden house of the Hooy, Secretary by the workers of the Statistical Laboratory on the 17th January, 1938.

From Calcutta Professor Fisher went to Sonmukhetan on the 17th January at the invitation of Rabindranath Tagore; and then to Lucknow where he gave a lecture on "Sampling Methods on the 19th January and presided over a meeting of the Institute of Population Research on the 20th January. He was in Lahore from the 21st-23rd January, 1938, where he presided over the Inaugural Meeting of the Lahore Branch of the Institute and visited the Irrigation Research Laboratory with a view to advising the Government of the Punjab in regard to the difficult problem of the rising of water level in irrigated areas. He met the members of the Department of Mathematics and Economics in the University of Aligarh on the 24th January, and visited the Statistical Section of the Imperial Council of Agricultural Research on the 25th January and the Imperial Agricultural Research Institute in New Delhi on the 26th January.

It is hardly possible to exaggerate the significance of Professor Fisher's visit. He not only discussed problems with research workers but made valuable suggestions for new approaches in many directions. On the applied side, he looked into various important schemes and gave his advice freely. He met a large number of high officials, administrators, and leaders of commerce and industry, and impressed on them the need of developing statistical studies in India. One of the most valuable features has been the close personal contacts established during his stay in India.

A Guarantee Fund was opened to meet the expenses in connexion with the visit of Professor Fisher and the Indian Statistical Conference, audited account of which will be found in an appendix.

ANNUAL REPORT FOR 1937-38

VISITORS.

As in previous years a large number of distinguished visitors came to see the work of the Institute.

The Hon'ble Mr. Nityananda Kanungo, Minister in charge of Revenue and Public Works, Orissa, visited the Laboratory on the 28th October, 1937. He again came with the Hon'ble Mr. Viswanath Das, Premier of Orissa, and other members of the Orissa Government on the 30th October, 1937, and discussed with the Hon. Secretary various questions in connexion with floods in Orissa on which a comprehensive report had been prepared in the Laboratory some time ago. The Government of Orissa are taking special interest in this work and have decided to publish this report in full. They have also placed on record their appreciation of the services rendered by the Statistical Laboratory in this connexion.

Dr. T. E. Gregory, Economic Advisor to the Government of India, visited the Laboratory on the 18th and 19th February, 1938, and discussed with the Hon. Secretary various questions in connexion with the organisation of statistical research and studies in India.

Among other visitors may be mentioned:—Mr. N. C. Mehta, I.C.S. (Vice-Chairman, Imperial Council of Agricultural Research); Dr. W. Burns, Agricultural Expert, Imperial Council of Agricultural Research; Mr. M. B. Nanavati (Deputy Governor, Reserve Bank of India); Col. A. C. Chatterjee (Director of Public Health, Bengal); Mr. A. Hughes, I.C.S. (Labour Commissioner, Bengal); Dr. F. Crowther (Statistician, Imperial Chemical Industries); Mr. J. H. Parkinson (Educational Commissioner with the Government of India).

During the session of the Indian Statistical Conference a large number of other visitors came to see the Laboratory whose names will be found in the Proceedings of the Conference.

GOVERNMENT OF INDIA GRANT.

The Government of India have continued to take an active interest in the work of the Institute. The Honorary Secretary availed of his visit to Simla in May and June, 1937 to place the case for an increased grant before Mr. M. S. A. Hydari, Officiating Secretary to the Government of India, Department of Education, Health and Lands. As a result of these representations the Government of India sanctioned in their letter No. P.41-25/37-E dated Simla, the 9th October, 1937 an increased grant of Rs. 17,000 a year from April, 1938.* The conditions of the grant remain practically unchanged.

The Government of India have also actively helped in the organisation of the First Session of the Indian Statistical Conference in January, 1938. They gave their official recognition to the Conference, forwarded through the High Commissioner for India in London, the invitation to Prof. R. A. Fisher to visit India; and sanctioned a special grant of Rs. 2,000 for expenses.

The Standing Committee for Research consisted of the following members during the year under review:—

Dr. G. S. Bose, *Head of the Psychological Department, Calcutta University*; Mr. P. H. Carpenter, *Chief Scientific Officer, Tocklai Tea Experimental Station, Assam*; Prof. K. R. Mallikar. Mysore University; Dr. John Matthai, *Director General of Commercial Intelligence and Statistics*; Dr. C. W. B. Normand, *Director General of Observatories, Poona*; Mr. T. J. V. Roxburgh, *Judicial Secretary, Bengal*; Col. A. J. H. Russell, *Public Health Commissioner with the Government of India* (nominated by the Government of India); Mr. D. M. Sen, *Principal, Presidency College, Calcutta*; Prof. N. R. Sen, *Ghosh Professor of Mathematics, Calcutta University*; Dr. H. Sinha, *Calcutta University*; and Prof. P. C. Mahalanobis (*Hon. Secretary*).

