

INDIAN STATISTICAL INSTITUTE

Proceedings of the Council Dated 27th April 1946

A meeting of the Council of the Indian Statistical Institute was held at 5 p.m. on Saturday, the 27th April 1946 in the Statistical Laboratory, Presidency College, Calcutta.

Dr. S. P. Mookerjee, M.A., B.L., M.L.A., D.Litt., Bar-at-Law was in the chair.

Present: Mr. S. N. Ray, C.I.E., I.C.S., Messrs. B. Das Gupta, S. K. Banerjee, Samarandranath Roy, Rajchandra Bose, Mrs. Chameli Bose, Dr. C. Chandrasekhar, Prof. K. B. Madhava, H. C. Ghose, K. N. Chakravarti, Mr. N. C. Chakravarti, Prof. S. N. Bose (Hony. Secretary).

1. Proceedings of the meetings of the Council dated 8 April, 1946 and 17 April 1946 were read and confirmed.

2. The following persons were elected ordinary members of the Institute.

(1) Anil Kumar Bhattacharyya (Superintending Statistician, Indian Statistical Institute Presidency College, Calcutta.

(2) Pitambar Pant, 11 Hamilton Road, Allahabad.

3. Annual Report: The Hony. Secretary placed before the meeting the Draft Annual Report for the year 1945-46.

Resolved that the draft 14th Annual Report be adopted and forwarded to the Annual General Meeting.

4. Audited Accounts: The Hony. Secretary placed before the Council the audited report for 1946-48 together with statements relating to projects and other funds.

Resolved that the Audited Accounts and Statements relating to funds be adopted and forwarded to the Annual General Meeting.

Resolved also that the Hony. Secretary be requested to prepare a statement for consideration at the next meeting of the Council showing how the sanctioned overdraft from Banks was exceeded and how the excess of expenditure over the receipts as shown in the audited statements arose.

5. Budget Estimate for 1946-47: The Hony. Secretary placed before the Council the draft Budget Estimate for the year 1946-47.

Indian Statistical Institute: Budget Estimate for 1946-47

RECEIPTS	Ru.	EXPENDITURE	Ru.
Membership	2,500	Salary including research staff	3,00,000
Training fee, interest & other receipts	8,039	Peons	12,000
		Travelling	10,000
Govt. of India:		Books & Journals	10,000
General Grant	61,000	Laboratory Equipments	90
Dearness allowance including amount		Stationery & Stores purchases	22,000
in arrears for 1945-46	10,600	Postage, printing & contingency	15,000
For Sankhya	2,000	Other expenses (hire charge of	
Road Development	73,000	machines etc.	7,000
Population Census	1,00,000	Rentals	20,000
		Auditors fee	1,800
Govt. of Bengal:		Workers Welfare Scheme	1,500
Crop Survey	8,37,000	Grant for Sankhya	2,000
Agricultural Labour Survey	48,000	Bengal Crop Survey (Field Branch)	
Rural Indebtedness	80,000	& Agri. Labour & Rural Indebtedness	
Rainfall and Yields	10,000	Enquiry	6,39,000
Statistical Bureau (1945-46)	3,971	Road Development (Field & Direct) ..	45,000
		Scientific & Industrial Research	8,238
Contributions	8,334	Hire & Maintenance of Hollarish	45,000
Contribution in lieu of Professor's service	15,000	Contribution to Statistical Publishing	
		Society	1,500
Rentals	15,000	Director's Fund	15,000
Temporary advances from Director's		Provident Fund (investment)	5,000
Fund.	35,000	Amount over drawn in 1945-46 s/o to	
		be recouped	96,353
	12,70,934		12,70,934

Resolved that the draft Budget Estimates be circulated to members of the Council and be considered by the Finance Committee before it is placed before the next meeting of the Council.*

Sd/- S. P. Mookerjee
Chairman.

Sd/- S. N. Bose,
Hony. Secretary.

* This budget was subsequently passed by the Council in its meeting dated 15 May, 1946.

Proceedings of the Annual General Meeting of the Indian Statistical Institute dated 27th April 1946

The Annual General Meeting of the Indian Statistical Institute was held at 5.30 p.m. on Saturday, the 27th April 1946, in the Statistical Laboratory, Presidency College, Calcutta.

Dr. S. P. Mukherjee, M.A., B.L., D.Litt., Bar-at-Law (Vice-President) was in the Chair.

The following members were present :

Mr. S. N. Ray, C.I.E., I.C.S., Dr. C. Chandrasekhar, Prof. K. B. Madhava, Mr. B. C. Bose, Prof. H. C. Ghosh, Mrs. Churnei Bose, Messrs. S. N. Roy, C. K. V. Rao, C. R. Rao, N. Chakravarti, S. Sen Gupta, B. Ganguly, K. C. Cheriyan, K. C. Banerjee, Nanigopal Banerjee, K. C. Basak, N. T. Mathew, B. N. Ghosh, P. Pant, P. R. Sen, N. K. Chakravarti, M. N. Ghosh, H. K. Nandi, M. Mitra, B. Das Gupta, N. C. Chakravarti, P. K. Bose, T. Choudhury, P. K. Banerjee, C. Roy, S. K. Banerjee, Prof. K. N. Chakravarti and Prof. S. N. Bose (*Hon. Secretary*).

1. *Annual Report & Audited Accounts* : The Hon. Secretary placed before the meeting the Annual Report and Audited Accounts for 1945-46 as adopted by the Council and mentioned that the accounts had been audited by Messrs. P. C. Nandi & Co., Chartered Accountants.

Proposed by Prof. S. N. Bose.

Seconded by Mr. B. Das Gupta.

The Chairman having invited discussions on this, Mr. P. K. Bose spoke suggesting (1) that the Annual Report should be circulated to the members of the Institute at least one week before the actual date of the meeting so as to enable them to form their opinion on different matters stated therein. He also suggested (2) now that the war is over, steps should be taken by the Institute authorities to bring back the Institute library from Giridih where it was transferred during 1942 as a measure of evacuation. At any rate, the more important periodicals and books should at once be brought back to the Statistical Laboratory, Calcutta, (3) The general Training Section and classes for industrial statistics Section should be separated, (4) Steps should be taken to have a journal like *Sankhya* owned and published by the Institute.

Mr. H. K. Nandi regretted that *Sankhya* was of late rather irregular in publication. He suggested that steps should be taken so that the issues came out regularly in future.

Mr. N. K. Chakravarti wanted to know if the Journal Committee was functioning and if so, how often it had met during the year under review. The Hon. Secretary wanted notice, but Prof. K. B. Madhava replied that it had not in fact met last year.

The Hon. Secretary accepted in principle the suggestions (1), (2) and (4) put forward by Mr. P. K. Bose. As regards (3) he stated that there were practical difficulties which, however, might be looked into. About Mr. Nandi's remarks regarding the irregularity in the publication of *Sankhya*, the Hon. Secretary observed that the question was beset with many practical difficulties though it was no doubt desirable to bring out the journal more regularly.

Mr. B. N. Ghosh pointed out that under Rule 12 publication of reports or opinions on behalf of the Institute required the approval of the Technical Committee which was defunct. He wanted to know if the many reports published on behalf of the Institute were authorized under the constitution. The Hon. Secretary remarked that in forming the Technical Committee the idea was to draw in men who were not statisticians themselves but were eminent in sciences where statistics would find useful application: this was felt to be essential to the growth of the subject in India, but such a Committee obviously could not nor was perhaps intended to function as a consultative body in the day-to-day analysis and solution of statistical problems. Moreover, it was up to the Committee itself, which under the constitution was a self-perpetuating Committee with very wide powers, to take or refrain from taking any initiative in the matter. He felt, however, that the provision for this Committee as laid down in the constitution required a revision now. Mr. S. N. Ray, I.C.S., said that under the Rules it was up to the Council itself to consult the Committee at certain occasions, which perhaps it had never done.

ANNUAL REPORT FOR 1945-46

The Report was then unanimously adopted by the meeting.

2. The Hon. secretary placed before the meeting for information the Report of the Committee on the future development of the Indian Statistical Institute.

3. *Recommendation from the Council* : The Hon. Secretary placed before the meeting the following resolutions passed at the meeting of the Council held on 7th March 1946 :

"Resolved that in view of the fact that the re-organization of the Institute would have to be taken up as an early date it was considered inadvisable to hold fresh elections under the existing constitution and the interests of the Institute would be best served by the present office-bearers and Council continuing to carry on work until the re-organization is completed".

"Resolved that the above recommendation of the Council to allow the present office-bearers and Council to continue to function until the re-organization is complete be placed before the next Annual General Meeting".

In placing these before the house for ratification the Hon. Secretary observed that the Council had taken the unprecedented step of seeking to extend its own life this year under extraordinary circumstances. A Sub-committee appointed by the Council was already negotiating with the Government of India in connexion with the future re-organization and development of the Institute, and in the interests of continuity and speedy disposal of business it was necessary that the present Council and sub-committee should continue to function until the re-organization was completed. It was now open to the house either to accept the recommendation made by the Council under Rule 7 or reject it and elect a Council and Office-bearers on the spot under Rule 2(a) of the constitution.

Mr. B. K. Nandi held that, while in making the recommendation the Council had undoubtedly been actuated by the best of motives and the weightiest of reasons, the resolutions as they stood before the house were unfortunately ultra vires, being in violation of Rules 5, 14 and 16 of the constitution. He suggested that the resolutions be referred back to the Council for reconsideration and regularization.

Mr. S. N. Ray, I.C.S., explained the circumstances under which the Council had been constrained to take the particular step.

The Chairman gave a ruling for election on the spot and suggested that in view of the weighty reasons set forth by the Hon. Secretary the house would be well-advised to re-elect the present Council and Office-bearers, a course which would also help the house out of the constitutional difficulty. Finally, on his recommendation, the following resolution was moved by Mr. Nihar Chandra Chakravarti :

"This General Meeting of the Indian Statistical Institute considered the resolutions of the Council placed before this meeting and resolved that the present Council and the Office-bearers be re-elected for the year 1946-47."

This was seconded by Mr. N. T. Mathew and was carried unanimously.

4. *Appointment of Auditors* : Resolved that Messrs. P. C. Nandi & Co., Chartered Accountants, be appointed Auditors for the year 1946-47 on an honorarium of Rs. 1,800/-.

Proposed by Prof. H. C. Ghosh,

Seconded by Prof. K. B. Madhava

5. *Notified resolutions* : Mr. P. K. Bose moved :

"In view of a scheme for re-organization of the Indian Statistical Institute which is already under the consideration of the sub-committee of the Council of the Institute, it is resolved that a Committee be appointed including nine members elected from the General body of members of the Institute to consider the re-organization in all its aspects—constitutional, administrative and technical—and to report thereon to the general body of the members of the Institute".

It was seconded by Mr. M. N. Ghosh.

The mover Mr. P. K. Bose said he would not make any speech in support of his resolution.

The Hon. Secretary pointed out that it would be highly undesirable to have two parallel committees to consider more or less the same question, and requested the mover to withdraw it. Mr. H. K. Nandi proposed an amendment suggesting that the Council be requested to advise the existing Re-organization Committee to consider the re-organization in all its aspects—constitutional, administrative and technical. Mr. S. N. Ray, I.C.S. having assured the movers that the question of re-organization in all its different aspects would be gone into by the existing sub-committee and the chair having agreed, both the resolution and the amendment were withdrawn.

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Mr. Birendra Nath Ghosh moved the following resolution :

"This Annual General Meeting of the Indian Statistical Institute record with regret that although Subhendu Memorial Fund was created some eight years ago with a view to perpetuate the memory of one of outstanding merit and abilities who was mainly responsible for the reputation of the Institute in its childhood and also in later years, yet no step has been taken upto now to utilise the fund in the realization of its noble purpose. Indeed the name of the great scholar is gradually passing into oblivion. To use the fund only for giving loans to workers of the Institute at a certain percentage of interest may serve any other purpose but that of a memorial to the great soul. So it is resolved that immediate attention be given by the Council to think out and to give effect to ways and means like awarding a prize or medal at regular intervals for commemorating the name of Subhendu Sekhar Bose within the next three months".

The resolution was seconded by Mr. Harikinkar Nandi.

In moving the resolution Mr. B. N. Ghosh touched briefly upon the qualities of head and heart the late Subhendu Sekhar Bose, and the part he had played in the growth of the subject in India, and pointed out that his memorial fund was not being used to proper ends.

