

# INDIAN STATISTICAL INSTITUTE

THIRTY-NINTH ANNUAL REPORT

April 1970—March 1971

Volume I



203 BARRACKPORE TRUNK ROAD  
CALCUTTA-35

## INDIAN STATISTICAL INSTITUTE

*President* : Professor S. N. Bose, F.R.S., D.Sc., F.N.I., National Professor.

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*Vice-Chairmen* : 1. Shri S. C. Roy, M.A., B.L., Director, NICCO of India Ltd.; 2. Shri B. B. Ghosh, M.Sc., Principal Adviser to the Governor, Government of West Bengal; 3. Professor T. R. Seshadri, F.R.S., Emeritus Professor, Department of Chemistry, University of Delhi; 4. Justice A. K. Mukherjee, Calcutta High Court.

*Additional Vice-Chairmen* : 1. Chairman, Bombay Branch : Shri S. K. Wankhede (1970-71); 2. Chairman, Kerala Branch : Professor A. Aiyappan (1970-71); 3. Chairman, Mysore State Branch : Professor R. R. Umarji (1970-71).

*Treasurer* : Dr. S. C. Law, M.A., B.L., Ph.D., F.Z.S., M.B.O.U., F.N.I.

*Secretary* : Professor P. C. Mahalanobis, D.Sc., F.N.I., F.R.S.

*Joint Secretary* : Shri P. Ray, I.A.S.

*Members of Council* : 1. Shri S. K. Acharyya, Bar-at-Law; 2. Dr. B. P. Adhikari, M.Sc. (Cal.), Dr.es.Sc. (Paris); 3. Dr. Bani Prasad Banerjee, B.E., M.Sc., Ph.D.; 4. Shri G. Basu, B.A., F.S.A.A., F.C.I.S., F.C.A., F.C.I.W.A., J.P.; 5. Dr. N. Das, Ph.D. (Lond.), I.C.S. (Retired); 6. Shri Arun Kumar Dutt, Advocate; 7. Professor H. C. Ghosh, M.A., P.R.S.; 8. Shri Shyamal Krishna Ghose; 9. Professor D. B. Lahiri, M.Sc., F.N.I.; 10. Shrimati Nirmla Kumari Mahalanobis; 11. Dr. Ashok Mitra, M.A., D.Sc.(Econ); 12. Dr. R. K. Mukherjee, M.Sc. (Cal.), Ph.D. (Cantab); 13. Dr. C. R. Rao, M.A., M.Sc., Ph.D., Sc.D. (Cantab.), F.N.I., F.R.S.; 14. Dr. L. D. Sanghvi, M.Sc., Ph.D. (Columbia); 15. Dr. Amartya Sen, M.A., Ph.D. (Cantab); 16. Dr. P. K. Sen, M.B. (Cal.), M.D. (Berlin), Ph.D., T.D.D. (Wales); 17. Shri Satish Chandra Sen, M.A., LL.B.; 18. Shri N. C. Sengupta, I.C.S.; 19. Dr. B. R. Seshachar, D.Sc., F.N.I.; 20. Dr. T. N. Srinivasan, Ph.D.

*Government nominees on the Council (Rule 6.1(b) (f))* : 1. Cabinet Secretary (Shri T. Swaminathan, I.C.S.) or his representative; 2. Joint Secretary, Ministry of Finance, Department of Expenditure, Government of India (Shri B. N. Maheswari); 3. Director, Central Statistical Organisation and ex-officio Joint Secretary, Department of Statistics (Dr. N. T. Mathew).

*Coopted members (Rule 6.1(c))* : 1. Dr. D. K. Boso, M.A., Ph.D.; 2. Dr. D. N. Chakravarti, M.B.B.S., D.T.M & H.D.B., Lieut.-General (I.M.S.); 3. Dr. N. S. Iyengar, M.Stat., Ph.D., Professor, Department of Econometrics, Osmania University; 4. Shri K. K. Son\*\* I.C.S. (Retired), Vice-Chancellor, Kalyani University; 5. Dr. K. D. Sharma, Director, Central Glass & Ceramic Research Institute, Jadavpur, Calcutta.

*Ex-officio members (Rule 6.1(b\*\*\*))* : Secretary of each local branch : 1. Bombay Branch : Professor P. N. Phutano (1970-71); 2. Kerala Branch : Dr. (Miss) A. George (1970-71); 3. Mysore State Branch : Professor Srinagabhushana (1970-71).

\*Died on 2 May 1971.

\*\*Resigned, reported to the Council meeting of 20 May 1971.

\*\*\*Branch Chairmen's names shown under Additional Vice-Chairmen.

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### INTRODUCTION

*Genesis:* The idea of starting the Indian Statistical Institute was conceived by Professor P. C. Mahalanobis and a group of young men who had gathered round him in the nine-ten-twenties, being interested in applying statistical methods to the solution of practical problems. There was already a workshop, so to say, for this purpose in what came to be known as the Calcutta Statistical Laboratory, which was located in the room of Professor Mahalanobis, then professor of physics in the Presidency College, Calcutta. A public meeting, called over the signatures of Prannatha Nath Banerjee (Miuto Professor of Economics), Nikhil Ranjan Sen (Khsira Professor of Applied Mathematics) and P. C. Mahalanobis, was held on 17 December 1931, with the late Sir R. N. Mookerjee in the chair. This meeting adopted a resolution which led to the establishment of the Indian Statistical Institute which was registered on 28 April 1932 as a non-profit distributing learned society under the Societies Registration Act XXI of 1900. A part-time computing clerk was the only worker the Institute had in the first year of its existence, the total expenditure being below Rs. 250. The Indian Statistical Institute Act of 1959 recognized the Institute as an institution of national importance and empowered it to confer degrees in statistics, thus giving the Institute the status of a university. From 1 July 1960 the Institute, through its Research and Training School, has been conducting courses leading to the degrees of Bachelor of Statistics (B.Stat.), and Master of Statistics (M.Stat.), and a doctorate degree (Ph.D.) is also being awarded with provision for a higher doctorate (D.Sc.) degree. In 1961, the idea of the Institute having "Unity in Diversity" as its motto and the banyan tree as its crest, emerged as a result of discussions between the late Sir Ronald A. Fisher, and Professor P. C. Mahalanobis and was immediately supported by Shri C. D. Deshmukh, the President of the Institute from 1946 to 1961, who translated the English words into the Sanskrit version incorporated in the crest.

*History of Activities:* Since its inception, the Indian Statistical Institute has been trying to carry out an integrated programme of theoretical studies combined with practical applications of statistical methods through project work. Some of these projects raised theoretical problems whose solution led to original contributions to statistical theory. The Institute's work involved close collaboration with the Government, and it used to be done for a long time on business-like lines for both private enterprises and the Government, with contract grants for specified purposes. The Institute was built up in fact by the untiring efforts of Professor P. C. Mahalanobis and the sincere devotion of a handful of young trained scientific workers including H. C. Sinha, S. S. Bose, R. C. Bose, S. N. Roy and others. These young men helped to lay the foundation of the Institute. They worked for an ideal on a modest allowance which the Institute could pay from 'business earnings'. Individual training had started in 1932 under the inspiring guidance of the late S. S. Bose who joined the laboratory as senior assistant in 1931. Through him, the Institute gained

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a wide circle of friends and sympathisers. The lack of trained statisticians and computers led to the establishment of training courses in 1930, and the award of certificates of competence from 1938. The Institute's educational activities expanded with passing time, and included co-operation with international agencies for training programmes in South East Asia. Dr. H. C. Sinha took a leading part in the foundation of the Indian Statistical Institute in 1931-32 and took up the work of the Institute with vigour as its Honorary Joint Secretary. He rendered invaluable services in making the work of the Institute known abroad. Sudhir Kumar Benerji was associated with the Institute since its inception. He used to look after the business and financial management with ability until his death in 1962. The actual management of the Statistical Publishing Society was in his able hands.

Earlier publications by Professor P. C. Mahalanobis were on physical anthropometry (1922) and two meteorological memoirs (1923) in which errors of observation were separated from physical deviation in correlational analysis. The work in meteorology led to large-scale project studies in the early days of the Statistical Laboratory which were mainly concerned with two problems. The first was the control of floods, in Bengal and Orissa, on which reports were submitted in 1927, 1931 and 1940. The results of this work were partly immediate, in the adoption of adequate measures for flood control in North Bengal and partly long-term, coming to fruition in such schemes as the Damodar Valley Corporation and the Hirakud Dam Project. In the second set of problems, Professor Mahalanobis published a paper on errors of agricultural field trials in 1925, which established contact with Ronald A. Fisher almost immediately and resulted in the introduction in India of the Fisherian "design of experiments", before these methods were adopted in any other country outside Britain. Professor P. C. Mahalanobis and the late S. S. Bose published a series of statistical notes on agricultural workers in the *Indian Journal of Agricultural Science* (1932-36). Theoretical work on the design of experiments was started in the nineteen thirties and received a great impetus with R. A. Fisher's first visit to the Institute in 1938 which led to the Institute workers making important contributions to this subject field; among them mention may be made of R. C. Bose now in the USA, and Quazi Motahar Hossain (Pakistan). On the applied side, S. S. Bose helped in a significant way until his untimely death in 1938.

The earlier work on anthropometry had also provided the basis for contributions in multivariate analysis with the formulation of  $D^2$  Statistics ("Mahalanobis generalised distance") in the mid-, and late nineteen twenties. R. C. Bose who joined the Institute in 1933 obtained the exact distribution of the generalised distance ( $D^2$ -Statistics) and developed the general problems of classification and discrimination with S. N. Roy who joined the staff in 1935. Important work in multivariate analysis was done by the late S. N. Roy in the Institute. Work on these problems still continue in the Institute, having been followed up by Professor P. C. Mahalanobis's formulation of Fractile Graphical Analysis in 1968.

Another development is worth recording. On the basis of a note submitted by Professor P. C. Mahalanobis, the University of Calcutta with the active support of the late Dr. Syama Prasad Mookerjee, then President, Councils of Post-Graduate Teaching in Arts and Science, decided to establish a post-graduate Department of Statistics, the first of its kind in India, from July 1941, with Professor P. C. Mahalanobis as Honorary Head of the Statistics Department. During this period, the University department was

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located in the Institute which provided some members of the teaching staff accommodation and other facilities. It is of interest to mention that seven students including C. R. Rao and H. K. Nandi joined the course for the master degree in Statistics in July 1941. The whole of the Calcutta University Department of Statistics was evacuated with the Institute to Giridih in early 1942 during the Second World War.

In 1936, theoretical and field studies were started, at the desire of the Government of India, to develop sample surveys for the improvement of estimates of production of agricultural crops. These studies led to continuing annual crop surveys in Bengal from 1941, and also to important theoretical developments in the design of sample surveys which secured for the Institute a leading position in the world in this subject.

During the Second World War, the Institute became involved in the study of demographic problems. A detailed tabulation of the 1941 population census was abandoned by the Government owing to the exigencies of war. Professor Mahalanobis, however, succeeded in persuading the Government to retain a small sample of the original census slips. On the basis of this sample, the Institute prepared the detailed tables of demographic statistics for the 1941 census. Since then, studies in demography have been continuing in the Institute.

Research on estimation and distribution theories continued during the war and gradually led to the Institute becoming an internationally known centre for research in mathematical and theoretical statistics.

During the nineteen fifties, the Institute developed important types of project work. The National Sample Survey initiated by the Government of India in 1950, with the help of the Institute, is a continuing and the most comprehensive socio-economic survey in the world today. D. B. Lahiri has made important contributions to the design of sample surveys and J. M. Sengupta to experimental studies.

Statistical Quality Control was started in 1963 and gradually developed into a training and consultancy service to industry on an India-wide basis, and is fulfilling a basic need in promoting the industrial progress of the country.

The most important development of the Institute's work during the nineteen fifties was its significant contribution to economic planning. The studies on planning were inaugurated at the Institute in Calcutta in November 1954 by the late Prime Minister Jawaharlal Nehru, and a Draft Plan Frame for the Second Five Year Plan was prepared on the basis of these studies, and submitted to the Prime Minister in March 1955. The Institute's Planning Unit has since then worked in close collaboration with the Perspective Planning Division of the Planning Commission, and the National Sample Survey data have been found to be of great help in this work.

*Educational Programmes:* All over the world, during the last thirty years or so, statistical methods are being increasingly used in new fields of work. This is clearly seen in the number of books which has been published during this period, surveying the applications of statistics in many separate individual fields of natural science, such as geology, which would once have been thought quite remote from the statistical field.

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The Institute was given powers to award degrees by an Act of Parliament, sponsored by the late Prime Minister Nehru, and passed in 1959. This, together with the recognition of statistics as a key technology, has resulted in a new approach to the teaching of statistics in the Institute, which is also expressed in its research programme.

In universities, it was for a long time the practice to provide courses at the post-graduate level in a single subject like mathematics, physics, biology, economics etc. During the latter part of the nineteenth century, it became necessary to develop new educational programmes in two important fields, namely, medicine and engineering, because it was essential for the professional students to have some knowledge of and skills in a number of scientific disciplines.

Sir Ronald Fisher summed up the position of statistics as "the key technology of the present century" in 1962, pointing out that a technologist must talk the language of both theoreticians and practitioners. The education of a technologist must, therefore, have a broad base. A technologist has to see both sides of the fence, and is the channel through which along the knowledge and skills of others can be made effective. Fisher said, "It is, I believe, in recognizing statistics as the key technology of our century, that we can appreciate the special features of the Indian Statistical Institute.... What the scientists have to do with statistics lies in the part they must play in the education of any competent statistician."

Statistics, as a new technology, is concerned with the use of the most economic and efficient methods of observation, measurement, survey and experimentation, and of the processing of data for the drawing of valid inferences. The scope of statistics thus extends over the whole range of both the natural and the social sciences.

C. R. Rao who had joined the Institute as a student in January 1941 and who became Director, Research and Training School, in 1964, has been pursuing the policy of developing statistics as a key technology and extending applications of statistical methods in many new fields. His interest has been thus focussed not only on theoretical-mathematical studies but also on practical applications including in recent years Statistical Quality Control.

The courses leading to the B.Stat. or M.Stat. degrees have been formulated to cover a wide range of subjects, somewhat analogous to courses in medicine and engineering. Pure mathematics and theory of probability are of basic importance. Theoretical and different branches of applied statistics, naturally, form a large part of the teaching programme. Because of the special needs of India, a great deal of attention is given to the economics of planning. In these three groups of subjects, mathematics, statistics, and economics of planning, the course includes a good deal of knowledge of basic results and facts, besides theory and methodology.

In addition, facilities are provided for the students to become familiar with the methods of observation, measurement, survey and experimentation in a number of scientific subjects. Here the emphasis is not so much on the content of knowledge of facts, or of theories, but on methods, and the stress is, therefore, on practical courses and statistical analysis and the interpretation of data.



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*Research Policy :* Ronald Fisher had pointed out "that the science with which the student is to become acquainted must be genuine research in its own right, not what is eloquently called a 'mock-up' for the use of students only." It is, therefore, the policy of the Institute to establish small, high level, research units in both the natural and social sciences, to offer facilities for research and training in the use of statistical methods in practice.

The Government of India approved this policy in a communication from the Cabinet Secretariat dated 15 June 1962 in the following terms :

"Government accept the view that statistics being a new technology, it should be open to the Indian Statistical Institute to establish and maintain research and study units in subjects other than theoretical and applied statistics to offer facilities for research and application of statistical methods and for the provision of training in such methods. The number of such units would depend on the availability of really able research scientists and also on the funds available to the Institute. Similarly, in furtherance of the purposes as set out in Section 5 of the Indian Statistical Institute Act, the Institute may establish and maintain units for the study of different languages (including translation units, library science, documentation, etc.) and for auxiliary studies and teaching in different subjects including humanities."

In this plan, each research unit would be concerned with a particular theme. Where there are more than one professional scientist in the same unit, they may either work jointly on the same topic or on different topics, which would, however, be related to a central problem. Each research paper may be independent, but the results would be capable of being added together to supply a more comprehensive picture of different aspects of the central theme.

This thematic programme of research is particularly useful in developing countries. In a large department or the faculty of a University, scientists often work on unrelated topics with practically no possibility of communication, or the exchange of views and criticisms among them. Scientists in a small research unit working on related groups of subjects can easily communicate with one another, a miniature scientific community can thus be established with the possibility of a free exchange of views and criticisms. Such scientific cells can then gradually build up a scientific community in the country as a whole.

The concept of a thematic programme for each research unit is also useful in preventing the growth of large units with a big staff dealing with a multitude of subjects. The Institute's policy is to have small units of pioneering research arranged in a horizontal or parallel pattern of organization. The Institute's policy is also to encourage joint projects of research and advanced studies by collaboration between two or more research units within the Institute and also with other universities, institutions and organizations.

The Institute's small research units are thus intended to play a quadruple role.

(i) Each unit will contribute to the teaching of degree courses in statistics, familiarizing students with types of problems, and methods of observations, measurement and experiment, in its own field of natural science.

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(ii) Each unit will actively engage in a programme of pioneering research, which will throw up problems of a statistical nature from time to time, some of which may well stimulate the evaluation of new statistical methods.

(iii) It is also hoped that the research units will be able to act as a liaison between workers in similar fields of science in universities and Government organizations, on the one hand, and the research statisticians of the Institute, on the other, to promote the spread of knowledge of statistical methods in scientific research in India.

(iv) Some of these research units have also been functioning in a very encouraging way as the meeting place for active collaboration between the scientists in India and guest scientists from abroad. Such collaboration is an important role of the Institute.

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### PART I. GENERAL REVIEW OF THE WORK DURING THE YEAR

#### I. GENERAL ADMINISTRATION

1.1 *Membership*: The year 1970-71 started with 85 life members (including 5 honorary life members), 307 ordinary and 9 institutional members on the roll. During the year, 19 ordinary members and 4 institutional members were enrolled and 1 ordinary member became a life member, 5 ordinary members resigned and according to information available to the Institute, 1 life member and 1 ordinary member died. During the year, membership in respect of 135 ordinary members were terminated by the Council of the Institute (meetings dated 10 June, 29 August, 29 September, 30 October, 21 November, 7 December 1970, 15 January, 16 January and 29 March 1971) in terms of rule 3.1 of the Rules of the Institute. At the end of the year, the total membership was 373, consisting of 85 life members (including 5 honorary life members), 274 ordinary and 13 institutional members. The Council is being approached to accord permission for revising the list of membership as suggested earlier. Ninety-nine sessional members and 176 student members were enrolled during the year 1970-71, compared with 85 sessional members and 193 student members in the previous year. Sessional members and student members are enrolled for one year at a time.

1.2 *The Annual General Meeting*: The Annual General Meeting and the adjourned Annual General Meeting were held respectively on 31 October 1970 and 16 January 1971 to transact certain specified agenda of business. The meeting held on 31 October 1970 dealt with the election of office-bearers and members of the Council, consideration of balance-sheets, statement of accounts, appointment of auditors for the term 1970-71 and certain reports were made on (a) action taken on decisions of previous General Meetings dated 31 October 1969 and 19 December 1969, and (b) action taken in respect of recommendations of the ISI Review Committee.

Owing to certain unavoidable reasons, there was some delay in placing the final accounts before the auditors. As a result, the audited report, balance sheets etc. as at 31 March 1970 could not be considered in the Annual General Meeting held on 31 October 1970. The question of the appointment of auditors for 1970-71 could not also be given a final shape in the meeting held on 31 October 1970. The meeting was, therefore, adjourned to 16 January 1971. In the adjourned Annual General Meeting of 16 January 1971, the auditors for 1970-71 were appointed but the question of adoption of the auditors' report and audited statement of accounts was deferred and the meeting was adjourned to 7 August 1971. In the adjourned General Meeting of 16 January 1971, a Special Committee was constituted with all members of the Finance Committees of the Governing Body of the Research and Training School and of the Council of the Institute and two members of the General Body, viz., Dr. P. K. Bose and Dr. D. Basu, to go into the details of the auditors' report.

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The election of office-bearers and members of Council was due this year.

The names of President, Vice-Presidents, Honorary Vice-President and also those of office-bearers and members of Council who were elected on 31 October 1970 are given in Annexure 1.

The auditors' report, audited statement of accounts for 1970-71 and balance sheet as at 31 March 1971, submitted by Messrs. P. K. Mitra & Co., are given in Part III.

1.3 *Meetings of Council*: The Council of the Institute met nine times during the year on 10 June, 29 August, 29 September, 30 October, 21 November, 7 December 1970 and 15 January, 16 January and 29 March 1971.

1.4 *Meetings of the Governing Body*: The Governing Body of the Research and Training School met four times during the year on 29 August, 30 October 1970 and 16 January and 29 March 1971.

1.5 *Meetings of Finance Committees*: The Finance Committee of the Council and the Finance Committee of the Governing Body of the Research and Training School met jointly on 28 October 1970, 15 January and 27 March 1971 to consider the auditors' report, audited statement of accounts and balance sheets as at 31 March 1970 and revised budget estimates for 1970-71 and tentative budget proposals for 1971-72.

1.6 *Membership of the Governing Body and Finance Committees*: The names of members of the Governing Body of the Research and Training School and of the Finance Committees of the Council and of the Governing Body are given in Annexure 1.

1.7 *Institute's Staff*: Professor P. C. Mahalanobis held the office of the Honorary Secretary and Honorary Director of the Institute throughout the year.

Dr. C. R. Rao continued as the Director of the Research and Training School.

Shri Partha Ray continued to work as Joint Secretary and Administrative Officer throughout the period.

Shri P. N. Zutshi continued to work as a Special Officer of the Delhi Branch of the Institute and also as the Joint Secretary for work relating to the Delhi Branch up to 31 March 1971.

1.8 *New Appointments*: The staff of the Institute was strengthened during the year by the addition of the following persons. The date of joining is shown against each name:

1. Dr. (Miss) Qasim Z. Hussain, M.Sc. (Aligarh), Ph.D. (Aligarh) (RTS): 12 June 1970; 2. Dr. T. Parthasarathy, M.Sc. (Stat.), Ph.D. (Stat., ISI) (RTS): 30 September 1970; 3. Dr. Malay Ghosh, M.A. (Stat.), Ph.D. (North Carolina) (RTS): 1 February 1971; 4. Major B. C. Dutta (Security-cum-Estate): 6 October 1970.

1.9 *Resignations and Retirements*: The following workers left the Institute on the dates mentioned:

1. Shri T. Krishnamurty, B.A. (Hons. Mathematics) (Computer Science Unit): 1 June 1970; 2. Professor Sriningabushana, B.Sc., F.T.I., F.T.A. (SQC): 2 August 1970;

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3. Dr. E. V. Krishnamurty, M.Sc. (Physics), Post M.Sc. (Nuclear Physics), Ph.D. (Analog Computers) (RTS) : 1 September 1970; 4. Dr. T. S. Chidambaram, M.Stat., Ph.D. (Operations Research) (SQC) : 4 December 1970.

1.10 *Obituary* : The Institute regrets to place on record its deep sense of loss at the death of Sir C. V. Raman, Nobel Laureate, on 21 November 1970, one of the most distinguished sons of India and an outstanding physicist of the world. The Institute records with gratitude the support Sir Raman rendered to the Indian Statistical Institute as its Vice-President from 1932 to 1947.

The Institute also regrets to record that Shri B. K. Raja Rao, Executive-in-charge of the SQC Unit at Bombay, passed away on 28 December 1970. He joined the Institute in October 1953 where he worked for about four years up to July 1957 when he left. He joined the Institute again in November 1959 and remained in service till his death. He was associated all along with SQC work.

1.11 *Review Committee* : In the last Annual Report for 1969-70, it was noted that the Government letter of 5 March 1970 containing a resolution regarding the reorganization of the NSS and the tentative proposals of the Government in respect of the NSS staff and a portion of the common services staff was considered at a meeting of the Council held on 21 March 1970.

On 10 June 1970, the Council of the Institute considered the question of the transfer of the NSS together with the reply dated 8 May 1970 of the Indian Statistical Institute Workers' Organization to the Government and the Administration's note submitted in this regard. At this meeting, Shri V. L. Gidwani, Secretary, Department of Statistics, stated that the Government was very keen on settling the matter as quickly as possible and expressed the hope that a tripartite conference with the Government, the Council of the Institute and the Workers' Organization as the parties would help to resolve the matter quickly. The Council welcomed the proposal. A sub-committee was formed by the Council with Professor H. C. Ghosh, Shri Arun Dutt, Dr. B. P. Adhikari, Shri N. C. Ghosh and Shri P. Ray to go into the details of the problems associated with the reorganization of the NSS, so that the sub-committee could represent the Council at the tripartite conference. Tripartite meetings were held on 28 and 29 June, 29 July and 12 December 1970, at which details relating to the transfer of the NSS work and workers were considered and it was decided that a final resolution by the Government would be prepared in the light of the discussion held. On 29 September 1970, the Council discussed in detail the various aspects of the transfer of the NSS.

On 21 November 1970, the Council constituted a Committee with Mr. Justice A. K. Mukherjee as Chairman and Shri G. Basu and Professor B. R. Seshachar as members with powers to co-opt two members, if they thought fit, with the Joint Secretary and Administrative Officer as ex-officio non-member convener to advise the Council on the need and scope of reorganization of the work of the Institute in the light of recommendations of the Review Committee and the Deshmukh Committee as well as the recommendations and deliberations of the Council and also in the context of the changed circumstances and the needs of the Institute. Various points such as financial responsibility for the NSS staff, accommodation and procedure for the transfer of NSS work were discussed at a meeting of the Council held on 7 December 1970.

Further developments in this regard will be reported in due course.

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### 2. RESEARCH AND TRAINING SCHOOL

The Research and Training School carried out its training and research activities under the guidance of the Director, Dr. C. R. Rao.

#### 2.1. Training Programmes

2.1.1. *Admission to courses*: No new courses were started during the year. A full list of courses is given in the Prospectus of Degrees, Diplomas and Certificates, 1970-71.

The following is a list of the number of candidates admitted to the different courses during 1970-71.

	<i>number of admissions</i>
1. <i>Courses leading to a Degree in Statistics</i> :	
1.1 Bachelor of Statistics with Honours (B.Stat.) (Hons.)	
1st year .. .. .	34
2nd year .. .. .	23
3rd year .. .. .	21
4th year .. .. .	16
1.2 Master of Statistics (M.Stat.)	
1st year .. .. .	22
2nd year:	
Subjects of Specialisation:	
Econometrics and Planning .. .. .	2
Computer Science .. .. .	4
Sample Surveys and Market Research .. .. .	5
Psychometry .. .. .	2
Statistical Quality Control & Operations Research .. .. .	3
Mathematical Statistics and Advanced Probability .. .. .	2
1.3 Doctor of Philosophy (Ph.D.) .. .. .	4
(Research Course preparatory to Ph.D.)	
2. <i>Specialised Courses in Applied Statistics leading to Diplomas</i> :	
2.1 Demography .. .. .	3
2.2 Statistical Quality Control & Operations Research .. .. .	25
3. <i>Summer Course in Statistics</i> .. .. .	26
4. <i>Courses in Statistics for Persons in Employment</i> :	
4.1 Statistical Officers' Training Course (jointly with the CSO) .. .. .	14
4.2 Specialisation Courses for Statistical Officers (jointly with the CSO) .. .. .	15

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5. Evening Courses :	
5.1 Statistical Methods and Applications :	
(i) Bangalore	7
(ii) Bombay	20
(iii) Calcutta	23
(iv) Delhi (in collaboration with CSO)	25
(v) Ernakulam	16
(vi) Hydrabad (in collaboration with Indian Institute of Economics)	10
(vii) Madras	12
5.2 Elementary Techniques of Computations	18
5.3 Statistical Computations	—
5.4 Diploma in Statistical Quality Control and Operations Research (Bombay and Madras)	
5.4.1 Bombay—1st year	32
Bombay—2nd year	32
5.4.2 Madras—1st year	31
Madras—2nd year	24
6. Electronic Computer Courses :	
6.1 Diploma in Computer Science	4
6.2 Intensive Course on Programming and Applications	25
7. Courses at the International Statistical Education Centre, Calcutta :	
7.1 Regular Course in Statistics	20
7.2 Specialisation Course for Individuals	1
7.3 Advanced Course in French Language	10
8. Documentation Training Course at Bangalore	
8. French Language Course	17
10. ISS Officers Course :	
(i) Probationers	15
(ii) Senior Officers	7

2.1.2 Tenth Summer Course : The Tenth Summer Course in Statistics was conducted in Calcutta from 18 May to 27 June 1970. Twenty-six participants from all over the country came to join the course on Statistical Methods in Biological Sciences-II. Of these, eight candidates also participated in the previous year's course conducted in Waltair in May/June 1969.