Mr. Samarandranath Roy continued his work on theoretical statistics, while Mr. K. Raghavan Nair, M.A. (Madras) worked mainly on the applied side. Mr. G. M. Panchang, M.Sc. (London) worked on a part-time allowance for about four months from April to August, 1937 when he went away on his appointment as Statistical Assistant in the Sugarcane Research Station, Pusa. A number of junior computers on allowances of from Rs. 25 to Rs. 60 per month were paid out of the fund set apart for research.

*Unfortunately, owing to the sudden deterioration in the financial situation, this increase has been kept in abeyance for the present.

INDIAN STATISTICAL INSTITUTE

RESEARCH WORK.

Theoretical Statistics. The work on rectangular co-ordinates has been continued and a simple proof of their fundamental properties has been obtained. The ideas and some of the results of the earlier paper on rectangular co-ordinates were used to obtain the sampling distribution of the Studentized form of the D^2 -statistic. A frequency distribution of the Bessel function type was studied as a graduating curve, and it was shown that the means of samples of such a population also follow a similar distribution. R. A. Fisher's distributions (A) and (C) were also studied as graduating curves. A new mathematical method of treating incomplete randomized block design was worked out, and the solution of several hitherto unsolved cases were obtained by this method.

Agricultural Statistics. A good deal of work was done on the analysis and interpretation of agricultural field experiments. A number of schemes and sampling programmes were prepared for crop-cutting experiments, survey of acreage under crops, survey of sugarcane pests and borers. Complex experiments dealing with the production of rice under varying cultural and manorial experiments during five successive years were analysed. A "Review of the Application of Statistical Theory to Agricultural Field Experiments in India" was prepared and presented before the Second Meeting of the Crops and Soils Wing of the Board of Agriculture and Animal Husbandry held at Lahore from 8th to 11th December, 1937.

Crop Census in Bengal. In March, 1936 in reply to an enquiry from the Secretary, Imperial Council of Agricultural Research, the Honorary Secretary had suggested exploring the possibilities of the random sampling method of estimating the area under different crops in India. In 1937 definite proposals were made for a small scale field experiment in Bengal to collect primary material for comparing the cost and accuracy of a complete census and of a sample survey using different methods of sampling. The scheme was approved and a grant of Rs. 10,000 was sanctioned for this purpose by the Indian Central Jute Committee in August, 1937. The original plan was that while the field work would be mainly under the Director of Agriculture, Bengal, the statistical work and the sampling survey would be supervised from the Statistical Laboratory. The general sampling programme was drawn up and a good deal of help was given in organizing the work; owing to the delay in securing administrative sanction it was however not possible to participate in the scheme to the fullest extent in the initial stages. The actual field experiment was conducted between the 12th September, 1937 and 10th December, 1937. A scheme for the statistical analysis of the material collected during this survey and for conducting model sampling experiments in the Laboratory was submitted by the Honorary Secretary in March, 1938. The scheme was approved and a special grant of Rs. 12,500 was sanctioned for this purpose by the Indian Central Jute Committee. It may be mentioned here (although this does not strictly fall within the period under review) that a second Scheme for an Exploratory Crop Survey in 1938 at an estimated cost of Rs. 85,000 was sanctioned in June, 1938 by the Government of Bengal which is being organized from the Statistical Laboratory.

Miscellaneous. Work has been continued during the year on various economic questions relating to currency, exports and imports, fluctuations of price etc. Some work has also been done in connexion with nutrition studies, and the calculation of statistical tables.

MEETINGS OF THE INSTITUTE.

Several meetings of the Statistical Institute were held in the Presidency College, Calcutta, in which various subjects of statistical interest were discussed. Mr. Rajchandra Bose gave a number of lectures on the theory of statistical estimation in July and August as a preparatory course for Prof. R. A. Fisher's Readership lectures on the same subject in the Calcutta University. Mr. G. M. Pancharang discussed the recent work of Prof. B. S. Pearson and Dr. J. Neyman on the testing of statistical hypotheses, and Mr. S. N. Roy spoke on the distribution of certain important statistics. Mr. V. G. Pause of the Institute of Plant Industry, Indore, gave two lectures on the work of the Institute and the statistical methods which were being employed there in connexion with genetic investigations. Dr. S. R. Saver spoke on the use of the median as a test of significance. In January, 1938, Prof. R. A. Fisher gave two lectures one on the design of incomplete randomized blocks and the other on some recent problems of theoretical statistics.

STATISTICAL ENQUIRIES.