The Hon. Secretary replied that the fund in question was made up of contributions received from friends and admirers of late Subhendu Sekhar Bose as a result of an appeal issued by Prof. P. C. Mahalanobis in his personal capacity. The fund was being held in deposit only by the Institute which had no concern, whatsoever, with the administration of the fund, the responsibility for which lay with the committee formed specifically for that purpose. The Chair observed that since the Council had appointed a Committee for that specific purpose, the ultimate responsibility must rest with the Council. He assured the mover that the Council would direct the Committee to devise ways and means for the perpetuation of the memory of the great scholar which was already overdue. The resolution was then withdrawn by the mover.

A vote of thanks to the Chair was proposed by Prof. K. B. Madhava, which was carried unanimously.

INDIAN STATISTICAL INSTITUTE

Fifteenth Annual Report : 1946-47

In April 1947, the Indian Statistical Institute enters on its sixteenth year of activity. The year under report has been one of unprecedented stress and difficulty. Most of the major grants to the Institute will terminate with the close of the financial year. It is thus faced with the real danger of having to disperse the trained staff owing to lack of funds and of a partial disintegration of the organisation built up during the course of several years. Besides, work during the year was slow due to the shortage of trained workers. The disturbances in the city and elsewhere during August and subsequent months resulted in the loss of many working days. The postal strike which preceded the riots had also seriously hampered both field and laboratory work, in such projects as the Bengal Crop Survey.

As Prof. P. C. Mahalanobis the founder-Honorary Secretary had been away on UNO duty most of the year, Prof. S. N. Bose acted as Honorary Secretary during the year under report. It reflects great credit on the workers of the Institute that in spite of the many difficulties, most of the projects were worked with regularity and reports were submitted in due time.

FUTURE DEVELOPMENT OF THE INSTITUTE

It was mentioned in the last annual report that the Institute had forwarded to Government various schemes of future development. The Educational Secretary to the Government of India has now written to the President of the Institute that after careful consideration the Government of India are pleased to accept the proposals subject to certain recommendations regarding the administration of the Institute and the scope of its activity. This letter has already been circulated among the members, and has also been carefully considered by the Council. Their recommendations will be laid before the members in the Annual General Meeting and the considered opinion of the General Body will be forwarded to Government for further deliberation. It is hoped that a decisive settlement will be reached soon, to enable the Institute to reorganise its activities with the assurance of a permanent support by the authorities.

TECHNICAL COMMITTEE

In the year under report two meetings of the Technical Committee of the Indian Statistical Institute were held; the first at the Statistical Laboratory, Calcutta on December 7, 1946 and the second at the University Buildings, Delhi on January 4, 1947. The meetings discussed certain proposals about reorganisation of the Committee. An important question had been raised by Mr. B. N. Ghose in the last annual general meeting. He had wanted to know if the many reports published on behalf of the Institute were authorized under the constitution. The Honorary Secretary who had sought legal opinion on the point was advised that while it was imperative to obtain the approval of the Technical Committee before any report or opinion was published in the name of the Institute, reports on projects which formed the bulk of the printed applied work of the Institute did not come under this category, and the submission of such reports did not contravene Rule 12. He reported this to the second meeting, and the Technical Committee felt that no further action was necessary in the matter at the moment.

CROP SURVEY WORK IN BENGAL

The sample survey of crops in Bengal entered on its tenth year of progress in 1946-47. The three years' scheme sanctioned by the Government of Bengal for a two-season sample survey of jute, rice and maize paddy, terminated in the year 1946-47. A sum of Rs. 10,45,368 was received by the Institute for carrying out the survey during the year.

Design of the Survey : The whole province was divided into about 1200 zones of approximately equal size (64 sq. miles), and excluding certain hill tracts and forests 1050 zones were taken up for survey. For area survey in each zone 94 square grids of 2.25 acres size were selected at random. These grids were arranged in two interpenetrating sub-samples of 64 grids each with 14 common grids for testing the accuracy of the work. The total number of grids thrown covered over one million plots in an area of approximately 62000 square miles.

For crop cutting work 480 zones were selected and plots were chosen in these zones according to the method of multi-stage sampling, and in each plot so chosen, three concentric circular cuts were made with a random point in the plot as centre.

For conveniences of field work 16 to 18 contiguous zones were grouped together to form a block. There were 80 such blocks and one inspector with four to five field workers had to complete the survey of the grids under each sample in each block within a prescribed time. One chief inspector was in charge of 4 such parties of workers and there was one Assistant Superintendent above 2 to 4 such chief inspectors' charge.

Field Organisation : Mr. N. C. Chakravarti, M.A., B.C.S., Additional Assistant Secretary, Department of Agriculture, Development Branch, whose part-time services had been lent by the Government of Bengal for conducting the field operations under the Institute, remained in charge of the work for the whole of the season. The field staff under him consisted of one Deputy Superintendent, 5 Assistant Superintendents and 20 Chief Inspectors, 70 Inspectors and 224 field workers.

Field Work : Work of jute-sown season started on the 10th April 1946 in the low lying parts and was continued up to the middle of October. Field work in aman season started in October and continued up to the middle of January 1947. A total of 87,410 grids were surveyed during the jute-sown season and about 83,000 grids during the aman season while 3743 samples of jute and 8314 samples of aman paddy (each sample consisting of 3 concentric circular cuts) were harvested during the year.

This year's work was seriously hampered and the time programme considerably upset owing to the postal strike in July-August and the disturbances in August and October.

Analysis of data : Tabulation of the field material was so arranged that monthly progressive estimates could be submitted to the Government on the basis of field records received up to one fortnight previous to the date of report. But on account of the postal strike and the disturbances mentioned above, the transmission of field records was totally stopped, and the arrangement for preparing monthly progressive estimates was upset. A preliminary report on the jute-sown season's survey was submitted to Government in January 1947 and a progressive estimate of sown acreage and yield was sent in the first week of February 1947. The final estimate of acreage and output of aman paddy was submitted in March.

ECONOMICS OF AGRICULTURAL LABOUR AND RURAL INDEBTEDNESS

This survey was started with the financial assistance of the Department of Agriculture and Co-operative Credit and Rural Indebtedness of the Government of Bengal in 1945. In the first stage of the survey all households falling in the sample units of 1 sq. mile in rural Bengal chosen at random have been surveyed under a short schedule covering a number of basic items such as sex and age composition of the family, caste and community, occupation, land owned or used for various purposes etc. Information has already been collected for 80,710 families from 476 sampling units scattered over 60,000 sq. miles of rural Bengal. The whole material has been punched on Hollerith Cards and is expected to form the basis of a 'Master-Sampling' scheme for the whole of Bengal. Preliminary reports on the condition of agricultural labour, and on the nature and extent of rural indebtedness have already been submitted to the Departments concerned.

The second stage of the survey constituting a special enquiry into the condition of the agricultural labourers of Bengal is now under way. Out of 80,710 families surveyed in the first stage approximately 16,000, of which about 8,000 represent agricultural labour have been selected for a second and more detailed enquiry. This enquiry will be more elaborate and will investigate certain special problems regarding agricultural labour and rural indebtedness in Bengal.

ENQUIRY INTO THE FAMILY BUDGETS OF MIDDLE CLASS EMPLOYERS

A survey of the family budgets of ministerial staff (lower grade) and menials was made by the Institute on behalf of the Government of Bengal in April-May 1946. About 1,200 budgets were collected on random sample basis, from the 4 district towns of Dacca, Rangpur, Brahmanbaria, and Bankura. Detailed information on family earnings and expenditure, as well as on the economic and the biological composition of the family was collected. The material has been analyzed and the results, though based on a very small sample from only 4 district towns, have provided useful information about the living conditions of middle class ministerial workers of Bengal.

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POPULATION DATA WORK

Bihar Census slips : This work was formerly conducted at Giridih. During the year under review, most of the workers from Giridih branch, were transferred to Calcutta. The Bihar disturbances of 1946 hampered work very considerably and the transference of material also took a good deal of time. Work could not, therefore, progress very much but has now been taken up in Calcutta on full scale. Lack of space for the voluminous material, is however, still proving a very serious handicap.

ALL INDIA POPULATION STATISTICS (Y-SAMPLE SLIPS)

In 1945, the Home Department of the Government of India had sanctioned a block grant of Rs.2,41,000 (increased to Rs. 3,73,000 in October 1946) for transferring to Hollerith cards the census information on the Y-sample slips. As workers knowing Bengali were easily available, the work on Bengal slips, numbering one million, was taken up first. During the year under review good progress has been made and the work of coding these slips and transferring them to Hollerith cards is nearing completion. Preliminary work on Assam and Bihar Y-slips has also been taken in hand.

The Home Department of the Government of India has also approved a programme of preparing census tables and has already made a preliminary grant of Rs. 25,000. Work on this scheme will begin soon.

ENQUIRY INTO THE ECONOMICS AND STATISTICS OF ROAD DEVELOPMENT

The work on this project, undertaken on behalf of the War Transport Department of the Government of India, was continued during the year under report. The services of Prof. K. B. Madhava which had been loaned by the Government of India from the Mysore Government were at the disposal of the Statistical Institute until December 1945. In January 1946 he became Special Officer in the War Transport Department itself, but it was arranged that his services on an honorary basis would be still available to the Institute. Mr. C. R. Bose, Engineer-Economist, supervised the field operations. The enquiry was divided into two complementary parts, a traffic-census and an economic survey of the catchment areas of the seven centres, Mohania, Sershahiti, Jehanabad, Sitamarhi and Bariaipur in Bihar, and Bolpur and Toposi in Bengal. The completion of the field work connected with the first part had been already reported in the previous year, and in the year under review the other part was also completed. About 1,75,000 vehicles were enumerated and detailed information regarding each was obtained. The whole of the information collected was transferred on to Hollerith cards. The economic survey was conducted in 744 villages.

The material collected is at present being analysed. An interim report covering fairly wide grounds is being submitted in parts. The first volume of the report covering the centre Sitamarhi in Bihar has been already submitted to the Government of India. The second volume covering the Bolpur centre is nearing completion.

TRAFFIC CENSUS OF THE NEW HOWRAH BRIDGE

In April 1946 the War Transport Department, Government of India sanctioned a total grant of Rs. 30,000 to the Indian Statistical Institute for conducting a survey of traffic on the bridge over the Hooghly connecting Calcutta and Howrah.

The principal object of the survey was to gather technical information governing the road approaches to and from Calcutta. The survey lasted a fortnight—18 May 1946 to 23 May 1946—and was designed to study movement of wheeled traffic as well as of pedestrians and of animals. It also sought to ascertain the origin and destination of the principal types of such traffic in so far as was possible without interruption of movement.

The enumerators were mostly students of the city schools and collegians who were having their summer vacation at the time. They showed a good deal of enthusiasm for the work, and it is largely to their credit that results came out surprisingly accurate as was shown later by the analysis of the field records. Mr. D. N. Ganguly, Deputy Superintendent, Bengal Crop Survey, was responsible for the entire field organisation.

A comprehensive report on this survey has been submitted to the Government of India. It is hoped that the experience gained, and the technique developed in course of this survey would be of assistance in the conduct of other centres of rapid, cheap and efficient traffic surveys necessary for solving some of the problems likely to be encountered when the construction of important bridges is planned under an all-India post-war road scheme.

ENUMERATION OF POSTAL TRAFFIC

The enquiry in connection with the enumeration of unregistered articles started in the previous year continued during the year under review. A report was submitted to the Posts & Telegraphs Department, New Delhi, in May 1944, containing (a) the results of analysis of preliminary materials collected (b) a scheme outlining a suitable method of enumeration based on random sampling and (c) an experimental scheme for the Calcutta Presidency Office areas. The experimental sample counts for the Calcutta area were undertaken in June 1944 but remained incomplete because of the various disturbances during the year. A report on materials already collected was submitted to the Posts & Telegraphs Department in September 1944. On the basis of the findings of this enquiry another experiment was initiated in February 1947 in Bombay.

Besides the enumeration of unregistered articles certain other statistical investigations in connection with telegraph and telephone traffic were also taken in hand during the year.

SURVEY OF INCIDENCE OF TEA DRINKING

A survey of incidence of tea drinking in a number of rural areas of East and North Bengal was organised by the Indian Tea Market Expansion Board in the winter of 1945-46, the data being later given to the Statistical Laboratory for analysis. The figures were analyzed and a report was furnished to the Tea Market Expansion Board in June 1946.

MARKET RESEARCH SURVEY ON CANNED FRUITS

A report of a preliminary survey on prospects of fruit canning industry in India was prepared and furnished to a manufacturing and trading concern in Calcutta in October 1946.