The course included lectures and practical work on the design of experiments, bioassay and probit analysis, analysis of variance, multivariate analysis, elements of stochastic processes, matrix algebra and computer programming.

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### 2.2 Research Activities

The units for applied research and scimco laboratories attached to the Research and Training School, together with the names of the heads of units, are as follows :

Sudhir Ranjan Das (*Anthropometry and Human Genetics*), Rhea S. Das (*Appraisal Division*, till July 1970), Prabhat Ranjan Pal (*Biochemistry*), Bhupendra Chandra Das (*Biometry*), Subodh Kumar Roy (*Botany*), Jogabrata Roy (*Computer Science*), Trupapur Antony Davis (*Crop Science*), Manasodrom Venkateswarier Raman (*Demography*), Deb Kumar Bose (*Economic Research*), Ratan Lal Brahmachary (*Embryology*), Sohan Lal Jain (*Geology*), S. Maitai (*Leaf Protein*), Alakannanda Mitter (*Linguistic Research*), Monimohan Mukherjee (*National Income Research*), Durguprasad Bhattacharyya (*Pre-Census Population Studies*), Sibabrata Chatterjee (*Psychometric Research and Service*), Ramkrishna Mukherjee (*Sociology*) and T. N. Srinivasan (*Planning and Regional Survey, Delhi*).

Subodh Kumar Roy was the Dean of Studies up to November 1970 and Jogabrata Roy became the Dean of Studies from December 1970. Asoko Maitra was in charge of training at the International Education Centre, Sujit Kumar Mitra was in charge of the Summer School and Jogabrata Roy in charge of the evening courses at Calcutta and the branches of the Institute.

2.2.1 *Important Topics of Research* : The research work of the Institute during April 1970-March 1971 is embodied in about 170 research papers sent for publication, besides mimeographed technical reports. The fields of research covers, besides statistics and mathematics, various subjects for which the Institute has specialised research units : anthropometry and human genetics, biochemistry, biometry, chemistry, computer science, crop science, demography, documentation and library science, embryology, economics and econometrics, geology, leaf protein, phonetics and linguistics, phonetics, psychometry, sociology, theoretical physics and electronics. A selected list of topics, on which research was carried out during the year, is given below\*.

#### A. Mathematical Statistics and Probability

Generalized inverses of matrices and various applications, theory of least squares, multi-variate analysis, characterization problems, sampling theory, design of experiments, sufficient statistics and statistical inference, stochastic processes, Bayesian inference, optimization problems, linear and dynamic programming, uses of special functions in statistical methods, statistical methods in geology, anthropology and human genetics.

#### B. Mathematics and Numerical Analysis

Measure theory, topology, topological groups, axiomatic set theory and logic, graph theory, game theory, special functions, problems of interpolation and numerical analysis.

#### C. Natural Sciences

##### (i) Anthropometry and Human Genetics

##### (a) Placental enzymes genetic study project

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\* For details regarding research in National Sample Survey (N.S.S.) please the chapter on N.S.S.



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- (b) Investigations on the probable association of the placental alkaline phosphatase (enzyme) genotypes with the mother's pregnancy characteristics, and with the infant's health and neo-natal growth rates in the Bengali Hindus.
  - (c) Erythrocyte enzymes' genetic variations study project in castes and tribes.
  - (d) Investigations on the problems relating to human plural births, parent-offspring correlation and inbreeding coefficient, and restricted random mating.
  - (e) Electrophoretic studies on genetic variants of haemoglobin, including Bart's Hb in cord blood and alpha-thalassaemia.
  - (f) A family study on the genetics of quantitative dermatoglyphics (fingers), and marriage-distance relationship in the Santals around Giridih, Bihar.
  - (g) An Indo-Soviet collaborative anthropological research project on Indian peoples covering morphological characters, blood groups (seven systems), serum protein enzymes, etc. and other observational traits.
  - (h) Incidence of polygynous marriages in India and the influence of female infanticide on sex-ratio.
- (ii) *Biometry*
- (a) Survival and growth of post-embryonic Indian fresh-water carp.
  - (b) Human blood protein.
  - (c) Increasing yield of agricultural crops.
  - (d) Age-related changes of immunological proteins.
  - (e) Levels of transferrin and haemoglobin.
  - (f) Status of coagulation factors in relation to age.
- (iii) *Biochemistry*
- (a) New project : component chains of haemoglobin from species of birds.
  - (b) Identification of different sugars present in varieties of radish.
  - (d) Poly condensation of *p*'-*p*-difluoro, *m*-*m*'-dinitro phenylsulfone with pyridine.
- (iv) *Crop Science*
- (a) The mechanical laws on the arrangement of leaves on palm trunk.
  - (b) Inducing clonal propagation in palms.
  - (c) Study on the structure of young palms.
  - (d) Morphology of the plant *Durio zibethinus* Lim flowers with special reference to stamen and pollen grains.
  - (e) Developmental morphology of a number of species of palms. Floral and foliar asymmetry in some crop plants.
  - (f) Anatomy of the various organs of young palms. The structure of epidermal poolings of palm species.

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### (v) *Embryology*

- (a) The metabolism of certain molecules associated with early embryonic mitosis.
- (b) The incorporation of  $S^{35}$  (inorganic sulphate) in the plasma and cellular fractions of amphibias and mammals.

### (vi) *Geological Studies*

The integrated programme of geological research in the Pranhita-Godavari Valley was under the following broad heads :

- (a) Stratigraphy and sedimentation of Precambrian rocks.
- (b) Sedimentology of the Gondwanas.
- (c) Palaeontology and stratigraphy of the Gondwanas.

### (vii) *Leaf Protein*

- (a) Screening of local vegetation.
- (b) Systematic agronomic studies.

## D. *Computer Science*

*Theoretical research and development of software packages :*

- (i) Work has started on a pre-compilation error diagnostics systems package for AUTOMATH.
- (ii) A project, "Statistical analysis of psychometric tests", was started.
- (iii) Research on the theoretical and computational aspects of generalised inverses is being continued.

## E. *Phonetics and Linguistics*

- (a) Phonetic structure of Indian languages.
- (b) Structure of meaning.
- (c) Statistical and engineering approach to linguistic phenomena.

## F. *Psychometry*

Test development and related psychometric problems; several new tests were constructed for the purpose of students and personnel selection.

## G. *Sociology*

- (a) Exploratory studies on the urban-industrial complex of the fringe society along the Hooghly river, Sunderban areas ; the societal structure of Darjeeling.
- (b) A pre-pilot field survey on induced social change in villages around the Mayurakshi river project, Birbhum, West Bengal.
- (c) An exploratory study in Calcutta to collect information on reactions of intellectuals regarding several socio-economic problems and topics with the collaboration of Bielefeld University, Federal Republic of Germany.

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### H. Demography

- (a) Analysis of data from the Calcutta Fertility Survey.
- (b) Estimation of fertility rates and mortality from survey data.
- (c) Study of fertility and associated factors in West Bengal.
- (d) Construction and analysis of nuptiality tables from census data.
- (e) Estimates of under-enumeration at the Indian censuses.
- (f) A mortality model with the elimination of particular cause or group of causes of death from the Indian data.

### I. Planning

The research activities of the Planning and Regional Survey Unit, Delhi, covered a wide spectrum, from research oriented to immediate economic policy issues to theoretical research on optimising models.

The research work done during the current year, at the Planning Unit, Delhi, may be classified as follows :

(i) *Studies in the Structure of Indian Economy* : Work on a capital coefficients matrix to correspond to the 144 sector input-output matrix for 1964-65 is continuing. This is a long-term project which involves careful compilation, collation and comparison of data on capital structure from diverse sources. The project is likely to continue in 1971-72 and later. The data relating to machinery, textile and food processing industries have been collected. A regression analysis relating output (or capacity) with capital in food processing industries has been completed.

A study of production and investment relations in the jute textile industry was completed in 1970-71 in collaboration with Dr. K. L. Krishna, Delhi School of Economics. The preliminary results of the study were reported at a seminar held at this Unit on 7 April, 1971.

A study of the efficiency of the Indian capital market in allocation of risk capital between different industries and between large and small firms within an industry has been in progress. The analysis of data relating to the cotton textile industry has been completed.

A theoretical investigation of alternative ways of extending the Constant Elasticity of Substitution Production Function to the case where there are more than two inputs was initiated. A paper incorporating the results was completed.

(ii) *Theory of Development Planning* : A theoretical investigation was undertaken into decentralisation schemes based on the decomposition principle. This study attempts to devise a scheme of decentralization where only quantity information flows directly between the "Centre" and the "Units", the former assigning a fixed composition of outputs and quota of inputs to each unit at each iteration and the latter reporting the optimum production levels where optimality means the maximization of the scalar quantity of output at the given composition. The Centre's problem is to maximize a similarly defined size of output, subject to national and sectoral resource constraints.

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(iii) *Studies on Indian Agriculture* : Farm Management Data, collected for the Ministry of Food and Agriculture, was analysed to estimate (a) the relationship among size of holding, productivity and returns to scale for 4 paddy districts and 3 wheat districts, and (b) unemployment in farm families in 26 districts.

The project on fertilizer requirements of different States undertaken under a contract with the Fertilizer Association of India got underway at the end of 1970. Experimental data relating to the response of crops to the use of chemical fertilizers, covering a large number of crops, States and years are being collected.

A study to examine the time series data on agricultural output for a number of districts (whose geographical area did not change much over time) in relation to changes in input use and soil-cum-climatic factors was initiated. To begin with, it was proposed to analyse the data relating to wheat in Punjab, rice in Madras and jowar in Bombay. For this purpose, time series data for the years relating to total cropped area, irrigated area, number of draught-animals and rainfall have been collected.

(iv) *Research on International Trade Theory and Problems Relating to Foreign Trade of India* : The work on the effects of exchange control liberalization since the devaluation of the rupee got underway during the second half of 1970-71. Data relating to exports, imports, import entitlements, cash subsidy rates, import premia etc. for a large number of commodities have been compiled. This study is expected to be completed during 1971-72. The first draft of a monograph incorporating the results will also be circulated by the end of 1971-72.

The work was continued on a book on Pure Theory of International Trade under the authorship of Bhagwati and Srinivasan.

(v) *Economics of Consumer Demand* : A study on the differences between households headed by persons of different occupations in their consumption patterns was undertaken. The study is in the final stage of completion.

An econometric model of consumer behaviour in which the parameters of the relationships are treated as random has been estimated.

(vi) *Educational Planning* : Data collection relating to an integrated educational and economic planning model was started in 1970-71. School enrolment, teacher supply, finances and related data for 1960-61 to 1967-68 have been collected. The data on labour supply and distribution by skills are being compiled. The data on population estimates are being revised on the basis of the 1971 census.

(vii) *Miscellaneous Research Projects* : The work on translating selected materials from Russian, French and other European languages dealing with planning techniques, institutions and practices, was continued.

### J. Regional Survey

The following work was done in the Regional Survey Unit, Delhi.

(i) *Studies in Regional Survey and Planning* : A project was undertaken to study the Karnal area of Haryana as a part of its area development studies. A note on the geographical setting of the area has been prepared to highlight the salient patterns of the formal

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and functional structure of the area (with a map). The salient demographic characteristics of the rural and urban settlements have been tabulated. Several base maps have been prepared including maps on settlement patterns, on the administrative set up with villages grouped according to Development Blocks, on broad landuse, on settlement by sizes and on distribution of urban centres in Karnal and adjoining areas etc. Initially, more emphasis was given to the field work in order to study the settlement types, space relations and land-form-landuse pattern. Discussions were held with officials in departments of the district administration on the scope of the project, the nature of the data and information required to be collected from the unpublished records. In all, eight visits were made during December 1970 to March 1971. The following data have been compiled for about 418 villages during this period :

- (a) broad land use and cropping pattern and certain agricultural inputs.
- (b) other village statistics, such as on amenities like education, health, cooperatives, markets etc.
- (c) certain broad industrial data.

Work is on progress for the analysis with these data.

*Studies on central place linkage pattern in South India :* This project, undertaken in 1968-70, was continued. On the basis of certain quantitative techniques developed earlier in the Unit, the central place linkage pattern in South India comprising of some 800 urban centres has been established. A report has been prepared on this study.

*Quantitative techniques for regional planning :* This study resulted in a theoretical paper published in the *Indian Journal of Regional Sciences*, 1971. Empirical testing of the techniques developed in this paper and further theoretical work along the same lines has been undertaken.

#### K. Economic Research

The research work done at the Economic Research Unit during the year may be classified as follows :

*Mathematical economics :* Some studies in mathematical economics were undertaken. A computational algorithm for the determination of von Neumann Ray was obtained. An analysis of optimum savings policy for a labour surplus economy eventually reaching full employment conditions was made. An attempt was made to apply linear programming to find out conditions under which fact or prices are equalized. A method was suggested for arriving at the wage distribution, given a CES production function. A brief note was prepared on the von Neumann Morgenstern utility functions. Finally, some conditions on the preference ordering are obtained, under which the existence of a continuous, order preserving, real valued utility function is demonstrated by explicit construction.

*Short-term forecasting :* A programme of work leading to short-term forecasts for the over-all functioning of the Indian economy has been taken up. Information on the economic characteristics for the different sectors are analyzed in this programme with a view to evaluating critically the prospects for the next year. A data bank is formed with statistics on Indian economy both from official and unofficial sources for the purpose. The

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study of the time series data is expected to lead to formulation of research problems for improvement on the methods of short-term forecasting. The work has been taken up by the members of the staff as a team.

*Sample survey of industrial labour* : A sample survey of the industrial labour in Greater Calcutta area has been initiated recently. The field work is nearly complete. The object of the survey is to study some of the characteristics of industrial labour, especially any changes that may have taken place over time in their connections with the rural areas and participation in agricultural activities.

*Economic activities related to a river system* : A study on the economic activities related to Bhagirathi-Hooghly river system is in progress. The object of the study is to examine the possibilities of the better utilization of facilities offered by the river system in respect of navigation, fishing and other activities in the context of the Farakka barrage project.

*Demand analysis* : Engel elasticities for consumer items based on NSS data have been extensively used for planning and other purposes in India. A project has been taken up with a view to critically examining the current methods of estimating Engel elasticities and of projecting demand. The object is to find out appropriate algebraic forms of Engel curves, to examine the influence of regional and other factors like household size on household consumption, to investigate the stability of Engel curves over time and to devise improved methods of projecting consumer demand.

*Index of productivity* : Productivity indices for manufacturing industries in India is useful for the study of technological changes and efficiency of labour. A time series of indices for 1946-58 has already been prepared in the ISI on the basis of data from the Census of Manufacturing Industries. It may be mentioned that continued time series data of this kind are not available elsewhere.

*Industrial licensing policy* : Industrial licensing policy in India is a major policy instrument for directing the investment pattern in keeping with the objectives of the planning. Some aspects of the licensing policy has been taken up for analysis during the period.

### L. National Income Research

The National Income Research Unit, Calcutta, is concerned with the estimation and use of national income and its distributions to study and explain the growth of the Indian economy.

#### *Research Activities* :

*Trends and structure of national income* : A book, "National Income of India: Trends and Structure", attempted to delineate the historical growth of national income in India and analyzed the post-independence data on national income and its several distributions drawing interesting conclusions; the volume also covered the conceptual background and reviewed the bulk of the research material on this topic in India. Following up a line of work discussed in this study, an attempt was made to trace the interconnections between the size distribution of personal income and other national income distributions. A study was made of the role of prices in national accounts. Regional income and other data were

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used to study the relative performance of the Eastern Zone of India *vis-à-vis* the rest of the country. Agricultural outputs implicit in the conventional and the revised national income series were compared.

*Regional disparity* : A project concentrated on the urban-rural disparity in consumer prices and in the level of consumption and the size distribution of consumption expenditure, utilizing electronic computation. In a study, the urban-rural price differential was first obtained globally and then for different ordinal (fractile) groups of the population. The sectoral size distributions were adjusted for inter-sectoral price variations and inequalities at current (sectoral) prices were compared against real inequalities. The results were also used for building improved estimates of the all-India size distribution. The Goary-Khamis index number was modified, giving a method of obtaining a consistent system of index numbers for inter-sectoral and inter-fractile price comparisons. A short-cut method was suggested to solve the same problem depending largely on the Laspeyres and Paasche indices, based on the marginal totals of the complete inter-fractile comparison table.

Another project on between states disparities in consumer prices and the level of living has been taken up on the basis of NSS household budget data.

*Education and manpower* : The study on the ascertainment of cost and output of education continued. An attempt was made to obtain the inter-state flow of technical personnel on the basis of census data.

*Long-period growth of Indian economy* : A general assessment was made on the long-period growth of the Indian economy during 1871-1961, furnishing some hypotheses on the changes in distributions other than that by industrial origin. In connection with the study of long period growth of capital formation in India, an attempt was made to analyse the data on the provision for consumption of fixed capital during the post-independence period. Another study sought to produce a series of estimates of capital formation by purchasing industrial sectors; such information is not readily available in India.

*Revised system of national accounts* : Certain aspects of the United Nations revised system of national accounts were studied, and an attempt was made to develop a projection method under the input-output framework with some production and some allocation co-efficients fixed. A study was undertaken on the utilization of minerals in indigenous industries.

### M. Pre-Census Population Studies

The research projects of the Pre-census Population Studies Unit are :

1. *Pre-Census Population Studies* : The purpose of pre-census population studies conducted in collaboration with the Registrar-General, India, is to compile material on population of India up to 1872 when the first census was planned. It is intended to publish eight volumes in all, one relating to the period up to 1800, one volume for each decade from 1801 to 1871. The first volume was published by the Registrar-General, India, in 1966.

The draft of the second volume entitled *Report of the Population Estimates of India, 1811-1830 (with additional material for 1820-1830)* was almost completed.

*Pre-Census Atlas* : The purpose of the pre-census atlas is to draw maps of the tracts for which population estimates are being presented. The base maps of old tracts are being

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drawn either with the help of contemporary old maps or from descriptions available in old documents. The old maps are being superimposed on the latest available maps for the purpose of identification of the old tracts. Socio-economic data including population are being displayed in maps. The second volume is likely to contain about 200 maps.

2. *Economic Studies*: Studies on historical trends in national economy were continued. The programme includes compilation of source material, and the collection and analysis of data.

*A Socio-economic Bibliography of India*: The broad object of this bibliographical project is to compile all available material in print bearing on socio-economic situation in India from the remote past up to date. During the year, the draft entitled *A Guide to a Socio-economic Bibliography of India, 1870-1970*, was submitted to the Indian Institute of Advanced Study, Simla, and a technical paper entitled *A Guide to a Socio-economic Bibliography of India, 1870-1970*, was released. Collaboration was extended to the publication of another volume entitled *Industrialisation in India, 1910-1939: A Bibliography*. Another volume entitled "*British Parliamentary Papers in India, 1900-1949*" was mimeographed.

During the year, publications of Central, Provincial and State Governments, of universities and research institutes, and of other corporate bodies, numbering about 20,000, catalogued in card, were arranged by a broad classification of subject to be classified in detail. Work continued in Bengali publications on socio-economic condition of India. Analytical entries were made from prose writings of eminent authors.

*Evolution of Thinking on Planning in India*: During the year, a bibliography of printed works in English and a list of articles published in journals in English and Bengali were compiled. Material on the subject was collected from old newspapers.

*Prices and Wages in West Bengal, 1700-1970*: Original data on retail prices compiled by the Fiscal (Collector) of Chinchura, George Toynbee, W.B. Bayley and others for the eighteenth and nineteenth centuries were collected for a few essential commodities like rice, wheat, gram, mustard oil and salt. Data for the later period, that is, from the mid-nineteenth century to 1970, have been and are being collected from various sources. Data on wages, however, fragmentary for the early period, are also being compiled. It is intended to prepare a weighted index of retail prices and real wages of ordinary labour. The validity of the index may be tested by examining its corroboration with the known behaviour pattern of economic variables during the period under study.

*Statistical Survey of Gorakhpur, 1814*: Dr. Francis Buchanan was appointed by the East India Company to conduct a comprehensive statistical survey of Bengal. He conducted the survey in six districts of Bengal and Bihar during 1807-14. The Bihar Orissa Research Society published a small portion of the large manuscript lying at the India Office Library. The Indian Statistical Institute procured a micro-film set of the entire manuscript.

These manuscripts will be published with suitable introductions in several volumes under the guidance of Professor P. C. Mahalanobis. Each survey report contains information on political geography, natural resources, drainage, population, caste and occupation, transport, commerce, communication, social conditions, prices, wages, coins, weights and



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measures, etc. During the year, the original tables were copied, scrutinised and typed. A series of subsidiary tables based on original tables was then constructed to recast the data into modern concept, definition and form.

#### N. *Computing Machines and Electronics Laboratory*

The work of the Electronics Laboratory during the year may be broadly classified under the following : (i) Theoretical Research, (ii) Experimental Research, and (iii) Design, Development and Construction.

Among the items of research may be mentioned :

(i) *Theoretical Research* : 1. Applied Probability, 2. Electrical Network Theory and Fundamental Electronics, 3. Fluid Mechanics, 4. Exterior Ballistics, 5. Physics of Elementary Particles.

(ii) *Experimental Research* : 1. Memory Technology, 2. Pattern Recognition.

(iii) *Design, Development and Construction* : Work was started on the design and development of an electronic desk calculator having facilities for conversion into a small desk-top computer for scientific use. The display unit has been designed and constructed.

The design and construction of an instrument for computer teaching and education has been undertaken.

The construction of instruments for the teaching of partly-deaf children, ordered by the Government of Tripura, has been completed, tested and made ready for delivery.

#### 2.3 *Statistical Quality Control (SQC)*

The Statistical Quality Control Division of the Institute was established in the early fifties with the object of promotion and development of Quality Control in Indian industry. The work of the Division has attained increasing importance with the growing economic and industrial activities in the country. The programme of work of the Division is operated through its nine units located in important industrial centres of the country, viz., Bangalore, Baroda, Bombay, Calcutta, Coimbatore, Delhi, Madras, Ernakulam and Trivandrum. The activities broadly comprise (i) plant service, (ii) training, (iii) promotion, and (iv) research. Consultative service and training was the hard-core of activities. Training programmes, covering different levels of plant personnel, were aimed at producing a large number of SQC practitioners. An All-India Conference on Quality Control was organised in Delhi during the year. Other normal promotional activities were also intensified.

*Plant service* : During the year, the units serviced 88 plants. Twentyfour new organisations enrolled for regular servicing, while 28 clients in whose firms SQC had been established, discontinued. Technical reports numbering 448 were prepared on the projects undertaken at the establishments.

Package training-cum-service programmes to suit particular industries e.g., steel, photofilm, heavy electricals etc. have been developed. These will cover some of the largest public sector complexes in the country.

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*Training* : Programmes for intensifying the training activities of the Division have been undertaken. New projects like training of 'trainers' have also been launched. These are expected to set in motion a 'multiplier effect' in training industrial people.

During the period, the units conducted 6 general courses attended by 120 persons and 12 special courses in which 1,016 persons participated. Thirty-one in-plant courses were given for plant personnel at different levels and 1,333 persons were covered. A few of these in-plant courses were given in regional languages for the benefit of operatives.

In the full-time, post-graduate Diploma Course in SQC-OR in Calcutta, 25 students were undergoing training, of whom 16 were sponsored candidates.

In the two-year, post-graduate evening course in SQC-OR in Madras, 31 students were admitted in the current first-year batch and 24 in the second year.

The two-year, post-graduate evening course in SQC-OR in Bombay had 32 students each in the first and second years.

A six-month, evening course in SQC for supervisors, started at Bangalore on 6 July 1970, is designed to train two batches of trainees every year. Thirty students were admitted to each of the first and second batches.

The units imparted on-the-job training to new apprentices and the junior staff. Ten new apprentices were recruited during the period. The units also organised and supervised field training for the students of the diploma courses in SQC-OR and M.Stat. students.

The Unit staff also served as faculty members arranged by other scientific societies and organisations like Productivity Councils, Operational Research Society of India, Institution of Engineers, Management Associations, Small Industries Service Institute, Indian Railways, degree course of some engineering colleges etc.

The total number of persons who received training at these courses was 2,469, against 2,343 in the previous year.

*Promotion* : During the period, 84 lectures and talks were delivered to different categories of industrial personnel, scientific and educational institutions. The units organised, besides an all-India conference, 8 seminars covering various topics in the field of quality control and operational research. The unit staff attended 26 seminars and conferences etc. organised by other institutions. They paid 61 promotional visits to new plants and conducted 21 pilot surveys. Twenty-nine promotional reports were issued in connection with the pilot surveys.

*Technical papers and manuals* : The unit staff prepared 42 papers, of which 5 were published in journals and 37 presented at conferences and conventions. The units also prepared 24 training manuals, which included some special publications on the application of QC and OR in Indian industry.

*Fifth All India Conference on Quality Control in Delhi* : As a part of its promotional activity, the SQC units have been conducting a number of seminars, conferences and meetings from time to time. The Institute had organised so far four all-India conferences (three in Calcutta and one in Madras) and the Fifth All India Conference on Quality Control was organised in New Delhi on 17, 18 and 19 March 1971.

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About 460 delegates attended the conference. One hundred seven working papers were presented at the technical sessions. There were 6 technical sessions devoted to the reading of papers on the applications of quality control in engineering, textile, chemical, and electronics industries and public utilities. There was a separate session on research and development. There were also 4 panel discussions which were in the nature of a dialogue among the experts and with the delegates. The panel sessions were on QC in Retrospect and Prospect, QC in Export, QC in Hospitals and QC in the public sector enterprise. There was a plenary session which reviewed the achievement of the conference and made some specific recommendations for follow up.

The conference was unique in many respects. For the first time, hospitals came under focus for QC coverage. There was an exclusive session on QC in public sector plants. Several senior officials from the Government, top leaders from industries, key representatives from research and scientific institutions, successful practitioners and consultants in SQO participated in the conference.

An exhibition displaying likely case-studies and actual product models covered by QC applications was arranged on the occasion. Thirteen organisations took part in the exhibition and the exhibits received appreciative remarks from visitors.

*Development of SQC-OR exhibitions :* The Division has undertaken a project for organising SQC-OR exhibitions at its operating centres to highlight the advantage derived by industry from the application of these techniques.

The first of these exhibitions was organised at the Institute headquarters at Calcutta during the visit of a delegation of Commonwealth statisticians in November 1970. The second exhibition was arranged during the Fifth All India Conference in Delhi in March 1971.

The Training and Promotion Unit continued to bring out the 'QC News', the monthly news bulletin of the SQC Division.

The Division has been co-ordinating with the organisers of an international seminar on Pharmacokinetics organised by J. M. Richards Laboratory of the USA to be held in Basle, Switzerland, in June 1971. The Institute has been a co-sponsor of the seminar.

*Research :* A small research unit, named the Systems Research Unit, was started during the year with the object of conducting applied research and other technical activities of the Division. This unit has initially undertaken some studies in the Institute.

The Division has launched a research project to survey the latest position of Quality Control in Indian industry with a view to designing measures to enable the industry strengthen its SQC base and augment further its trade and commerce both at home and abroad. The preliminary work is now complete and over 2,000 questionnaires have been sent to organisations covering all types of industries in the country.

The Training and Promotion Unit is conducting research on Sequencing, Design of Experiments, Bayesian approach and Cluster Analysis.

*Foreign Experts :* Dr. W. E. Deming, Consultant and international specialist in quality control and statistical surveys from the USA, Mr. L. H. C. Tippett, the noted quality control specialist from the U.K., and Mr. G. Taguchi from Japan, participated in the Fifth All India Conference on Quality Control and also took part in other activities.

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### 2.4 Library and Information Services

The Central Library at Bārānagar has at present a collection of 1,27,141 books and bound journals, 32,827 reprints, monographs, specialised technical reports, besides a large collection of maps, microfilms and photoprints. During the year, the library received 2,612 current periodicals—902 through subscriptions, 1,024 on an exchange basis and 686 as gifts. The services of the branch libraries at Bombay, Bangalore, Baroda, Cochin, Coimbatore, Delhi, Giridih, Madras and Trivandrum were co-ordinated with the Central Library to serve the researchers, students and staff working at those centres.