As in other years a large number of enquiries were attended to during the year under review. The distribution by subjects and by provinces is given below:—

By Subjects—Agriculture 86; Anthropology 2; Economics 8; Forest Research 2; Irrigation 2; Mathematical Statistics 7; Medical 7; Psychology and Education 5. Total 119

ANNUAL REPORT FOR 1937-38

By Provinces—Assam 7; Bengal 30; Bihar 6; Bombay 2; Madras 6; Orissa 1; Punjab 7; United Provinces 34; Others 17. Total 119.

ADVANCED WORKERS.

As usual a large number of officers and advanced workers from different parts of India came on deputation to the Statistical Laboratory during the year under review. A list is given below:—

- (1) Mr. Qunzi Motabar Hossain, *Assistant Lecturer in Physics, Dacca University.* (April-December, 1937).
- (2) Mr. Kailas Chatterjee, B.Sc., L.T., *Lecturer, Spence Training College, Jabalpur, C.P.* (May-June, 1937).
- (3) Mr. H. C. Kothari, B.A., *Jalpur State.* (June-December, 1937).
- (4) Mr. K. C. Khuntia, B.A., *Headmaster, Manoranjan A. V. U. Middle School, Jalpur.* (July-September, 1937).
- (5) Mr. Isha Lal, M.A., *Lecturer in Mathematics, Forman Christian College, Lahore.* (July-September, 1937).
- (6) Mr. Bonomali Goswami, B.Sc., *Sent by the Director of Agriculture, Assam.* (July-October, 1937).
- (7) Mr. Kumadabhiram Das, M.Sc., *Institute of Agricultural Research, Benares Hindu University.* (July-September, 1937).
- (8) Mr. Sankalpa Prasad, M.Sc., *Institute of Agricultural Research, Benares Hindu University.* (July-November, 1937).
- (9) Mr. Akbar Rahaman Kunju, M.A. (Com.), *Travancore State.* (August, 1937—January, 1938).
- (10) Mr. Akbar Rashid Khan, *Assistant to Oil Seeds Botanist, Department of Agriculture, Punjab.* (August-October, 1937).
- (11) Mr. Harendra Mohan Sen Gupta, M.A., *Lecturer in Mathematics, Dacca University.* (September-October, 1937).
- (12) Mr. C. Narasimacharya, B.A. (Statistics), *Research Student, Madras University.* (September, 1937—still working).
- (13) Mr. Bakshi Sant Ram, Punjab Forest Service, *on deputation from Forest Research Institute, Dehra-Dun.* (November, 1937—January, 1938).
- (14) Mr. Nimal Charan Ghose, M.A., *Research Student, Calcutta University.* (November, 1937—still working).
- (15) Mr. Krishna Chandra Mckerjee, M.Sc., *Department of Psychology, Calcutta University.* (November, 1937—still working).
- (16) Mr. V. G. Paise, B.Sc., *Institute of Plant Industry, Indore.* (December, 1937—January, 1938).
- (17) Mr. Raghunath Shingloo, B.Sc. (Agriculture), *Department of Agriculture, Kashmir and Jammu State.* (January-April, 1938).
- (18) Major D. N. Chakravarti, I.M.S., *Biological Laboratory, Allahabad.* (January-February, 1938).
- (19) Mr. A. Rameshchandra, M.A., B.L., *Madras University.* (January-May, 1938).
- (20) Mr. Amarendra Nath Chatterjee, B.A., *Department of Agriculture, Government of Bengal.* (February-April, 1938).
- (21) Mr. Naziruddin Ahmed, B.Sc., *Department of Agriculture, Government of Bengal.* (February-April, 1938).
- (22) Mr. Panindran Sankar Datta, *Department of Agriculture, Government of Assam.* (March, 1938).
- (23) Mr. Hemendranath Datta, M.A., *Lecturer in Economics, Andhra University, Waltair.* (March-May, 1938).

POONA BRANCH.

We are giving below extracts from the Report of the Poona Branch sent by Principal D. G. Karve, who was in charge throughout the year as the Branch Secretary.

By far the most important event in the history of the Branch during the year under report was the visit of Prof. R. A. Fisher. He came to Poona on the 19th December, 1937, and on the same day visited the Gokhale School of Economics and Politics, where one of the members of the Branch, Mr. D. R. Gadgil has been carrying on valuable statistical work, including town and village industrial surveys. Dr. Fisher carefully inquired into the organisation of the Institute's work and made important suggestions. He also spent a good deal of his time at the Meteorological Office where several members of the Institute, including Dr. C. W. B. Normand, a Vice-President, and Drs. Savag and Banerjee are engaged in work on meteorological statistics. A Reception was arranged by the Branch to meet Prof. Fisher. He gave a talk on certain aspects of statistical research, and in the course of the discussion which followed made many valuable suggestions.