OTHER PROJECTS AND SPECIAL ENQUIRIES

Calcutta Diet Survey : With the object of estimating the living conditions of the middle class population of Calcutta, a family budget enquiry by sample survey methods was carried out by the Institute in May-September, 1945. Altogether 1800 budgets were collected from the whole of Calcutta. A detailed analysis of the per capita consumption of all the consumption items for 9 expenditure classes has been made. The corresponding cost of living indices at different expenditure levels with 1946 weights and 1938 base prices have also been prepared.

In order to compare the results with the pre-war consumption pattern, a similar analysis of the 1160 budgets collected in 1938 in connection with an enquiry into the tea-drinking habits of the people of Calcutta was made.

Bengal Labour Enquiry : This enquiry started in 1941-42 at the instance of the Government of Bengal, was postponed in 1942 as the sanctioned grant was not received, but was revived in 1945 at the expense of the Institute. Further work on this project is proceeding.

Price Collection : Fortnightly collection of prices of cereals, other food items and clothing, and also of wages paid in different rural occupations from 60 centres in Bengal was being made from the beginning of 1945. The data are being tabulated.

Family Budget Enquiry relating to Calcutta Corporation Labourers : The report on this enquiry is at present under preparation by Professor K. P. Chattopadhyay of the Calcutta University who conducted the survey from the beginning in collaboration with the Indian Statistical Institute.

Prediction formulae for outturn of paddy and jute on the basis of rainfall : In November 1945, a grant of Rs. 20,000 to be drawn in two instalments, was sanctioned by the Department of Agriculture, Forests and Fisheries (Development Branch), Government of Bengal, for the purpose of working out a prediction formulae for outturn of paddy and jute on the basis of rainfall during a particular year. The first instalment of Rs. 10,000 was drawn in the current year. The problem is fraught with various difficulties due chiefly to lack of relevant data, but whatever was possible under the circumstances is being sought to be done to tackle this problem.

Linguistic Research : Research into the possibilities of (i) delimiting a simple and expressive Bengali Vocabulary (suited to school going children) for text books on various subjects, (ii) making a compa-

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rative study of the vocabulary used by various authors and of the change from epoch to epoch, and (iii) evolving a basic Bengali all by a technique which combines linguistic methods with statistical methods had started at the Institute a few years ago under the guidance of Mr. J. M. Roy. This study was continued in the year under review, and a book incorporating the suitable vocabulary for school text books has been brought out by Mr. Roy.

Analysis of crop cutting material : The analysis of the material of the special crop cutting work on paddy conducted in 1945-46 at two selected centres under the direct supervision of trained statisticians from the Institute, was undertaken during the year under review. It was found that the bias of overestimation of yield rate even with cuts of very small size practically vanishes when the work is done under the direct supervision of trained statisticians, but is quite appreciable when it is left to the field staff. For work under field staff the size of the cut (if bias has to be removed) has to be increased and our own experience has been that for this purpose it might be safe to work with a size in the neighbourhood of 100 sq. ft. It may be mentioned here that an account of Mr Chintaman Dasgupta's work in connexion with crop cutting experiments was published in *Sankhya* vol. 7 part 3; and in *Nature* of November 30, 1946, Professor Mahalanobis published a note in which he gave some of the findings from the experiments in the Indian Statistical Institute.

Exploratory Crop cutting experiments on Sugarcane, Gopalpur (Rajshahi) : The authorities of North Bengal Sugar Mills Ltd. approached the Institute to take up the problem of estimating the total outturn of sugarcane, in the farms under their control. But as the harvesting had already begun, the Institute could not prepare a full-fledged scheme in the current year. However, a number of sample cuts of various sizes have been taken in one of the farms (where crop was available), under the supervision of our field technical staff. These materials are now being analysed and will be utilised in planning the next year's, full fledged experiment.

MISCELLANEOUS STATISTICAL ENQUIRIES

During the year under review a number of miscellaneous statistical enquiries were attended to as usual. The distribution of more important items by provinces are shown below :

Bengal 12; Bihar 1; Bombay 5; Delhi (Central) 4; United Provinces 3; Orissa 1; Others 1; Total 27.

THEORETICAL RESEARCH

Multivariate tests : S. N. Roy made a calculation in various multivariate cases of the distance function evolved by A. Bhattacharyya of the Statistical Institute; he fitted this into the scheme of most powerful tests on an average developed by Wall and others, and examined the status (in terms of this integrated theory) of the various multivariate tests worked out by himself and others. He found that the tests fulfilled certain optimum conditions in terms of the integrated theory.

Designs of Experiments : Mr. R. C. Bose continued his researches on the design of experiments. New resolvable solutions of certain designs were obtained. Fisher's results on the maximum number of factors which can be accommodated in a symmetrical factorial experiment with a given number of levels, and a given block size so that no main effect or a 2-factor interaction may be confounded, has been generalised in certain directions.

Patch number problem : In continuation of his previous work in which the expectation of the number of (black-white embedded) patches was found, Mr. R. C. Bose obtained an exact formula for the variance of this number. This provided a theoretical verification of the results of an extensive series of model sampling experiments carried on earlier under the guidance of Mr. J. M. Sen Gupta.

General problems of divergence between two statistical populations and the theory of estimation were the subjects of research of Mr. A. Bhattacharyya. New and closer approximations were found for the variance of efficient statistics. Many new properties of the Amount of Information were also discovered.

SANKHYA : THE INDIAN JOURNAL OF STATISTICS

During the year under review parts 3 and 4 of volume 7 and part 1 of volume 8 have been issued part 2 of volume 8 is nearly ready.

TRAINING AND EXAMINATION IN STATISTICS

Training in General Statistics : Eleven students were admitted this year for the regular one year's course of training in general statistical theory and methods which the Institute has been conducting for a long time. Eleven officers were sent on deputation for statistical training by various Governments, States and public institutions during the year under review.

Institute Examinations in Statistics : Examinations for the award of Statistician's Diploma parts I and II were held in August 1946. Of the six candidates for Part I, Rajinder Nath Kaushik passed in all papers, while A. Nityanarayana Rao and Narayana Prakash Shrivastava passed in practical papers only, and Siva Chandra Garg passed in theoretical paper I of the examination. In part II, only one candidate appeared in four theoretical papers and was declared failed.

The Computer's Certificate part I, Examination was held in May 1946 and 88 candidates sat for it. In paper IA(i) 67 appeared and 38 passed, in IA(ii) 68 appeared, 13 passed, in IB(i) 29 appeared, 12 passed, in IB(ii), 33 appeared and 16 passed, in IC(i) 1 passed out of 5, in IC(ii) 1 passed out of 4.

ARRANGEMENTS IN THE STATISTICAL LABORATORY

As in previous years the Statistical Laboratory had to function at three places, namely, Calcutta, Baranagar and Giridih. The staff at Calcutta were mainly housed at the Presidency College and at 122A Chittaranjan Avenue and the staff of Giridih branch had been transferred to Calcutta and Baranagar. Most of the books and periodicals had also been brought back to Calcutta. The Baranagar and Calcutta centres functioned tolerably well but working hours had to be occasionally reduced owing to difficulties of transport during the frequent disturbances in the city.

Number of workers : The number of workers employed at the different branches on 1 April 1946 and 31 March 1947 are given in the following table.

	Calcutta		Baranagar		Giridih		Total	
	1 April 1946	31 March 1947	1 April 1946	31 March 1947	1 April 1946	31 March 1947	1 April 1946	31 March 1947
Piece-rate	56	0	89	91	43	—	188	100
Monthly	83	67	82	109	23	3	198	179
Total	139	76	171	200	76	3	386	279

Institute Staff : During the year under review J. M. Sen Gupta was Superintending Statistician in charge of the Holl-rith Section and N. T. Mathew was Superintending Statistician in general charge of the Baranagar Branch. Anil Bhattacharyya worked as Superintending Statistician at Calcutta and Mrs. Chandra Bose, Salyabrata Sen, Tarapala Choudhury and Chidananda Das Gupta worked mostly at Calcutta. R. C. Bose and S. N. Roy, whole-time lecturers in the Calcutta University, continued as part-time workers in the Institute, S. N. Roy being appointed part-time Assistant Director to take over the technical direction of the work in the absence of Professor Mahalanobis. C. R. Rao and R. K. Mukherjee left for England in the middle of July 1946 on the basis of a scholarship from the Wellcome Trust to work on Anthropometric Statistics in the University of Cambridge (see p. 9 for details). Monumolan Mukherjee left the Institute to join the Statistical Bureau of the Government of Bengal and K. C. Cheryan took up an appointment with the Reserve Bank of India. S. J. Pota joined the Institute of Hygiene and Public Health. Proudd Banarjee joined the Statistics Department of the Presidency College but is continuing his work at the Institute, now as part-time worker. Jitenranath Talukder, Arun Ganguli and Sambhanshi Halder also left the Institute to join the Statistical Bureau, Government of Bengal. Among the old workers, Sullhir Kumar Banerjee, Heramba Chandra Ghosal, Subodh Chandra Das Gupta, Jibansati Saha, Jalamkar Sharma, Narah Chandra Mukherjee, Susanta Ranjan Guha, Gayanath Ahas, Sarat Chandra Mitra, Debabrata Dutta and Purna Chandra Ghosh looked after various sections in Calcutta and Baranagar.

In the Computing Section, Haribhajan Choudhury, who was in charge of Giridih office, was transferred to Baranagar as Supervisor of Computing work. He was assisted by Rajin Roy and trained computers like Sudhir Palit, Tapan Kumar Roy, Pabitra Kumar Dey Sarkar and others. Shyamundar

ANNUAL REPORT FOR 1946-47

Howe was in charge of the computing section at Calcutta and was assisted by Pabitra Das, Bishan Pal and others. Dhivendranath Sarkar remained in charge of the Cost Accounting Section at Baranagar and was assisted by Benoy Mukherjee and others. The Hollerith Section was managed by Naresh Dutta. Kshah Poddar, the chief operator, was in charge of the machine section assisted by Bihuti Chakraborty, Sourin Bose and others.

BRANCH LABORATORY AT BARANAGAR

The main bulk of the computational work in the Bengal crop survey, and several other projects were carried out in the computing section located at Baranagar.

The strength of the staff at Baranagar was increased during the year mostly by transfer from Giridih. The major projects on which the primary compilation work was done at Baranagar were the Bengal Crop Survey, Enquiry into the Rural Indebtedness and Economics of Agricultural Labour, Population Data Committee work and Bengal Middle Class Family Budget Enquiry.

Housing Scheme : Four different workers' messes are being maintained at Amarpali (87, B.T. Road), at 882, B.T. Road, at 11, Tobin Road and 4, Institute Lane. Besides these messes, four houses have been rented for residential use of the workers. About 90 workers and families of 8 of these workers have been housed. A large number of workers have still to come daily from Calcutta. The Institute is providing a bus for conveying these workers to and fro, but more facilities in this direction are needed.

Welfare and Amenities : The medical welfare scheme and the workers' tiffin club managed on a co-operative basis by the workers are continuing to function. The medical officer of the Institute attended as many as 2300 cases during the year.

HOLLERITH SECTION

The Hollerith Section, fully organized in November 1946, has developed rapidly during the year and has taken its full share in the total output of all primary computations undertaken by the Institute. In fact, against a direct expenditure of about 2300 man-months of computation in the year, additional work equivalent to about 1700 man-months, (of which 1200 man-months represented the current paying projects, and 500 man-months represented all arrears, small researches, cost accounting, valuation of workers and preparation of pay bills) was handled on the machines.

The large volume of work involved in the handling of different projects, of which the most important and voluminous ones were (1) Road Development (2) Rural Economics and Indebtedness (3) Bengal Crop Survey (4) Middle class Family Budget Enquiry and (5) Population Data Work, made it necessary to acquire more machines and equipment. The section has now 45 punching and verifying machines, 1 tabulator, 2 sorters, 1 multiplier and 1 summary punching reproducer. The population slip punching which has assumed enormous dimensions and is at present using 35 punching and verifying machines, is in need of a collator, a tabulator, a reproducer, a sorter and in fact, a separate section of its own.

The total staff consists of thirty four, with a strength of 6 operators, 3 technical and supervising staff, 5 computers and 20 punching hands.

The total machine hours effectively consumed were 17,106 on the punching, 2934 on the sorting, 1767 on the tabulating, 641 on the multiplying and 611 on the reproducing side. The total number of cards of various column capacities, punched and fully verified, was 14 lakhs as against 3 lakhs of the previous year.