*Membership* : The total membership of the Library increased to 2,275 including 1,805 research and other staff members of the Institute, students attached to the RTS, 285 outside student members, 140 seasonal members and 45 Institute members. One hundred and thirty seven persons were given special permission to use the Library during the period.

*Acquisition* : The Library acquired 1,192 books, 640 official reports and also received 247 books on an exchange basis and 476 books as gifts. Sixty-nine new periodicals were added to the Library, of which 33 were on subscription, 12 on an exchange basis and 24 as gifts. The Library also acquired back-runs of 28 periodicals on mathematics and statistics to make the collection more comprehensive. As in the past, the Library continued its exchange arrangements with 104 foreign and 85 Indian institutions and received periodicals and other serials in exchange for the *Sankhyā*. The Library also received scientific and technical publications in Russian and Japanese languages in exchange for publications of equal value from the Lenin State Library, the Fundamental Library of Social Sciences, USSR; the Library of the USSR Academy of Sciences; M. E. Saltykov Schedrin State Public Library, USSR, and the Institute of Developing Economies, Tokyo.

*Accession* : Three thousand and one hundred sixtythree books and other documents were accessioned, of which 867 were official reports and data books, 1,687 were purchased, 247 were received on an exchange basis and 482 as gifts.

*Technical processing* : The Library classified 1,283 books and 119 official reports and catalogued 2,609 books and 119 official reports. The number of book classifications and catalogue cards revised were 84 and 278 respectively. During the period, 350 reprints were also catalogued and added to the reprint collection; 10,395 cards were filed and 906 additional copies of books were added to its collection. The Library processed and indexed 1,175 old files, 2,872 newspapers and 6,412 maps.

*Circulation* : Twenty-seven thousand and one hundred thirty one books and 8,085 journals were issued on reference and 13,846 books on lending. Besides, 1,172 official reports, 195 maps, 90 newspapers and 45 old files were issued for reference use. The Library sent 97 books and journals to the Branch libraries. In inter-library loan transactions with 25 local and out-station libraries, the Library borrowed 37 books and loaned 61 books to those libraries.

*Reference and bibliographic services* : The Library issued documentation lists, reading lists on different subjects and compiled bibliographies on request. Four hundred and fifty questions posed by the readers were answered by the staff during the period.

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*Publications* : The Library continued to bring out regularly the *List of Selected Periodicals* and the *Monthly Bulletin*.

*Translation service* : The Translation Unit provided the research workers with translations from foreign languages and translated 11 documents; of these, six documents from Russian, two from German, and one each from French, Japanese and Czech were translated into English. The number of pages of translation from Russian was 129, from German, 93; from Japanese 27, from Czech 10 and from French 21. Oral translations were also provided to the specialists on demand.

*Photography and reprographic service* : One thousand and eight hundred thirty two photographs, including those of "Safety" charts for the SQC Conference in New Delhi and 146 slides were prepared for the scientific departments of the Institute. The Reprography Unit and the Photography Unit microfilmed 15,605 pages of NSS schedules and other reading materials and also provided 4,782 pages of photoprints. The number of documents and the number of pages xeroxed were 1,229 and 2,078 respectively, the actual number of copies printed being 7,893. Microfiche negatives of 82 documents, 2,000 pages in all were prepared during the period. The Library also extended reprographic service to eight outside institutions.

*Circulation Library* : The Workers' Circulating Library had a collection of 24,831 books and the total number of members was 1,703. The Circulating Library added to its collection 853 books, of which 90 books were in English, 525 in Bengali, 148 in Hindi and 90 in Oriya and discarded 236 worn-out books. The Circulating Library issued, during the year, 43,304 books.

#### 2.5 *Documentation Research and Training Centre (D.R.T.C.), Bangalore*

The five candidates, admitted to the Documentation Course for the year 1969-70, completed their formal training. They are now working on the trend report to qualify for the Associateship in Documentation.

Six candidates were admitted to the Documentation Course (1970-71), which commenced on 16 April 1970.

*Research* : The main subjects in which research was done were : 1. Universe of Subjects, 2. Discovery and Duplication, 3. Classification, 4. Cataloguing, and 5. Computer-aided Document Finding System.

*Seminars and Conferences* : Details regarding the Seminar on Cataloguing and the Eighth Annual Seminar on Documentation are given in the chapter on "Seminars and Conferences conducted by the Institute." The other seminars and conferences, in which the staff of the DRTC participated, contributed papers, or gave lectures, are : 1. Estimation of Groundwater Potential in Hard Rock Areas (Bangalore) (24-25 July 1970). 2. International Congress of Documentation (1970) (Buenos Aires). 3. IASLIC Conference (8) (1970), Bangalore. 4. National Library Week (organised by the Mysore Library Association and the Department of Libraries, Government of Mysore). 5. Indian Library Resources for American Studies (American Studies Research Centre, Hyderabad) (11-13 January 1971).

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*Publications* : The DRTC continued to collaborate with the Sarada Ranganathan Endowment for Library Science in the publication of the quarterly, *Library Science with a Slant to Documentation*. The following were the other publications of the DRTC : 1. DRTC Annual Seminar (8) (1970), 700 p. 2. Mid-Year Seminar on Cataloguing (May 1971), 200 p.

*Papers contributed* : During the period, the staff of the DRTC contributed 81 papers to seminars and conferences and for publication in the library science periodicals.

*Consultations* : Several librarians and documentalists in the country sought clarifications and advice on technical points in order to give better and more effective documentation service.

*Library* : The library received 230 books, 95 reports/reprints, and 9 new periodicals.

Talks on ten subjects were given by the staff of the D.R.T.C. under the auspices of outside organisations. Eight weekly colloquia were also organised.

### 3. INTERNATIONAL STATISTICAL EDUCATION CENTRE (ISEC), CALCUTTA

The International Statistical Education Centre is operated jointly by the International Statistical Institute and the Indian Statistical Institute, under the auspices of the UNESCO and the Government of India. The Twenty-fourth Term functioned under a Board of Directors with Professor P. C. Mahalaubis as Chairman.

Twenty trainees from seven countries in the Middle-East, South and South-East Asia, the Far East and also from the Commonwealth countries of Africa attended the regular course.

The Government of India awarded 16 fellowships for the foreign trainees in the Twenty-fourth Term, under the Technical Cooperation Scheme of the Colombo Plan (12) and the Special Commonwealth African Assistance Plan (3). There was one trainee outside the Colombo Plan and SCAAP for the regular course from the Republic of China (Taiwan). One trainee under UNTAO fellowship from Indonesia continued his training till the end of December 1970. He was a special course trainee studying the Indian National Sample Survey under the auspices of this Centre.

The Twenty-fourth Term opened on 1 June 1970. English is the medium of instruction at the Centre. The training imparted included lectures, laboratory work, project training, assisted reading and field work. The first three months at Calcutta were devoted to general Statistical Methods including Auxiliary Mathematics, Computational Technique, Probability Theory, Numerical Mathematics, Sampling Techniques, Economics, Economic Statistics and Statistical Organization and Procedure. As in the previous terms, a six-week training in governmental statistics was given at the Central Statistical Organization, New Delhi, during October-November 1970. Specialization courses on an individual basis were given from January 1971 upto the end of March 1971 in the following fields : Large Scale Sample Surveys, Economic Planning, Data Processing, Statistical Quality Control, Vital Statistics and Demography. During the last four months, general lectures were also given on Probability Theory, Vital Statistics and Demography, Sampling Theory, Statistical

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*Distribution, Inference, Large-Scale Sample Surveys with special reference to National Sample Surveys, Advanced Statistical Methods, Analysis of Variance and Elements of the Theory of Design of Experiments, Economic Statistics and Economic Planning.*

In the final examination, 19 trainees of the regular course were successful and were awarded Certificates of Merit, while one trainee was awarded a Certificate of Attendance.

Professor H. Sakamoto, Faculty of Engineering, Keio University, Japan, acted as the Visiting Professor during the term. He delivered a series of lectures on some aspect of Statistical Quality Control to the general body of students. He also conducted specialisation course on Statistical Quality Control for a selected group of students.

### 4. NATIONAL SAMPLE SURVEY

*National Sample Survey Project* : This Division of the Indian Statistical Institute functions as the technical wing of the Government of India's National Sample Survey Organisation.

The twenty-fourth and twenty-fifth rounds of the regular National Sample Survey and the Annual Survey of Industries for 1968 and 1969 were in operation during the period under review. About four different, countrywide enquiries were conducted in the socio-economic surveys. The special integrated schedule, covering all economic aspects of a household, was again included in the current year's programme. A new orientation was given to the crop survey in the twenty-fifth round, its object being to provide an adjustment factor for the crop area estimates obtained by the state official agency.

The activities of the Division covered the following types of work during the year :

(a) statistical planning of the surveys including sample designs, concepts and definitions, methods of collecting primary information, selection of sample villages and urban blocks, preparation of schedules of the different enquiries, training of field workers and technical work relating to field enquiries;

(b) programming of statistical processing and the laying down of detailed specifications;

(c) conducting field work in the State of West Bengal and the city of Bombay, together with experimental researches for the improvement of sampling designs and techniques; and

(d) the processing of NSS data and preparation of statistical reports based on them.

The processing and tabulation work covered data collected in the nineteenth to twenty-fifth rounds of socio-economic surveys and the Annual Survey of Industries, 1967 and 1968.

The tabulation and processing work was carried out in Calcutta (Baranagar), Delhi and Giridih. The number of schedules scrutinised was about 1.80 lakhs, the number of cards punched was about 44.14 lakhs and there were about 178.3 lakh card passages.

The equipment consisted of sixteen tabulator units with necessary auxiliary machines, of which eight units were at Calcutta, four at Delhi and four at Giridih.

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The field work of the twenty-fourth (NSS) in West Bengal was completed in June 1970 and that of the twenty-fifth round which commenced in July 1970 is still in progress.

Out of the 28 items of end-results committed to be delivered to the Government of India in accordance with the Programme of NSS Processing Work for 1970-71, 7 items were duly completed and delivered to the Government within the period under review and another two items were expected to be delivered within the grace period of one month. The work on the remaining items was in an advanced stage of completion.

The preliminary work on planning and sample designing for the twenty-sixth round of the NSS has already been taken up.

*Training* : The training programmes in survey techniques were arranged for research apprentices of the RTS, members of the Indian Statistical Service, statistical officers from Government departments and the trainees of the International Statistical Education Centre and the UN, UNALD, FAO and other fellowship holders. A specialisation course in large-scale surveys was conducted for the trainees of the International Statistical Education Centre. Regular classes on sampling theory were taken for the M.Stat. I, ISEC and officer's training courses of the RTS.

Some of the senior staff attended meetings of the Advisory Committees related to NSS work and programme, participated in regional training conferences and also took part in the Indian Science Congress, and the All-India Econometric and Agricultural Conference, where they presented papers.

A list of papers published by staff members is given in *Annexure 2*.

Seven NSS draft reports, approved for printing, were revised in the light of the comments received from the Central Statistical Organisation (C.S.O.) and finalised versions of the reports were submitted to the Government for printing. Ten draft reports were prepared and submitted to the Government of India during the period (*Annexure 3*).

Twenty draft reports, prepared by different State Governments on the basis of the NSS State sample data forwarded to the Institute by the CSO, were examined and the Institute's comments on them were communicated to the CSO during the year (*Annexure 3*).

The staff members prepared three technical papers and five working papers during the year.

*Special Studies Unit* : The following developmental studies were carried out during the period under review :

(a) *Experimental land-utilisation surveys* : (i) To study the relative merits of alternative sampling methods for the estimation of major crops of different seasons, an experimental survey was undertaken in the selected districts of West Bengal in July 1970. This survey will continue up to June-1971, covering four seasons namely, autumn, winter, spring and summer. A total of 20 investigators in two sub-samples formation surveyed two different sets of sample villages selected, adopting two methods of selection.



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(ii) An exploratory study to ascertain the extent of crop acreage in urban areas, was undertaken in the southern districts of West Bengal in May-June 1970. The feasibility of collecting such data through urban households and assessment of such data was to be studied. Calcutta city and towns with a population of 50,000 or more, were excluded from this study. A total of 28 investigators in two sub-samples formation surveyed two independent samples of urban blocks (Urban Frame Survey blocks).

(b) *Methodological study on inland fish catch*: A study to evolve suitable sampling scheme and methodologies for the collection of data etc. for the estimation of inland fish catch was started in June 1970 in selected areas of Bankura, Midnapur and 24 Parganas districts of West Bengal. Data on consumption of fish in detailed breakdowns and catch of fish by types of exploitations, with special emphasis on the catch from pond-tank etc., was to be collected. The survey also covered flowing water areas like rivers, canals etc. to a certain extent.

(c) *Type studies on cultivation practices, utilisation of man-power etc.*: To study the cultivation practices, utilisation of man-power, etc., a survey is to be undertaken at a typical rural centre in Midnapur district in West Bengal, starting in January 1971. The survey will continue for one year. The scheme is planned to have stationary observers (ad-hoc), collecting data from selected households by repeated visits once in every month.

(d) *Line sampling*: In order to compare the relative merits of different sampling units for the estimation of crop acreage, a special survey on line sampling was adopted in a set of selected villages in Midnapur, West Bengal, in February 1971. Two hundred fields were selected with probability proportional to size with the south-west corner of the field as the starting point; a distance of 600 feet was traversed along with the field border in a specified direction.

### 5. PROFESSIONAL EXAMINATIONS

The following four open professional examinations were held during 1970—(i) Statistician's Diploma, (ii) Computer's Certificate, (iii) Statistical Field Survey, and (iv) Punched Card Machine. As has been the usual practice in recent years, the Statistician's Diploma and the Computer's Certificate examinations were held twice during May and November—the Punched Card Machine examinations were held only in May and the Statistical Field Survey examinations in November alone.

The centres for the professional examinations are selected on an all-India level. New centres on the basis of the priority of choice of the candidates may also be opened as long as there are a minimum number of candidates available for each of these centres and when facilities for a smooth and efficient holding of these examinations can be ensured. Six of the examination centres, in Bombay, Calcutta, Delhi, Giridih, Lucknow and Madras, have always some candidates to offer and as such have almost attained the status of permanent centres. The largest number of candidates appear from centres in Calcutta and Delhi. The other four centres usually cater for a small number of students. During May 1970, examinations were conducted at Bombay, Calcutta, Delhi, Giridih, Lucknow and Madras, and during November 1970, Hyderabad was also included as an additional centre.

The Statistician's Diploma examination continues to draw the largest number of students; the next in the list has always been the Computer's Certificate examination.

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The details of candidates who registered and appeared for the examinations during the year 1970 are given below :

(i) *Statistician's Diploma Examination* : During 1970, 145 candidates (74 in May; 71 in November) registered for the examination, and 27 candidates (12 in May; 15 in November) failed to appear in any of the papers. Of those who finally appeared, 67 candidates (34 in May; 33 in November) in 1970, passed in one or more papers.

(ii) *Computer's Certificate Examination* : Thirty-two candidates (17 in May; 15 in November) registered for this examination in 1970. Only 2 candidates failed to appear in any of the papers. Of those who finally appeared, 20 candidates (10 in May; 10 in November) passed in one or more papers.

(iii) *Statistical Field Survey Examinations* :

(a) In November 1970, two candidates only had registered for the Field Survey Diploma examinations and the one who appeared did not pass.

(b) In 1970, three candidates registered for the Field Survey Senior Certificate Examination, and the only one who appeared failed.

(c) For the Junior Certificate, no candidate registered in 1970.

(iv) *Punched Card Machine Examinations* : In 1970, no candidate registered for the Punched Card Machine Operator's Certificate examination and only 2 candidates registered for the Punched Card Data Processing Diploma examination. Both these candidates appeared and passed in one or more papers.

*Number of successful candidates qualifying for the award of Diplomas and Certificates in Open Professional examinations* : The number of candidates who had successfully completed the entire professional examinations and qualified themselves for the award of Diplomas and Certificates during the year 1970 are given below.

*Statistician's Diploma* : Nine candidates (6 in May; 3 in November) qualified.

*Computer's Certificate* : Seven candidates (6 in May; 1 in November) qualified.

*Statistical Field Survey examinations* :

(i) *Diploma* : No candidate qualified for this Diploma in 1970.

(ii) *Senior Certificate* : No candidate qualified for this certificate in 1970.

(iii) *Junior Certificate* : One candidate only qualified for this certificate in November 1970.

*Punched Card Examinations* :

(i) *Data Processing Diploma Examination* : No candidate qualified for this Diploma during 1970.

(ii) *Machine Operator's Certificate Examination* : No candidate qualified for this certificate in 1970.

*Award of Diplomas* : On the basis of 1970 open professional examination results, nine candidates were declared eligible for the award of Diplomas (9 SD, other Diplomas nil).

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### 6. CONFERENCES AND SEMINARS CONDUCTED BY THE INSTITUTE

The Memorandum of Association of the Institute gives it a dual role : one is that of an academic body conducting high-level teaching and research and another of a society for the dissemination of knowledge and the maintenance of professional standards. As a society, it has the power to hold meetings, and arrange lectures, seminars, discussions and conferences. From the very inception, the Institute accepted this wider responsibility.

The following are some of the conferences and seminars organised by the Institute during the year.

#### 6.1 *All India Conference on Quality Control*

The Indian Statistical Institute had organised so far four all-India Conferences on Quality Control and the Fifth All-India Conference on Quality Control was held in Delhi, 17-19 March 1971. About 450 delegates from India and abroad attended.

One hundred and seven working papers were presented at the technical sessions. Six technical sessions were devoted to the reading of papers, one session to research and development, and four panel discussions were held in the nature of a dialogue among the experts and delegates. There was an exclusive session on quality control in the public sector plants.

The conference was unique in many respects. Hospitals came under quality control coverage for the first time. Several senior officials from the Government, top industrialists, key representatives from research and scientific institutions, successful practitioners and consultants in SQC, participated in the conference.

An exhibition displaying likely case-studies and actual product models covered by quality control applications was held on the occasion.

#### 6.2 *Seminar on Income Distribution in India*

The Seminar was organised by the Planning Unit, Indian Statistical Institute, Delhi, on 25 and 26 February 1971. The aim of the seminar was to bring together a number of research workers who have been working on various aspects of inequalities in income distribution, their changes over time and their implications for development policies. Nineteen papers were discussed.

The seminar was conducted in the following five sessions : (i) Sources of data and their reliability; (ii) Patterns and trends in inequalities : all-India; (iii) Patterns and trends in inequalities : regional variations; (iv) Factors affecting inequalities; and (v) Policy issues.

#### 6.3 *Seminar on Documentation*

The Eighth Annual Seminar on Documentation, held in the Documentation Research and Training Centre, Bangalore, from 15 to 19 December 1970 was inaugurated by Professor Pauline Atherton, President, American Society for Information Science and Associate Professor of Library Science, Syracuse University. The subjects discussed were : 1. Cataloguing; 2. Reordering of names of corporate bodies; 3. Subject analysis, with special reference to social sciences; and 4. Documentation systems for industry. About a hundred delegates participated.

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### 8.4 Seminar on Cataloguing

A seminar on Cataloguing, held in the Documentation Research and Training Centre, Bangalore, from 24 to 31 May 1970, was inaugurated by Dr. S. R. Ranganathan. Thirty-six delegates, most of whom were teachers of cataloguing and working cataloguers, participated. The deliberations of the seminar centred round a set of 24 propositions, arising out of the 18 chapters of the working paper prepared by A. Neelamegham and G. Bhattacharyya.

### 8.5 Seminar on Estimation of Ground-water Potential in Hard-rock Areas

The Seminar was organised on 24-25 July 1970 in Bangalore by the Mysore State Branch of the Indian Statistical Institute in collaboration with the Institution of Engineers (India), Mysore Centre, and the Geological Society of India, Bangalore. Dr. R. K. Ramasubban, Chairman, Indian Committee for the International Hydrological Decade, presided. Over 300 delegates comprising distinguished hydrologists, hydrometeorologists, agricultural hydrologists, hydraulic engineers and statisticians, participated. Dr. C. V. Raman, Nobel Laureate, and Dr. G. P. Jones, Hydrological Section, Geology Department, University College, London, were among the distinguished participants.

Five technical sessions were held on (a) Hydrometeorology, (b) Hydrogeology, (c) Engineering Hydrology, (d) Agricultural Hydrology, (e) Statistics in Hydrology.

### 8.6 First Symposium on Vertebrate Palaeontology and Comparative Anatomy

The symposium was organised in the I.S.I. during Professor A. S. Romer's first visit to India on 19 January 1971. There were four technical sessions in which ten papers were presented. In addition to the palaeontologists of the I.S.I., participants also included research workers from the Geological Survey of India, Calcutta; Panjab University, Chandigarh; Calcutta University, and visiting scientists from the University of Gheas, Harvard University, U.S.A. and London University. The discussions were lively and brought together for the first time in India workers in the fields of vertebrate palaeontology and comparative anatomy. The participants were also invited to Professor Romer's public lectures.

## 7. VISITING SCIENTISTS

A number of distinguished foreign scientists participated in the research, training and other scientific activities of the Institute during the year. Some of them came to the Institute on invitation and spent fairly long periods at the Institute to assist in the regular work, while others came for short periods and gave lectures and seminars. Most of them were available for consultations by research workers and teachers of the Institute.

1. The following scientists visited the Institute on invitation and worked for fairly long periods during the year 1970-71. The duration of the visit is mentioned within brackets against each name.

DR. MALKHAZ G. ABDUSHELISHVILI, DR. V. P. VOLKOV-DUBROVIN, DR. (MRS.) IRINA MIKHAILOVNA SEMASHKO, and DR. A. A. VORONOV, four Soviet anthropologists from the Institute of Ethnography, Moscow, arrived at the Institute on 31 March 1971 on a programme of collaborative anthropological research project among Indian peoples in and around Delhi for about two months. Four scientific members of the Anthropometry and Human Genetics Unit will work with the Soviet team.

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LORD THOMAS BELOGH, economist, Fellow, Balliol College, Oxford, U.K., who was accompanied by Lady Belogh (8 January 1971-3 March 1971) was invited by the Indian Statistical Institute as a Visiting Professor to deliver lectures and to hold seminar discussions at the Research and Training School in Calcutta and Delhi and also at some Indian universities. Lord Belogh visited Delhi, Madras and Bombay in connexion with his work. He had discussions with the officials of the Planning Commission and other Government agencies. *Lectures*: (i) Friedman and Keynes, (ii) Exchange flexibility and monetary policy.

DR. W. EDWARDS DEMING, Specialist in Quality Control and Consultant in Statistical Surveys, USA, who was accompanied by Mrs. Deming (8-25 March 1971) was invited by the Indian Statistical Institute to participate in scientific programmes and conferences. He gave talks to top management personnel in Bombay, Bangalore, New Delhi and Calcutta, attended the All-India Quality Control Conference in Delhi, and had meetings with Central Government ministries. *Lectures*: (i) Statistical inference as scientific discipline; (ii) Statistical controls—effect on quality and productivity.

PROFESSOR J. B. DOUGLAS, Associate Professor of Mathematical Statistics, University of New South Wales, Kensington, N.S.W., Australia, (8 December 1970-14 February 1970). *Lectures*: (i) Stirling number in discrete distributions; (ii) Estimation in a Poisson distribution with an integral parameter.

DR. O. K. DREYER, Director, Oriental Literature Publishing House, USSR Academy of Sciences; and PROFESSOR LEOPOLD M. BELOUSOV, Scientific Editor, Central Department of Oriental Literature, "Nauka" Publishing House, Moscow, (13 May 1970-9 June 1970), came in connexion with the printing and publishing project started in collaboration between the USSR Academy of Sciences and the Indian Statistical Institute with management by the Statistical Publishing Society.

MR. BARRY HUGHES, Zoology Department, University of Ghana, Legon, Ghana, (22 November 1970-February 1971) came as a visiting scientist to the Geological Studies Unit. He went to Andhra Pradesh with a field expedition of the Geological Studies Unit for two weeks in December 1970. *Seminar*: Snakes, history and origin of species.

DR. R. L. KIRK, Department of Human Genetics, John Curtin School of Medical Research, Australian National University, Canberra (13-21 April 1970) came on his fourth visit during the year. Dr. Kirk held discussions with the members of the Anthropometry and Human Genetics Unit and programmes were drawn up for future studies on genetical enzyme variants in placenta and erythrocytes in various endogamous groups in India. Dr. Kirk visited several hospitals in connexion with his work, and also a number of suburban villages in Calcutta. *Lecture*: Interaction between Haptoglobin types and ABO blood groups.

PROFESSOR DJORDJE KOSTIC, Director, Institute for Experimental Phonetics and Speech Pathology, Belgrade, Yugoslavia (11 December 1970-17 February 1971) came on a third visit to the Institute in connexion with the programme of fundamental linguistic research being carried out in collaboration between the Indian Statistical Institute and the Institute for Experimental Phonetics and Speech Pathology. Professor Kostic spent one month in New Delhi to hold discussions with the All-India Radio on the articulation of Hindi speech sounds. Spectrographic analysis will be completed in Belgrade and a seminar

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on Hindi phonetics is planned to be held. The Experimental Language Laboratory in the Appraisal Division was started in February 1971, with the inauguration by Professor Koetic of the first course in English pronunciation through the contrastive phonetics of the English and Bengali languages. Professor Koetic initiated a research project in speech pathology utilising the twentyfour channel filter, purchased from Belgado in 1970, in collaboration with Ornl School for Deaf Children, Calcutta. *Lectures*: (i) Comparative phonetics of the English and Bengali languages; (ii) Problems facing teachers of the English language, with special reference to India.

DR. I. M. D. LITTLE, Fellow, Nuffield College, Oxford University, Oxford, U.K., visited the Planning and Regional Survey Unit, New Delhi, between 6 October and 6 December 1970. He gave four seminars on "Industrial Project Evaluation" between 30 October and 5 November 1970.

PROFESSOR NORMAN WINGATE PRIB, F.R.S., Head, Biochemistry Department, Rothamsted Experimental Station, Harpenden, Herts, United Kingdom (29 November 1970-6 December 1970) came on a second visit in connection with research for exploring the possibilities of producing protein from green leaves to supplement food requirements in India.

DR. PAMELA L. ROBINSON, University College, London (30 December 1970-25 January 1971) visited to advise on the programme of geological research in the Geological Studies Unit.

PROFESSOR ALFRED SHERWOOD ROMER, a world-renowned specialist on the palaeontology of vertebrates from the Museum of Comparative Zoology, Harvard University, USA; Emeritus Alexander Agassiz Professor of Zoology, Harvard University; Member, American National Academy of Sciences; Foreign Member, Royal Society, U.K., came as a Visiting Professor (7-31 January 1971). He was accompanied by Mrs. Romer. Professor Romer came to examine Indian vertebrate fossils from the Indian Gondwana formations and to have discussions about them with the research workers in the Geological Studies Unit of the Indian Statistical Institute and the Geological Survey of India. *Lectures*: (i) The early evolution of land vertebrates; and (ii) The reptilian ancestors of the mammals.

DR. H. SAKAMOTO, Department of Statistics, Faculty of Engineering, Koio University, Tokyo, Japan (26 December 1970-17 March 1971) came as a Visiting Professor for the twenty-fourth term of the International Statistical Education Centre, Calcutta. He delivered a course of lectures on some aspects of Statistical Quality Control. He also conducted a specialisation course on SQC for a selected group of students.

DR. (MRS.) MASAKU MOMIYAMA SAKAMOTO, Chief Researcher, Meteorological Research Institute, Tokyo, Japan (26 December 1970-17 March 1971) was invited to deliver lectures and hold seminars in the Research and Training School on problems of morbidity and mortality.

PROFESSOR A. SITABLA, Department of Mathematics, University of Alberta, Edmonton, Canada, (28 June 1970-16 August 1970). He delivered a course of lectures at the Institute. He also visited Mateneon, Madras, and gave a lecture on "Hermite-Birkhoff interpolation with applications."

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DR. G. TAOKUJI, Department of Statistics, Ayoma University, Japan (16-30 March 1971) came to participate in the fifth All-India Conference on Quality Control, Delhi, March 1971. He also visited the Institute headquarters in Calcutta, delivered talks and had discussions with the technical officers of the SQC Division.

PROFESSOR DANIEL THORNER, Ecole des Hautes Etudes, Paris (24 September 1970-16 December 1970) came as a Visiting Professor in connexion with research studies in economics. Dr. Thorner had discussions with economists of the Planning and Regional Survey Unit, New Delhi, and the economists at Calcutta on agricultural development. *Seminar*: Capitalist farmers and systems of labour supply in North India.