INDIAN STATISTICAL INSTITUTE

The year has been a very busy one for most of the members and their more pressing interests conflicted to some extent with the formal side of the activities of the Branch. Prof. V. C. Kale, the President of the Branch, was called upon to survey the working of Banks in the Gwalior State with a view to suggest remedies for improvement in their organisation and financial soundness. He undertook an elaborate inquiry into the actual working of the system and its economic as well as financial implications. The results of the inquiry have been published in the form of a Report by the Gwalior Government. Prof. Gadgil has been invited by the Government of Bombay to serve on a Committee for inquiring into the wages of Textile Labour in the Presidency. The Committee, after going through a mass of statistical and other evidence, has submitted an interim report recommending an increase in wages amounting on an average to 12½%. The main inquiry is still in progress. The work of the Committee and the methods of analysis adopted by it are evoking considerable interest both among students and the classes more directly affected. Other members have been carrying on statistical work in their respective fields of activity and the exchange of notes that is facilitated by contacts created by the membership of the branch is proving of much value.

The Government of Bombay continue to send to the Branch many of their annual publications. The general review of these official statistics has already commenced and detailed reviews, wherever necessary, are soon to follow. We must express our thanks to the Government of Bombay for their interest in the activities of the Branch.

On 15th August 1937, Prof. Gadgil gave to the branch an account of the Industrial Survey of Poona which had been taken in hand by his Institute. The local authorities are co-operating in this inquiry, which is now being extended to Sholapur, an important industrial centre in Bombay. As both the general census of population and the registration of places of business are defective in respect of the occupational employment of the entire population, a fresh survey was needed. Owing to limitation of resources the regional and sample method was followed. Very interesting findings with regard to the occupational distribution and status of the population have been revealed. Many of these were discussed at the meeting and will be available in due course in the form of a publication of the Gokhale Institute.

The membership of the Branch continued to be the same as last year. Besides the 12 Life Members and two local associates, the discussion meetings and other functions were attended by a large number of interested persons.

MADRAS BRANCH.

A preliminary meeting of the persons interested in Statistics was held in the University Department Buildings on the 20th November, 1937 when it was resolved to start a branch of the Society in Madras with Dr. P. J. Thomas and Mr. N. Sundararama Sastri as President and Secretary respectively. The Constitution of the Branch was formally approved by the Council of the Institute on the 6th January, 1938.

The inaugural meeting of the Branch was held on the 18th January, 1938, when Prof. K. R. Madhava, Secretary of the Mysore Branch, delivered an address in the course of which he traced the growth of the Statistical Department of the Government of India, and discussed the importance of statistics as a subject for study and application in different branches of knowledge.

An ordinary meeting of the members of the Branch was held on 14th February to fix a programme of work for the year, and frame rules regarding the admission of associate and other members. It was decided to have (i) monthly meetings when papers on important problems will be read and discussed, (ii) periodical symposiums open only to members. The President was authorised to arrange for a course of evening lectures on Statistical Methods, during the next academic year in consultation with the University. It was decided to enrol associate members and student-members on payment of Rs. 5/- and Rs. 2/- respectively. A business meeting of the members was held on the 4th April, when the present office-bearers were re-elected. On the same day a public meeting was held under the Chairmanship of Mr. P. K. Watal, Accountant-General, Madras, when Dr. P. J. Thomas read a paper on Population and Food Supply in India. This was followed by a discussion in which many people took part.

LABORE BRANCH.

A preliminary meeting of the persons interested in Statistics was held in the office of the Director, Irrigation Research Institute, Lahore on the 14th December, 1937 to consider the establishment of a local branch of the Indian Statistical Institute. It was resolved to start a branch of the Institute in Lahore with The Hon'ble Mr. Manohar Lal, Minister for Finance of the Punjab Government, and

ANNUAL REPORT FOR 1937-38

Dr. N. K. Bose, Offg. Director, Irrigation Research Institute, as Chairman and Secretary respectively. The Constitution of the Branch was formally approved by the Council of the Institute on the 9th January, 1938.

The inaugural meeting of the Branch was held on the 21st January, 1938 under the Presidentship of Prof. R. A. Fisher, who was then in Lahore, which was a success in every way. The Local Secretary also wrote in his letter dated 11th February, 1938 that the Branch was progressing in the matter of enrolling members.

MYSOOR BRANCH.

Professor K. B. Madhava, Secretary of the Mysore Branch, came to Calcutta in January, 1938 during the Session of the Indian Statistical Conference and helped us in organizing its work in various ways. He again came to Calcutta to conduct the practical portion of the examinations for the award of Statistician's Diploma Part I and Computer's Certificate Part I in April, 1938.