Researches into the various possible uses of the machines were carried out on a small scale and methods of numerical solution of determinants and calculation of coefficients were tried out with interesting results.

STATISTICAL LIBRARY

Although the bulk of the Library stock is still lying at Giridih, where it was removed in 1942 as an evacuation measure, a large number of important books have been brought down to Calcutta.

The total number of volumes added to the library during the year was 771, gifts and review copies received numbering 36. The library also received 348 periodicals, of which 125 were annual publications.

The number of volumes issued from the Central Library at Calcutta was 11,822. With the transfer of workers from Giridih branch to Baranagar branch the number of readers in the library at Baranagar increased, number of volumes issued being 1560.

Workers' Circulating Library : 226 new volumes were added and books in different centres were interchanged at intervals. The total number of volumes issued were 3190, 5400 and 2470 in Calcutta, Baranagar and Giridih respectively.

VISITORS

During the year under review a large number of distinguished visitors came to the Institute. Among them were Dr. W. Edwards Deming, M.Sc., Ph.D. (Adviser in Sampling, Bureau of the Budget, U.S.A.), Prof. P. M. S. Blackett, F.R.S. (Langworthy Professor of Physics, Manchester University), Prof. Harlow Shapley, Ph.D., L.L.D., D.Sc., D.Litt., (Director of Harvard Observatory), Dr. S. S. Chen (Professor, Academia Sinica, Shanghai, China), Mr. L. R. Subbarwal, I.F.S. (Conservator of Forests, Ranchi), the Hon'ble Mr. Abanindranath Ghose (Minister, Agriculture, Forests and Fisheries, Bengal), Mr. S. Dutta, I.C.S. (Additional Secretary, Department of Agriculture, Bengal), Mr. N. M. Khan, I.C.S. (Director of Agriculture, Bengal), Dr. Watterson (Adviser in Psychiatry, Government of India), Dr. D. L. Sharma (Senior Psychologist, Government of India), Mr. T. Bergen (Agriculture Office, American Consulate General), Mr. G. M. McKelvie (Consulting Engineer to the Govt. of India, War Transport Department), Mr. J. Chambers (Chief Engineer to the Government of Bengal), General Fleming and Mr. Macdonald (Road Experts from U.S.A.)

LOCAL BRANCHES OF THE INSTITUTE

Bombay : During the year under review this branch held its elections and Sir H. M. Mehta, K.B.E., K.C.I.E., was elected President, the Vice-Presidents being Prof. C. N. Vakil, Prof. John Maclean, Dr. V. R. Khankar, Mr. L. S. Vaidyanathan, Dr. H. J. Bhabha, Mr. R. G. Saraya, Dr. N. Sundara Rama Sastry, Director of Statistics, Reserve Bank of India was Joint Honorary Secretary with Prof. G. S. Prirkar of Wilson College. Mr. K. M. Prunchand was Honorary Treasurer. Two lectures were held under the auspices of the branch during the year under report. On 4 July 1948 Dr. P. V. Sukhatme, Ph.D., D.Sc.(London) Statistical Adviser to the I.C.A.R. spoke on "Crop cutting Experiments in India". Prof. C. N. Vakil of Bombay University presided. The second lecture on "Statistical Organization" was delivered by Dr. W. K. Deming, Sampling Adviser, Bureau of the Budget, Washington on 28 January 1947 under the Chairmanship of the Hon'ble Mr. V. L. Mehta, Finance Minister to the Govt. of Bombay. Sir Chintaman Deshmukh was present on the occasion. In addition to the above activities, the branch organized a course of lectures on "Economic Statistics". The course was intended for the benefit of post-graduate students of Economics, Sociology and allied subjects and employees in the various banking, commercial and social institutions in Bombay. A number of students of the University school of Economics, Bombay, and employees of various commercial organisations took advantage of these lectures delivered by Mr. V. G. Pendharker and Dr. N. S. R. Sastry. Owing to the disturbances in the city, plans for various other activities had to be given up for the moment.

Poona : Mr. Bahadur D. L. Salasarebalkhe continued to be the President of this branch and Mr. N. V. Sovani the local Secretary. Under the auspices of the branch Dr. Deming, Sampling Adviser, Bureau of Budget, Washington delivered an address on 26 January 1947. Mr. N. V. Sovani completed the Socio-Economic Survey of Kulkarni during the year under report. The first volume of the report of this investigation, "Population and fertility in Kulkarni city" is likely to be published very soon.

Ahmedabad : Owing to disturbed conditions that prevailed in the city till the end of December 1946, the Ahmedabad branch could not make much progress. Many of its members have also left Ahmedabad. No reports have yet been received from the other local branches of the Institute.

MISCELLANEOUS

Visit of Dr. W. Edwards Deming : One of the many distinguished American Scientists who attended the Delhi session (1947) of the Indian Science Congress Association was Dr. W. Edwards Deming, M.Sc., Ph.D., Sampling Adviser, Bureau of the Budget, Washington, who stayed in Calcutta from 13 January to 21 January and again from 9 February to 12 February 1947 in connexion with his visit to our Institute. During this period he delivered two lectures under the auspices of the Institute: "Social and Economic Surveys in America" on 16 January and on 11 February "The Role of Statistics in Planning and Development".

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Besides attending these lectures, workers of the Institute met him at seminar meetings and discussed various problems of theory, organisation and application of Statistics. Dr. Deming also delivered lectures at the Bombay and Poona branches of the Institute (See p. 8)

Dr. Deming met and had discussions with various ministers, officials and heads of Government Departments in Calcutta, Delhi and Bombay. He left for Tokyo on 12 February. His visit was of great help as it enabled us to discuss problems of importance with a scholar of his standing and experience, and forged yet another link in our growing relations with the U. S. A. in statistical matters.

Visit of Professor Blackett : Professor Blackett another of those celebrated foreign scientists who attended the science congress this year, visited the Statistical Laboratory during his brief stay at Calcutta. He delivered a lecture in 18 January on 'Statistical Methods in operational research' which was very well-attended.

Prof. Mahalanobis and the United Nations Organisation : Prof. Mahalanobis continued to be a member of the Statistical Commission of the U. N. O. and attended its sessions in New York. He was elected Vice-Chairman of the Statistical Commission and Chairman of the Statistical Sampling sub-Commission. He was, in addition, nominated to be an Adviser to the Economic & Social Council of the U. N. O. and invited as a guest of the Population Association of America to attend a conference held in New York in October 1946. During his stay in America Prof. Mahalanobis delivered lectures in various Universities. He was also invited to attend the sessions of the Food and Agriculture Organisation of the U.N.O. but could not due to engagement elsewhere. During his tour he visited various organisations connected with statistical work, and made many contacts which promise to be of great value to the workers of the Institute.

A short report of his second tour is appended herewith for information of members.

Empire Scientific Conference and Royal Society Conference : Professor Mahalanobis attended these conferences as a delegate of the Government of India.

Prof. R. C. Bose's Projected visit to U. S. A. : Prof. Rajchandra Bose of the Institute who is also the Head of the Post-graduate Department of Statistics of the Calcutta University received and has decided to accept invitations from the Universities of Columbia and North Carolina to lecture there for two sessions as a visiting Professor. He will start for U.S.A. sometime about August/September 1947.

Statistical Committee of the Advisory Board of the I.C.A.R. : Mr. N. T. Mathew attended the meeting of this Committee held on 8 March 1947, as representative of the Institute.

Indian Science Congress : Prof. Mahalanobis continued to act as the General Secretary of the Indian Science Congress. He was entrusted with the task of inviting foreign scientists to the Indian Science Congress held in Delhi.

Prof. R. C. Bose presided over the deliberations of the statistics section of the Delhi session of the Indian Science Congress, 1947. Mrs. Chameli Bose acted as sectional correspondent. Dr. Edwards Deming, Sampling Adviser, Bureau of the Budget, Washington, whose visit to the Institute has been discussed in detail elsewhere joined the session as Foreign Delegate from U.S.A.

Honours Course in Statistics in the Presidency College, Calcutta : A. Bhattacharyya continued to be the Honorary Head of the Department and Prosad Banerjee who had so far worked in an honorary capacity, became a paid whole time lecturer on the resignation of Monimohan Mukherjee.

Post-graduate Department of Statistics, Calcutta University : Prof. R. C. Bose, one of the part-time research workers of the Institute remained Head of the Department. Mr. S. N. Roy and Mrs. C. Bose, both part-time workers of the Institute, continued to lecture at the University.

C. R. Rao and R. K. Mukherjee's research work at Cambridge : As reported elsewhere these two workers of the Institute proceeded to England in July, 1946 and have since been working there. The trustees of late Sir Henry Wallacott entrusted Prof. J. G. Trevor of Emmanuel College, Cambridge with the task of making an Anthropological study of a series of human skeletons excavated by Sir Henry at Jebel Moysa in

the Sudan some thirty years ago. For his programme of work on those bones, Prof. Trevor intended, among other things, to apply Mahalanobis's 'Generalised Distance' statistic in order to relate this series to other African series. In this connexion Prof. J. C. Trevor corresponded with Prof. Mahalanobis and it was decided that C. R. Rao and R. K. Mukherjee should go to Cambridge, and work with Prof. Trevor on the basis of a studentship of £360 for one year from the Wellcome Trust. At the request of Prof. Mahalanobis the Govt. of India kindly agreed to supplement the stipend by £75 each for one year to Rao and Mukherjee to enable them to travel in U.K. and study statistical matters and organisations with greatest facility.

Proposed scholarships at the Institute to students from U. K. During his visit to India in 1945, Prof. Fisher had suggested that arrangements should be made to offer foreign students some scope of research work at the Institute. This, together with Prof. Trevor's desire for the co-operation of Indian statistical workers in the matter of anthropometric work at Cambridge brought out the desirability of giving practical shape to the idea. Prof. Mahalanobis made a concrete suggestion in his letter of 28 January 1946 to the Secretary of the Selection Board for overseas scholarship. Further negotiations are going on, and it is hoped that some favourable decision will soon be reached.

Subhendu Sekhar Bose Memorial Fund: The Council has accepted the recommendation of the Subhendu Sekhar Bose Memorial Committee that the total collection of Rs. 2,754 of this fund should be handed over to the Calcutta University for creating an endowment out of which a gold-encrusted (or, if possible gold) medal is to be awarded annually to "One who would secure the highest marks in Statistics in the B.A. and B.Sc. Examinations of the Calcutta University". The authorities of the Calcutta University are being approached for this purpose.

Indian Statistical Institute : Receipts and Payments Account for the Year ending 31 March, 1947