MR. L. H. C. TIPPETT, the noted quality control specialist from the U.K. paid a second visit to India at the invitation of the Institute (17 February 1971-26 March 1971). He participated in the Fifth All India Conference on Quality Control, 1971, New Delhi, and also worked on developing a standard training manual on SQC applications suitable for the Indian industry. He delivered some talks and visited a few plants in the country.

MR. HANS UWE-OTTO, Lecturer, Department of Sociology, University of Bielefeld, Bielefeld, Federal Republic of Germany, came to work in the Institute (5 May 1970-1 March 1971) on a research project in collaboration with Sociological Research Unit on "Ideas and actions—an exploratory study in Calcutta (first phase, 1970)."

II. The following are some of the scientists from abroad who came under different cultural exchange programmes.

DR. S. V. CHESNOKOV, Department of Geology, People's Friendship University, Moscow (13 January 1971-12 April 1971) came in connexion with research work in Geology, under the Indo-Soviet Cultural Exchange Programme. He visited Dhanbad, Chandigarh and some areas of interest (structural geology) in the Himalayas, as a scientific supervisor of Indian post-graduate students of the Peoples' Friendship University, Moscow.

MRS. ESTHER HOVANYI, Mathematician, Computing Centre of Building Industry, Budapest, Hungary (21 January 1971-1 March 1971) came under the Indo-Hungarian Cultural Exchange Programme, for a study tour in India.

DR. BELA NAGY, Department of Mathematics, Technical University, Budapest, Hungary (24 February 1971-18 April 1971) came under the Indo-Hungarian Cultural Exchange Programme. *Lecture*: Functional equations arising in information theory.

DR. KLAUS NEUMANN, Chief of Research Centre, State Central Statistical Office, Council of Ministers, German Democratic Republic (13 January 1971-1 March 1971) came to work in the Economic Research Unit, under the Indo-German Cultural Exchange Programme. *Seminars*: (i) The economic system of socialism in the German Democratic Republic, (ii) Planning methods under the conditions of the economic system of socialism, (iii) Pricing and price planning in the GDR, (iv) National economic information system in the GDR, (v) Development of the system of accounting, and statistics in the GDR during 1971-75, (vi) Pattern of integration of GDR economic planning with the other COMECON countries.

DR. YURI AWATOLEVITCH ROZANOV, from the USSR (20 March 1971-8 April 1971) came for research work on accidental processes and mathematical statistics under the

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Indo-Soviet Cultural Exchange Programme. *Lectures*: (i) Minimax estimator, (ii) An asymptotical consistency of the best linear estimates, special conditions for stationary processes; (iii) On some generalisation of least squares estimates: an asymptotical efficiency.

III. The following are some of the scientists who paid short visits and gave lectures and/or seminars, and participated in conferences.

PROFESSOR PAULINE ATHERTON, President, American Society for Information Science and Associate Professor, Syracuse University, Syracuse, New York, USA, came as a visiting professor to the Documentation Research and Training Centre, Bangalore (9-19 December 1970). *Lectures*: Developments in library science and education in library science in the United States.

DR. A. K. BASU, Queen's University, Kingston, Ontario, Canada (5 August 1970). *Lecture*: On existence of optimal stopping rules for the reward sequence  $S_n/n$ .

DR. S. N. CHAUDHURI, Department of Biochemistry, Maulana Azad Medical College and Associated Hospitals, New Delhi (29 June 1970). *Seminar*: Facts and fancies of immunology.

DR. D. J. DESMOND, United Nations expert on Quality Control from the United Kingdom, (14-20 March 1971) came to participate in the Fifth All India Conference on Quality Control, Delhi, March 1971.

PROFESSOR W. N. EVERITT, Department of Statistics, University of Dundee, Dundee, Scotland, U.K., Vice-President, Royal Society of Edinburgh (18 January 1971). *Lectures*: (i) Numerical determination of deficiency indices of ordinary (second order) differential operators: a survey, (ii) Fermat, Lagrange, Smith: Some remarks on a theorem in the theory of numbers.

DR. K. S. GOPALAKRISHNAN, Chief Mycologist, Hindustan Antibiotics Ltd., Poonam (10 July 1970). *Lecture (DRTC, Bangalore)*: Trend in the classification of micro-organisms.

PROFESSOR W. B. HALL, Division of Mathematical Statistics, C.S.I.R.O., Adelaide, South Australia (18-21 July 1970). *Seminar*: Cyclic designs.

MR. TETSUO HAMAZU, Institute of Developing Economies, Tokyo, arrived at the Institute on 22 December 1970, in connection with some research studies.

DR. KUMAR JOODEO, University of Illinois, Urbana, Illinois, USA (4 August 1970-September 1970). *Lecture*: Dependence, independence and certain probability inequalities.

DR. G. P. JONES, Hydrogeologist, Department of Geology, University College, London, U.K. (29 June 1970-5 July 1970). *Lecture (Mysore Branch)*: Management of ground-water resources. He was specially deputed to participate in a seminar on "Estimation of ground water potential in hard rock areas" organised by the Mysore State Branch of the Institute.

PROFESSOR A. M. MATHAI, Department of Mathematics, McGill University, Montreal, Canada (1 August 1970-September 1970). *Lectures*: Applications of G and H-functions in multivariate analysis.



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DR. P. K. MENON, Director, Joint Cipher Bureau, New Delhi (28-29 November 1970).  
*Lectures:* (i) Scientific uses of computers, (ii) A new approach to Eulerian circuits, and  
(iii) Associate polynomial theory with applications to computers.

PROFESSOR RICHARD T. NEWCOMB, Pennsylvania State University, Pennsylvania,  
USA, visited the Planning and Regional Survey Unit, Delhi, on 4 December 1970, to give a  
seminar on "Some applications of economic and statistical theory to mineral sector planning  
in the Indian case."

SRI V. V. PARTHASARATHY, Marketing Manager, Vulcan-Laval Ltd., Bombay  
(5-8 May 1970). *Lectures* (DRTC, Bangalore): Management information systems.

SRI M. V. RANGANATHAN, Translation Unit, Hindustan Machine Tools Ltd.,  
Bangalore (1-6 May 1970). *Lectures* (DRTC, Bangalore): Translation service.

DR. J. M. K. RAO, University of Manitoba, Winnipeg, Manitoba, Canada (1 August  
1970). *Seminar:* Estimation in linear regression with heteroscedastic variances.

PROFESSOR J. K. SENOUPTA, Iowa State University of Science and Technology,  
Ames, Iowa, USA. (13 July 1970). *Lecture:* Programming under risk with economic  
applications.

PROFESSOR LUCIEN SPEZ, Director, Centre Universitaire Dauphine (Faculty of Sciences  
of Organisations), Paris, France (4 December 1970). *Lecture:* French experience in plan-  
ning (Institutions).

MR. W. J. A. SHEARER, Computer Center, Indian Institute of Technology, Delhi  
(30 April 1970-4 May 1970). *Lectures:* (i) 1900 series computers, (ii) Some operating  
systems.

SRI S. VENKATARAMAN, Engineer, International Computers and Tabulators Ltd.,  
Bangalore (1 and 3 July 1970). *Lecture* (DRTC, Bangalore): Electronic circuit.

PROFESSOR G. WREBACHAR, Department of Sociology, Nuremberg University,  
Nuremberg, Federal Republic of Germany (6 November 1970). *Lecture:* Role conception  
as a methodological instrument for studying processes of individual socialisation as well as  
of socio-cultural change.

IV. The following are some of the visitors from abroad who came to the Institute  
for short periods during the current year on different assignments.

MR. CHARLES G. ALLEYNE, Director, Statistical Services, Barbados Statistical Office,  
St. Michael, Barbados (27-28 November 1970).

MR. E. A. ANDEWOLE, Chief Statistician, Federal Office of Statistics, Government  
of Nigeria, Lagos, Nigeria (26 November-3 December 1970).

PROFESSOR WILLIAM K. ARHEER, Director, Tehran Research Unit, University of  
Tehran, Iran, came to work in the Appraisal Division (6-12 July 1970).

MR. L. A. BAGRAMOV, Institute of World Economy and International Relations,  
Moscow, USSR, and a UNESCO fellow in demography (19 December 1970).

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MR. L. F. BANDABENKO, Deputy President, Soviet-Indian Cultural Society (Ukrainian Branch); Vice-Chancellor, Technological Institute, Odessa, USSR (9 November 1970).

MR. A. J. BORKHAM, Director of Statistics, Department of Trade and Industry, London, U.K. (27-28 November 1970).

PROFESSOR R. A. BUOKDONLAM, Director, Institute of Computer Science, University of London, U.K. (18 February 1971).

DR. V. I. CHALISHEV, Head of the Laboratory of Stratigraphy and Lithology, Geological Institute of Komi Branch, USSR Academy of Sciences, Syktyvkar (11 December 1970).

MR. IRVING W. CHINMIA, Director of Statistics, Central Statistical Office, Port of Spain, Trinidad, Trinidad and Tobago (27-28 November 1970).

DR. JOHN C. COOL, Project Specialist in Population, Ford Foundation, New Delhi (21 January 1971).

MR. VERNER CREW, Australian National University, Canberra, Australia, visited the Planning and Regional Survey Unit, Delhi, for discussions on education and regional development (16 and 17 November 1970).

MR. WALTER E. DUFFETT, Dominion Statistician, Dominion Bureau of Statistics, Ottawa, Canada, accompanied by Mrs. Duffett (26-27 November 1970).

DR. J. L. FAHEY, Chief Immunologist, WHO Reference Center for Human Immunoglobulins, National Institute for Cancer Research, Bethesda, Maryland, USA (2 December 1970).

PROFESSOR L. GAUDINO, Department of Political Science, Williams College, Williamstown, Mass, USA (14 April 1970).

MR. SMOX A. GOLDBERG, Assistant Dominion Statistician, Dominion Bureau of Statistics, Ottawa, Canada (27-29 November 1970).

DR. JACK HAREWOOD, Institute of Social and Economic Research, University of West Indies, St. Augustine, Trinidad, West Indies (8-13 November 1970).

MR. K. V. HENDERSON, Director of Statistics, Foreign and Commonwealth Office (Overseas Development Administration), London (27-28 November 1970).

PROFESSOR G. B. HILL, Senior Medical Statistician, General Register Office, London, visited in connexion with the project on 'Estimates of probabilities of hospitalization according to age, sex and diagnosis and their use in planning hospital services' (13-19 January 1971).

MR. NAGAYO HONMA, Associate Professor of History, University of Tokyo, Tokyo, Japan (16-19 October 1970).

MR. S. M. IKHTIAR-UL-MILK, Statistical Adviser, Commonwealth Secretariat, London, U.K. (27-29 November 1970).

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MR. J. K. KABANDA, Permanent Secretary, Ministry of Planning and Economic Development, Entebbe, Uganda (27-29 November 1970).

DR. DELLEF KANTOWSKY, Department of Sociology, Konstanz University, Konstanz, Federal Republic of Germany (20 December 1970).

DR. A. R. KIDWAI, Member, Union Public Service Commission, Government of India, New Delhi (16 June 1970).

DR. TIMOTHY KING, Population Studies Division, Economics Department, International Bank for Reconstruction and Development, Washington, USA (23 February 1971).

HIS EXCELLENCY DR. SLAVKO KOMAR, Ambassador, People's Republic of Yugoslavia; accompanied by Mrs. Komar (22 August 1970).

MR. PHILIP LERMAN, Biometrician, Department of Agricultural Science and Applied Biology, Cambridge University, U.K. (29-30 August 1970).

DR. PETER MARCHLICK, Institute for Development Research and Development Policy, Ruhr-University Bochum, Bochum-Quorenberg, Federal Republic of Germany (5 January 1971).

MR. C. MENELAOU, Director, Department of Statistics and Research, Ministry of Finance, Nicosia, Cyprus (26-29 November 1970).

MR. J. J. MPOGOLO, Bureau of Statistics, Dar-es-Salaam, Tanzania (27 November 1970-1 December 1970).

PROFESSOR C. A. MOSER, Director, Central Statistical Office, London (27-28 November 1970).

PROFESSOR CHARLES E. OSOOD, Member, Center for Advanced Studies; Director, Center for Comparative Psycholinguists, University of Illinois, Urbana, Illinois, USA, came to work in the Appraisal Division (6-12 July 1970).

DR. K. H. PFEFFER, Director, Department of Sociology and Economics, Muenster University, Federal Republic of Germany (25 October 1970-1 November 1970).

MR. T. S. PELLINO, Assistant Director, Central Statistical Organisation, London (27-28 November 1970).

DR. ROBERT C. REFETTO, Research Associate and Lecturer in Economics, Harvard University, Cambridge, USA (17 August 1970).

MR. DEKTER L. ROSE, Director of Statistics, Department of Statistics, Kingston, Jamaica (27-28 November 1970).

MR. M. A. SAHEL, Government Statistician, Bureau of Statistics, Suva, Fiji Islands (27-28 November 1970).

MR. SUOYU NAITO, Member of the Editorial Staff, "The Developing Economies", Institute of Developing Economics, Tokyo, Japan (27 October 1970).

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DR. CHRISTOPHER T. SAUNDERS, Director, Division of General Economic Analysis, Economic Commission for Europe, Geneva; accompanied by Mrs. Saunders (23-26 September 1970).

DR. WALDRAUT SCHMIDT, Hochschule für Ökonomie, Berlin, German Democratic Republic (16 November 1970).

MS. A. SHONFIELD, Chairman, British Social Science Research Council, U.K. (26 November 1970).

DR. M. J. SIMONS, Director, WHO Research Center, Singapore (8 October 1970).

MS. F. M. STEWART, Assistant Statistician (Prices and Labour), Bureau of Census and Statistics, Canberra, Australia (27-28 November 1970).

MR. J. E. TANDON, Government Statistician, Central Bureau of Statistics, Accra, Ghana (27-28 November 1970).

MR. J. EOBERT TERTULLEN, Director of Statistics, Nassau, Bahamas (27-28 November 1970).

MR. K. W. J. TOPLEY, Commissioner of Census and Statistics, Hong Kong (27-29 November 1970).

PROFESSOR F. VOGL, Director, Institute for Anthropology and Human Genetics, University of Heidelberg, Federal Republic of Germany, had discussions on the problem of association of ABO blood groups with leprosy, genetic enzyme variants, infanticide and polygamous marriages (19 and 26 March 1971).

MR. F. M. WALUSIKU, Director of Census and Statistics, Central Statistical Office, Lusaka, Zambia (26-29 November 1970).

DR. E. WEISSMANN, Senior Adviser on Regional Development, New York, USA, visited the Regional Survey Unit, New Delhi, for discussions on problems of regional planning (7 and 8 December 1970).

MR. D. V. YOUNGMAN, Assistant Statistician (National Accounts), Bureau of Census and Statistics, Canberra, Australia (27-28 November 1970).

MR. MILAN ZIVANOVIC, a technical expert from Yugoslavia, came with Professor Kostic to advise on the operation and maintenance of the equipment purchased from Yugoslavia for phonetic and psychophonetic research (11-20 December 1970).

Over 230 visiting scientists and other visitors from India and abroad (from 27 foreign countries and international organisations) came to the Institute during the year.

### 8. HONOURS, AWARDS AND SPECIAL ASSIGNMENTS

#### (i) Honours and Awards

Dr. Amitabha Basu (*Anthropometry and Human Genetics*) was elected a member of the Society for the Study of Human Biology, London, and an active member of the International Association of Human Biologists, Paris.

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Shri Ranajit Chakravarty and Shri D. C. Rao (RTS) were elected active members of the International Association of Human Biologists, Paris.

Dr. S. R. Ranganathan (D.R.T.C.) was awarded the Margaret Mann award for 1970 by the American Library Association for outstanding and pioneering work in all fields of library science. This award has been given for the first time to a person outside the USA.

Dr. Ranganathan was also awarded the "Grand Knight of Peace" title by the Mark Twain Society, USA.

Dr. T. N. Srinivasan (Planning and Regional Survey) was elected a Fellow, Econometric Society. He was elected a member of the Council, Econometric Society, for a three-year term commencing January 1971. He served as a member of a Committee on Data Improvement appointed by the Ministry of Finance, Government of India.

#### (ii) Special Assignments

Dr. P. K. Bardhan (Planning and Regional Survey) served as Chairman, Commission of Enquiry on Foreign-owned Plantations in Kerala, appointed by the Kerala Government.

Dr. B. S. Minhas (Planning and Regional Survey) served as Chairman of a Committee on Data Improvement, appointed by the Ministry of Finance, Government of India.

Professor M. Mukherjee (National Income) was appointed Chairman, Advisory Committee on Compilation and Analysis of National Accounts.

#### (iii) Degrees from other universities

Shri Sankar Chatterjee (Geological Studies) was admitted to the degree of D.Phil. (Science) of the Calcutta University. The title of his thesis was "A rhynchosaur from the Maleri formation of India, with a consideration of the evolution and stratigraphic significance of the Triassic Rhynchosauridae".

Shri Asru K. Chaudhuri (Geological Studies) was admitted to the degree of D.Phil. (Science) of the Calcutta University. The title of his thesis was "Precambrian stratigraphy and sedimentation around Ramgudam, Andhra Pradesh."

### 9. CONFERENCES AND SCIENTIFIC TOURS ABROAD

#### *Professor P. C. Mahalanobis : Tours Abroad*

*Philippines and Japan (10 April-2 May 1970)* : Professor P. C. Mahalanobis (accompanied by Mrs. Mahalanobis) left Calcutta for Manila, Philippines, on 10 April 1970 to attend the "One Asia Assembly" on "New Directions for Asia" from 11 to 13 April 1970. The Assembly was organized by the Press Foundation of Asia and inaugurated by Mr. U. Thant, Secretary-General of the United Nations. On 12 April, Professor Mahalanobis was Chairman of the Science Panel which discussed "Science in the Future of Asia." On 13 April, he made the concluding observations at a discussion on "Economic, Social and Political Conditions", presided over by Dr. Gunnar Myrdal. Professor Mahalanobis also presented a paper on "Social Change, Science and Economic Growth." On 15 April, he gave a lecture at the Philippines Statistical Association at the Statistical Centre, University of Philippines. On 16 April, he gave a talk at the Rotary Club of Manila. On 17 April, he had a two-hour

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"open question" meeting of faculty members and senior students at the University of Philippines. He also met many leading citizens at social meetings arranged by the Indian Ambassador and Filipino friends.

On 19 April, Professor and Mrs. Mahalanobis left Manila to visit Tokyo as guests of the International House of Japan: Professor Mahalanobis had informal discussion on cultural, economic and political subjects of interest to India with many leading Japanese friends.

*ECA : Addis Ababa (3-10 June 1970)* : At the invitation on UN Economic Commission for Africa (ECA), Professor Mahalanobis visited Addis Ababa in early June. He attended the first session of the Preparatory Committee for African Population Conference up to 5 June and meetings of the Expert Committee on Population from 8 to 10 June. He had a discussion with Dr. Robert K. A. Gardiner, Executive Secretary, ECA and, at his request, contributed a paper for publication by the ECA.

*England, Switzerland, Germany (11 June-3 July 1970)* : Professor Mahalanobis went to London from Addis Ababa and from there to Zurich where Mrs. Mahalanobis joined him from India. He reached Stuttgart on 18 June. The same day he went to Narheim by way of Heidelberg. He gave a lecture at the Narheim University. The next day, he gave a lecture at the Heidelberg University. On 20 June, he delivered a lecture at the Indo-German Society at Stuttgart. On 22 June, Mrs. Mahalanobis gave a lecture under the auspices of the Department of Sanskrit, Tübingen University; later, Professor Mahalanobis gave a lecture on statistics. Professor Mahalanobis left Stuttgart on the 24th for Geneva.

On the 27th, Professor and Mrs. Mahalanobis went to London where they stayed at the Royal Society. Professor Mahalanobis returned to Calcutta on 3 July.

*Switzerland (11 July-3 August 1970)* : On 11 July, Professor Mahalanobis left Delhi for Zurich to attend, from 13 to 24 July, a meeting of U.N. Expert Group on Demography, Manpower, and Social Statistics. On 3 August, Professor and Mrs. Mahalanobis returned to Delhi from London.

Professor Mahalanobis left for Geneva from Delhi on 3 October to attend the sixteenth session of the United Nations Statistical Commission from 5 to 16 October 1970. He returned to Delhi on 1 November 1970 after short visits to London and Moscow.

### *Dr. C. R. Rao : Tours Abroad*

*U.S.A. (28 June 1970-30 July 1970)* : Dr. C. R. Rao, Director, Research and Training School, left Delhi on 28 June 1970 for Berkeley, California, via Tokyo. He stayed in Berkeley from 30 June 1970 to 17 July 1970 and returned to Calcutta on 30 July 1970.

*Rumania, Bulgaria, Yugoslavia (13 September 1970-14 October 1970)* : Dr. C. R. Rao left Delhi on 13 September 1970, for Bucharest to attend the Anglo-Rumanian Conference on Mathematics in the Archaeological and Historical Sciences organized by the Royal Society of London together with the Academy of the Socialist Republic of Rumania, the Society of Mathematical Sciences of Rumania and the Association of Scientists of Rumania. The conference was held in Mamai, on the Black Sea coast, from 18 to 24

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September, 1970. Dr. Rao delivered a keynote address on 17 September on "Taxonomy in Anthropology" where he explained the use of Mahalanobis  $D^2$  and other multivariate methods developed by the Indian statisticians.

*Bulgaria* : Dr. Rao left Mamai on 23 September 1970 and reached Sofia via Bucharest the same day. He visited Bulgaria as a guest of the Bulgarian Academy of Sciences under the cultural exchange programme.

He visited several places in Bulgaria: Sofia (24), Plovdiv (25, 26), Burgas (27), Varna (27, 28), Ruse (29, 30), Sofia (1-6 October).

In Plovdiv, he gave a lecture on 'Operations Research', and in Sofia, he gave lectures on 'Some problems in applied statistics' (Economic Institute), 'Generalized inverse of a matrix and its applications' (Mathematical Institute) and 'Recent work in testing hypothesis' (Statistical Institute).

Dr. Rao had discussions with the Vice-President, Bulgarian Academy of Sciences, Dr. Penka Naidenova, Academician Stefanov, Dr. Boyan Penkov and others during his stay in Bulgaria.

*Yugoslavia* : Dr. Rao left Sofia for Belgrade, Yugoslavia, on 7 October and stayed there till the 13th. In Belgrade, Dr. Rao had discussions with Professor D. Kostic about the future programme of phonetics research at the Indian Statistical Institute.

In Belgrade, Dr. Rao gave lectures on "Some problems in the analysis of survey data" (Federal Institute for Statistics), 'Generalized inverse of a matrix and its applications' (Mathematical Institute), 'Economic models and prediction' (Economics Institute). He also met the Vice-President of the Yugoslav Academy of Sciences, First Secretary of the Yugoslav Foreign Office and discussed about the collaboration between the Yugoslav Academy of Sciences and the Indian Statistical Institute.

Dr. Rao left Belgrade on 13 October and reached Delhi on 14 October, via Rome and Bombay.

Shri J. K. Aikat (*NSS Operations, New Delhi*) left for the United Kingdom on 30 September 1970 to join the London School of Economics as a research fee student for one year, under the Colombo Plan programme.

Shri Suraj Bandyopadhyay (*Sociology*) returned to the Institute after completion of his higher studies in Ph.D. course on a fellowship at the McGill University, Montreal, Canada. He also undertook research in secondary data analyses as a visiting scholar at the International Data Library and Reference Service, Survey Research Centre, University of California, Berkeley, U.S.A.

Dr. D. Basu (*R7S*) left for the USSR on 4 December 1970, under the Indo-Soviet Cultural Exchange Programme. He stayed in Moscow for two weeks and for one week in Leningrad as a guest of the Society for Academy of Sciences. While in Moscow, Dr. Basu visited the Steklov Institute of Mathematics to give a colloquium talk, the Moscow State University and the Central Institute of Mathematical Economics. In Leningrad, Dr. Basu visited the Steklov Institute of Mathematics and gave a colloquium talk at the University of Leningrad.

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Dr. L. S. Bhat (*Planning and Regional Survey, New Delhi*) was in the ECAFE, Bangkok, during March to May, 1970, as consultant for the preparation of a Manual on Regional Planning.

Shri Prabir Das (*N.S.S.*) left for Tehran, Iran, on 8 April 1970, to take up a temporary assignment as a Statistical Advisor in the Bank Markazi (Central Bank), Iran, as an Indian expert under the Colombo Plan. He returned to India on 3 April 1971.

Dr. Rhea S. Das (*Appraisal*) left for Belgrade, Yugoslavia, on 11 April 1970, in connexion with collaboration projects between the Institute for Experimental Phonetics and Speech Pathology, Belgrade, and the Indian Statistical Institute. She also visited Stockholm, Sweden, and the USA. She returned to India on 1 June 1970.

Professor T. A. Davis (*Crop Science*) left for the USSR on 17 May 1970 on a three-month study tour. He studied palms in the open at the Black Sea coast and in the glass house at Leningrad. He also gave a series of lectures on tropical crop plants at the Peoples' Friendship University, Moscow, and resumed his investigations on the evolution of Leguminosae in collaboration with Russian botanists. He returned to India on 6 September 1970.

Dr. (Miss) Q. Z. Hussain (*Biometry*) participated and presented a paper at the XIII International Congress of Haematology held in Munich, Federal Republic of Germany, 2-8 August 1970. On the way to Munich, she visited the World Health Organisation Center at Geneva for discussions about the Immunology and Immunochemistry work with Dr. H. Goodman, Chief Immunologist, WHO and with Dr. A. Stenzenberg of the Immunology Section. She also met Dr. D. Burns of the Bacteriology Section at the WHO Center.

Shri S. M. Kansal (*Planning and Regional Survey, New Delhi*) was invited by the Institute of Developing Economies, Tokyo, as a visiting research fellow for the period September 1970 to March 1971. He worked on the problem of inter-country comparison of real national products. A discussion paper reporting the results of his study entitled 'On the Study of Real National Product in India and Japan' will be issued shortly.

Shri R. K. Lahiri (*Economic Research*) was awarded a fellowship by the Government of Italy to participate in a course on economic development at the Institute for the Study of Economic Development, Naples. He left India on 29 November 1970.

Shri Santi Ranjan Mukherjee and Shri Deb Kumar Dutta Mazumder (*N.S.S.*) left for the United Kingdom (14 and 17 April 1970) for training under the Technical Co-operation Agreement of the Colombo Plan for about a year.

Professor R. Mukherjee, Head, Sociological Research Unit, went abroad during August-September 1970 to attend the Export Meeting of the UNESCO, Paris,—an international meeting of experts of nation-building and state formation. He also went to the Federal Republic of Germany for a short period at the invitation of the German Academic Exchange Service and visited the universities at Münster, Bielefeld, Kiel and other places. He participated as a plenary discussant in the Eighth World Congress of Political Science, Munich, Federal Republic of Germany.

Dr. M. N. Murthy (*N.S.S.*) left for Tokyo in August 1970 on a one-year teaching assignment at the Asian Statistical Institute.



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Professor M. Mukherjee (*National Income Research*) left for Budapest on 26 October 1970 for about three weeks, under the Indo-Hungarian Cultural Exchange Programme, to study particularly the national accounting methods followed in Hungary.

Shri J. Saha, Chief Librarian, participated in the first General Meeting of the International Federation for Documentation—Commission for Asia and Oceania (IFD/CAO) in Tokyo, 13-15 April 1970. He presented the report "Special library and documentation activities in India" and participated in the discussion meetings to develop co-operation and exchange of information and documents among the countries within the region (Asia and Oceania) where facilities for documentation services are limited. Shri Saha spent three days (16-18 April 1970) in Tokyo as the guest of the Institute of Developing Economies for discussions relating to the exchange of publications. He also spoke on social science documentation and other aspects of library management.

Shri Saha also attended the Expert Committee Meeting (28-29 July 1970) sponsored by the Regional Commission, World Health Organization, to advise on the setting up of a documentation centre for processing and dissemination of information on family planning and related subjects.

Dr. (Miss) A. Sengupta (*Family Planning*) left Calcutta on 2 February 1971 to join the Harvard School of Public Health, Boston, USA, on receipt of an award of a Senior Research Training Grant under the WHO. She will be away from India for a year.

Shri N. Srinivasan (*S.Q.C.*) left for the U.K. on 3 September 1970 for advanced training in SQC methods as applied to the electronic industry on a six-month fellowship under the Colombo Plan programme. He worked with Messrs. Plessey Company Ltd. and left the U.K. on 30 March 1971 on completion of the project.