Statistical researches were carried on in co-operation with the Department of Statistics, Economics and Psychology of the Mysore University. Prof. V. L. D'Souza studied the sub-division and fragmentation of land holdings in Mysore and published a paper on this subject in the *Indian Journal of Economics*, Vol. 18, pages 269-285. Under the guidance of Mr. T. Krishnaswamy, M.A., B.Sc., and Professor K. B. Madhava an economic survey of the village Vajamagalum in Mysore was carried out.

OTHER BRANCHES.

Two other Branches are in existence at Bombay and Benares. Dr. G. S. Gherye and S. R. Deshpande continued to be the local Secretaries of the Bombay Branch. Owing to Dr. B. P. Adarkar, the Secretary of the Benares Branch, having left the place permanently there was nothing to report in the way of formal activities in this Branch.

MEMBERS AND ACCOUNTS.

The number of Life Members is at present 27, and of Ordinary Members, 159.

The Accounts of the Institute for 1937-38 as well as of the Guarantee Fund and the Journal have been audited by Messrs. P. C. Nandi, Chartered Accountants, to whom our best thanks are due for having done this work free of charge.

A donation of Rs. 1,000 was received from H. R. H. the Nizam's Government.

Receipt and Payments Account for the year ending 31st March, 1938.

RECEIPTS.				EXPENDITURE.			
	Rs.	A.	P.		Rs.	A.	P.
To Opening Balances ...				By Research Staff ...	4,087	7	0
.. Cash ...	51	3	0	.. Books and Journals ...	993	13	9
.. Bank ...	1,653	15	0	.. Laboratory Equipments ...	458	0	0
.. Subscription ...			1,705	.. Contribution to Senkhyal ...	300	0	0
.. Ordinary ...	2,089	1	9	.. Establishment including			
.. Life ...	160	0	0	.. Travelling ...	776	11	3
.. Fees of Examination ...			2,249	.. Postage, Stationery and			
.. Grant from Govt. of			480	.. Contingencies ...	735	6	9
.. India ...	5,000	0	0	.. Govt. of India Grant			
.. Grant from Govt. of				.. Earmarked for Senkhyal ...	4,000	0	0
.. India Earmarked for				.. Grant from H. H. Maha-			
.. Senkhyal ...	4,000	0	0	.. raja of Holkar			
.. H. H. Maharaja of				.. Earmarked for			
.. Holkar ...	1,000	0	0	.. Senkhyal ...	1,000	0	0
.. H. E. H. The Nizam's				.. Advance to Guarantee			
.. Govt. ...	1,000	0	0	.. Fund ...	705	4	0
			11,000	.. Bank Commission ...	7	15	0
				.. Closing Balance			
				.. Cash ...	176	6	0
				.. Bank ...	2,193	4	0
						2,369	10
TOTAL ...			15,434	TOTAL ...			15,434

Examined and Found Correct.

6. HARRISON STREET, CALCUTTA.
The 19th April, 1938.

P. C. NANDI & Co., Hon'ble Auditors,
Chartered Accountants,
Registered Accountants.

INDIAN STATISTICAL INSTITUTE

SANSKRITA : THE INDIAN JOURNAL OF STATISTICS.

Two issues of *Sanskrit* were published during the year under review. The general standard has been maintained and it is gratifying to note that the number of subscribers is slowly increasing. The audited accounts will be found in an appendix.

Our best thanks are due to His Highness the Maharaja Holkar for a grant of Rs. 1,000 earmarked for the Journal.

Receipts and Payments Account for the period ending 31st March, 1938.

RECEIPTS.			EXPENDITURE.			
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
To Opening Balance ...					By Salaries ...	1,506 0 0
Cash ...	32	4 9			(Including hand com-	
Bank ...	112	5 9			position).	
.. Subscription ...			144	10 0	.. New bills ...	1,397 5 0
.. Reprints ...			730	14 2	.. Postages ...	1,713 14 0
.. Exchange of Journals ...			237	1 0	.. Contingencies ...	1,277 8 0
.. Sale Proceeds ...			1,700	10 0	.. Contributions to Journal ...	12 0 0
.. Grant from Govt. of India ...	4,000	0 0			.. Postage ...	29 8 0
.. H. H. the Maharaja of Indore ...	1,000	0 0			.. Interest and Bank Charges ...	125 1 6
.. Recovery of Advance ...	115	0 0			.. Repayments ...	
.. Advance from Prof. P. C. Mahalanobis ...	450	0 0			.. Closing Balance	6,463 6 6
			565	0 0	Bank ...	646 3 11
					Cash ...	34 9 3
						680 13 2
TOTAL ...			9,294	3 8	TOTAL ...	9,294 3 8

Examined and Found Correct.