	RECEIPTS			PAYMENTS		
	Rs.	A.	P.	Rs.	A.	P.
To Opening balance: Govt. papers at cost	17,498	0	0			
Providence Fund: Govt. papers at cost	35,400	12	1			
Cash in hand	1,073	2	0			
.. Membership fees	1,27,073	7	10
.. Training fee and other receipts	4,000	0	0
.. Miscellaneous receipts	2,021	12	0
.. Examinations fees			
.. Block grants : Government of India			
.. Department of Education : General grant	6,104	10	0
.. Department of Education : for Senkha	2,500	0	0
.. Department of Agriculture : Crop Survey	1,31,823	0	0
.. War Transport Department : Economies and			
.. Statistics of Road Development	55,000	0	0
.. War Transport Department : Bridge Traffic Survey	30,000	0	0
.. Education Department : Advance lower-caste expenses			
.. Department of Agriculture : for Mr. P. Pant	5,000	0	0
.. Department of Agriculture : for Bengal	10,02,316	0	0
.. Department of Agriculture : for Bihar			
.. Economic Conditions of Agricultural Labourers	48,000	0	0
.. Department of Co-operation, Credit & Relief :			
.. Finance Dept. : Middle Class Family Budget Enquiry	80,000	0	0
.. Finance Department : for Prof. W. E. Dening's visit	18,000	0	0
.. Controller of Rationing	3,000	0	0
.. Indian Tea, Mines, Exportation Board	1,984	0	0
.. Indian Tea, Mines, Exportation Board	2,000	0	0
.. Contribution in lieu of Prof. P. C. Mahalanobis's services	5,000	0	0
.. Government of Bengal			
.. Interest earned	12,000	0	0
.. Providence Fund Subscriptions (including loan repay)	13,007	10	3
.. Contribution to leave salary and Providence Fund	44,073	4	0
.. Contribution for office assistance (Indian)			
.. Provisional Fund (Congress Association etc.)	3,440	0	0
.. Rentals realised	18,700	0	0
.. Deposit account	2,320	0	0
.. Old suspense account realised	13,974	4	0
.. Income Tax of staff	250	2	0
	17,31,524	3	7			
By Salary and allowances including :-						
.. Dearness Allowance	2,81,068	2	0
.. Contribution for leave salary &	1,08,092	13	8
.. Salary & Allowance (Field Branch)	44,973	4	0
.. Pensions			
.. Travelling allowance	8,02,292	11	2
.. Miscellaneous allowances	12,053	0	0
.. Laboratory equipment	1,037	0	0
.. Stationery and stores purchases	20,000	0	0
.. Other expenses furnished to temporary	20,180	3	0
.. Marking machines, furniture, telephones etc.)	12,004	12	3
.. Workers' Circulating Library	2,100	0	0
.. Workers' Circulating Library	525	11	0
.. Bank Charges			
.. Local Branches	2,184	0	0
.. Examinations fees	3,000	0	0
.. Local Branches	1,620	8	0
.. Indian Statistical Conference			
.. Conferences, (Field Branch) other expenses	2,41,807	12	0
.. Book and direct expenses	1,902	1	0
.. Scientific and Industrial Research	26,550	10	5
.. Contribution to Statistical Publishing Society	4,237	8	0
.. Provisional Fund Subscription (including advance)	1,500	0	0
.. Leave leave salary	8,483	3	0
.. Provisional Fund contribution	523	3	0
.. Expenses incurred for passage and	2,036	5	0
.. Salary etc. for Mr. Pant	3,082	3	9
.. Expenses incurred for purchase of			
.. Calculating machine etc.)	20,090	2	4
.. Interest on Providence Fund	3,007	10	3
.. Provisional Fund Director's Fund			
.. Leave amount not yet invested	1,12,841	11	9
.. Providence Fund (Government papers etc.)			
.. Bank overdrafts in 1946-46 adjusted	38,009	12	1
.. Closing	380	2	3
.. Cash in hand	11,380	2	6
.. Cash in North Bank	62,281	14	0
.. Cash in Imperial Bank			
	75,969	3	2			
	17,31,524	3	7	17,31,524	3	7

Prepared and checked by P. C. Mahalanobis, Chief Accountant, Registered Accountant.

6, EASTINGS STREET, CALCUTTA. The 10th April, 1947.

Indian Statistical Institute : Earmarked & Special Enquiries Fund. Account for the year ending 31 March 1947

RECEIPTS

PAYMENTS

Bengal Crop Survey

	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.				
To Block grant	10,53,268	0	0	10,04,775	7	3	By repayment of advance (16,000 - 29,994-6)		44,094	6	0		
.. Suspense (Field Branch)	11,407	7	3				By salary and allowance	2,33,268	2	0			
							By other expenses	79,474	2	0			
							<i>Field Branch</i>				3,12,832	4	0
							By salary and allowance	4,94,174	7	0			
							By other expenses	1,82,032	11	3			
							.. suspense account (amount unadjusted and under adjustment with Wuffwell office etc.)	6,17,108	2	3			
							.. Closing balance	38,905	3	6	6,55,773	5	9
											51,176	8	6
											10,04,775	7	3

Rural Indebtedness Scheme

To Block grant	60,000	0	0	60,000	0	0	By repayment of advance				2,808	0	0
							<i>Statistical Branch</i>						
							By salary and allowance	20,832	10	0	29,682	1	0
							By other expenses	3,788	7	0			
							<i>Field Branch</i>						
							By salary and allowance	10,528	0	0	11,028	0	0
							By other expenses	2,109	0	0	16,941	16	0
							.. Closing balance				60,000	0	0

Survey of the Economic Conditions of Agricultural Labourers

To Block grant	48,000	0	0	48,000	0	0	By salary and allowance	20,832	10	0	20,832	1	0
.. Unspent balance	16,948	14	0	16,948	14	0	By other expenses	6,798	7	0	23,700	0	0
							<i>Field Branch</i>						
							By salary and allowance	2,900	0	0	11,027	13	0
							By other expenses	2,230	0	0	66,949	14	0
							.. closing balance						

RECEIPTS		PAYMENTS			
<i>Middle Class Family Budget Equity</i>					
To Block grant ..	Rs. A. P.	Rs. A. P.	Statistical Branch By salary and allowance	Rs. A. P.	Rs. A. P.
" Advance from Institute ..	19,800 0 0 378 11 0	20,175 11 0	By other expenses ..	19,758 4 0 4,943 7 0	18,276 11 0
			<i>Field Branch</i>		
			By salary and allowance	4,500 0 0	4,500 0 0
			By other expenses ..	300 0 0	300 0 0
					20,176 11 0
To Unspent balance of previous year ..	843 9 0				
" Advance from Institute ..	1,187 8 0				
			<i>Survey of Yields from rainfall</i>		
		2,031 1 0	By salary and allowance	1,581 10 0	2,031 1 0
			By other expenses ..	409 7 0	
To Block grant ..			<i>Population Census (Home Department, Government of India)</i>		
" Advance from Institute ..			By payment of advance	68,144 1 0	1,028 15 0
			By salary and allowance	30,271 13 3	1,02,435 14 3
			By other expenses ..		28,370 2 0
			" closing balance ..		1,31,835 0 0
To Block grant ..			<i>Road Development Scheme (War Transport Department, Government of India)</i>		
" Advance from Institute ..			By account opened last year ..	43,903 0 0	3,784 8 0
			By salary and allowance	33,104 0 0	77,007 8 0
			By other expenses ..		80,702 1 0
To Block grant ..			<i>Haurah Bridge Traffic Survey (War Transport Dept., Govt. of India)</i>		
" Advance from Institute ..			By salary and allowance	26,237 1 0	29,900 14 3
			By other expenses ..	3,659 13 3	93 1 0
			" closing balance ..		30,000 0 0
To Block grant ..			<i>U. P. Wheat & Sugar-cane Scheme</i>		
" Advance from Institute ..			By salary and allowance	21 13 0	28 10 0
			By other expenses ..	7 2 0	1,787 11 3
			" closing balance ..		1,786 10 3

RECEIPTS		PAYMENTS	
Re.	Am. P.	Pa.	Am. P.
<i>Burton Hoopdy Hawk Flushing Scheme</i>			
To Advance from Institute	8,680 13 0	By amount received from last year	8,680 13 0
		By salary and allowance	12 12 0
		By other expenses	16 14 0
			4 2 0
			8,680 13 0
To Advance from Institute	12,753 12 6	By amount received last year	4,443 12 6
		By salary and allowance	8,310 0 0
		By other expenses	2,044 8 0
			12,753 12 6
To Expent amount of previous year	0,282 0 0	By salary and allowance	2,707 8 0
		By other expenses	1,440 0 0
		By closing balance	0 0 0
			2,044 8 0
			4,237 8 0
			0 0 0
			4,237 8 0

Sanhya : Receipts and Payments Account for the Year Ending 31 March, 1947.

RECEIPTS		PAYMENTS	
To Opening Balance :		By Press bills and paper etc.	6,635 1 0
Cash	820 13 3		122 16 0
Bank	2,880 4 0		
Subscription		By Postage and other contingent expenses	
Grant from the Government of India	3,783 14 10		
Rockefeller Foundation grant	2,000 0 0	By Closing balance :	
		Cash	21 14 3
		Bank	1,264 2 3
			1,286 0 6
			9,944 0 6

6, HATHSIN STREET, CALCUTTA.
 For 1947-April, 1947.

Examined and Found Correct
 T. V. Chatterjee,
 Chartered Accountant,
 Registered Accountant.

APPENDIX I

List of Papers Published in 1946-47

1. BHARATA, R. P. Test of significance for intra-class correlation when the family sizes are not equal. *Sankhyā*, 7(4), 1946.
2. BHATTACHARYYA, A. On a measure of divergence of two multinomial populations, *Sankhyā*, 7(4), 1946.
3. ——— Some analogues of the amount of information and their use in statistical estimation. *Sankhyā*, 8(1), 1946.
4. BHATTACHARYYA, S. World War II and the consumption pattern of the Calcutta middle-class. *Sankhyā*, 8(2), 1947.
5. BOSE, CHANDLER and GAYEN, A. K. A note on the expected discrepancy in the estimation (by double sampling) of a variate in terms of non-omitant variate when there exists non-linear regression between the two variates. *Sankhyā*, Vol. 5(1), 1948.
6. BOSE, R. C. Resolvable solutions of the balanced incomplete block-design. *Proc. Ind. Sc. Cong.*, 1947.
7. ——— The maximum number of factors which can be accommodated in a symmetrical factorial experiment when interactions up to a particular order are left unconfounded. *Proc. Ind. Sc. Congress*, 1947.
8. ——— The Map-colouring problem for unorientable surfaces. *Proc. Ind. Sc. Cong.*, 1947.
9. ——— Mathematical theory of symmetrical factorial design. *Sankhyā*, 8(2), 1947.
10. ——— The patch number problem. *Proc. Ind. Sc. Congress*, 1947.
11. CHERYAN, K. C. Use of indifference surfaces in constructing cost of living indices. *Proc. Ind. Sc. Congress*, 1947.
12. ——— A Note on estimation of consumption requirements. *Proc. Ind. Sc. Congress*, 1947.
13. GAYEN, A. K. and ROY, G. C. The distribution of income in India. *Proc. Ind. Sc. Congress*, 1947.
14. GHOSH, A. and GUPTA, S. A note on the agrarian economy in Tamilak subdivision during 1939-44. *Sankhyā*, 8(1), 1946.
15. LARIKI, D. B. On a type of series involving the partition function with applications to certain congruence relations. *Bull. Cal. Math. Soc.* 38(3), 1946.
16. ——— Congruence properties of Ramanujan's Function $r(n)$. *Science and Culture*, 12(1), 1946.
17. ——— Some congruence properties of Ramanujan's Function $r(n)$. *Proc. Ind. Sc. Cong.*, 1947.
18. MAHALAKSHI, P. C., MUKHERJEE, R. K. and GUHAR, A. A sample survey of after-effects of the Bengal famine of 1943. *Sankhyā*, 7(4), 1946.
19. MAHALAKSHI, P. C. Sample surveys of crop yields in India. *Sankhyā*, 7(3), 1946.
20. ——— Distribution of Muslims in the population of India, *Sankhyā*, 7(4), 1946.
21. MATHEW, N. T. Inheritance of fertility. *Sankhyā*, 8(1), 1946, and *Proc. Ind. Sc. Congress*, 1947.
22. ——— Multi-stage sampling 's' signs in area surveys. *Proc. Ind. Sc. Congress*, 1947.
23. MUKHERJEE, M. M. A note on concurrence. *Sankhyā*, 7(4), 1946.
24. MUKHERJEE, R. K. A note on concentration of agricultural wealth in Bengal. *Sankhyā*, 7(4), 1946.
25. MUKHERJEE, R. K. and MUKHERJEE, M. M. A note on concentration of income in Bengal villages. *Sankhyā*, 7(3), 1946.
26. POI, S. J. A study of Expenditure pattern of Calcutta middle-class family budgets. *Sankhyā*, 7(4), 1947.
27. RAO, C. R. and POI, S. J. On locally most powerful tests when alternatives are one-sided. *Sankhyā*, 7(4), 1946.

18. RAO, C. R. On the linear combination of observations and the general theory of least squares. *Sankhyā* 7(3), 1946.
19. ——— Confounded designs in quasi-latin squares. *Sankhyā*, 7(3), 1946.
20. ——— Discriminant functions in multi-variate analysis. *Sankhyā*, 7(4), 1946.
21. ——— On 1 \bar{F} 0 most efficient designs in weighing. *Sankhyā*, 7(4), 1946.
22. RAY, O. C. and S. C. SIKS GUPTA. Elasticity of demand of postal articles in India. *Proc. Ind. Sc. Congress*, 1947.
23. RAY, S. N. Multivariate analysis of variance : The sampling distribution of the numerically largest of the p -statistics on the non-null hypothesis. *Sankhyā*, 8(1), 1946.
24. ——— A note on multivariate analysis of variance when the number of variates is greater than the number of linear hypotheses. *Sankhyā*, 8(1), 1946.
25. ——— Bhattacharya's distance function and the general problem of testing composite hypothesis. *Proc. Ind. Sc. Congress*, 1947.
26. ——— Distance function and multivariate analysis of variance. *Proc. Ind. Sc. Congress*, 1947.
27. ——— Distance function and the hypothesis of equality of dispersion matrices for two multivariate normal populations. *Proc. Ind. Sc. Congress*, 1947.
28. ——— Multivariate analogues of certain univariate tests of hypothesis.
29. ——— A note on critical angles between two flats in hyperspace with certain statistical applications. *Sankhyā*, 8(2), 1947.
30. ——— and GHOSH, M. N. On a statistical test of treatment effect on certain diseases. *Sankhyā*, 8(2), 1947.
31. SIKS GUPTA, J. M. Effect of the fractionation of plots lying on the border of sample grids on the estimation of crop average. *Proc. Ind. Sc. Congress*, 1947.
32. ——— Method of estimating the proportion under crop in a sample grid. *Proc. Ind. Sc. Congress*, 1947.
33. ——— Sample-grid method of field-enumeration : Linear grids. *Proc. Ind. Sc. Congress*, 1947.