Dr. T. N. Srinivasan (*Planning and Regional Survey, New Delhi*) participated in the meeting: First Working Party of the Participants in the Project on Exchange Control, Liberalization and Economic Development, New York, 28 to 29 May 1970. He attended a Conference on "The Gap Between the Rich Nations and the Poor" organised by the International Economic Association and held at Bled, Yugoslavia, in August 1970. He gave two lectures on the Public Sector in India at the Institute of Development Studies at Sussex, England, on 3 and 4 September, 1970. He attended the Second World Congress of the Econometric Society held at Cambridge, England, during 8-14 September 1970. He presented a paper at the Congress (jointly with J. Bhagwati) on 'Factor Market Distortions: The Case of Wage Differentials Reconsidered'. He was also chairman of the session on Numerical Models of Economic Development.

#### 10. CONFERENCES AND SCIENTIFIC ASSIGNMENTS IN INDIA

Shri A. K. Adhikari (*Computer Science*) attended the Sixth Honeywell Users meeting at the Computer Centre, New Delhi, in April 1970.

Dr. L. S. Bhat (*Planning and Regional Survey, New Delhi*) participated in the training programme on Area Development at the National Institute of Community Development, Hyderabad, July and October 1970. These training programmes are part of the pilot project in area development and identification of growth centres sponsored by the Ministry of Food and Agriculture and Community Development.

## INDIAN STATISTICAL INSTITUTE

Dr. Bhat participated in a seminar, organised in New Delhi in August 1970 by the Indian Council of Social Science Research, to discuss the Survey Report on Geography. He served as a member of the subject committee (geography). A survey report on geography and planning was discussed at this seminar.

He participated in a Seminar on Planning Problems of Metropolitan Regions organised by the Regional Science Association and the School of Planning and Architecture, New Delhi, November 1970.

Dr. N. Bhattacharya (*Economic Research*) attended the Tenth Indian Econometric Conference, Madurai, 26-28 November 1970, and the Seminar on Income Distribution in India organised by Planning Unit, New Delhi, 25-26 February 1971. He presented papers on both occasions.

Dr. D. K. Bose (*Economic Research*) attended the Centenary Conference on Port and Harbour Management, 19-21 October 1970, under the auspices of the Institute of Port Management, on the occasion of the centenary celebrations of the Calcutta Port Commissioners. He also attended the Symposium on the Bhagirathi-Hooghly Basin organised by the Department of Geography, Calcutta University, 19-22 May, 1970. He presented papers on both occasions.

Dr. S. Bose (*Planning and Regional Survey, Delhi*) attended the Tenth Indian Econometric Conference, Madurai, 26-28 November 1970. He presented a paper.

Shri G. S. Chatterjee (*National Income Research*) attended the Tenth Econometric Conference, Madurai, 26-28 November 1970, and presented a paper.

Professor T. A. Davis (*Crop Science*) participated in a symposium on Tropical Ecology under the International Biological Programme, New Delhi, 14-21 January 1971, and presented a paper.

Shri B. S. S. Gupta (*DRFC*) participated in the Sixth Annual Conference, Computer Society of India, Bangalore, 14-16 January 1970. He presented two papers.

Dr. Q. Z. Hussain (*Biometry*) participated in the Fourth Annual Conference of Allergy and Applied Immunology, New Delhi, October 1970. She presented a paper.

Shri S. Matsai and Shri D. Bagchi (*Leaf Protein*) attended the IBP technical group meeting on leaf protein, Coimbatore, 25-27 November 1970.

Professor M. Mukherjee (*National Income Research*) left for New Delhi on 24 July, 1970 to attend the following meetings:

1. A meeting of the Advisory Working Group on the UN project on International Comparison of National Accounts and Aggregates held on 26 July 1970.

2. A joint meeting of the Advisory Committee on Collection of Data for National Income and the Advisory Committee on Compilation and Analysis of National Accounts held on 27 and 28 July 1970. He also attended the meetings of these two advisory committees on 7 and 8 January 1971.

3. A meeting of the Executive Committee, Indian Association for Research in National Income and Wealth, held on 27 July 1970.

### THIRTY-NINTH ANNUAL REPORT : 1970-71

Professor Mukherjee attended the Conference of Commonwealth Statisticians, Delhi, 15-26 November 1970, and spoke on behalf of India in the sessions on revised GNA and level of living.

He attended the meeting of the Indian Advisory Group on International Comparison of National Accounts Aggregates on 9 February 1971. He presided over the inaugural ceremony of the Seminar on Growth Project of the Indian Association for Research in National Income and Wealth, Bhopal, 12 February 1971.

Shri S. Naqvi (*Economic Research*) attended the Seminar on Farm Mechanisation organised by the Sardar Patel University, Vallabh Vidyanagar, in July 1970. He also attended the Indian Sociological Conference, Hyderabad, 26-28 December 1970, and conducted a seminar on Caste in Indian History in the Sociology Department, University of Bombay, on 4 August 1970.

Shri D. S. P. Rao (*National Income Research*) attended the Third Input-Output Seminar, Bombay, 13-16 September 1970. He also attended the Tenth Econometric Conference, Madurai, 26-28 November 1970. He presented papers on both occasions.

Shri A. S. Roy (*NSS*) attended meetings of the Working Group in Estimation Procedures set up by the Registrar-General, India, in April 1970 in New Delhi and in July 1970 in Calcutta.

Professor S. K. Roy (*Botany*) participated in the seminar on "Teaching of Animal Behaviour in Universities," Bangalore, 18-30 January 1971.

Shri J. Saha, Chief Librarian, presided over the 24th Conference, Bengal Library Association, Krishanagar, West Bengal, 27-29 March 1970.

Shri Saha attended the meeting on Family Planning Documentation organised by the South-East Asia Regional Office of the World Health Organisation, New Delhi, 30 and 31 July 1970.

Shri M. R. Sahuja (*Planning and Regional Survey, New Delhi*) participated in a Seminar on Input-output and Related Techniques organised by the Input-output Research Association, Bombay, 13-15 September 1970.

Dr. Supriya Sengupta (*Geology*) participated in the Symposium on Bhagirathi-Hooghly Basin, Calcutta, 19-22 May 1970, and presented a paper.

Shri S. C. Srivastava (*Planning and Regional Survey, New Delhi*) attended the International Symposium on Soil Fertility—Evaluation, New Delhi, February 1971.

#### 11. FAMILY PLANNING RESEARCH UNIT

The work of the Family Planning Research Unit included survey, action programme development and research.

The Communication Action Research (CAR) Programme primarily includes three projects, the I.S.I. study, the Hooghly Project and the Calcutta City Project. The activities undertaken to achieve the overall objectives of the communications research projects included among other things field trial, assessments of programme impacts, diagnostic studies for leading to new hypothesis about ways in which impacts are being achieved and small studies for refining and clarifying questions raised by such hypothesis.

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### A. Survey

*Institutional Study* : (i) A report on a post-OAR study in the I.S.I. was prepared.

The proportion of the couples in the I.S.I. with knowledge of family planning increased from 67 per cent in the base-line survey (1962) to 86 per cent in the current survey. A positive change in the practice status of the couples was also noted. Thus, as compared to 27 per cent of users in 1962, more than 43 per cent of the couples was using a method in the current survey period.

(ii) *Calcutta City Project* : (a) The experimental project was discontinued after five years of experimentation. A paper on the fertility trend of a panel of women maintaining active status since the base-line survey of the Calcutta City Project (1964-68) was prepared. (b) A bench-mark fertility survey was conducted in an extended area of the Calcutta City Project. The data have been analysed. (c) At the instance of the Demographic and Communication Action Research Committee, the data on standard fertility surveys (in all five) under the Calcutta City Project have been transcribed for additional information. Tables are being prepared for presentation in the final consolidated report. Five reports on fertility have already been prepared on each of the five surveys conducted in the project area. (d) A paper on the sexual behaviour of the clientele receiving oral pills from the I.S.I. Family Planning Clinic was prepared.

(iii) *Hooghly Project* : The data on second fertility study in the district have been processed and decoded. The final tables for presentation in the report are under preparation.

(iv) A study on inter-spousal communication, parental role and parent-child relationship was carried out in some municipal wards in Baranagar. A technical note on the study was prepared.

### B. Action Programme Development

The methods of educational programmes were group meetings, household contacts, distribution of leaflets and informative literature. Contraceptives were supplied free and sterilization cases were referred to other centres having operation facilities. An oral pill programme inaugurated in August 1967 in the Calcutta City Project area was operative in the current year. The follow-up visits formed the major part of the programme.

Four technical papers were prepared.

## 12. PUBLICATIONS

The following were published during the year 1970-71 :

*Sankhyā* : *The Indian Journal of Statistics*, the official journal of the Institute : Series A, Volume 32, Parts 1, 2, 3, 4; Volume 33, Part 1; Series B, Volume 31, Parts 3 & 4; Volume 32, Parts 1 & 2, 3 & 4.

The following books were published by the Statistical Publishing Society in collaboration with the Indian Statistical Institute and the USSR Academy of Sciences :

1. Soviet Oriental Studies : Achievements and Problems, pp. 277.
2. The Scientific and Technological Revolution and Modern Society, pp. 186.
3. Algol-60; A. L. Brudno, pp. 69.

### THIRTY-NINTH ANNUAL REPORT: 1970-71

The Research and Training School issued 134 technical reports, of which 41 belonged to the mathematics and statistics group and 93 were on the natural sciences.

#### 13. SOCIETY-TYPE ACTIVITIES: BRANCHES

13.1 *Mysore State Branch: Annual General Meeting:* At the Seventeenth Annual General Body meeting of the Branch held on 16 September 1970 at 4 Richmond Road, Bangalore, the office-bearers and members of the Executive Committee were elected for 1970-71. Some office-bearers were elected at the first meeting of the Executive Committee held on 7 October 1970.

*Membership:* There were 41 members at the end of the year (Life members: 8, Institutional members: 5; Ordinary members: 28). During the year, 2 Institutional members were admitted and 5 ordinary members left.

*Admission Tests:* The selection tests for admission to the M.Stat., B.Stat., degree courses and SQC diploma course etc. were held in Bangalore on 21 June 1970. Seventeen candidates were admitted to the fourth One Year Evening Course in Statistics which commenced in September 1970.

*Surveys:* The survey on "Living and working conditions of students of the Bangalore University", started earlier, was in progress during the year.

*Seminars:* (i) A seminar on "Estimation of ground-water potential in hard rock areas" was organised on 24-25 July 1970 in collaboration with the Institution of Engineers (India), Mysore Centre, and the Geological Society of India, Bangalore.

(ii) A seminar on "Standards for Management in Financed Industries" was organised by the Mysore State Branch in January 1971 jointly with the Mysore Chamber of Commerce and Industry and the Mysore State Financial Corporation.

13.2 *Bombay Branch: Meetings:* A meeting of the Council of the Bombay Branch was held on 26 November 1970.

*Admission Tests:* The Branch conducted the admission tests for the Graduate Engineer's Training Scheme, Hindustan Steel Ltd., on 27 September 1970, 29 November 1970 and 6 December 1970, on behalf of the Psychometric Unit of the Indian Statistical Institute.

*Evening Course:* The One Year Evening Course in Statistical Methods and Applications commenced in September 1970. Thirtyone candidates were selected for the course of 1970-71. Four students passed in the Part II examination.

*Professional Examinations:* The Statistician's Diploma Examinations were held in the Bombay Centre during May and November 1970.

*National Sample Survey:* The work on the twenty-fourth round of the National Sample Survey was completed and the twenty-fifth round of the NSS work started in August 1970. The local training conferences for the field staff of the Bombay Unit were held in Bombay on 21 and 22 July 1970.

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### PART II: ANNEXURES

#### **Annexure 1 : List of President, Vice-Presidents, Office-bearers, Members of Council, Governing Body and Members of the Committees of the Council and Governing Body.**

*President* : Professor S. N. Bose, F.R.S., D.Sc., F.N.I., National Professor.

*Honorary Vice-Presidents* : Dr. C. D. Deshmukh, B.A. (Cantab.), D.Sc. (Hony., Calcutta and I.S.I.), Bar-at-Law (former President).

*Vice-Presidents* : 1. Professor D. R. Gadgil\*, M.A., M.Litt. (Poona), Deputy Chairman, Planning Commission, Government of India; 2. Shri Pitambar Pant, M.Sc., Member, Planning Commission; 3. Dr. S. R. Ranganathan, M.A., D.Litt. (Hony.), F.I.A., National Professor; 4. Shri Vishnu Sahay, I.C.S. (Retired), ex-Governor of Assam & NEFA; 5. Shri S. Dutt, I.C.S. (Retired), Central Vigilance Commissioner.

#### THE COUNCIL: 1970-71

*Chairman* : Shri K. P. S. Menon, I.C.S. (Retired).

*Vice-Chairmen* : 1. Shri S. C. Roy, M.A., B.L., Director, NICCO of India Ltd.; 2. Shri B. B. Ghosh, M.Sc., Principal Advisor to the Governor, Government of West Bengal; 3. Professor T. R. Seshadri, F.R.S., Emeritus Professor, Department of Chemistry, University of Delhi; 4. Justice A. K. Mukherjee, Calcutta High Court.

*Additional Vice-Chairmen* : 1. Chairman, *Bombay Branch* : Shri S. K. Wankhede (1970-71); 2. Chairman, *Kerala Branch* : Professor A. Aiyappan (1970-71); 3. Chairman, *Mysoore State Branch* : Professor R. R. Umartji (1970-71).

*Treasurer* : Dr. S. C. Law, M.A., B.L., Ph.D., F.Z.S., M.B.O.U., F.N.I.

*Secretary* : Professor P. C. Mahalanobis, D.Sc., F.N.I., F.R.S.

*Joint Secretary* : Shri P. Ray, I.A.S.

*Members of Council* : 1. Shri S. K. Acharyya, Bar-at-Law; 2. Dr. B. P. Adhikari, M.Sc. (Cal.), Dr.ca.Sc. (Paris); 3. Dr. Bani Prasad Banerjee, B.E., M.Sc., Ph.D.; 4. Shri G. Basu, B.A., F.S.A.A., F.C.I.S., F.C.A., F.C.I.W.A., J.P.; 5. Dr. N. Das, Ph.D. (Lond.), I.C.S. (Retired); 6. Shri Arun Kumar Dutt, Advocate; 7. Professor H. C. Ghosh, M.A., P.R.S.; 8. Shri Shyamal Krishna Ghose; 9. Professor D. B. Lahiri, M.Sc., F.N.I.; 10. Shrimati Nirmal Kumari Mahalanobis; 11. Dr. Ashok Mitra, M.A., D.Sc. (Econ); 12. Dr. R. K. Mukherjee, M.Sc. (Cal.), Ph.D. (Cantab); 13. Dr. C. R. Rao, M.A., M.Sc., Ph.D., Sc.D. (Cantab.), F.N.I., F.R.S.; 14. Dr. L. D. Sanghvi, M.Sc., Ph.D. (Columbia); 15. Dr. Amartya Sen, M.A., Ph.D. (Cantab); 16. Dr. P. K. Sen, M.B. (Cal.), M.D. (Berlin), Ph.D., T.D.D. (Wales); 17. Shri Satish Chandra Sen, M.A., LL.B.; 18. Shri N. C. Sengupta, I.C.S.; 19. Dr. B. R. Sechachar, D.Sc., F.N.I.; 20. Dr. T. N. Srinivasan, Ph.D.

*Government nominees on the Council (Rule 61(b) (1))* : 1. Cabinet Secretary (Shri T. Swaminathan, I.C.S.) or his representative; 2. Joint Secretary, Ministry of Finance, Department of Expenditure, Government of India (Shri B. N. Mahewari); 3. Director, Central Statistical Organisation and ex-officio Joint Secretary, Department of Statistics (Dr. N. T. Mathow).

\*Died on 8 May 1971.

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*Co-opted members (Rule 6.1(c)) :* 1. Dr. D. K. Bose, M.A., Ph.D.; 2. Dr. D. N. Chakravarti, M.B.B.S., D.T.M & H.D.B., Lieut.-General (*I.M.S.*); 3. Dr. N. S. Iyengar, M.Stat., Ph.D., Professor, Department of Econometrics, Osmania University; 4. Shri K. K. Sen\*, I.C.S. (*Retired*), Vice-Chancellor, Kalyani University; 5. Dr. K. D. Sharma, Director, Central Glass & Ceramic Research Institute, Jadavpur, Calcutta.

*Ex-officio members (Rule 6.1(b\*\*)) :* Secretary of each local branch : 1. Bombay Branch : Professor P. N. Phutane (1970-71); 2. Kerala Branch : Dr. (Miss) A. George (1970-71); 3. Mysore State Branch : Professor Srinagabhuhana (1970-71).

#### GOVERNING BODY OF THE RESEARCH AND TRAINING SCHOOL : 1970-71

1. Shri K. P. S. Menon, Chairman (*ex-officio*); 2. Professor P. C. Mahalanobis, Honorary Secretary (*ex-officio*); 3. Dr. C. R. Rao, Director, RTS (*ex-officio*); 4. Dr. B. B. Ghosh, Acting Editor, Capital, (*Associated Chambers of Commerce of India*); 5. Dr. S. N. Sen, M.A., Ph.D., Vice-Chancellor, Calcutta University (*Indian Economic Association*); 6. Shri G. K. Bhagat, Messrs. Bengal Potteries, Ltd., (*Federation of Indian Chambers of Commerce and Industry*); 7. Dr. N. T. Mathew, Director, Central Statistical Organisation (*Government of India*); 8. Shri B. N. Maheshwari, Joint Secretary, Ministry of Finance (*Financial Adviser, Department of Statistics, Department of Expenditure, Government of India*); 9. Professor S. S. Srikhande, F.N.I., Head, Department of Mathematics, University of Bombay (*National Institute of Sciences of India*); 10. Shri V. V. Divatia, Adviser, Department of Statistics, Reserve Bank of India; 11. Professor S. K. Bose, Director, Indian Institute of Technology, Kharagpur (*Inter-University Board of India & Ceylon*); and 12. Dr. Bhabatosh Dutta, M.A., Ph.D.; 13. Dr. B. R. Seshachar, D.Sc., F.N.I. Dean, Faculty of Sciences, University of Delhi; 14. Shri Jagjit Singh, M.A., F.R.S.S., Chairman and Managing Director, Indian Drugs & Pharmaceuticals Ltd.; 15. Dr. B. P. Adhikari, M.Sc. (Cal.), Dr.es.Sc. (Paris); 16. Shri Partha Ray, I.A.S.; 17. Dr. D. K. Bose, M.A., Ph.D.; 18. Shri Pitambar Pant, M.Sc., Member, Planning Commission, Government of India (*Council of the Indian Statistical Institute*).

#### LIST OF MEMBERS OF DIFFERENT COMMITTEES : 1970-71

##### *Finance Committee of the Council*

1. Chairman of the Institute (*ex-officio*) or his nominee; 2. Secretary of the Institute (*ex-officio*) or his nominee; 3. Director of the Research and Training School (*ex-officio*) or his nominee; 4. Dr. B. P. Adhikari; 5. Dr. B. P. Banerjee; 6. Dr. Bhabatosh Dutta; 7. Dr. Amartya Sen; 8. Professor H. C. Ghosh; 9. Shri S. C. Roy; 10. Shri P. Ray (*Member-Secretary*) or in his absence, a person nominated by the Secretary or the Chairman; 11 & 12. Two representatives nominated by the Government of India—Cabinet Secretary (Shri T. Swaminathan) or his representative and Joint Secretary, Ministry of Finance (Shri B. N. Maheshwari).

##### *Finance Committee of the Governing Body*

1. Chairman of the Institute (*ex-officio*) or a Vice-Chairman, authorised by him; 2. Secretary of the Institute (*ex-officio*) or in his absence, a Joint Secretary; 3. Director of

\*Resigned, reported to the Council meeting of 29 May 1971.

\*\*Branch Chairmen's names shown under Additional Vice-Chairman.

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the Research and Training School (*ex-officio*) or a Joint Director, if any, in charge of RTS; 4. & 5. Two representatives of the Government of India (Dr. N. T. Mathow and Shri B. N. Maheswari); 6. Representative of the Reserve Bank of India on the Governing Body (Shri V. V. Divatia); 7. & 8. Two representatives to be elected by the Governing Body from amongst themselves—Dr. B. R. Seshachar and Dr. B. P. Adhikari.

### *Journal Committee of the Institute*

1. Dr. S. N. Bose, F.R.S., National Professor and President of the Institute; 2. Professor D. B. Lahiri; 3. Dr. B. S. Minhas; 4. Dr. Sujit Kumar Mitra; 5. Dr. Jogabrata Roy; 6. Dr. Amartya Sen; 7. Dr. D. Basu; 8. & 9. Editors of *Sankhyā* (*ex-officio*—Professor P. C. Mahalanobis and Dr. C. R. Rao); 10. One representative of the Governing Body of the Research and Training School—Dr. S. S. Shrikhande; 11. One member to be nominated by the Secretary of the Institute in consultation with the Director of the Research and Training School; 12. Dr. J. K. Ghosh, *Editorial Secretary*, and 13. Shri A. Mahalanobis, *Secretary*.

### *Examinations Committee of the Institute*

1. Dr. B. P. Adhikari, Research and Training School, Indian Statistical Institute; 2. Shri Debabrata Basu, F.I.A., Assistant Manager (E.D.P.), L.I.C., Calcutta Division; 3. Dr. P. K. Bose, Pro-Vice-Chancellor, Calcutta University; 4. Dr. A. C. Das, State Statistical Bureau, West Bengal; 5. Dr. (Miss) A. George, Head and Professor, Department of Statistics, Kerala University; 6. Dr. V. S. Huzurbazar, Professor of Mathematics and Statistics, Poona University; 7. Professor V. B. Kamath, Personnel Manager for Training and Development, The West Coast Paper Mills Ltd., Dundeli (N.K.); 8. Professor D. B. Lahiri, National Sample Survey, Indian Statistical Institute; 9. Dr. T. N. Srinivasa, Planning Unit, Indian Statistical Institute; 10. Dr. S. K. Mitra, Indian Statistical Institute; 11. Professor M. Mukherjee, National Income Research Unit, Indian Statistical Institute; 12. Dr. D. D. Joshi, Professor of Statistics, Institute of Social Sciences, University of Agra; 13. Dr. B. Ramchandran, Research and Training School, Indian Statistical Institute; 14. & 15. Two representatives of the Governing Body of the Research and Training School (Dr. Nirmal Chakravarti, CSO, and Shri S. Raja Rao, Indian Statistical Institute); 16. Dr. Jogabrata Roy, Research and Training School; 17. Shri J. M. Sengupta, Indian Statistical Institute; 18. Dr. G. R. Seth, I.A.R.S., I.C.A.R. and 19. Shri S. Sen Gupta, Indian Statistical Institute, *Member-Secretary*.

### BOMBAY BRANCH : 1970-71

*Honorary President* : Shri S. K. Wankhede.

*Honorary Vice-Presidents* : 1. Professor C. N. Vakil; 2. Dr. C. Nanjundayya.

*Honorary Secretary* : Professor P. N. Phutane

*Honorary Treasurer* : Dr. M. N. Vartak

*Members of the Council* : 1. Dr. R. L. N. Iyengar; 2. Professor V. B. Kamath; 3. Dr. P. M. Vinaria; 4. Professor B. G. Iyler; 5. Shri N. Gayatrivalabhan; 6. Shri B. K. Raja Rao; 7. Shri S. L. Pillay.



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MYSORE STATE BRANCH: 1970-71

Chairman: Professor R. R. Umarji

Vice-Chairmen: 1. Shri C. S. Seshadri; 2. Shri R. Sampathkumaran

Secretary: Professor Srinagabhushana

Joint Secretary: Shri C. A. Setty

Treasurer: Shri P. S. Narayana

Members: 1. Professor M. Narayana Iyengar; 2. Shri H. C. Ramanna; 3. Shri B. V. S. Rao; 4. Shri S. K. Iyengar; 5. Shri T. K. Guruswamy.

Annexure 2: List of Scientific Papers published

A. MATHEMATICS AND STATISTICS

- P1 BHIMASANKARAM, P. (with Mitra, Sujit Kumar) (1970): Some results of idempotent matrices and a matrix equation connected with the distribution of quadratic forms. *Sankhyā*, A, 32, 3, 353-356.
- P2 GHOSH, J. K. (with Rao, C. Radhakrishna) (1971): A note on some translation-parameter families of densities for which the median is an M.L.E.. *Sankhyā*, A, 33, 1, 91-92.
- P3 MITRA, SAMABENDRA K. (1971): On the probability distribution of the sum of uniformly distributed random variables. *SIAM Jour. Applied Maths.* 20, 2, 63-65.
- P4 ——— (with Banerjee, Sailendra N.) (1971): On the probability distribution of round-off errors propagated in tabular differences. *Australian Computer Jour.*, 4, 2.
- (P1) MITRA, SUJIT KUMAR (with Bhimasankaram, P.) (1970): Some results of idempotent matrices and a matrix equation connected with the distribution of quadratic forms. *Sankhyā*, A, 32, 3, 353-356.
- P5 ——— (1970): A density-free approach to the matrix variate Beta distribution. *Sankhyā*, A, 32, 1, 81-88.
- P6 ——— (1970): Analogues of multivariate Beta (dirichlet) distribution. *Sankhyā*, A, 32, 2, 189-192.
- P7 MURHOPADHYAY, A. C. (1971): Construction of some general and two level partially balanced arrays. *Sankhyā*, A, 33, 1, 99-102.
- P8 RAO, A. RAMACHANDRA (with Rao, S. B.) (1970): On the power sequence of a graph. *Israel Jour. Maths.*, 8, 4, 388-402.
- P9 ——— (1970): Existence of triconnected graphs with prescribed degrees. *Pacific Jour. Maths.*, 33, 1, 203-207.
- P10 ——— (1970): On a problem of ore on maximal trees. *Jour. Australian Maths. Soc.*, 11, 379-380.

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- P11 RAO, A. RAMACHANDRA (1970): On the minimal thick sets of a measure space, *Indian Jour. Maths.*, 12, 1, 31-41.
- P12 RAMACHANDRAN, B. (with Rao, C. Radhakrishna) (1970): Solutions of functional equations arising in some regression problems and a characterization of the Cauchy law, *Sankhyā*, A, 32, 1, 1-30.
- (P2) RAO, C. RADHAKRISHNA (with Ghosh, J. K.) (1971): A note on some translation-parameter families of densities for which the median is an M.L.E., *Sankhyā*, A, 33, 1, 91-92.
- (P12) ——— (with Ramachandran, B.) (1970): Solutions of functional equations arising in some regression problems and a characterization of the Cauchy law, *Sankhyā*, A, 32, 1, 1-30.
- P13 RAO, M. BHASKAR (1970): On two-parameter family of B I B designs, *Sankhyā*, A, 32, 3, 258-264.
- P14 ——— (1970): Balanced orthogonal designs and their B I B and group divisible designs, *Sankhyā*, A, 32, 4, 439-448.
- (P8) RAO, S. B. (with Rao, A. Ramachandra) (1970): On the power sequence of a graph. *Israel Jour. Maths.*, 8, 4, 398-402.
- (P9) ——— (with Rao, A. Ramachandra) (1970): Existence of triconnected graphs with prescribed degrees, *Pacific Jour. Maths.*, 33, 1, 203-207.
- P15 SULE, A. G. (1970): A method for obtaining treatment combinations for nine components of second order interaction of a  $4^3$ -factorial experiment, *Statistica*, Lucio Cappelli Editore Bologna, 116, N.I. Anno XXX.

B. THEORETICAL PHYSICS AND ELECTRONICS

- P16 BANDYOPADHYAY, P. (with Ray Chaudhuri, P., and Saha, S. K.) (1970): Propagation of electromagnetic waves in a degenerate neutrino sea, *Physical Review*, D, 377.
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**Annexure 3 : List of National Sample Survey Reports**

**3.1 DRAFT REPORTS REVISED AND FINALISED FOR PRINTING**

(The date of submission to the Government of India is given in brackets)

sr. no.	draft report no.	title of the report
(1)	(2)	(3)
1.	197	Tables with notes on employment and unemployment in rural areas, 17th round, September 1961-July 1962. (May 1970).
2.	207	Tables with notes on household consumer expenditure and enterprise for rural and urban areas of India, 19th round, July 1964-June 1965. (May 1970).
3.	211	Pilot enquiry on building construction : some results : 22nd round (urban), July 1967-June 1968. (April 1970).
4.	212	Tables with notes on the Annual Survey of Industries—1964, (sample sector), detailed results. (May 1970).
5.	213	Tables with notes on consumer expenditure, 19th round, July 1964-June 1965. (December 1970).
6.	216	Tables with notes on consumer expenditure in urban areas, 18th round, February 1963-January 1964. (October 1970).
7.	216	Tables with notes on family planning, 22nd round (5th sub-round), March 1968-April 1968. (November 1970).