6, HASTINGS STREET, CALCUTTA.

The 19th April, 1938.

P. C. NAMBI & Co., *Hony. Auditors.*

Chartered Accountants.

Registered Accountants.

GUARANTEE FUND.

As already mentioned, a Guarantee Fund was opened in connexion with Prof. R. A. Fisher's visit and the Indian Statistical Conference. We gratefully acknowledge contributions of Rs. 1,200 from the Government of Punjab, Rs. 250 each from the Mysore University and the All-India Institute of Hygiene, and Rs. 200 each from the Universities of Bombay, Lucknow, and Aligarh, and the following donations of Rs. 10 and above to this fund:—

Sir E. C. Benhall 100/-; Sir B. D. Goenka 100/-; Messrs. Martin & Co 100/-; Dr. N. N. Law 50/-; Lala Shri Ram 50/-; Mr. A. C. Sen 50/-; Mr. Rajinath Bajoria 25/-; Hon. Maharaja S. C. Nandy 25/-; Mr. D. P. Khaitan 20/-; Syed Imam Ahmed 10/-; Mr. W. C. Ranseejee 10/-; Mr. G. Basu 10/-; Mr. G. P. Bhattacharyya 10/-; Mr. W. A. Burns 10/-; Messrs. Calcutta Insurance 10/-; Mr. K. N. Chakravarti 10/-; Mr. P. A. Curry 10/-; Dr. P. C. Das 10/-; Mr. D. C. Driver 10/-; Mr. J. M. Datta 10/-; Dr. B. N. Ganguly 10/-; Mr. H. C. Ghosh 10/-; Mr. Satish Chandra Ghosh 10/-; Mr. R. N. Gikhris 10/-; Mr. A. Hughes 10/-; Mr. S. Sohrmania Iyer 10/-; Mr. W. J. John 10/-; Mr. Mangtaram Joyporia 10/-; Mr. Durgaprosad Khaitan 10/-; Mr. G. V. Krishna Swami 10/-; Dr. R. B. Lall 10/-; Mr. G. L. Mehta 10/-; Mr. A. N. Mullick 10/-; Mr. C. E. Nayagam 10/-; Mr. J. P. Neogy 10/-; Dr. K. C. K. B. Raja 10/-; Mr. N. N. Rakshit 10/-; Mr. V. Venkata Raman 10/-; Mr. T. J. Y. Rosburgh 10/-; Mr. S. A. Samad 10/-; Mr. N. Sanyal 10/-; Mr. Benoykumar Sarkar 10/-; Mr. Anath Gopal Sen 10/-; Mr. D. N. Sen 10/-; Mr. D. N. Sen Gupta 10/-; Mr. M. K. Sen Gupta 10/-; Dr. H. Sinha 10/-; Dr. J. C. Sinha 10/-; Mr. S. C. Sirkar 10/-; Mr. H. P. V. Townend 10/-;

ANNUAL REPORT FOR 1937-38

Besides the contributions to the Guarantee Fund, a sum of Rs. 2,000 was sanctioned by the University of Calcutta as honorarium for the University lectures delivered in Calcutta by Prof. R. A. Fisher. A contribution of Rs. 2,000 has also been sanctioned by the Government of India for meeting the expenses of Prof. Fisher's visit and for printing the Proceedings of the Conference payment of which has not yet been received.

Guarantee Fund for Prof. R. A. Fisher's Visit and Indian Statistical Conference, 1938.

RECEIPTS.		EXPENDITURE.				
	Rs.	A.	P.	Rs.	A.	P.
Subscription for Membership of Reception Committee and Delegates Fee ...	1,004	4	0	CONFERENCE—		
Contribution to Guarantee Fund ...	2,362	14	0	Arrangement of Meetings ...	286	7
Advance from Indian Statistical Institute ...			3,367	Entertainments ...	314	1
			0	Stationery & Postage ...	141	4
			0	Paper & Printings ...	279	3
			0	(upto 31st March, 1938)		
			0	Petty Expenses ...	28	10
			0	PROF. FISHER'S VISIT—		1,049
			0	Honorarium & Passage ...	1,343	0
			0	Travelling & Halage ...		
			0	Expenses in India ...	1,208	3
			0	Entertainments (including Presents) ...	247	11
			0	Stationery & Postage ...	212	6
			0	Petty Expenses ...	11	7
			0			3,037
TOTAL ...			4,072	TOTAL ...		4,072
			6			6

Examined and Found Correct.

6, HASTINGS STREET, CALCUTTA.
The 19th April, 1938.

P. C. NANDI & Co., Hony. Auditors.
Chartered Accountants.
Registered Accountants.

CONCLUSION.