APPENDIX II

List of reports submitted by the Indian Statistical Institute in 1946-47

1. *Enquiry into the Economics and Statistics of Road Development* : A report of the traffic and economic surveys conducted at Sitamarhi and Bolpur were submitted to the Government of India on 23 December 1946 and 21 March 1947 respectively. Quarterly progress reports were also submitted on 31 May 1946, 17 November 1946, and 12 September 1946.
2. *Traffic census on the New Hoerah Bridge* : A report of the census taken between 15 and 28 May 1946 was submitted to the Government of India on 23 November 1946.
3. *Enquiry into the Economics of Agricultural Labour and Rural Indebtedness* : A report on the enquiry into Agricultural Labour was submitted on 6 December 1946 to the Government of Bengal.
4. *Bengal Crop Survey 1946-47* : Progressive reports were submitted to the Government of Bengal on Jute and aus paddy crops on 9 July 1946, 13 January 1947, and on aman paddy crop on 1 February 1947, 25 March 1947.
5. *Population data work* : Monthly reports of the progress of coding and punching were submitted to the Government of India.

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6. *Postal Enquiry*: A Report on Statistical returns submitted to Posts and Telegraphs Directorates from subordinate offices.
7. ——— A Report on enumeration of unregistered postal articles.
8. ——— A Report on Calcutta experiment in regard to enumeration of unregistered postal articles.
9. A Report on a sample survey of tea-drinking incidence in some Eastern and Northern Bengal rural areas was submitted to the Tea market Expansion Board.
10. A Report of a preliminary survey of the prospects of fruit and vegetable canning industry in India.
11. A report on the problem of aspect, Cinchona plantation, Musgpoor 1945 was submitted to the Superintendent, Cinchona plantation Musgpoor on 21-12-46.

APPENDIX III. List of officers on Deputation

1. PITAMBAR PANT, M.Sc. Allahabad, U. P. (Deputed by Pandit Jankachariar Nairu, Allahabad).
2. A. M. KRISHNAMURTY, M.A. (Lecturer in Mathematics, National College, Trichinopoly).
3. N. C. ROY, B.Sc. (Research Assistant, Forest Research Institute, Dehra Dun).
4. POORNA BHADUR, M.A. (Deputed by Major General Subarna Sham Shere Jung Bahadur Rana, Minister, Government of Nepal).
5. MD. ABDUL WAKAR, M.A. (Department of Statistics & Census, Hyderabad, Deccan).
6. S. N. BANERJEE, M.A. (Deputed by Geological Survey of India, Calcutta).
7. P. S. PILLAI (Department of Commerce & Industries, Statistics Branch, Colombo).
8. A. KANTHARAMY, (Department of Commerce & Industries, Statistics Branch, Colombo).
9. O. N. DE SILVA, (Department of Commerce and Industries, Statistics Branch, Colombo).
10. CHANDMULL NANALAL PAVIA, M.A. (Lecturer, Holkar College, Indore).

APPENDIX IV. Students in the Training Section

- (1) ASHUTOSH DE, B.Sc. (Assam); (2) JNANENDRA MOHAN KAN, M.A. (U. P.); (3) RAM KRISHNAR P.D. Singh, M.Sc. (Bihar); (4) P. B. KRISHNAMURTY, B.A. (Madras); (5) VINDHULA KASIRAMENY, B.A. HONS. (Madras); (6) KRISHNANWAR SARUP, M.A. (U. P.); (7) GIBRAJ PRABHU, M.Sc. (Rajputana); (8) SURENDAR SINGH BINDRA, B.A. (Punjab); (9) SHIKHIRINJA SANGAL, M.A. (Rajputana); (10) P. A. GEORGE, M.A. (Cochin). (11) S. M. LENTAR-UL-MULK, M.A., AMRITSAR, Punjab (Overseas Scholarships students selected by the Govt. of India) (12) RAJOU RAO BHADUR, M.A. (Overseas Scholarships students selected by the Govt. of India).

INDIAN STATISTICAL INSTITUTE

Proceedings of the Council dated 19th April, 1947

A meeting of the Council of the Indian Statistical Institute was held at 3:30 p.m. on Saturday, the 19th April 1947, in the Statistical Laboratory, Presidency College, Calcutta.

Present: Sir C. D. Deshmukh (President) in the chair.

Mr. S. N. Ray, C.I.E., I.C.S., Mr. S. K. Dasgupta, Mrs. C. Bose, Mr. R. C. Bose, Mr. N. S. R. Sastri, Mr. N. C. Chakravarti, Prof. P. C. Mahalanobis, Mr. Samarendranath Roy, Prof. H. C. Ghosh, Prof. K. N. Chakravarti, and Prof. S. N. Bose (Hon. Secretary).

1. Proceedings of the meeting of the Council dated 28th March 1947 were read and confirmed.
2. Prof. S. N. Bose, Hon. Secretary, reported that the Government of Bengal in letter 4093F Finance Department, dated the 17th April 1947, have sanctioned an advance of Rs. 60,000/- for the Bengal Crop and Economic Survey Work.
3. *Election of Members:* Resolved that Mr. Dhireswar Narayan Mukherjee, M.L.A., of the Hughly Bank Limited be elected as an Ordinary Member of the Institute.
4. *Provisional Budget Estimates for 1947-48:* The Hon. Secretary placed before the meeting the Provisional Budget Estimates for 1947-48. He said that in the absence of any official communication from the Government of Bengal regarding the grant for the Crop and Economic Survey an amount equivalent to last year's receipts was put down on the side of receipts under that head.

Resolved that the Budget Estimates for 1947-48 be passed.

5. *Annual Report:* The Hon. Secretary placed before the Council the draft Annual Report for the year 1946-47. In this connexion he placed before the meeting a statement of receipts and expenditure for the year ending 31st March 1947. He observed that under certain heads the expenditure had exceeded the budgeted figure while under certain other heads the expenditure had been less. He proposed that adjustment by redistribution of the excess expenditure under different heads be approved.

(i) Resolved that the statement of receipts and expenditure for the year ending 31st March 1947 as presented by the Hon. Secretary be approved.

(ii) Resolved that the Finance Committee be authorized to make adjustments of expenditure by redistribution under different heads as necessity arise.

(iii) Resolved that the draft 16th Annual Report be approved and forwarded to the Annual General Meeting.

(iv) Resolved that the Council recommends that in view of the expansion of the work of the Indian Statistical Institute the Annual General Meeting be held not later than the last day of May each year.

6. *Audited Accounts:* The Hon. Secretary placed before the Council the Audited Reports for 1946-47 and also statements relating to different projects and funds.

Resolved that the Audited Accounts and Statements relating to funds be adopted and forwarded to the Annual General Meeting.

7. *Reorganization of the Institute:* The Hon. Secretary placed before the meeting certain letters he had received from members of the Institute offering comments on the proposals contained in Sir John Nargent's letter dated 18th January 1947 regarding the reorganization of the Institute. At the suggestion of the President there was a general discussion regarding the aims and objects of the reorganized Institute. Informal notes were kept of the discussions, and the following resolution was adopted.

Resolved that the existing Reorganization Committee (consisting of Sir C. D. Deshmukh, Mr. K. P. Chattopadhyay, Prof. K. B. Madhava, Prof. P. C. Mahalanobis and Mr. S. N. Ray) be expanded by the inclusion of the following names:

Mr. R. C. Bose, Mr. N. C. Chakravarti, Mr. Hircsuresanath Ghosh, Mr. Samarendranath Roy and Prof. S. N. Bose (Convener).

The meeting was adjourned to 4:0 p.m. on 20th April 1947.

Confirmed
K. P. Chattopadhyay
Chairman. 2-5-47

S. N. Bose,
Hon. Secretary.

INDIAN STATISTICAL INSTITUTE
Proceedings of the Council dated 20th April 1947

The adjourned meeting of the Council of the Indian Statistical Institute was held at 4.0 p.m. on Sunday, the 20th April 1947 in Room No. 7, Calcutta Club.

Present : Sir C. D. Doshmukh (President) in the Chair.

Mr. S. N. Ray, C.I.E., I.C.S., Prof. K. P. Chattopadhyay, Prof. P. C. Mahalanobis, Prof. K. N. Chakravarti, Mr. R. C. Bose, Mrs. C. Bose, Mr. N. C. Chakravarti, Mr. Samarendranath Roy, Mr. N. S. R. Sastry, Mr. Sudhir Kumar Banerjee, and Prof. S. N. Bose (Hon. Secretary).

Discussion was continued on the Government of India's proposals for the reorganization of the Institute.

The meeting was adjourned to 3.0 p.m. on 21st April 1947.

Confirmed.
K. P. Chattopadhyay,
Chairman, 2-5-47

S. N. Bose,
Hon. Secretary

INDIAN STATISTICAL INSTITUTE
Proceedings of the Council dated 21st April 1947

The adjourned meeting of the Council of the Indian Statistical Institute was held at 3.0 p.m. on Monday, the 21st April 1947 in the Statistical Laboratory, Presidency College, Calcutta.

Present : Sir C. D. Doshmukh (President) in the chair.

Mr. S. N. Ray, C.I.E., I.C.S., Mr. S. K. Banerjee, Mrs. C. Bose, Mr. N. C. Chakravarti, Mr. R. C. Bose, Mr. N. S. R. Sastry, Prof. P. C. Mahalanobis, Mr. Samarendranath Roy, Prof. H. C. Ghosh, Prof. K. N. Chakravarti, and Prof. S. N. Bose (Hon. Secretary).

Discussion was concluded on the Government of India's proposals for the reorganization of the Institute, and it was agreed that —

The Council of the Indian Statistical Institute

HAVING CONSIDERED (a) the proposals made by the Government of India in May 1945, for the reorganization of the Institute, (b) the scheme prepared by the Reorganization Committee of the Institute and submitted to the Government of India by the President of the Institute on the 22nd January 1946, and (c) Government proposals given in Education Department letter No. D. 1973/44-E.I. dated 16th January, 1947.

WELCOMES the acceptance by the Government of India of the Institute proposals in principle ;
PLACES ON RECORD its approval of the reorganization of the Institute with close relations with the Government of India to enable the Institute to participate more effectively in the planning and development work of the country ;

NOTES with satisfaction that there is general agreement regarding many of the Government proposals ; but

OBSERVES that further consideration requires to be given to certain aspects of the scheme as explained in a Memorandum ;

THEREFORE REQUESTS the Government of India to give the representatives of the Institute an opportunity before any final decision is made to discuss matters with the representatives of the Government of India with a view to working out the details of an agreed scheme.

In case the above proposal is accepted by the Government of India, AUTHORIZES the President to select the representatives of the Institute for the above purpose.

2. The Secretary placed before the meeting the following letter from Prof. P. C. Mahalanobis regarding his personal responsibility in directing sample surveys proposed to be taken on behalf of the Bengal Government.

ANNUAL REPORT FOR 1946-47

Amrapali,
87, Barrackpore Trunk Road,
P.O. Alambazar,
24-Parganas,
31 April 1947.

Prof. S. N. Bose,
Honorary Secretary, Indian Statistical Institute,
Presidency College, Calcutta.

Dear Bose,

In December 1946 and January 1947 I had several informal discussions with Mr. Subhwardy regarding the desirability of continuing the sample survey scheme in Bengal on an extended (that is, multi-purpose) basis for a five-year period with a total expenditure of the order of nineteen or twenty lakhs of rupees per year. I understand that Mr. Subhwardy has verbally approved of the scheme, and has requested that preparatory work should be taken up in anticipation of formal orders. He has asked me to see him in this connexion in the course of this week.