**3.2 DRAFT REPORTS SUBMITTED TO THE GOVERNMENT OF INDIA**

(The date of submission is given in brackets)

sr. no.	draft report no.	title of the report
(1)	(2)	(3)
1.	214	Tables with notes on the Annual Survey of Industries 1967 : sample sector : Summary results : (April 1970).
2.	215	Tables with notes on consumer expenditure in urban areas : 18th round : February 1963-June 1964 (May 1970).
3.	216	Tables with notes on family planning : 22nd round (5th sub-round) : March 1968-April 1968 (May 1970).
4.	217	Tables with notes on housing condition, 19th round : July 1964-June 1965 (December 1970).
5.	218	Tables with notes on household distribution trade, 20th round : July 1965-June 1966 (January 1971).

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sr. no.	draft report no.	title of the report
(1)	(2)	(3)
6.	219	Tables with notes on villages and towns in India, some results : 22nd round : July 1967-June 1968 (January 1971).
7.	220	A preliminary report on pilot study on employment & unemployment in urban areas, 1969 (based on the data collected during first six months of surveys, 23rd round (February 1971).
8.	221	Tables with notes on household enterprises, 19th round : July 1964-June 1965 (March 1971).
9.	222	Tables with notes on the Annual Survey of Industries, 1966 : sample sector, detailed results (February 1971).
10.	223	Tables with notes on employment and unemployment in rural and urban areas in India, 19th round : July 1964-June 1965. (March 1971).

3.3 LIST OF NSS DRAFT REPORTS PREPARED BY STATE GOVERNMENTS ON WHICH COMMENTS WERE FORWARDED TO THE GOVERNMENT OF INDIA

(The date of submission of the Institute's comments is indicated in brackets)

sr. no.	title of the report	prepared by State (name)
(1)	(2)	(3)
1.	Report on land utilisation survey and crop-cutting experiments, 17th round, NSS (May 1970)	Maharashtra
2.	Report on population, births and deaths, 17th round, NSS (May 1970) rural & urban	Tripura
3.	Report on employment and unemployment and indebtedness in rural labour households (1964-65), NSS (May 1970)	U. P.
4.	Report on employment and unemployment—rural, 17th round, NSS (June 1970)	Tripura
5.	Report on demographic and activity particulars, 19th round, NSS (June 1970)	U. P.
6.	Report on rural labour households, 18th round, NSS (June 1970)	M. P.
7.	Report on professional and liberal arts, 18th round, NSS (August 1970)	Gujarat
8.	Report on professional and liberal arts, 18th round, NSS (October 1970)	Tripura

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srl. no.	title of the report	prepared by state (name)
(1)	(2)	(3)
9.	Report on land utilisation and crop-cutting experiments, 18th and 19th rounds, NSS (July 1970).	Maharashtra
10.	Report on population, births and deaths in rural and urban areas, 19th round, NSS (June 1970)	M. P.
11.	Report on livestock products in rural areas, 15th round, NSS (June 1970)	Maharashtra
12.	Brief notes on (1) housing condition, 22nd round, (2) small scale manufacture household, 23rd round, NSS (January 1971)	Gujarat
13.	Report on employment and unemployment, 15th round, NSS (February 1971)	Maharashtra
14.	Report on employment and unemployment earnings and indebtedness of rural labour, 19th round, NSS (December 1970)	A. P.
15.	Report on urban labour force, 18th round, NSS (October 1970)	Tripura
16.	Report on villages, 19th round, NSS (October 1970)	Kerala
17.	Report on land utilisation survey and crop-cutting experiments, 22nd round, NSS (October 1970)	Tripura
18.	Report on housing condition, 18th round, NSS (November 1970)	Maharashtra
19.	Report on land holding in rural areas, 17th round, NSS (August 1970)	Tripura
20.	Report on housing condition, 18th round, NSS (April 1970)	U. P.

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PART III

Statement of Accounts, Auditors' Report and Audited Statement of  
Accounts—1970-71

AUDITORS' REPORT

We have audited the enclosed Balance Sheets of the Indian Statistical Institute and "Other Funds" as on 31st March 1971, and relative Income and Expenditure Accounts for the year ended on that date. We report the following :

1. *Fixed Assets*

(a) Asset Registers were not maintained for Land, Buildings, Sheds and Structures and Overbridge. Asset Registers for other assets though maintained, leave much scope for improvement in as much as :

- (i) assets as per financial accounts could not be compared with those of the assets registers as the cumulative totals of different types of assets were not recorded in the asset registers;
- (ii) location of assets were not stated in the asset registers;
- (iii) description of assets, model, identity numbers, etc. were not stated in the registers.

We were given to understand that movable assets were not physically verified by any officer of the Institute for a number of years and hence book balances could not be tallied with figures as per physical verification reports.

(b) Values of fixed assets acquired on dates prior to 31st March 1952 were taken from those appearing in the Inventories prepared as on that date.

(c) We could not verify the following lands of the Institute as the respective title deeds could not be produced for our inspection :

Land at Giridih—Book Value Rs. 1,07,502.72 vide item 1.3 of the Schedule of Fixed Assets of Development Fund II. Rs. 9,614.51 and Rs. 14,000.00 vide items 2.1 and 2.6 respectively of Schedule I to the Institute's Balance Sheet and Rs. 14,661.16 vide Balance Sheet of Supervision Fee Fund.

However, we are given to understand that the said title deeds stated in respect of Land at Giridih have been filed with Court.

(d) General Fund includes a credit of Rs. 2,00,000.00 in respect of books received as gift from a donor which had been capitalised during the year ended 31st March 1969.

Out of the amount of Rs. 3,62,609.62 charged in the Income and Expenditure Account as expenditure on Books and Journals (vide item 12.1 of the expenditure side of the Income and Expenditure Account) the amount of Rs. 3,34,979.02 has been capitalised (vide item 'H' of Schedule I) by crediting the General Fund Account.

(e) Printing Machineries received as gift from the Soviet Academy of Sciences has been valued during the year under review at Rs. 18,86,096.58 and incorporated in the books by credit to the General Fund. It is understood that as per tri-partite agreement between Statistical Publishing Society, Soviet Academy of Sciences and the Indian Statistical Institute, the said machineries are being used by the Statistical Publishing Society on lease.

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The Special Committee at its meeting held on 10th July 1971 has recommended to the General Body that a thorough enquiry into the relationship between the Indian Statistical Institute and the Statistical Publishing Society including the arrangement regarding the utilization of the USSR printing machinery be made.

2. *Advance on account of ISIJU for construction of computers*  
(item 3 of assets side of the Institute's Balance Sheet)

The amount remained the same as per last account. Confirmation of the same from ISIJU was not available to us.

3. *Recoverable Capital Outlay (item 4 of Balance Sheet)*

Rs. 5,199.43 (as per last account)

We are given to understand that the amount is due from Dr. B. C. Das. There was no recovery during the year under review.

Moreover, it is understood that House Rent due from Dr. B. C. Das for the period from 20th October 1965 to 30th June 1969, amounted to Rs. 20,088.97 of which Rs. 5,473.88 only was recovered from him leaving the balance of Rs. 14,615.29 not recorded in the books of account. The reasons as to why the balance of House Rent amounting to Rs. 14,615.29 recoverable from Dr. Das was not recorded in the books of account could not be explained.

4. *Amount already claimed but pending acceptance as per Schedule II*

(a) It is observed that claims for excess of expenditure over income for 1969-70 as under have not yet been made to the Government of India.

For Revenue Expenditure (Current) (vide item 4.2 of Schedule II)	Rs. 8,19,545.10
For Plan Revenue Expenditure (vide item 5.4 of Schedule II)	Rs. 84,687.06
	<hr/>
	Rs. 9,04,232.76

(b) In the absence of sanctions or admittance of claims from the Government of India, we are unable to form any opinion about the recovery of the claims stated in item 6.2 to 6.4 of the Balance Sheet of the Institute.

5. *Amount Recoverable from the Government of Mysore*

(item 7 of the Balance Sheet)

Amount recoverable as per book was Rs. 29,325.80 but as per letter no. LAQ.214/68-60 Bangalore, dated 20th November, 1970, from the office of the Deputy Commissioner, Bangalore District, the amount standing to the credit of the Institute was stated to be Rs. 29,387.80. The difference of Rs. 62/- could not be explained.

6. *Stores (item 9 of the Balance Sheet)*

Out of the stock of building materials, adjustments for shortage of Rs. 4,157.06 and for excess of Rs. 1,505.35 were incorporated in these accounts without investigation of the reasons and without prior approval of the Council of the Institute. Stock differences, if any, in Iron and Steel materials, Cement etc. were not known.

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It appears to us that the extent of diminution in value due to deterioration in the condition of the stores, if any, has not been ascertained and accordingly, no adjustments with regard to obsolete and unusable items of stores have been made.

7. *Loans and Advances*

(a) Departmental Imprest (item 9.1) amounting to Rs. 1,302.47 remained unverified by us in absence of certificates from the Imprest-holders.

(b) Festival Advance to workers amounting to Rs. 2,206.02 (item 10.2 of Institute's Balance Sheet) include several old balances e.g., Shri Chandra Betis Rs. 15.01—due since 1960-61 and Shri Kanni Naskar—Rs. 47.31—due, since 1981-82.

As the recovery is very small we are unable to form any opinion as to the chances of recovery of these advances.

(c) Balances of "Advance to Suppliers and Contractors" and "Suspense and Other Advances" have increased considerably during the year under review as will be apparent from the following table:

<i>Balance as at 31st March 1970</i>	<i>Head of Account</i>	<i>Balance as at 31st March 1971</i>
Rs. p.		Rs. p.
94,867.94	Advance to Suppliers and Contractors	2,11,932.06
3,29,533.00	Suspense and Other Advances	4,08,735.49
<u>4,24,400.94</u>		<u>6,20,667.54</u>

The above balance have been arrived at after adjustments including transfers to various expenditure heads both for the year under review as also for earlier years.

Advances under items 10.3 to 10.6 of the Institute's Balance Sheet include certain "on account" advances made to the suppliers/employees/others which are long outstanding and have not been accounted for by them promptly and in certain cases even after lapse of considerable time. Accordingly, necessary adjustments in respect of expenses etc. against such advances have not been incorporated in these accounts and/or in the accounts for appropriate years. A part of the amount of Rs. 6,60,560.82 stated under items 10.3 to 10.6 of the Institute's Balance Sheet may not be recovered eventually. In the absence of adequate particulars the exact amount irrecoverable cannot be ascertained.

(d) *Sundry Debtors* (item 10.7 of the Institute's Balance Sheet)

Sundry Debtors of Rs. 63,884.30 include the following time-barred irrecoverable debts:

Workshop Bills for 1963-64	Rs. 1,865.80
-do- 1964-65	20.37
-do- 1965-66	1,102.94
-do- 1966-67	279.73
	<u>Rs. 3,268.83</u>

These may be scrutinised and adjusted in the accounts.

(c) Advance of Rs. 3,62,176.50 for land included in the Balance Sheet as on 31st March 1970 in Fixed Assets Schedule I, have been transferred during the year under review to Advance for Land (vide Schedule XIII to the Institute's Balance Sheet).

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### 8. *Cash and Bank Balances*

In the absence of confirmation of balance, we could not verify the cash balance of Rs. 8,009.50 with International House of Japan Translation Unit (vide Schedule VI to the Institute's Balance Sheet). The statement of account for the year 1969-70 received from Japan Translation Unit have been incorporated in these accounts in 1970-71. In the absence of the statement of account for the year 1970-71, the transactions, if any, for the year 1970-71 have not been incorporated in these accounts.

As appears from Schedule VI and VII to the Institute's Balance Sheet, the amounts shown as cash balance (both in hand and at Banks) represent the balancing figures that is to say, individual bank account, with the exception of an account with the State Bank of India, Calcutta, cannot be linked with individual fund account.

Certificates from Bank confirming balances as on 31st March 1971, were not available for the following accounts :

State Bank of India, Delhi A	Rs. 1,672.98
State Bank of India, Delhi B	698.85
United Bank of India, Giridih	40,972.92
United Commercial Bank, Giridih	1,110.07
Total :	Rs. 44,464.82

### 9. *Deposits and Other Liabilities*

(a) A sum of Rs. 95,752.57 due to Hospitality and Housing Committee (vide item 6.1 of the Funds and Liabilities side of the Balance Sheet of the Institute) represents the net amount due to the Committee in respect of services rendered to the guests and officials of the Institute. Balance confirmation from the Committee has, however, not been produced to us.

Consistent with past practice, other transactions (including revenue deficit and/or surplus, if any) relating to the above Committee have not been included in the Institute's accounts.

### (b) *Library and Other Deposits*

Library and Circulating Library Deposit Registers were not properly maintained. Several items shown in the list totalling Rs. 31,570/- did not agree with the amount shown in the registers.

10. Consistent with past practice transactions in respect of the ISI Small Scale Experimental Unit have not been included in the Institute's accounts. In the Balance Sheet as at 31st March, 1971 of the Supervision Fee Fund, a sum of Rs. 14,610.20 being not amount payable by the Fund to the Unit up to that date, however, has been shown as "Amount due to ISI Small Scale Industrial Experimental Unit".

11. During the year under review an amount of Rs. 5,000/- has been credited by the Institute to the Gratuity Fund as "taken interest" for utilising the monies of the Fund. In the absence of a suitable basis for computing the interest we are unable to form an opinion about the adequacy of the amount credited.

12. For the purpose of the Income and Expenditure Account, the allocation between "Plan" and "Non-Plan" as made by the officials of the Institute has been accepted by us.

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Further, for the purpose of this report, we have accepted the allocation of expenses to different sectors, as shown in Schedule XI to the Institute's accounts. Our separate reports on sector-wise Income and Expenditure Accounts have not yet been issued by us.

13. We are given to understand that the activities of the local Branches at Bombay, Mysore State and Kerala are independent of those of the Institute and accordingly, the transactions relating to these branches do not form part of the Institute's accounts.

14. *General*

(a) The system of Internal Control and Check is not adequate and there is no internal audit. Steps should be taken to instal a comprehensive system for effective control and better coordination between the different Sectors of the Institute.

(b) The system of Budgetary Control is deficient. There is no system of ensuring that actual expenditures are within budgeted limits. We have not been provided with a list of officials empowered by the Council of the Institute to sanction expenditures. It is observed that the Budget proposals are considered as authorisation for incurring the expenditure without awaiting for the sanction of the Government.

It is also observed that grants for specific activities/items are diverted and/or utilised to meet the excess of expenditure over income.

(c) The pages of the Minute Book for recording the proceedings of the meetings of the Council of the Institute and/or Committees are not consecutively numbered and the proceedings are not written in the Minute Book but are typed on separate sheets and pasted on the Minute Book.

Subject to the foregoing remarks we report that we have audited the Balance Sheets as on 31st March 1971 and the Income and Expenditure Accounts for the year ended on that date with the books and records maintained by the Institute and produced to us and the information and explanations given and have found them to be in accordance therewith.

Calcutta  
20 December 1971

P. K. MITRA & Co  
Chartered Accountants



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BALANCE SHEET

1969-70 Rs. P.	Fund and Liabilities	Ra. P.	Ra. P.
	<b>1. GENERAL FUND :</b>		
1,07,59,843.55	As per Schedule VIII enclosed .. .. .		1,04,89,658.31
	<b>2. OTHER FUNDS : (EXCLUDING DIRECTOR'S CONTRIBUTION FUND AND INDIAN STATISTICAL INSTITUTE GENERAL PROVIDENT FUND FOR WHICH SEPARATE ACCOUNTS ARE PREPARED)</b>		
	As per separate Balance Sheet enclosed as per contra :		
	.1 Visiting Professors and Fellows Fund .. .. .	113.13	
	.2 Gratuity Fund .. .. .	38,86,257.58	
	.3 Development Fund I .. .. .	1,19,621.94	
	.4 Development Fund II .. .. .	11,02,229.85	
	.5 Supervision Fee Fund .. .. .	2,16,304.87	
	.6 Statistical Quality Control Development Fund .. .. .	1,39,107.43	
		<u>54,65,531.89</u>	
48,05,117.08	.7 <i>Less</i> : Leave Salary Fund .. .. .	65,213.75	63,98,318.13
	<b>3. LOANS FROM OTHER FUNDS :</b>		
29,00,000.00	As per Schedule IX enclosed .. .. .		43,10,000.00
—	<b>4. LOAN FROM UNITED BANK OF INDIA, DUNLOP BRIDGE BRANCH</b> .. .. .		6,00,000.00
	<b>5. ROCKEFELLER FOUNDATION GRANT :</b>		
	As per contra		
1,322.20	As per last account .. .. .		1,322.20
	<b>6. DEPOSITS AND OTHER LIABILITIES :</b>		
	.1 Hospitality and Housing Committee .. .. .	95,752.57	
	.2 Staff income-tax and annuity deposits .. .. .	25,347.71	
	.3 Library and other deposits .. .. .	68,183.70	
	.4 Staff insurance, Cooperative Society, Statistical Workers' Housing Scheme etc. .. .. .	45,845.14	
	.5 Director of Health Services for purchasing census reports through UNESCO .. .. .	8,126.00	
17,97,878.12	.6 Other liabilities .. .. .	27,80,437.04	30,21,692.16
	<b>7. EXCESS OF INCOME OVER EXPENDITURE IN RESPECT OF MISCELLANEOUS PROJECTS AND ACTIVITIES</b>		
2,79,145.98	As per Schedule X enclosed .. .. .		2,34,238.85
—	<b>8. EXCESS OF INCOME OVER EXPENDITURE IN RESPECT OF PLAN REVENUE EXPENDITURE GRANT RECEIVED FROM GOVERNMENT OF INDIA DURING 1970-71</b> .. .. .		1,61,599.87
<u>2,86,03,307.63</u>	Carried Over : .. .. .		<u>3,32,16,449.44</u>

THIRTY-NINTH ANNUAL REPORT: 1970-71

AS AT 31ST MARCH 1971

1969-70	Property and Assets	Rs. P.	Rs. P.	Rs. P.
1,54,05,330.12	1. FIXED ASSETS: As per Schedule I enclosed .. .. .			1,77,80,840.27
	2. RENTAL OF TELEPHONE UNDER OYT SCHEME (INCLUDING INSTALLATION CHARGES): Capital Grant Account: As per last account .. .. . Less : written off during the year @ 6% .. .. .		68,241.77 3,412.09	
68,241.77	Add : payments during the year .. .. .		84,829.88 5,660.00	70,379.88
7,62,829.27	3. ADVANCE ON ACCOUNT OF ISJU EXPENDITURE ON JOINT PROJECT FOR THE CONSTRUCTION OF ELECTRONIC COMPUTERS IN PROGRESS (EXCLUDING VALUE OF FURNITURE, EQUIPMENT ETC. LOANED TO ISJU WHICH ARE INCLUDED IN SCHEDULE 1): As per last account .. .. .			7,62,329.27
5,199.43	4. RECOVERABLE CAPITAL OUTLAY: As per last account .. .. .			5,199.43
	5. AMOUNT CLAIMED TO BE CLAIMED FROM GOVERNMENT OF INDIA: 1. Amount already claimed but pending acceptance as per Schedule II enclosed .. .. . 2. Amount to be claimed as per Schedule III enclosed .. .. . 3. Amount claimed and rejected (but under correspondence) as per Schedule IV enclosed .. .. . 4. Excess of expenditure over receipts on account of NSS work during 1959-60 to 1963-64 already claimed .. .. .		20,59,393.69 12,91,708.05 12,37,137.64	
44,70,663.20	during 1959-60 to 1963-64 already claimed .. .. .		11,18,892.37	57,07,221.65
2,55,938.24	6. EXCESS OF EXPENDITURE OVER RECEIPTS IN RESPECT OF MISCELLANEOUS PROJECTS AND ACTIVITIES ON BEHALF OF THE GOVERNMENT OF INDIA AND OTHER BODIES PENDING ADJUSTMENTS ON SETTLEMENT OF CLAIMS MADE/TO BE MADE: As per Schedule V enclosed .. .. .			4,13,278.67
39,826.80	7. AMOUNT RECOVERABLE FROM GOVERNMENT OF MYSORE IN RESPECT OF BANGALORE LAND REQUISITIONED BACK BY GOVERNMENT OF MYSORE: As per last account .. .. .			20,323.40
	8. GRANTS RECEIVABLE FROM GOVERNMENT OF INDIA ON ACCOUNT OF: 1. Non-plan current expenditure Account .. .. . 2. Plan current expenditure Account .. .. . 3. Plan Capital Expenditure Account .. .. .		12,30,000.00 2,00,000.00 8,00,000.00	23,30,000.00
3,46,812.74	9. STORES (BUILDING MATERIALS ETC.): At cost .. .. .			3,30,217.56
	10. LOANS AND ADVANCES: 1. Departmental imprest .. .. . 2. Festival advances to workers .. .. . 3. Advances to Suppliers and Contractors .. .. . 4. Suspense and other advances .. .. . 5. Educational, relief and other loans .. .. . 6. Security deposit .. .. . 7. Sundry debtors (partly irrecoverable) .. .. .		2,802.47 2,306.62 2,11,032.05 4,08,735.49 14,991.21 24,005.07 33,884.50	
7,01,314.02	8. Advances for land (Schedule XIII) .. .. . 9. Charge prepaid .. .. . 10. Marginal deposits for letter of credit .. .. .		7,29,463.61 4,03,508.91 4,230.00 16,182.81	11,62,975.33
1,30,33,669.00	Carried over: .. .. .			2,85,90,169.06

INDIAN STATISTICAL INSTITUTE

BALANCE SHEET

1969-70		Fund and Liabilities		Ra. P.	
Ra.	P.			Ra.	P.
1,66,03,807.62		Brought forward :	.. .. .	3,31,14,449.14	
9. EXCESS OF RECEIPTS OVER EXPENDITURE IN RESPECT OF CAPITAL EXPENDITURE GRANT RECEIVED FROM GOVERNMENT OF INDIA :					
1,81,684.79		As per Schedule XII enclosed	.. .. .	1,36,472.99	
10. AMOUNT DUE TO ELECTRONIC DATA PROCESSING AND COMPUTATION UNIT ON LOAN ACCOUNT :					
11,75,000.00		As per Balance Sheet of Unit enclosed	.. .. .	10,00,000.00	
11. EARMARKED DONATION BY STATISTICAL PUBLISHING SOCIETY IN RESPECT OF LAND AT BANGALORE :					
		As per last account	.. .. .	42,000.00	
42,000.00		Less : Amount paid for Bangalore land	.. .. .	22,500.00	19,500.00
				2,78,81,973.41	3,43,71,427.53

- NOTES : (a) In accordance with the terms and conditions of the Grants for Capital Expenditure received from the Government of India, the Institute shall not sell or otherwise dispose of or mortgage any property acquired by it with grants without prior approval of the Government. Most of the assets have been acquired out of the Government grants, total written down values of which, however, are not readily ascertainable.
- (b) Cash balance in hand includes balance with International House of Japan, Translation Unit in Tokyo amounting to Ra. 2,008.50 being Japanese Yens 8,01,104 converted at pre-devaluation rate of exchange (Ra. 100 = Yen 7500 approximately).
- (c) Transactions in respect of Electronic Data Processing and Computation Unit of the Institute have not been incorporated in these accounts. These are set out in the separate Balance Sheet as at 31st March 1971 and the Income and Expenditure Account of the Unit annexed herewith.
- (d) These accounts do not include loan received from Government of India on account of Honeywell H-40 Computer and the utilisation thereof, the details of which have been set out in a separate Balance Sheet as at 31st March 1971.
- (e) The Institute has guaranteed that in the event of the recognition of the Indian Statistical Institute General Provident Fund by the Commissioner of Income Tax, West Bengal, is not given the Institute will be responsible for any additional income tax which may be payable in this regard.
- (f) These accounts do not include the grant of \$ 86,000.00 made by the Ford Foundation to the Institute and disbursements thereout (except c.i.f. value of certain equipment amounting to Ra. 81,391.50 included in the Item J of Fixed Assets Schedule) particulars of which are not readily available.
- (g) The Institute may be liable to pay additional rent with interest in respect of Coopta Nivasa accommodation, the amount of which is not readily ascertainable. A case is pending with the Calcutta High Court in this respect.
- (h) Comparative figures, have, wherever necessary, been rearranged.

Calcutta.  
30th December 1971

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh.  
Joint Secretary

THIRTY-NINTH ANNUAL REPORT : 1970-71

AS AT 31ST MARCH 1971—Contd.