The year under review has seen an expansion of our work in many directions. The demand for statistical service is growing, and workers are coming to the Institute for advanced training and research in increasing numbers. Our urgent need at present is greater financial assistance, and we trust both Government and the general public will give the Institute such help as it deserves.*

P. C. MARLANNONS,
Honorary Secretary.

*Annual Report and Audited Accounts for 1937-38 were adopted at the Annual General Meeting of the Indian Statistical Institute held in Calcutta on the 17th August, 1938.

INDIAN STATISTICAL INSTITUTE

PROCEEDINGS OF THE GENERAL MEETING, 17TH AUGUST, 1938

The Annual General Meeting of the Indian Statistical Institute was held at 5-0 p.m. on Wednesday, the 17th August, 1938 in the Board Room of Messrs. Bird & Co., Chartered Bank Buildings, Calcutta.

Sir H. C. Benthall, President of the Institute, was in the Chair.

The following members were present :—

Mr. K. N. Chakravarti (*Presidency College, Calcutta*).
Mr. E. T. Cordwell (*Messrs. Bird & Co.*).
Mr. H. C. Ghose (*Calcutta University*).
Mr. K. Kisheu (*Statistical Laboratory*).
Mr. G. L. Mehta (*Scindia Steam Navigation Co.*).
Dr. H. Sinha (*Calcutta University*).
Dr. J. C. Sinha (*Presidency College, Calcutta*).
Mr. P. C. Mahalanobis (*Hon. Secretary*).

Annual Report and Audited Accounts.

1. The Secretary placed before the Meeting the Annual Report and Audited Accounts for 1937-38 (circulated) as approved by the Council, and mentioned that the accounts had been audited free of charge by Messrs. P. C. Nandi & Co., Chartered Accountants.

Resolved that the Annual Report and Audited Accounts for 1937-38 (previously circulated) be adopted.

Proposed by—Sir E. C. Benthall.

Seconded by—Dr. J. C. Sinha.

(Carried unanimously).

Election of Office-bearers and Members of the Council.

2. The Secretary reported that in accordance with Bye-law 4 for the election of office-bearers and members of the Council for 1938-39 nominations approved by the Council of the Institute had been circulated on the 18th March, 1938, and the final list was circulated together with the notice of the Annual General Meeting. As the number of nominations was in no case in excess of the number of offices, no voting was necessary and no voting paper was therefore issued.

The election of the office-bearers and members of the Council as circulated was then announced from the Chair :

President

Sir H. C. Benthall, Kt.,

Bengal Chamber of Commerce.

Vice-Presidents

Dr. P. N. Banerjee, M.A., D.Sc., M.L.A.,

Calcutta.

Sir George R. Campbell, M.L.A.,

Bengal Chamber of Commerce.

Mr. D. P. Khaitan, M.A.,

Indian Chamber of Commerce, Calcutta.

Dr. John Mathai, D.Sc., C.I.E., I.P.S.,

Director General of Commercial Intelligence and

Statistics.

Mr. S. P. Mookerjee, M.A., B.L., M.L.A.,

Vice-Chancellor, Calcutta University.

Bar-at-Law.

Dr. C. W. B. Normand, D.Sc.,

Director General of Observatories, Poona.

Sir C. V. Ramon, D.Sc., F.R.S., N.L.,

Indian Institute of Science, Bangalore.

Lala Shri Ram, B.A.,

Delhi.

Col. A. J. H. Russell, C.B.B., K.H.S., I.M.S.,

Public Health Commissioner with the Govt. of

India.

The Hon'ble Mr. Nalin Ranjan Sarkar,

Finance Minister, Bengal.

ANNUAL REPORT FOR 1937-38

Treasurer

Dr. Satya Churn Law, M.A., B.L., Ph.D., Calcutta.
F.Z.S., M.D.O.U.,

Secretary

Prof. P. C. Mahalanobis, B.Sc., M.A., I.H.S.,
Statistical Laboratory, Calcutta.

Joint Secretaries

Dr. H. Sinha, M.Sc., Ph.D.,
University of Calcutta.
Prof. H. C. Ghosh, M.A., F.R.S.,
University of Calcutta.