As you are aware, I have been in charge of sample survey schemes in Bengal since 1937, and a fee (converted into a contribution to the Director's Fund at my own desire in 1943) has been paid for the work of direction and supervision done by me. It is likely that the Government of Bengal are assuming that my services will continue to be available in the same way in the new scheme.

Proposals for a reorganization of the Institute are at present the subject of negotiation with the Government of India. The future position regarding project work and my own relation with the Institute are therefore uncertain. In this situation there are two possibilities. The actual position may be explained to the Bengal Government, and they may be requested to make arrangements with the Institute independently of me, that is, irrespective of the fact whether my services continue to be available or not in future. The other way is to devise some method by which I can give an assurance to the Bengal Government that my services would continue to be available for their scheme whatever may be the future lines of re-organization of the Institute or whether my connexion with the Institute in other ways continues or ceases in future. The possibility of a complete separation of the Bengal scheme from the reorganized Institute would also have to be kept open in this case. It is necessary that the Council should reach a decision so that I may be in a position to discuss matters with Mr. Subhwardy. I should also like to discuss with him the possibility of arranging a suitable contribution to the Institute in return for facilities received.

Finally, in view of the uncertainty of the future position I should like to be free as from the 1st April 1947 to make such arrangements as I consider proper regarding the disposal of any contribution that may be sanctioned for my services in connexion with project work.

Yours sincerely,
Sd. P. C. Mahalanobis.

Resolved that in view of the oncoming reorganization of the Institute and the need of ensuring continuity of direction of work in the proposed Bengal Sample Survey Schemes Prof. P. C. Mahalanobis be appointed Director of the Sample Surveys for the duration of schemes which may be undertaken by the Institute on behalf of the Government of Bengal, before the reorganization of the Institute actually comes into effect, and that a Working Committee consisting of (1) Prof. P. C. Mahalanobis, (2) Prof. S. N. Bose (3) Mr. N. C. Chakravarti, (4) Mr. J. M. Sen Gupta and (5) Mr. N. T. Mather be appointed to carry on all administrative work in connexion with the above scheme inclusive of new appointments and the filling up of vacancies as they arise. The Working Committee will report to the Council every three months such matters as will require final sanction of the Council.

3. Miscellaneous. (1) *Notified resolutions and questions for the Annual Meeting*: The Hon. Secretary placed before the Council certain resolutions proposed to be moved at the Annual General Meeting of which notices have been given by Messrs. Harikinkar Nandi and Birendranath Ghosh. He also placed before the meeting letters dated 11.4.47 from Messrs. Birendranath Ghosh, N. K. Chakravarti and Purandari Kumar Bose forwarding questions to be asked at the Annual Meeting.

Resolved that the resolutions be permitted to be moved at the Annual General Meeting and that answers to questions be also furnished.

Confirmed
K. P. Chattopadhyay,
Chairman, 2-6-47

S. N. Bose,
Hon. Secretary.

INDIAN STATISTICAL INSTITUTE

Proceedings of the Annual General Meeting of the Indian Statistical Institute dated 21st April 1947

The Annual General Meeting of the Indian Statistical Institute was held at 4.30 p.m. on Monday the 21st April, 1947 in the Presidency College, Calcutta.

Sir C. D. Dethlefsen (President) was in the chair.

The following members were present :

Mr. N. Chakravarti, Prof. K. N. Chakravarti, Prof. P. C. Mahalanobis, Prof. K. P. Chattopadhyay, Mr. S. N. Ray, C.I.E., I.C.S., Prof. H. Ghosh, Prof. R. C. Bose, Mrs. C. Bose, Messrs. S. K. Banerjee, N. S. R. Sastri, Dr. C. Chandra Sekar, Messrs. S. C. Roy, P. Saha, S. Halder, H. B. Choudhury, S. C. Das Gupta, J. N. Talupdar, A. Bhattacharyya, N. T. Mathew, S. B. Sen, P. K. Banerjee, T. Choudhury, M. N. Ghosh, K. C. Maitra, K. P. Mukherjee, R. Ghosh, A. Majumdar, H. B. Banerjee, J. K. Halder, S. C. Chakravarty, M. Mukherjee, S. Sengupta, K. C. Banerjee, S. N. Roy, D. Ganguli, C. Dasgupta, G. C. Roy, M. C. Banerjee, K. Purkayastha, P. K. Bose, Amalendu Ganguly, K. C. Cheryan, J. M. Sengupta, N. C. Chakravarti, A. Barman Ray, H. Ghosal, N. K. Chakravarti, B. N. Ghosh, H. K. Nandi, M. Mukherjee, Nani Gopal Banerjee and Prof. S. N. Bose (Hon'y. Secretary).

1. *Annual Report and Audited Accounts* : The Honorary Secretary placed before the meeting the Annual Report and Audited Accounts for the year ending 31st March 1947 as adopted by the Council and mentioned that the accounts had been audited by Messrs. P. C. Nandi & Co., Chartered Accountants. He observed that the draft copy of the Annual Report had already been circulated among the members. Owing to disturbed conditions in Calcutta, it had not been possible to complete the audit in time to print the audited accounts, and circulate the same in time. He invited the members to make observations on it.

Mr. H. K. Nandi regretted that so little had been done by the Re-organization Committee during the last year towards the re-organization of the Institute in spite of the intimation expressed at the last Annual General Meeting that the Re-organization Committee would carry on their work independently of negotiations with Government of India.

Mr. Birendranath Ghosh said that in connexion with the Technical Committee, legal opinion had apparently been sought with regard to publication of technical reports. He wanted to know whether the bulk of the work was of non-technical nature or whether it was so confidential that even a Select Committee of the Institute like the Technical Committee could not be taken into confidence.

Mr. P. K. Bose pointed out that the name of Probodh Banerjee who was until recently a worker of this Institute did not appear in the list of workers of the Institute. He suggested that certain important posts for the administration of the Institute which were being held at present by part-time or honorary workers should be occupied by whole-time workers. He regretted the abolition of fellowships and research scholarships. He also spoke about the unsatisfactory reading arrangements in the Library and suggested that suitable accommodation should be found for the Library.

Prof. S. N. Bose, Honorary Secretary, stated in reply that the work of the Re-organization Committee had continued throughout the year. As regards internal reorganization various administrative improvements had been effected which were reflected in the fact that a satisfactory financial position could be secured for the Institute and a balanced Budget presented.

As regards the function of the Technical Committee, the Secretary said he had consulted an eminent lawyer as well as certain persons who were responsible for bringing this Committee into existence on the functions intended to be exercised by this Committee. They all took the view that under the relevant rules the Technical Committee was intended to function only when the Institute was required to give its official opinion in matters of public policy or action. It had no function in the day-to-day work of the Institute entrusted to it by outside authorities. These could be disposed of by the staff itself, for which the directing authority was ultimately responsible and not the Technical Committee. Scientific reports and papers could also be submitted or published on the responsibility of the Director or of any other person exercising delegated authority.

As regards the Library, no one was more conscious than the Honorary Secretary of the paucity of accommodation. In view of the great difficulty of securing additional accommodation in Calcutta, he requested the members to put up with the present state of affairs until the proposed re-organization of the Institute was effected, when it was hoped that arrangements would be improved.

Regarding the complaint that part-time and honorary workers filled responsible posts, the Honorary Secretary pointed out that the Institute had been run from the very beginning by honorary workers. At the head there was a person who had never accepted any remuneration, and most of the other part-time workers accepted remuneration which was not at all commensurate with the amount and quality of work done. He hoped that consummation of the negotiations with the Government of India would offer adequate remuneration to workers.

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Mr. Nistaran Chakravarti moved that in view of the satisfactory nature of replies given by the Honorary Secretary, the Annual Report and Audited Accounts be adopted. This was seconded by Mr. D. M. Ganguly.

The report was then unanimously adopted by the meeting subject to such minor verbal and other changes as might be found to be necessary.

3. *Election of Office-bearers and Members of the Council* : The President called upon Messrs. R. C. Bose and S. N. Roy (who were elected scrutineers in accordance with resolution 3 of the Council meeting held on 18th February 1947, for counting votes in connection with the election) to submit a report of the scrutiny of ballot papers regarding the election of the Council and Office-bearers of the Institute for 1947-48.

Mr. Nirmal Kumar Chakravarti raised a point of order saying that the election could not be taken as valid. His first objection was that the name of Mr. A. K. Roy who had paid his subscription duly, did not appear on the ballot paper and secondly, he held that about 27 members who were elected on the 25th of March last, i.e., only three days before the end of the session and were given the voting rights, should not have been given these rights because their members were all residents of Calcutta and were employees or ex-employees of the Institute. Thirdly he objected to the procedure of sending the ballot paper along with the list of nominations by the Council while nominations by members had been shown separately, such procedure being, in his view, objectionable from a constitutional point of view. He held therefore that any election on this basis must be regarded as null and void.

Prof. S. N. Bose, Honorary Secretary, pointed out that according to the rules of Memorandum, members who were in arrears had their voting rights suspended automatically, but that there was nothing definite regarding the last date by which subscriptions might be paid and voting rights created or revived. As the Council was the ultimate deciding authority in all such matters, according to the Constitution of the Society, he placed the matter before the Council, which taking into account the necessary 15 clear days notice fixed the 4th April as the last date for payment of subscriptions for rights "to vote and stand for election this year". As Mr. Roy's subscription was not received by the due date, he could not be given the right to vote, but as the 27 newly elected members paid their subscriptions in time they were entitled to vote.

After some discussion, in which Mr. Nihar Chandra Chakravarti, Mr. H. K. Nandi and others took part, the president ruled that Mr. A. K. Roy was not entitled to vote and that the election of 27 members with the rights to vote was in order.

The President declared that the following gentlemen were duly elected as Office-bearers of the Institute for the year 1947-48.

President

Sir C. D. Dashmukh, C.I.E. Governor, Reserve Bank of India,
Hon. Vice-President (having filled the office of President)
 Mr. N. R. Sarkar Calcutta.

Vice-Presidents.

Dr. S. K. Banerjee, D.Sc. Director General of Observatories, Delhi.
 Sir T. E. Gregory, D.Sc. Economic Adviser to the Govt. of India, New Delhi.
 Dr. S. P. Mukherjee, M.A., B.L., M.L.A., D.Litt.
 Bar-at-Law Calcutta.
 Mr. Chandmull Rajgharia *Min. Merchant, Giridih,*
 Sir Shri Ram, Kt. *Delhi Cloth & General Mills, Delhi.*
 The Hon'ble Mr. Justice T. J. V. Roxburgh, B.A.,
 Bar-at-Law, C.I.E., I.C.S. Judge, Calcutta High Court.
 The Hon'ble Mr. H. S. Suhrawardy *Chief Minister, Govt. of Bengal, Calcutta.*
 Mr. A. C. Mukherji, M.A., Dip-in-Statistics Director of Statistics, Board of Trade, Baroda.
 Rao Bahadur Dr. K. C. K. E. Raja, O.B.E., *Officer on Special Duty (Planning & Development),*
 Office of the Director General, Indian
 Medical Services, New Delhi.

Treasurer

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

Secretary

Prof. P. C. Mahalanobis, F.R.S. *Statistical Laboratory, Calcutta.*

Joint Secretaries

Prof. K. N. Chakravarti, M.Sc. *Presidency College, Calcutta.*
 Mr. Raj Chandra Bose, M.A., F.N.I. *University of Calcutta.*

Mr. R. C. Bose then placed before the meeting the result of scrutiny of the ballot papers, and the President declared that the following persons were duly elected as members of the Council for the year 1947-48.