1969-70	Property and Assets	Rs.	P.	Rs.	P.
1,80,53,956.59	Brought forward :	..	..	..	2,85,90,166.05
11. NET ASSETS OF OTHER FUNDS : (EXCLUDING DIRECTORS CONTRIBUTION FUND AND INDIAN STATISTICAL INSTITUTE GENERAL PROVIDENT FUND FOR WHICH SEPARATE ACCOUNTS ARE PREPARED):					
As per separate Balance Sheets enclosed :					
As per contra :					
	1. Visiting Professors and Fellows Fund	..	..	..	113.13
	2. Gratuities Fund	..	..	..	38,86,257.56
	3. Development Fund I	..	..	..	1,19,521.94
	4. Development Fund II	..	..	..	11,02,236.95
	5. Supervision Fee Fund	..	..	..	2,16,304.87
	6. Statistical Quality Control Development Fund	..	..	..	1,39,107.43
					<u>64,63,631.88</u>
45,06,117.68	7. Less : Leave Salary Fund	..	..	..	65,513.75
12. CASH BALANCES :					
1. In hand					
	As per Schedule VI enclosed	..	..	..	60,375.19
2. At Banks : On current accounts :					
	i) With American Express International Banking Corporation, Calcutta, for Rockefeller Foundation Grant—				
	As per contra	..	..	1,322.29	
11,28,898.14	ii) With other Banks as per Schedule VII enclosed	3,21,240.87	3,22,663.16		3,82,938.36
<u>2,78,81,972.41</u>					<u>3,43,71,422.53</u>

This is the Balance Sheet referred to in our report of even date

P. K. MITRA & Co.  
Chartered Accountants

INDIAN STATISTICAL INSTITUTE

INCOME AND EXPENDITURE ACCOUNT

1968-70		Expenditure	Plan Rs. P.	Non-Plan Rs. P.
Plan Rs. P.	Non-Plan Rs. P.			
3,71,181.77	72,72,060.35	1. Salary and remuneration to teachers [See Note (f) below]	2,52,457.27	77,07,927.37
11,771.00	10,72,970.69	.1 Dearness pay .. .. .	10,451.28	21,78,189.37
12,006.59	8,47,167.35	.2 Dearness allowance .. .. .	5,271.35	9,34,374.54
10,117.80	10,68,234.64	.3 House rent allowance .. .. .	10,434.65	11,35,222.51
5,757.65	5,93,421.38	.4 City compensatory allowance .. .. .	5,857.12	8,27,286.69
—	—	.5 Interim pay .. .. .	6,612.84	7,87,835.50
—	7,88,551.60	.6 Employer's contribution to workers provident fund .. .. .	—	7,88,019.25
—	4,65,125.57	.7 Reimbursement of medical expenses .. .. .	—	4,48,301.03
—	62,386.58	.8 Children's education allowance .. .. .	—	42,788.82
—	30,088.25	.9 Leave travel concession .. .. .	—	25,607.96
59,964.21	6,13,842.81	2. Travelling expenses .. .. .	49,874.15	6,37,538.04
—	4,00,301.09	3. Overtime allowance .. .. .	—	4,00,333.62
—	68,926.00	4. Payment for leave vacancies .. .. .	—	63,236.30
29,888.88	1,10,450.65	5. Visiting professors, foreign scientists follows and experts .. .. .	29,610.87	2,49,382.13
20,111.51	4,09,399.34	6. Scholarship, stipends, and other assistance to trainees .. .. .	66,441.00	3,95,582.23
—	—	7. Prizes to workers for initiative .. .. .	—	—
—	4,73,731.01	8. Contribution to Gratuity Fund .. .. .	—	4,70,953.82
		9. Machine Tabulation expenses :		
		.1 Hire and maintenance of tabulating equip- ment, punches and verifying machines etc. including service charges and freight, customs and other charges for new machines etc.	1,70,000.00	13,88,888.92
2,50,294.70	17,36,281.51	.2 Cost of cards and cabinets, stores and station- eries etc. .. .. .	—	3,04,661.16
—	2,33,817.65			
4,394.94	87,838.03	10. Printing and publication .. .. .	10,227.00	97,067.21
6,434.74	44,800.73	11.1 Society type activities (entertainment and conference expenses etc.) .. .. .	25,807.33	38,997.87
447.50	43,637.40	.2 Examination expenses .. .. .	768.10	90,885.09
1,833.95	3,00,700.94	12.1 Books and journals (including cost of binding etc.) .. .. .	300.66	3,52,308.31
617.28	11,304.52	.2 Microfilm, photo and audiography expenses .. .. .	034.27	22,504.11
8,31,782.84	1,70,44,735.05	Carried over: .. .. .	6,40,045.80	1,92,51,037.21

THIRTY-NINTH ANNUAL REPORT : 1970-71

FOR THE YEAR ENDED 31st MARCH 1971

1969-70		Income	1970-71	
Plan Rs. P.	Non-Plan Rs. P.		Plan Rs. P.	Non-Plan Rs. P.
		1. Grants-in-aid from Government of India for non-project sectors :		
1,65,000.00	53,44,000.00	.1 Research and Training School .. .. .		60,70,000.00
30,000.00	1,33,000.00	.2 International Statistical Education Centre .. .. .	6,00,000.00	1,68,000.00
		2.1 Grants-in-aid from Government of India for NSR Project Sector .. .. .	2,00,000.00	84,10,000.00
2,35,000.00	82,80,000.00	.2 Grants-in-aid from Government of India for quick tabulation schedules of NSS .. .. .	—	18,000.00
—	6,000.00	.3 Grants-in-aid from Government of India for Common Services Sector .. .. .	—	44,30,000.00
—	28,74,000.00	3. Grants-in-aid from Government of India for Survey Research Centre .. .. .	1,00,000.00	—
—	—	4. Receipts from non-Government sources :		
		.1 In respect of SQC :		
		Membership fees, training fees, service charges etc. .. .. .	8,28,107.43	
		Less : Transferred to Statistical Quality Control Development Fund .. .. .	1,39,107.43	
—	7,47,785.86		—	6,89,000.00
		.2 In respect of RTS :		
		a) Membership subscription .. .. .	—	8,571.51
—	11,748.25	b) Fees for training course and sale proceeds of syllabus etc. .. .. .	—	81,586.98
—	48,730.17	c) Examination fees and other receipts .. .. .	—	12,605.00
—	17,820.50	d) Receipts from produce at Giraiih Experimental Farm etc. .. .. .	—	7,434.38
—	8,118.64	e) Service charges for work done by Psychometry and Computer Science Units .. .. .	—	34,630.78
—	23,822.60	5. Grants for Miscellaneous Projects :		
—	56,850.00	.1 From Director of Health Services, Government of India for Family Planning Survey .. .. .	—	37,901.01
—	38,700.00	.2 From Director of Health Services, Government of India for Demographic Research Centre .. .. .	—	18,800.00
8,00,000.00	1,80,55,861.41	Carried over : .. .. .	9,00,000.00	1,99,01,279.80

INDIAN STATISTICAL INSTITUTE

INCOME AND EXPENDITURE ACCOUNT

1000-70		Expenditure	1000-70	
Plan Ra. P.	Non-Plan Ra. P.		Plan Ra. P.	Non-Plan Ra. P.
8,31,752.64	1,76,44,735.05	Brought forward :	6,48,945.80	1,02,51,037.24
—	—	13. Expense on Translation Unit in Japan ..	—	98.87
1,101.16	1,11,603.02	14. Repairs, replacement and maintenance of office equipment, furniture, and accessories ..	721.38	1,23,860.61
17,143.12	2,74,525.68	16.1 Stationeries and consumable stores ..	37,407.56	3,45,227.28
10,619.10	1,90,613.52	2 Other miscellaneous expenses viz. advertisement, insurance premia, labour charges, postage, cartage, conveyance and other petty expenses like hot weather contingencies etc. ..	10,607.62	1,92,262.56
		16. Other non-salary contingencies :		
1,604.31	4,13,726.90	1 Postal and M.O. charges, air and railway freight, electricity and telephone charges ..	6,940.00	4,00,540.16
—	84,175.70	2 Audit fees and expenses Less : written back (previous year's provision) ..	26,000.00 1,169.88	23,830.12
—	52,830.30	3 Bank charges and interest (including Rs. 5,000.00 in respect of Gratuity Fund) ..	—	26,873.24
1,522.23	3,44,875.98	17.1 Rent rates and taxes (including those of field, camps and outstation offices) ..	200.00	4,26,311.10
138.71	3,24,214.81	2 Repairs and/or maintenance of building, land etc. and petty construction ..	—	3,37,361.64
16,543.88	1,04,304.60	18. Transport .. .. .	31,650.39	1,26,239.06
286.97	44,841.97	20. Worker's welfare and amenities (excluding reimbursement of medical expenses) ..	23.65	68,110.45
—	3,000.00	20. Director's discretionary expenses (contribution to Mysore Branch) ..	—	6,000.00
4,075.42	71,020.30	21.1 Laboratory stores, tools and minor accessories etc. .. .. .	11,293.46	93,867.47
—	20,841.68	2 Material and other charges for experimental farming and rice research scheme ..	—	27,476.23
8,84,667.96	1,96,85,089.60	Carried over :	7,38,790.18	2,10,38,706.31

THIRTY-NINTH ANNUAL REPORT: 1970-71

FOR THE YEAR ENDED 31st MARCH 1971—Contd.

1969-70		Income		Plan		Non-Plan	
Plan	Non-Plan			Plan	Non-Plan		
Rs. P.	Rs. P.			Rs. P.	Rs. P.		
8,00,000.00	1,86,56,851.41		Brought forward: .. ..	9,00,000.00	1,89,81,379.40		
		<b>6. Miscellaneous receipts:</b>					
—	597.27	.1 Library .. .. .		—	931.50		
—	1,870.00	.2 Rental charges for machines, tools and other equipment used by the Clerton Reach Workshop Ltd. . . . .		—	6,650.00		
		<b>7. Projects (Miscellaneous):</b>					
—	79,559.00	.1 Grant received from the US Department of Health, Education and Welfare, Public Health Service, National Institute of Health, American Embassy, New Delhi in respect of project mentioned in item 22.1 of expenditure side (as per Appendix "A") .. .. .		—	—		
—	—	.2 Fees received from the participants in respect of International Course of Management of Quality Control conducted in collaboration with Dr. J. M. Juran (as per Appendix B) ..		—	1,500.00		
—	1,21,800.00	.3 Grant received from the Consulate General of the United States of America, Calcutta in respect of project mentioned in item 22.3 of expenditure side (as per Appendix C) ..		—	—		
—	12,840.00	.4 Grant-in-aid from Government of Tripura for Teachers Training Course on the education and speech rehabilitation of deaf and hard of hearing of children (as per Appendix B) ..		—	—		
—	—	.5 Grants received from the Fertiliser Association of India in respect of project mentioned in item 22.4 of expenditure side (as per Appendix D) .. .. .		—	60,000.00		
84,687.56	8,34,619.09	Excess of expenditure over income ..		—	16,11,755.55		
<hr/>	<hr/>		Carried over:	<hr/>	<hr/>		
8,84,687.56	1,94,86,936.77			9,00,000.00	2,16,43,116.45		



# INDIAN STATISTICAL INSTITUTE

## INCOME AND EXPENDITURE ACCOUNT

1965-70		Expenditure	Plan		Non-Plan	
Plan	Non-Plan		Rs.	P.	Rs.	P.
8,84,687.66	1,00,25,089.10	Brought forward :	..	..	7,38,790.13	2,16,35,709.34
<b>22. Projects (Miscellaneous):</b>						
—	59,307.27	1. Estimates of Probabilities of Hospitalisation according to age, sex and diagnosis and their use in planning Hospital Services (As per Appendix A)	..	..	—	87,267.28
—	12,540.00	2. Teachers training course on the Education and Speech Rehabilitation of deaf and hard hearing children (As per Appendix B)	..	..	—	300.00
—	—	3. An investigation of age and related changes in the electrophoretic and immunoelectrophoretic components of serum proteins (As per Appendix C)	..	..	—	18,383.61
—	—	4. Fertiliser optimal demand study—projecting fertiliser demand in India (As per Appendix D)	..	..	—	456.00
—	—	Excess of Income over Expenditure	..	..	1,01,209.87	—
<b>8,84,687.66</b>	<b>1,00,00,039.77</b>				<b>0,00,000.00</b>	<b>2,16,42,118.45</b>

- NOTES: (a) As stated in the Balance Sheet, this account excludes transactions in respect of Electronic Data Processing and Computation Unit. Transactions in respect of Honeywell R-400 Computer Unit of the Institute are included in these accounts. However, separate sets of accounts in respect of these units are also annexed. (See notes (c) and (d) on Balance Sheet).
- (b) Included under the head "Hire and Maintenance of Tabulating Equipment, Punches and Verifying machines etc." is an amount of Rs. 2,24,802.50 charged by the Electronic Data Processing and Computation Unit and Computer Science Unit of the Institute at its usual rates of work done by it.
- (c) An amount of Rs. 7,30,838.72 being depreciation on fixed assets and O.V.T. telephone has been adjusted in General Fund.
- (d) In accordance with the consistent practice, the costs of cards, cabinets, stationeries and stores etc., have been written off in this account and any stocks in hand as on 31st March 1971 have not been treated as assets in the Balance Sheet.
- (e) In accordance with the previous practice, certain transactions have been included in these accounts on a cash basis.
- (f) Salary and remuneration to teachers etc. under the head "Plan" expenditure includes additional payments to certain employees for extra work done.
- (g) This account excludes Rs. 84,700.00 and Rs. 68,375.00 being grants sanctioned by the Government within 31st March 1971 on account of Family Planning Survey and Demographic Research respectively, which have been received by the Institute after that date.
- (h) This account includes Rs. 13,30,000.00 and Rs. 2,00,000.00 being grants sanctioned by the Government within 31st March 1971 on account of Non-Plan (Current) and Plan (Current) activities respectively, which have been received by the Institute after that date.

Calcutta,  
29th December 1971

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

THIRTY-NINTH ANNUAL REPORT: 1970-71

FOR THE YEAR ENDED 31st MARCH 1971—Contd.

1969-70		Income	Plan		Non-Plan	
Rs.	P.		Rs.	P.	Rs.	P.
8,81,687.05	1,86,95,936.77	Brought forward:	..	9,00,000.00	2,16,42,116.45	

<u>8,81,687.05</u>	<u>1,86,95,936.77</u>
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<u>9,00,000.00</u>	<u>2,16,42,116.45</u>
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T. G. MITRA & Co.  
Chartered Accountants

## INDIAN STATISTICAL INSTITUTE

### APPENDIX A

STATEMENT OF INCOME AND EXPENDITURE DURING THE YEAR ENDED 31st MARCH 1971 IN CONNECTION WITH ESTIMATES OF PROBABILITIES OF HOSPITALISATION ACCORDING TO AGE, SEX AND DIAGNOSIS AND THEIR USE IN PLANNING HOSPITAL SERVICES

Expenditure	Rs. P.	Income	Rs. P.
1. Salary and other remuneration	.. 38,878.00	Excess of expenditure over income as per Schedule XI to the Institute's Balance Sheet .. .. .	.. 87,267.38
2. Visiting Professors and Experts	.. 6,937.00		
3. Travelling expenses	.. 13,124.55		
4. Machine Tabulation expenses	.. 18,377.00		
5. Miscellaneous contingencies	.. 10,549.87		
	<u>87,267.38</u>		<u>87,267.38</u>
S. P. Mukherjee Chief Accounts Officer		H. Ghosh Joint Secretary	P. K. Mitra & Co. Chartered Accountants

### APPENDIX B

STATEMENT OF INCOME AND EXPENDITURE DURING THE YEAR ENDED 31st MARCH 1971 IN CONNECTION WITH TEACHERS' TRAINING COURSE ON THE EDUCATION AND SPEECH REHABILITATION OF DEAF AND HARD OF HEARING CHILDREN

Expenditure	Rs. P.	Income	Rs. P.
Remuneration	.. 300.00	Excess of expenditure over income as per Schedule XI to the Institute's Balance Sheet .. .. .	300.00
	<u>300.00</u>		<u>300.00</u>
S. P. Mukherjee Chief Accounts Officer		H. Ghosh Joint Secretary	P. K. Mitra & Co. Chartered Accountants

### APPENDIX C

STATEMENT OF INCOME AND EXPENDITURE DURING THE YEAR ENDED 31st MARCH 1971 IN CONNECTION WITH AN INVESTIGATION OF AGE AND RELATED CHANGES IN THE ELECTROPHORETIC AND IMMUNO-ELECTROPHORETIC COMPONENTS OF SERUM PROTEINS

Expenditure	Rs. P.	Income	Rs. P.
1. Salary and other remuneration	.. 13,160.96	Excess of expenditure over income as per Schedule XI to the Institute's Balance Sheet .. .. .	18,383.83
2. Travelling expenses	.. 4,846.17		
3. Miscellaneous contingencies	.. 587.60		
	<u>18,383.83</u>		<u>18,383.83</u>
S. P. Mukherjee Chief Accounts Officer		H. Ghosh Joint Secretary	P. K. Mitra & Co. Chartered Accountants

THIRTY-NINTH ANNUAL REPORT : 1970-71

APPENDIX D

STATEMENT OF INCOME AND EXPENDITURE DURING THE YEAR ENDED 31st MARCH 1971 IN CONNECTION WITH  
FERTILISER OPTIMAL DEMAND STUDY—PROJECTING FERTILISER DEMAND IN INDIA

Expenditure	Rs. P.	Income	Rs. P.
Travelling expenses .. ..	456.00	Grant received from the Fertiliser Association of India as per Income and Expenditure Account .. ..	80,000.00
Excess of income over expenditure as per Schedule XI to the Institute's Balance Sheet .. ..	69,543.91		
	<u>60,000.00</u>		<u>80,000.00</u>

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

APPENDIX E

STATEMENT OF INCOME AND EXPENDITURE DURING THE YEAR ENDED 31st MARCH 1971 IN CONNECTION WITH  
INTERNATIONAL COURSE ON MANAGEMENT OF QUALITY CONTROL IN COLLABORATION WITH DR. J. M. JURAN

Expenditure	Rs. P.	Income	Rs. P.
Excess of income over expenditure as per Schedule XI to the Institute's Balance Sheet .. ..	1,500.00	Fee received from participants : As per Income and Expenditure Account ..	1,500.00
	<u>1,500.00</u>		<u>1,500.00</u>

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

INDIAN STATISTICAL INSTITUTE

SCHEDULE 1

PARTICULARS OF FIXED ASSETS

particulars	written down value as on 31st March 1970		deletions/adjustments made during the year		value after deletions/adjustments (col. 2-3)	
	Rs.	P.	Rs.	P.	Rs.	P.
(1)	(2)		(3)		(4)	
<b>A. Land and land development :</b>						
1. Calcutta :						
.1 At 153 Gopal Lal Tagore Road (adjoining 203 B. T. Road) ..	65,545	90	—	—	65,545	90
.2 Development of above land .. .. .	40,524	76	—	—	40,524	76
.3 At 205 B. T. Road (including cost of development) ..	4,37,485	13	—	—	4,37,485	13
.4 At 168, 160, 165, 169/1 Gopal Lal Tagore Road .. .. .	86,863	71	—	—	86,863	71
.5 Development of above land .. .. .	6,818	51	—	—	6,818	51
.6 At 102 B. T. Road [(title not yet vested in the Institute) transferred to "Advance for land amount"] .. .. .	3,30,584	00	3,30,584	00	—	—
.7 At 206 B. T. Road (including cost of development) [Note (a) below] .. .. .	13,20,944	41	—	—	13,20,944	41
.8 At 202 B. T. Road .. .. .	5,78,104	75	—	—	5,78,104	75
2. Giridih :						
.1 Farm Land [Note (b) below] .. .. .	9,514	51	—	—	9,514	51
.2 Development and fencing etc. .. .. .	29,689	55	—	—	29,689	55
.3 Farming development .. .. .	10,882	00	—	—	10,882	00
.4 Irrigation and water supply .. .. .	25,010	00	—	—	25,010	00
.5 In village "Makalpur" Giridih [Note (c) below] .. .. .	1,30,087	90	—	—	1,30,087	90
.6 Purchased from Smt. Prakriti Devi Gangopadhaya .. .. .	14,000	00	—	—	14,000	00
3. Delhi (household) .. .. .						
.1 Delhi (household) .. .. .	15,43,971	00	—	—	15,43,971	00
.2 Development of above land .. .. .	—	—	—	—	—	—
4. Baroda .. .. .						
.1 Baroda .. .. .	27,611	83	—	—	27,611	83
5. Bangalore [Note (d) below] .. .. .						
.1 Bangalore [Note (d) below] .. .. .	22,500	00	—	—	22,500	00
6. Madras (transferred to "Advance for land Account") .. .. .						
.1 Madras (transferred to "Advance for land Account") .. .. .	21,812	50	21,812	50	—	—
7. Hyderabad .. .. .						
.1 Hyderabad .. .. .	1,14,385	00	—	—	1,14,385	00
Sub-total : (A1-7) .. .. .	48,30,124	05	3,52,176	50	44,83,948	41

THIRTY-NINTH ANNUAL REPORT: 1970/71

as on 31st March 1971

depreciation for the year		additions during the year										written down value as on 31st March 1971 (col. 6+7.3)	
rate %	amount	net value (col. 4-5.1)		out of capital expenditure grants		out of current expenditure grants		out of other sources		total (col. 7.0 to 7.2)			
		Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
(6.0)	(6.1)	(6)		(7.0)		(7.1)		(7.2)		(7.3)		(8)	
—	—	66,646.90		—		—		—		—		66,646.90	
—	—	40,624.76		—		—		—		—		40,624.76	
—	—	4,37,485.13		—		—		—		—		4,37,485.13	
—	—	96,663.71		—		—		—		—		96,663.71	
—	—	6,618.61		—		—		—		—		6,618.61	
—	—	—		—		—		—		—		—	
—	—	13,39,944.41		3,469.93		—		—		3,469.93		13,33,404.34	
—	—	6,79,104.76		—		—		—		—		6,79,104.76	
—	—	9,514.61		—		—		—		—		9,514.61	
—	—	29,689.66		—		—		—		—		29,689.66	
—	—	10,682.00		—		—		—		—		10,682.00	
—	—	26,810.00		—		—		—		—		26,810.00	
—	—	1,30,087.90		—		—		—		—		1,30,087.90	
—	—	14,000.00		—		—		—		—		14,000.00	
—	—	16,43,971.00		5,30,687.12		—		—		5,30,687.12		20,74,658.12	
—	—	—		24,100.06		—		—		24,100.06		24,100.06	
—	—	27,611.32		—		—		—		—		27,611.32	
—	—	22,600.00		—		—		—		—		22,600.00	
—	—	—		—		—		—		—		—	
—	—	1,14,386.00		—		—		—		—		1,14,386.00	
—	—	44,83,948.46		5,68,227.10		—		—		5,68,227.10		50,42,175.56	

INDIAN STATISTICAL INSTITUTE

SCHEDULE I—Contd.

PARTICULARS OF FIXED ASSETS

particulars	written down value as on 31st March 1970		deletions/ adjustments made during the year		value after deletions/ adjustments (col. 3-5)	
	Rs.	P.	Rs.	P.	Rs.	P.
(1)	(2)		(3)		(4)	
<b>B. Buildings:</b>						
1. Calcutta:						
.1 Partly at 203 B. T. Road and partly at 163 Gopal Lal Tagore Road (Main Building) (Note (e) below) .. ..	8,34,230.	41	—	—	8,34,230.	41
.2 At 163 Gopal Lal Tagore Road .. ..	11,03,384.	68	—	—	11,03,384.	68
.3 At 205 Barrackpore Trunk Road .. ..	18,04,813.	13	—	—	18,04,813.	13
.2 At 206 Barrackpore Trunk Road .. ..	1,18,696.	80	—	—	1,18,696.	80
.5 At 202 Barrackpore Trunk Road .. ..	41,779.	30	—	—	41,779.	30
Sub-total: (B 1.1-1.6) .. ..	39,00,904.	00	—	—	39,00,904.	00
<b>C. Sheds and Structures:</b>						
1. Calcutta:						
.1 At 503 B. T. Road and 163 Gopal Lal Tagore Road [Note (e) and (g) below] .. ..	88,873.	90	—	—	88,873.	90
.2 At 205 B. T. Road .. ..	77,680.	94	—	—	77,680.	94
.3 At 156, 160, 165 & 166/1 Gopal Lal Tagore Road .. ..	46,984.	37	—	—	46,984.	37
.4 At 208 B. T. Road .. ..	8,826.	38	—	—	8,826.	38
.5 At 202 B. T. Road .. ..	2,84,543.	88	—	—	2,84,543.	88
.6 At 6 Rabindranath Tagore Road (for UNTAA Workshop situated on rental premises) .. ..	2,76,636.	67	—	—	2,76,636.	67
2. Delhi:						
.1 Partitions, structures etc. at Delhi .. ..	1,611.	13	—	—	1,611.	13
.2 Erection of a Nissen Hut .. ..	1,184.	02	—	—	1,184.	02
.3 Hut for Chowkidar .. ..	—	—	—	—	—	—
Sub-total (C 1.1-2.2) .. ..	7,96,239.	16	—	—	7,96,239.	16
<b>D. Machinery &amp; equipments:</b>						
1. Calculating, Punching & other Tabulating equipment .. ..						
2. Office Machinery and equipment .. ..	2,69,646.	64	520.	42	2,69,026.	22
3. Workshop equipment .. ..	41,873.	93	—	—	41,873.	93
4. Photo and Optical equipment .. ..	33,655.	29	—	—	33,655.	29
5. Laboratory equipment .. ..	5,64,821.	44	—	—	5,64,821.	44
6. Printing Press, Monotype accessories .. ..	4,103.	15	—	—	4,103.	15
7. Construction equipment .. ..	16,980.	53	—	—	16,980.	53
8. UNTAA Workshop Machinery and equipment .. ..	43,428.	51	—	—	43,428.	51
9. Electronic Computer (HEC 2M) and other travelling equipment .. ..	63,232.	17	—	—	63,232.	17
Sub-total: (D1-9) .. ..	17,30,918.	69	520.	42	17,29,296.	27

THIRTY-NINTH ANNUAL REPORT: 1970-71

as on 31st March 1971

rate %	depreciation for the year		net value (col. 4-5.1)		additions during the year						written down value as on 31st March 1971 (col. 6 + 7.3)			
	amount				out of capital expenditure grants		out of current expenditure grants		out of other sources		total (col. 7.0 to 7.2)			
	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
(5.0)	(5.1)	(5)	(7.0)	(7.1)	(7.2)	(7.3)	(8)							
1.5%	20,865.78		8,13,374.85		12,836.06		—	—			12,836.06		8,26,210.70	
2.5%	27,584.61		10,75,799.95		2,685.18		—	—			2,685.18		10,78,386.12	
2.5%	15,120.33		17,59,892.80		37,764.01		—	—			37,764.01		17,97,646.81	
2.5%	2,917.42		1,13,779.18		22,847.64		—	—			22,847.64		1,38,828.82	
2.5%	1,044.48		40,734.82		2,464.89		—	—			2,464.89		43,219.71	
	97,522.60		38,03,381.40		78,487.77		—	—			78,487.77		38,81,869.17	
7.5%	6,866.55		82,208.41		3,125.19		—	—			3,125.19		85,333.60	
7.5%	5,828.07		71,854.87		5,482.13		—	—			5,482.13		80,337.00	
7.5%	3,623.33		43,460.44		—		—	—			—		43,460.64	
7.5%	681.90		8,183.49		—		—	—			50,106.06		8,183.49	
7.5%	22,092.72		2,72,452.16		60,106.96		—	—			—		3,22,559.21	
7.5%	20,870.57		2,54,982.90		—		—	—			—		2,54,982.90	
7.5%	113.23		1,397.80		1,221.25		—	—			1,221.25		2,619.05	
7.5%	88.87		1,096.06		—		—	—			—		1,096.06	
—	—		—		1,425.00		—	—			1,425.00		1,425.00	
	69,642.94		7,35,698.22		64,359.43		—	—			64,359.43		7,09,958.84	
10%	1,06,371.46		6,14,104.88		81,875.28		—	—			81,875.28		6,96,980.16	
10%	38,854.34		2,20,173.98		37,706.23		—	—			37,706.23		2,57,880.21	
10%	6,238.09		35,337.84		—		—	—			—		35,337.84	
10%	4,048.29		28,807.00		7,348.00		—	—			7,348.00		36,155.00	
10%	84,723.22		4,80,098.22		1,68,615.53		—	—			1,68,615.52		6,48,613.74	
10%	828.97		3,584.18		—		—	—			—		3,584.18	
10%	2,547.93		14,438.30		—		—	—			—		14,438.30	
10%	8,514.40		36,815.11		—		—	—			—		36,815.11	
10%	7,984.83		45,247.24		—		—	—			—		45,247.24	
	3,00,009.43		14,78,488.86		3,08,445.02		—	—			3,03,445.02		17,71,931.88	



# INDIAN STATISTICAL INSTITUTE

## SCHEDULE I—Contd.

### PARTICULARS OF FIXED ASSETS

particulars	written down value as on 31st March 1970		deletions/adjustments made during the year		value after deletions/adjustments (col. 2-3)	
	Rs.	P.	Rs.	P.	Rs.	P.
	(2)		(3)		(4)	
(1)						
E. Passenger Lift .. .. .	56,844.	92	—		56,844.	92
<b>F. Electrical equipment and installation :</b>						
1. High tension electricity .. .. .	84,950.	10	—		84,950.	10
2. Electrical Equipment and fittings .. .. .	4,80,827.	71	—		4,80,827.	71
3. High tension electricity for UNTAA Workshop .. .. .	62,327.	83	—		62,327.	83
Sub-total : (F1-3) .. .. .	6,18,106.	84	—		6,18,106.	84
G. Furniture and Fittings .. .. .	7,36,389.	10	—		7,36,389.	10
H. Books and Journals .. .. .	24,44,428.	22	—		24,44,428.	22
I. Motor cars and vehicles .. .. .	98,923.	55	—		98,923.	55
J. Library equipment (including equipment procured through Ford Foundation Grant and Rockefeller Foundation Grant) .. .. .	1,71,383.	24	—		1,71,383.	24
K. Construction of Overbridge .. .. .	8,070.	65	—		8,070.	65
L. Soviet Printing Machines .. .. .	—		—		—	
<b>Grand Total :</b> .. .. .	<b>1,84,06,330.</b>	<b>12</b>	<b>3,62,606.</b>	<b>92</b>	<b>1,60,52,623.</b>	<b>28</b>

- NOTES : (a) Students Hostel etc. is situated on a part of premises 206 Barrackpore Trunk Road, the cost of which has been shown in the accounts of Development Fund II (Item 3.1 and Note (b) in Development Fund II Fixed Assets Schedule).
- (b) Excluding Rs. 14,691.16 paid out of Supervision Fee Fund and included in the accounts of that Fund [Note (b) in Supervision Fee Fund Balance Sheet].
- (c) Including Rs. 88,894.19 being additional amount paid under protest. An appeal lodged with the Patna High Court by the Institute in this respect is pending.
- (d) Purchased out of un-marked donation received from Statistical Publishing Society. Excluding Rs. 18,425.16 being value of trees grown on the land, payable to Government of Mysore not provided for in these accounts.
- (e) Situated partly on premises 203 Barrackpore Trunk Road, the value of which amounting to Rs. 97,536.95 has been included in Supervision Fee Fund [Note (a) in Supervision Fee Fund Balance Sheet].
- (f) Represents value of Soviet Printing Machines received as gifts from the Soviet Academy of Sciences which has been made over to the Statistical Publishing Society for utilisation per agreement.
- (g) Includes value of certain sheds and structures demolished, the extent of which is not ascertainable.