Members of the Council for 1937-38

Mr. B. P. Adarkar, M.A.,	University of Allahabad,
Dr. Nazir Ahmed, M.Sc., Ph.D.,	Director, Cotton Technological Laboratory, Mumbai, Bombay.
Dr. G. S. Bose, M.A., D.Sc.,	Head of the Department of Psychology, University of Calcutta.
Prof. S. N. Bose, M.Sc.,	University of Dacca.
Mr. S. S. Bose, M.Sc., P.R.S.,	Statistical Laboratory, Calcutta. ...
Mr. P. H. Carpenter, F.I.C., F.C.S.,	Chief Scientific Officer, Indian Tea Association
Prof. K. N. Chakravarti, M.Sc.,	Presidency College, Calcutta.
Mr. E. T. Cordwell,	Messrs. Bird & Co.
Mr. R. D. Hoysan, A.C.A.,	Royal Chamber of Commerce,
Mr. A. Hughes, I.C.S.,	Labour Commissioner, Bengal.
Mr. G. L. Mehta,	Scindia Steam Navigation Co.
Mr. N. C. Mehta, B.A., I.C.S.,	Secretary, Imperial Council of Agricultural Research.
Mr. B. N. Mookerjee, M.A.,	Messrs. Burn & Co., Calcutta.
Prof. Radha Kama Mukherjee, M.A., P.R.S., Ph.D.,	Lucknow University, Lucknow.
Mr. M. B. Nairvati, M.A., LL.B.,	Reserve Bank of India.
Ms. T. J. V. Roxburgh, B.A., I.C.S.,	Judicial Secretary, Bengal.
Prof. N. R. Sen, D.Sc.,	Ghosh Professor of Applied Mathematics, University of Calcutta.
Prof. J. C. Sinha, M.A., Ph.D.,	Presidency College, Calcutta.
Dr. P. V. Sukharne, B.Sc., Ph.D.,	Statistician, Imperial Institute of Sugar Technology, Calcutta.
Rao Bahader M. Vaidyanathan, M.A., L.T.,	Statistician, Imperial Council of Agricultural Research.

Statistical Conference and Prof. R. A. Fisher's Visit.

3. (f) The Secretary placed before the meeting the Report of the First Statistical Conference held in Calcutta on the 7th, 8th and 9th January, 1938, and the Audited Accounts up to the 31st March, 1938 of the Guarantee Fund opened for the Statistical Conference and Prof. R. A. Fisher's visit. The Secretary reported that the full Proceedings of the Conference had been sent to the press and would be published shortly, and a statement of accounts in this connexion would be submitted after the work was completed.

Resolved that the Report of the First Session of the Indian Statistical Conference and the Audited Accounts of the Guarantee Fund up to the 31st March, 1938 be adopted.

Proposed by—Mr. G. H. Mehta.

Seconded by—Mr. H. C. Ghose.

(Carried unanimously).

(ff) The Secretary placed before the meeting for information Council Proceeding No. 2 dated 9th January and No. 4 dated 17th August, 1938. (Recorded).

Appointment of Committees.

4. Resolved that the appointment of the following Committees be confirmed :—

(i) Journal Committee.

Prof. S. N. Bose, Prof. K. B. Madhava, Mr. N. C. Mehta, Mr. T. J. V. Roxburgh, Prof. N. R. Sen, Dr. H. Sinha, Prof. P. C. Mahalanobis (Editor, ex-officio) with Mr. K. N. Chakravarti as Secretary.

(ii) Nutrition Studies Committee (with powers to co-opt).

Col. A. C. Chatterjee, Dr. G. S. Bose and Prof. P. C. Mahalanobis (Secretary).

INDIAN STATISTICAL INSTITUTE

(iii) Standing Research Commlttee.

Dr. G. S. Bose, Head of the Psychological Department, Calcutta University; Prof. S. N. Bose, Dacca University; Mr. P. H. Carpenter, Chief Scientific Officer, Tocklai Tea Experimental Station, Assam; Col. A. C. Chatterjee, I.M.S., Director of Public Health, Bengal; Prof. K. B. Madhava, Mysore University; Dr. John Mathai, Director General of Commercial Intelligence and Statistics; Dr. C. W. B. Normand, Director General of Observatories, Poona; Mr. T. J. V. Roxburgh, I.C.S., Judicial Secretary, Bengal; Col. A. J. H. Russell, Public Health Commissioner with the Government of India (nominated by the Government of India); Prof. N. R. Sen, Ghosh Professor of Mathematics, Calcutta University; Dr. H. Sinha, Calcutta University; and Prof. P. C. Mahalanobis (Hony. Secretary).

Proposed by—Mr. E. T. Cardwell.

Seconded by—Mr. K. N. Chakravarti.

(Carried unanimously).

Appointment of Auditors.

5. Resolved that this meeting places on record its appreciation of the services rendered by Messrs. P. C. Nandi & Co., Chartered Accountants as Honorary Auditors and that they may be requested to serve as Honorary Auditors for 1938-39.

Proposed by—Dr. J. C. Sinha.

Seconded by—Mr. K. Kishen.

(Carried unanimously).

6. The Secretary placed before the meeting for information the Budget of the Institute for 1938-39, as passed by the Council on the 17th August, 1938.

E. C. BENTHAL,
President.

P. C. MAHALANOBIS,
Hony. Secretary.