Members of the Council

Mr. Sudhir Kumar Bosejee	Statistical Laboratory, Calcutta.
Mrs. C. Bose, B.Sc. (London)	Statistical Laboratory, Calcutta.
Prof. S. N. Bose, M.Sc.	University of Calcutta.
Mr. Nihar Chandra Chakravarti, M.A., B.C.S.	Addl. Asst. Secretary, Govt. of Bengal, Department of Agriculture, Forests and Fisheries.
Dr. C. Chandra Sekar, M.Sc., Ph.D.	All India Institute of Hygiene and Public Health, Calcutta.
Prof. K. P. Chattopadhyay, M.Sc. (Cantab).	University of Calcutta.
Mr. R. Das Gupta, M.A., Ph.D.	Asst. Secretary, Government of Bengal, Finance Dep., University of Calcutta.
Prof. H. C. Ghosh, M.A., Ph.D.	University of Calcutta.
Dr. R. J. Kalanekar, B.Sc., B.Ag., Ph.D.(London)	Deputy Director of Agriculture, Northern Circle, C.P. & Berar, Jabalpur.
Mr. K. Kishen, M.A.,	Statistician, Department of Agriculture, Lucknow, U.P.
Prof. F. W. Levi, Dr. Phil. Nat.	University of Calcutta.
Mr. K. R. Nair, M.A., M.Sc.	Food Dept., Government of India, New Delhi.
Dr. U. S. Nair, M.A., Ph.D.	Tennessee University, Tennessee.
Mr. S. N. Ray, F.I.E., I.C.S.	Commissioner of Civil Supplies, Bengal.
Mr. Samarasingh Nath Roy, M.Sc., F.N.I.,	University of Calcutta.
Mr. Satyabrata Sen, B.Com. (Birmingham),	Statistical Laboratory, Calcutta.
Mr. Sudhakar Sen Gupta, B.Sc. (London),	Statistical Officer, E.I.Ry., Calcutta.
Prof. J. C. Saha, B.A., Ph.D.	Presidency College, Calcutta.
Dr. P. V. Sukhatme, Ph.D., D.Sc.	Statistical Adviser, Indian Council of Agricultural Research, New Delhi.
Prof. C. D. Thompson	University of Allahabad.

3. *Re-organization of the Institute* : Prof. S. N. Bose, Hon. Secretary, made a statement about what had been done so far towards the re-organization of the Institute since the last Annual Meeting. The Government of India in the attached letter dated the 16th January 1947 accepted in principle the Institute scheme subject to certain conditions and made some fresh proposals. The letter was actually received by the Honorary Secretary in the middle of February and had been printed and sent to all members of the Institute, as a result of which a number of valuable suggestions were received which were being considered by the Council. He mentioned that Sir C. D. Deshmukh, the President of the Institute, had been helping in every possible way, for the last few days, discussing plans for the future organisation of the Institute. A good measure of agreement had been reached and it should be possible to send a reply to the Government of India at an early date.

The President, Sir C. D. Deshmukh, then gave an account of the action taken since the Institute scheme was submitted to the Government of India in January 1946. He had been to Delhi several times and had consultations with various Government officials. Inter-departmental consultations in the Government of India had taken a good deal of time, but after the receipt of the letter by the President in the middle of February the matter had been expedited as much as possible. The Re-organization Committee (consisting of the President, Prof. K. P. Chattopadhyay, Prof. K. B. Mukherjee, Prof. P. C. Mahalanobis and Mr. S. N. Ray) had been expanded by the Council by the inclusion of the following members : Mr. R. C. Bose, Mr. Samarasingh Nath Roy, Mr. Nihar Chandra Chakravarti, Mr. Birendranath Ghosh and Prof. S. N. Bose (Convener).

The President, then proceeded to explain briefly the tentative conclusions that had been reached in the Council regarding re-organization proposals. According to the Council the main functions of the Institute having regard to Governmental planning and development and the general overall economic aims should be research and training, with perhaps some provision for achievement audit. There might also be a section for a journal or statistical publication, should the present arrangements be terminated for any reason. The Institute may also have to undertake project work primarily for the purpose of feeding research and training and the evolution of new methods.

As to expenditure, they arrived at a provisional estimate consisting of a recurring figure of from four to six lakhs of rupees every year (exclusive of the cost of project work) plus a suitable amount of non-recurring expenditure.

The Government of India had suggested in their letter that their scheme should be accepted in its entirety. The President felt that this was not a matter which could be dealt with so simply. They were going to suggest that for expediting decisions the Government of India should give an opportunity to the representatives of the Institute to meet them in order to thrash the many minor matters of detail that are bound to arise by personal discussion. The President then went on to deal with certain matters arising out of the Government's letter and stated that in the view of the Council it was essential not to destroy the scientific Society aspect of the Institute and that in addition to a Registrar to be in charge of the executive functions there would also need to be an elected General Secretary to look after the Society's functions.

The Government of India's letter was not accurate in stating that the Secretary was not a member of the Governing Body, in case of Scientific Societies; there was always a General Secretary whose business was to look on the academic side and the general activities of such a Society and who was also member of its Council.

Regarding accounts, the suggestion of the Government of India was accepted. About audit, there should be a panel approved by the Central Government from which the Institute should be free to choose their auditor.

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With regard to fellowships and scholarships, they were not agreeable to the suggestion that fellowship should be granted on a regional basis; they should be granted on merits. Scholarships may, however, be awarded on a regional basis.

The President mentioned a few other details. He stated that the Re-organization Committee would now prepare a blue print of the future Institute and work out the financial implications within four corners of the plan chalked out by the Council. He placed before the meeting the following resolution adopted by the Council and requested the general body to signify their approval. When the scheme was finally settled, they would proceed to change the rules and regulations which would be duly placed before the general body as was necessary under the rules.

The Council of the Indian Statistical Institute

HAVING CONSIDERED (a) the proposals made by the Government of India in May 1945, for the re-organization of the Institute, (b) the scheme prepared by the Re-organization Committee of the Institute and submitted to Government by the President of the Institute on the 22nd January 1946, (c) Government proposals given in Education Department letter No. D. 1973/44-E.1. dated 16th January, 1947,

WELCOMES the acceptance by the Government of India of the Institute proposals in principle;

PLACES ON RECORD its approval of the re-organization of the Institute with closer relations with the Government of India to enable the Institute to participate more effectively in the planning and development work of the country;

NOTES with satisfaction that there is general agreement regarding many of the Government proposals, but OBSERVES that further consideration requires to be given to certain aspects of the scheme as explained in the enclosed memorandum.

THEREFORE REQUESTS the Government of India to give the representatives of the Institute an opportunity before any final decision is made to discuss matters with the representatives of the Government with a view to working out the details of an agreed scheme.

In case the above proposal is accepted by the Government of India, AUTHORIZES the President to select the representatives of the Institute for the above purpose.

Resolved that the action taken by the Council be generally approved.

Proposed by : Mr. S. N. Roy

Seconded by : Prof. Haribaran Ghosh

(Carried unanimously)

The meeting was then adjourned to 11 A.M. on Tuesday, the 22nd April 1947 at the same place.

C. D. Deshmukh,
Chairman.

S. N. Bose
Hony. Secretary.

INDIAN STATISTICAL INSTITUTE

Proceedings of the Annual General Meeting of the Indian Statistical Institute dated 22nd April 1947

The adjourned Annual General Meeting of the Indian Statistical Institute was held at 11.0 a.m. on Tuesday, the 22nd April 1947 in the Presidency College, Calcutta.

Sir C. D. Deshmukh (President) was in the chair.

Present : Messrs. R. C. Bose, B. N. Ghosh, N. K. Chakravarti, H. K. Nandi, N. Chakravarti, N. T. Mathew, S. C. Roy, P. Sinha, M. Mukherjee, Amarendra Ganguly, K. C. Chatterjee, P. K. Bose, N. Banerjee, N. S. R. Sastry, Dr. C. Chandra Seker, Moses, H. B. Choudhury, A. Bhattacharyya, J. N. Talangdar, S. Halder, T. Choudhury, G. C. Roy, S. C. Das Gupta, K. C. Banerjee, P. K. Banerjee, K. Purkayastha, J. M. Sen Gupta, N. C. Banerjee, M. N. Ghosh, A. Harman Ray, H. Ghosal, D. Ganguli, P. K. Chatterji, S. C. Chakravarti, J. K. Halder, K. P. Mukherjee, N. C. Mitra, C. Das Gupta, S. N. Roy, S. K. Banerjee, P. C. Mahalanobis, H. Ghosh, K. P. Chattopadhyay, K. N. Chakravarti, N. C. Chakravarti, and Prof. S. N. Bose (Hony. Secretary).

4. *Recommendations from the Council* : Considered Resolution No. 5 (iv) of the Council meeting dated the 16th April 1947.

"In view of the expansion of the Institute and the difficulty of completing the audit and the annual report before the end of April each year, the Council recommends an amendment of the rule 2(a) of the Memorandum of Association substituting the word "May" for "April" in line 1, so that the amended rule would read as follows :—

An Annual General Meeting shall be held not later than the last day of May in each year to consider the Annual Report and Accounts, to elect office bearers and members of the Council, to appoint Auditors, and to consider any other business which may be brought forward in the manner prescribed by the Byo-Laws."

The President suggested that this important question should be discussed after a proper notice had been circulated to all members, and it was accordingly decided to discuss the question at the next general meeting.

5. *Appointment of Auditors* : Resolved that Messrs. P. C. Nandi & Co., Chartered Accountants, be appointed auditors for the year 1947-48 on an honorarium of Rs. 2,100/- including Rs. 1,100/- from the Field Branch.

Proposed by : Mr. H. C. Ghosh

Seconded by : Mr. Sanaendranath Roy (Carried unanimously)

8. *Miscellaneous* :

NOTIFIED RESOLUTIONS

(i) Mr. Harikinkar Nandi moved the following resolution which was seconded by Mr. Manindranath Ghosh :

"The General Meeting of the members of the Indian Statistical Institute advises the Council of the Institute to appoint a Committee to revise the terms of agreement of publication of Sankhyā : the Indian Journal of Statistics, between the parties the Statistical Publishing Society on the one hand and the Indian Statistical Institute on the other. This Committee will have specially in view the exploration of the possibilities of taking over the publication of this journal by the Institute and should complete its task within three months."

In moving the resolution, Mr. Nandi said that the existing practice for the publication of Sankhyā was rather unsatisfactory. It was desirable that the Institute should assume direct responsibility for editing and publishing the journal. He was of opinion that it was possible for the Institute to manage the editorial work and to meet the financial obligations for the publication of the journal. The contract with the Statistical Publishing Society for the publication of the journal should be terminated as soon as possible.

Mr. Nihar Chandra Chakravarti did not agree with the mover of the resolution and proposed that the resolution be amended as follows :—

"The General Meeting of the members of the Indian Statistical Institute requests the Council of the Institute to review the terms of agreement of publication of 'Sankhyā' : The Indian Journal of Statistics, between the parties, the Statistical Publishing Society on one hand and the Indian Statistical Institute on the other with a view to examining if any changes in the terms are called for."

Mr. Sanaendranath Roy moved another amendment to the main resolution. After some discussion, with the concurrence of Mr. Nihar Chandra Chakravarti, and Mr. Harikinkar Nandi, the following amended resolution was passed unanimously :

"The General Meeting of the members of the Indian Statistical Institute requests the Council of the Institute to appoint a Sub-committee to review the terms of agreement of publication of 'Sankhyā' : the Indian Journal of Statistics between the parties, the Statistical Publishing Society on one hand and the Indian Statistical Institute on the other. This Committee will have specially in view the consideration of the desirability and the exploration of the possibilities of taking over the publication of this journal by the Institute and should complete its task and report to the Council as early as possible."

(ii) The following resolution on Technical Re-organisation of the Institute which stood in the name of Mr. Sircendranath Ghosh was withdrawn by him on the suggestion of the President in view of the negotiation in progress with Government.

"This Annual General Meeting of the Indian Statistical Institute feels strongly the necessity of technical re-organisation of the Indian Statistical Institute and instructs the Council of the Institute to appoint a Committee of five consisting of the heads of different statistical organisations and others well-versed in the science of statistics, to advise the Council as to the best method of conducting researches in the theory and application of Statistics."

Professor S. N. Bose in moving a vote of thanks to the President, said that they were all sincerely grateful to Sir C. D. Deshmukh for the great interest he was taking in the work of the Institute and especially about its future re-organisation. The President was giving a great deal of his valuable time to this work and had used his good influence with the Government of India so that solution satisfactory to all interested in the work might be reached.

Prof. P. C. Mahalanobis associated himself whole-heartedly with the vote of thanks. He knew more than other members of the Institute what a tower of strength and support they had in their President. Prof. Mahalanobis did not know how to give adequate expression to their sense of gratitude for the untiring efforts of the President in the matter of the re-organisation of the Institute. The vote of thanks was carried unanimously.

Prof. Mahalanobis also wanted to place on record their most sincere appreciation of the services rendered by Prof. S. N. Bose as Hony. Secretary of the Institute during the year. He felt guilty in having thrust this burden on an eminent scientist, but was personally grateful to Prof. Bose for undertaking the heavy responsibility during his own absence abroad.

C. D. Deshmukh 12.8.47

Chairman.

S. N. Bose 16.5.47

Hony. Secretary.