S. P. Mukherjee  
Chief Accounts Officer

THIRTY-NINTH ANNUAL REPORT: 1970-71

as of 31st March 1971

depreciation for the year		net value (col. 6-5.1)		additions during the year						written down value as on 31st March 1971 (col. 6+7.3)			
ratio %	amount	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.		
(6.8)	(5.1)	(6)		(7.0)		(7.1)		(7.2)		(7.3)		(8)	
10%	8,884.49	81,160.43		18,847.58		—	—	—	—	18,847.58		68,008.01	
10%	8,486.01	76,456.09		—	—	—	—	—	—	—	—	76,456.09	
10%	48,082.77	4,32,744.94		86,091.47		—	—	—	—	86,091.47		5,17,836.41	
10%	6,232.78	47,066.05		—	—	—	—	—	—	—	—	47,066.05	
	81,810.88	5,66,596.08		86,091.47		—	—	—	—	86,091.47		6,41,386.56	
10%	73,636.81	8,81,860.19		1,04,850.38		—	—	—	—	1,04,850.38		7,86,470.68	
5%	1,32,221.41	32,22,306.81		20,126.62		3,34,979.08		—	—	3,65,104.84		28,77,211.45	
10%	19,784.61	79,139.04		2,683.13		—	—	—	—	2,683.13		81,822.18	
16%	26,707.49	1,46,876.75		30,071.63		—	—	—	—	30,071.63		1,76,747.58	
7.5%	806.30	7,486.36		—	—	—	—	—	—	—	—	7,486.36	
	—	—		—	—	—	—	18,66,896.68		18,66,896.68		18,66,896.68	
								[Note (f) below]					
	7,97,427.63	1,43,55,206.57		12,53,969.20		3,34,979.02		18,66,896.68		34,65,824.80		1,77,80,840.27	

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

INDIAN STATISTICAL INSTITUTE

SCHEDULE II

AMOUNT ALREADY CLAIMED FROM GOVERNMENT OF INDIA BUT PENDING ACCEPTANCE AS ON 31st MARCH 1971

particulars	Rs.	P.	Rs.	P.	Rs.	P.
1. On account of Capital Expenditure :						
Excess of expenditure over receipt of grant : (See note below)						
1. In respect of 202 Barrackpore Trunk Road, for repair, renovation etc.						
As per last account :						
upto 1961-62 .. .. .			1,82,141.23			
for 1962-63 & 1963-64 .. .. .			55,501.84		2,17,703.07	
2 1967-68						
As per last account .. .. .			21,441.00			
Less : adjusted against earmarked donation by Statistical Publishing Society in respect of land at Bangalore .. .. .			21,441.00		—	
3 1969-70						
As per last account .. .. .			42,798.00			
Less : adjusted against grant received during the year .. .. .			42,798.00		2,17,703.07	
2. On account of non-Project Sectors :						
Excess of expenditure over income :						
1. Upto 1956-59						
As per last account .. .. .					2,26,727.00	
3. On account of NBS Project Sectors :						
Excess of expenditure over income :						
1. Upto 1958-59						
As per last account .. .. .					5,44,011.00	
4. On account of Revenue (current) Expenditure (excluding miscellaneous projects) :						
1. Excess of expenditure over income in UNTAA Sector less savings in non-project sectors and NBS project sector in 1966-67 :						
As per last account .. .. .				1,62,147.92		
2. Excess of expenditure over income for 1969-70						
As per last account .. .. .			8,19,545.10		9,31,823.02	
5. On account of Plan Revenue Expenditure :						
1. Excess of expenditure over income in 1966-67 :						
As per last account .. .. .				630.16		
2. Excess of expenditure over income in 1967-68 :						
As per last account .. .. .				117.57		
3. Excess of expenditure over income in 1968-69 :					174.21	
4. Excess of expenditure over income in 1969-70 :						
As per last account .. .. .				84,687.88	85,609.50	
6. On account of 25th Anniversary of the Institute :						
Excess of expenditure over receipt :						
As per last account .. .. .					4,520.00	
					30,69,289.99	

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. Mitra & Co.  
Chartered Accountants

Note : The ownership of 202 Barrackpore Trunk Road, property was transferred to the Institute during 1961-62.

THIRTY-NINTH ANNUAL REPORT : 1970-71

SCHEDULE III

AMOUNTS TO BE CLAIMED FROM GOVERNMENT OF INDIA AS ON 31st MARCH 1971

particulars	Rs.	P.
1. On account of Revenue (Current) Expenditure (excluding Miscellaneous Projects):		
Excess of expenditure over income for 1970-71 (Schedule XI attached) .. .. .	12,91,788.06	

S. P. Mukherjee  
Chief Accounts Officer

H. Oshoh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

SCHEDULE IV

AMOUNT CLAIMED FROM GOVERNMENT OF INDIA AND REFLECTED (BUT UNDER CORRESPONDENCE) AS ON 31st MARCH 1971

particulars	Rs.	P.	Rs.	P.	Rs.	P.
1. On account of Capital Expenditure:						
Excess of expenditure over receipt of grant:						
1 1968-67						
As per last account .. .. .					2,04,861.62	
2. On account of Non-Project Sectors:						
Excess of expenditure over income:						
3 1960-61						
As per last account .. .. .			1,84,517.00			
3 1962-63 (including UNTAA Sector)						
As per last account .. .. .			3,46,076.00			
3 1963-64						
As per last account .. .. .			85,273.78			
4 1964-66						
As per last account .. .. .			2,87,273.77	9,83,139.53		
3. On account of Revenue (current) expenditure (including Miscellaneous projects):						
Excess of expenditure over income:						
1 1967-68						
As per last account .. .. .			50,863.46			
2 1968-69						
As per last account .. .. .			54,089.32	1,04,762.79		
4. On account of loss on sale of stock of building materials:						
1 1968-69						
As per last account .. .. .				42,293.40	13,37,137.54	

S. P. Mukherjee  
Chief Accounts Officer

H. Oshoh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

# INDIAN STATISTICAL INSTITUTE

## SCHEDULE V

EXCESS OF EXPENDITURE OVER RECEIPTS IN RESPECT OF MISCELLANEOUS PROJECTS AND ACTIVITIES ON BEHALF OF THE  
GOVERNMENT OF INDIA AND OTHER BODIES AS ON 31st MARCH 1971

Projects and activities	net excess of expenditure (+)/ receipts (-)					
			upto 31st March 1970		for the year upto 31st March 1971	
	Rs.	P.	Rs.	P.	Rs.	P.
<b>1. On behalf of Government of India :</b>						
1. Research and Planning Committee of the Planning Commission for Sociological Studies .. .. .			+23,765.14			23,765.14
2. ISEC Colombo Plan Fellowship:						
As per last account .. .. .	1,02,077.13			+5,400.00		
Less: amount received during the year .. .. .	97,277.13					
Expenditure during the year .. .. .	83,374.46					
Less: amount received during the year .. .. .				+83,374.46		
<b>Sub-total: (1.2) .. .. .</b>			<b>+5,400.00</b>		<b>+83,374.46</b>	<b>88,774.46</b>
3. Director of Health Service for Family Planning Survey:						
As per last account .. .. .	41,168.99					
Less: amount received during the year .. .. .	41,168.99					
Expenditure during the year .. .. .	1,41,011.47					
Less: amount received during the year .. .. .	37,001.01			+1,03,110.46		
<b>Sub-total: (1.3) .. .. .</b>				<b>+1,03,110.46</b>		<b>1,03,110.46</b>
						[Note (b)]
4. Director of Health Services for Demographic Studies:						
As per last account (including Rs 26,667.00 for Calcutta Fertility Survey work) .. .. .	88,000.04					
Less: amount received during the year .. .. .	62,640.00		+25,360.04			
Expenditure during the year .. .. .	1,83,589.94					
Less: amount received during the year .. .. .	16,660.00			+1,71,929.94		
<b>Sub-total: (1.4) .. .. .</b>			<b>+25,360.04</b>		<b>+1,71,929.94</b>	<b>1,97,289.98</b>
						[Note (b)]
<b>Sub-total (1.1-1.4): .. .. .</b>			<b>+64,810.18</b>		<b>+2,88,434.46</b>	<b>4,12,940.02</b>
						[Note (a)]
<b>5. On behalf of other Bodies :</b>						
1. International Social Science Council for International Conference on Comparative Research in Social Change and Regional Disparities:						
As per last account .. .. .			( 339.94)			339.94
<b>Total: (1-5) .. .. .</b>			<b>+64,865.12</b>		<b>+3,38,434.46</b>	<b>4,13,574.87</b>

NOTES: (a) To be claimed from Government of India.

(b) The items are vide Schedule XI attached.

B. P. Mukherjee  
Chief Accounts Officer

H. Ohanh  
Joint Secretary

Calcutta,  
20th December 1971.

P. K. Mitra & Co  
Chartered Accountants

THIRTY-NINTH ANNUAL REPORT: 1970-71

SCHEDULE VI

DETAILS OF CASH IN HAND AS ON 31st MARCH 1971

At the Central Office and other offices of the Institute

	Rs.	P.	Rs.	P.
<b>At Calcutta :</b>				
Central Office .. ..	64,607.	55		
City Office .. ..	792.	38		
Field Branch .. ..	2,839.	81	68,169.	54
<b>At Delhi .. ..</b>			14,773.	79
<b>At Giridih: .. ..</b>			81.	60
<b>At Bangalore :</b>				
SQC .. ..	1,811.	70		
DRTC .. ..	58.	50		
RTS .. ..	114.	74	1,384.	94
<b>At Ernakulam (Kerala): .. ..</b>			6,179.	94
<b>At Madras: .. ..</b>			1,600.	73
<b>At Bombay :</b>				
SQC .. ..	1,347.	11		
NSS .. ..	2,292.	44	4,838.	65
<b>At Baroda: .. ..</b>			68.	89
<b>At Coimbatore: .. ..</b>			196.	23
<b>At Tokyo, Japan .. ..</b>			8,009.	80
			1,05,084.	41

The above amount of Rs. 1,05,084.41 has been shown in the following Balance Sheets of the Institute and its various funds:

The Institute .. ..	60,375.	19
<b>Other funds :</b>		
Gratuity Fund .. ..	4,108.	17
Director's Contribution Fund .. ..	9,786.	37
Supervision Fee Fund .. ..	5,605.	96
Development Fund I .. ..	321.	94
Leave Salary Fund .. ..	1,788.	25
Visiting Professor & Fellows Fund .. ..	113.	13
Electronic Data Processing and Computation Unit .. ..	9,531.	13
Development Fund II .. ..	2,845.	70
ISI General Provident Fund .. ..	10,428.	67
	1,06,084.	41

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

# INDIAN STATISTICAL INSTITUTE

## SCHEDULE VII

DETAILS OF BANK BALANCE (EXCEPT AMERICAN EXPRESS INTERNATIONAL BANKING CORPORATION, CALCUTTA) AS ON 31st MARCH 1971

	Rs.	P.
State Bank of India, Shambazar 'B' .. .. .	1,88,672.	98
State Bank of India, Delhi 'A' .. .. .	1,672.	98
State Bank of India, Delhi 'B' .. .. .	698.	85
United Bank of India, Dunlop Bridge .. .. .	6,12,237.	38
National and Grindlays Bank Ltd., Shambazar .. .. .	51,207.	06
Canara Bank of India .. .. .	60,207.	27
United Bank of India, Oiridih .. .. .	40,792.	92
United Commercial Bank, Oiridih .. .. .	1,110.	07
State Bank of India, Bangalore .. .. .	39,400.	30
State Bank of Trivancore, Ernakulam .. .. .	22,347.	72
State Bank of India, Madras .. .. .	74,421.	05
Bank of Baroda, Bangalore .. .. .	7,580.	99
Nath Bank Ltd. in liquidation—doubtful .. .. .	4,143.	27
Indian Bank, Coimbatore .. .. .	13,007.	16
State Bank of India, Bombay .. .. .	30,351.	87
Bank of Baroda, Baroda .. .. .	35,950.	18
Reserve Bank of India (P/L A/c) .. .. .	100.	00
	10,82,082.	07*

The above statement of Rs. 10,82,082.07 has been shown in the following Balance Sheets of the Institute and its various funds as follows:

The Institute .. .. .	3,21,240.	87
ISI General Provident Fund .. .. .	1,00,000.	00
Honeywell H-400 Computer Unit .. .. .	6,21,733.	77
Statistical Quality Control Development Fund .. .. .	1,39,107.	43
	10,82,082.	07

\*Includes Rs. 78,500/- being total of amounts in transit.

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
*Chartered Accountants*

THIRTY-NINTH ANNUAL REPORT : 1970-71

SCHEDULE VIII

GENERAL FUND AS ON 31st MARCH 1971

particulars	Rs.	P.	Rs.	P.	Rs.	P.
1. Opening Balance .. .. .					1,07,59,843.	55
2. Add : assets added during the year :						
1. Capital Expenditure Grant Account :						
As per statement of account of grant received and expenditure for the year .. .. .	12,59,509.	20				
2. Current Expenditure Grant Account :						
As per Schedule I (Column 7.1) annexed to the Balance Sheet ..	3,34,977.	02				
3. Value of Soviet printing machines received as gift :						
As per Schedule (Column 7.2) annexed to the Balance Sheet ..	18,06,096.	68	34,61,184.	80		
2. Less :						
1. Sale of office equipment acquired through Capital Expenditure Grant .. .. .			620.	42		
2. Depreciation written off during the year :						
(a) On fixed assets as per Schedule I ..	7,27,437.	63				
(b) On OYT telephone as per Balance Sheet ..	3,412.	09	7,30,839.	72	7,31,360.	14
			27,29,824.	56		
					1,94,88,668.	21

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. Mirra & Co.  
Chartered Accountants



INDIAN STATISTICAL INSTITUTE

SCHEDULE IX

LOANS FROM OTHER FUNDS AS OF 31st MARCH 1971

Funds	Ra.	P.
As per Balance Sheets of :		
1. Gratuity Fund .. .. .	₹ 89,000.00	
2. Development Fund I .. .. .	1,19,000.00	
3. Development Fund II .. .. .	3,65,000.00	
4. Supervision Fee Fund .. .. .	1,13,000.00	
5. ISI General Provident Fund .. .. .	14,00,000.00	
	43,77,000.00	
Less : Loan to Levy Salary Fund .. .. .	67,000.00	
Total : .. .. .	43,10,000.00	

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

SCHEDULE X

EXCESS OF INCOME OVER EXPENDITURE IN RESPECT OF MISCELLANEOUS PROJECTS AND ACTIVITIES  
AS ON 31st MARCH 1971

projects and activities	net excess of receipts (+) / expenditure (-)					
	upto 31st March 1970		for the year (vide Schedule XI attached)		upto 31st March 1971	
	Ra.	P.	Ra.	P.	Ra.	P.
1. Estimates of Probabilities of Hospitalisation according to age, sex and diagnosis etc. .. .. .	+1,40,919.43		-87,267.38		53,652.06	
2. International Course on Management of Quality Control in collaboration with Dr. J. M. Juran .. .. .	+10,328.55		+1,600.00		17,928.55	
3. An investigation of age and related changes in the electrophoretic and immunoelectrophoretic components of serum proteins .. .. .	+1,21,600.00		-18,383.83		1,03,216.17	
4. Teacher's training course on the Education and Speech Rehabilitation of deaf and hard of hearing children .. .. .	+300.00		-300.00		—	
5. Fertiliser Optimal Demand Study—Projecting Fertiliser Demand in India .. .. .	—		+59,643.91		59,643.91	
Total : .. .. .	+2,79,146.98		-44,907.10		2,34,239.88	

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

THIRTY-NINTH ANNUAL REPORT : 1970-71

SCHEDULE XI

SECTOR-WISE BREAKUP OF INCOME AND EXPENDITURE ACCOUNTS FOR THE YEAR ENDED 31st MARCH 1971

sectors	grant from Government of India and others received		miscellaneous income		total income		total expenditure		excess of income over expenditure (+) or excess of expenditure over income (-)	
	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
(1)	(2)		(3)		(4)		(5)		(6)	
<b>Non-Plan</b>										
1. Non-Project Sectors :										
1. RES .. .. .	60,70,000.00		8,41,309.89		69,11,309.89		87,81,024.11		+ 1,25,385.78	
4. ISEC .. .. .	1,68,000.00		—		1,68,000.00		1,71,254.94		- 16,554.94	
Sub-total (Item 1) ..	62,38,000.00		8,41,309.89		70,79,309.89		89,52,279.05		+ 1,12,130.84	
2. Project Sectors—NSS ..	84,58,000.00		—		84,58,000.00		90,52,882.59		- 5,24,082.59	
			[Note (d)]							
3. Common Services (excluding amounts relating to Miscellaneous items i.e., 4 below) ..	44,80,000.00		—		44,20,000.00		52,00,046.30		- 7,80,046.30	
Total: Project and Non-project Sectors and Common Services	1,90,73,000.00		8,41,309.89		1,99,14,309.89		2,12,06,107.94		- 12,91,798.65	
									[Note (a)]	
<b>4. Miscellaneous :</b>										
1. Family Planning Survey ..	37,901.01		—		37,901.01		1,41,011.17		- 1,03,110.46	
									[Note (b)]	
2. Demographic Research ..	18,650.00		—		18,650.00		1,28,589.94		- 1,71,239.94	
									[Note (b)]	
3. Estimates of Probabilities of Hospitalisation according to age, sex and diagnosis ..	—		—		—		87,267.36		- 87,267.36	
									[Note (c)]	
4. An investigation of age and related changes in the electrophoretic and immunoelectrophoretic components of serum proteins ..	—		—		—		18,993.53		- 18,383.83	
									[Note (c)]	
5. Teachers' Training Course on the Education and Speech rehabilitation of deaf and hard-of-hearing children ..	—		—		—		300.00		- 300.00	
									[Note (c)]	
6. International Course on Management of Quality Control conducted in collaboration with Dr. J. M. Juras ..	—		1,600.00		1,600.00		—		+ 1,600.00	
									[Note (c)]	
7. Fertiliser Optimal Demand Study— Projecting fertilizer demand in India ..	60,000.00		—		60,000.00		456.09		- 59,543.91	
									[Note (c)]	
Sub-total: (Item 4.1-4.7) ..	1,14,551.01		1,600.00		1,16,051.01		4,36,008.51		- 3,19,957.50	
Total: (1-4) .. .. .	1,91,87,551.01		8,42,909.89		2,00,30,460.90		2,16,42,116.45		- 16,11,755.55	
<b>Plan :</b>										
1. Non-NSS Schemes ..	8,00,000.00		—		8,00,000.00		8,23,557.19		- 22,557.19	
2. Project Sectors—NSS ..	2,00,000.00		—		2,00,000.00		1,10,741.53		+ 89,258.47	
3. Survey Research Centre ..	1,00,000.00		—		1,00,000.00		5,491.42		+ 94,508.58	
Total: (1-3) .. .. .	9,00,000.00		—		9,00,000.00		7,38,790.13		+ 1,61,209.87	

NOTES: (a) The items are vide Schedule III attached. (b) The items are vide Schedule V attached. (c) The items are vide Schedule X attached. (d) Includes Rs. 18,000.00 received for Quick Tubulation Work. (e) Includes Rs. 67,511.66 for Calcutta Fertility Survey work.

Calcutta,  
28th December 1971

S. P. Mukherjee  
Chief Accounts Officer

H. Oshob  
Joint Secretary

P. K. Mitra & Co.  
Chartered Accountants

## INDIAN STATISTICAL INSTITUTE

### SCHEDULE XII

#### EXCESS OF RECEIPTS OVER EXPENDITURE IN RESPECT OF CAPITAL EXPENDITURES GRANT RECEIVED FROM THE GOVERNMENT OF INDIA

particulars	Ra.	P.	Ra.	P.	Ra.	P.
1. Excess of receipts over expenditure :						
.1 1967-68 .. .. .					1,058.40(a)	
2 1968-69 :						
As per last account .. .. .	1,61,864.78					
Less : carried over to Capital Expenditure Account of 1970-71 .. .. .	1,61,864.79					
.3 1969-70 .. .. .					1,173.00(b)	
.4 1970-71 .. .. .			1,33,241.56		1,35,472.99	

Notes : (a) The amount represents adjustment of Rs. 22,500.00 out of earmarked donation by the Statistical Publishing Society for Bangalore Land [vide item 11 of the liability side of the Balance Sheet] with excess expenditure of Rs. 21,441.00 in 1967-68 (vide item 1.2 of Schedule II).

(b) The amount represents adjustment of Rs. 43,971.00 received from Government in respect of balance of expenditure incurred during 1969-70 for land at Delhi with the excess expenditure of Rs. 42,786.00 during the year (vide item 1.3 of Schedule II).

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

### SCHEDULE XIII

#### ADVANCE FOR LAND AS ON 31st MARCH 1971

sl. no.	details of land and premises	amount	
		Ra.	P.
(1)	(2)	(3)	
1.	106 Barrackpore Trunk Road .. .. .	29,799.38	
2.	Bustee adjacent to 123 Gopal Lal Tagore Road .. .. .	12,137.00	
3.	Land adjacent to Gopita Nivas .. .. .	5,652.00	
4.	168 Gopal Lal Tagore Road .. .. .	3,744.03	
	Sub-total : (1 to 4) .. .. .	61,332.41	
5.	Land at 102 Barrackpore Trunk Road .. .. .	3,30,664.00	
6.	Land at Madras .. .. .	21,012.50	
	Sub-total : (5 & 6) .. .. .	3,52,176.60	
		[Note (a) below]	
	Total : .. .. .	4,02,508.91	

Note (a) (i) Transferred from Fixed Assets Schedule I.

(ii) Met from Capital Expenditure grant received from Government of India.

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants



**INDIAN STATISTICAL INSTITUTE**  
**VISITING PROFESSORS AND FELLOWS FUND**  
**BALANCE SHEET AS AT 31st MARCH 1971**

1969-70	Fund and Liabilities	Rs.	P.	1969-70	Property and Assets	Rs.	P.
Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Fund :							
113.13	As per last account .. ..	113.13			As per Schedule VI to the Institute's Balance Sheet ..	113.13	
<u>113.13</u>		<u>113.13</u>		<u>113.13</u>		<u>113.13</u>	

*Note:* Transactions during the year in respect of Visiting Professors and Fellows have not been incorporated in these accounts but have been included in the Income and Expenditure Account of the Institute.

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

This is the Balance Sheet referred to in our report of even date.

Calcutta,  
20th December 1971

P. K. MITRA & Co.  
Chartered Accountants

**LEAVE SALARY FUND**

**BALANCE SHEET AS AT 31st MARCH 1971**

1969-70	Fund and Liabilities	Rs.	P.	1969-70	Property and Assets	Rs.	P.	Rs.	P.
Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
1. Deficit :									
	Amount due to the Institute on Loan Account as per Schedule IV to the Institute's Balance Sheet	67,000.00			As per last account ..	66,036.23			
					Add : leave salary paid during the year ..	6,886.25			
				66,036.23		<u>71,922.48</u>			
					Less : amount received from other body or institution for a worker on deputation ..	6,708.73		66,213.75	
2. Current Assets :									
					Cash in hand :				
					As per Schedule VI to the Institute's Balance Sheet ..	1,766.25			
<u>67,000.00</u>		<u>67,000.00</u>		<u>67,000.00</u>		<u>67,000.00</u>			

*Note:* A sum of Rs. 1,54,000/- (excluding interest accrued for three years ended 31st March 1971, which has not been ascertained) being liability in respect of leave salary as at 31st March 1971 estimated by the Institute, has not been provided for in these accounts.

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

This is the Balance Sheet referred to in our report of even date.

Calcutta,  
20th December 1971.

P. K. MITRA & Co.  
Chartered Accountants

THIRTY-NINTH ANNUAL REPORT : 1970-71

GRATUITY FUND

BALANCE SHEET AS AT 31st MARCH 1971

1969-70 Rs.	Fund and Liabilities		1969-70		Property and Assets	1969-70	
	Rs.	P.	Rs.	P.		Rs.	P.
	Fund :					Investment in Govern-	
	As per last account		34,36,187.54			ment Securities at	
						cost :	
	Add :					Rs. 5,18,000/- 64% loan	
	i) Employer's con-					of 1969 (Market value	
	tribution for the					Rs. 5,08,112.70)	
	year due from					As per last account ..	
	the Institute				5,18,226.06	5,18,226.05	
	[Note (1) below] 4,70,969.93						
	ii) Received from					Current Assets :	
	other bodies for					i) Amount due from	
	workers on de-					the Institute on loan	
	putation ..		4,108.27	4,75,062.30		account :	
				39,11,540.74		As per Schedule IX	
	Less : paid during					to the Institute's	
	the year ..			57,563.90	34,40,000.00	Balance Sheet ..	
				38,53,976.74		23,90,000.00	
	Excess of income over					ii) Employer's con-	
	expenditure for the year					tribution for 1969-70	
	as per Income and					and 1970-71 receiv-	
34,36,187.54	Expenditure Account		32,660.82	38,86,237.56	4,73,731.01	able from the Insti-	
						tute ..	
						9,44,684.94	
	Liabilities :					iii) Interest recoverable	
					888.68	—	
						Interest accrued ..	
						28,429.80	
	191.10 As per last account			191.10		Cash in hand :	
						As per Schedule VI of	
						the Institute's Balance	
					2,552.90	Sheet ..	
						4,108.17	
34,36,378.84				38,80,448.68	34,36,378.64	38,80,448.66	

Note: (1) Employer's contribution for each year is estimated on the basis of the pay drawn by the entitled employees in respect of that year, whereas these employees are entitled to receive gratuity calculated with reference to the total number of years of service on the basis of last pay drawn by them. The estimated liability as at 31st March 1971 on the assumption that all the entitled employees would have retired and would be entitled to gratuity on that date is Rs. 72.00 lakhs.

(2) Investment of the Fund are held in the name of the Indian Statistical Institute.

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

This is the Balance Sheet referred to in our report of even date.

Calcutta,  
30th December 1971.

P. K. MITRA & Co.  
Chartered Accountants

INDIAN STATISTICAL INSTITUTE

GRATUITY FUND

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 1971

1969-70	Expenditure	1969-70	Income		
Ra. P.		Ra. P.		Ra. P.	Ra. P.
—	Excess of Income over expenditure transferred to Fund Account	32,660.83	—	Interest:	
				(i) On G. P. Notes ..	28,459.00
				Less: paid for purchase of G. P. Notes ..	868.88
					<u>27,590.12</u>
				(ii) From Institute for utilising money of the Fund .. ..	5,000.00
<u>—</u>		<u>32,660.83</u>	<u>—</u>		<u>32,660.83</u>

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

Calcutta,  
29th December 1971

P. K. MITRA & Co.  
Chartered Accountants

DEVELOPMENT FUND I

BALANCE SHEET AS AT 31st MARCH 1971

1969-70	Fund and Liabilities	1969-70	Property and Assets		
Ra. P.		Ra. P.		Ra. P.	Ra. P.
	Fund:		Current Assets:		
1,19,521.94	As per last account	1,19,521.94	Amount due from the Institute on Loan Account as per Schedule IX to the Institute's Balance Sheet .. ..	1,19,000.00	1,19,000.00
			Cash in hand:		
			As per Schedule VI to the Institute's Balance Sheet .. ..	521.94	521.94
<u>1,19,521.94</u>		<u>1,19,521.94</u>			<u>1,19,521.94</u>

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

Calcutta,  
29th December 1971

P. K. MITRA & Co.  
Chartered Accountants





INDIAN STATISTICAL INSTITUTE

DEVELOPMENT FUND II

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 1971

1969-70 Ra. P.	Expenditure	Ra. P.	1969-70 Ra. P.	Income	Ra. P.
	Depreciation :		14,828.82	Rent .. ..	14,889.51
10,680.68	On Fixed Assets .. ..	15,909.04		Interest on investment including income on redemption (less : Bank charges—Ra. 129.00)	6,837.51
	Amount written off :		1,486.00		
				Excess of expenditure over transferred to Fund Account ..	—
348.37	OVT telephone advance .. ..	328.20	780.11		
	Excess of income over expenditure transferred to Fund Account .. ..	4,200.52			

14,022.83

20,426.76

10,923.08

20,496.54

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

Calcutta,  
26th December 1971.

P. K. Mitra & Co.  
Chartered Accountants

THIRTY-NINTH ANNUAL REPORT : 1970-71

DEVELOPMENT FUND II

SCHEDULE OF FIXED ASSETS AS ON 31st MARCH 1971

particulars	written down value as on 31st March 1970		depreciation for the year		net value (col. 2-3.1)		addition during the year		written down value as on 31st March 1971 (col. 4+5)	
	Ra. P.		rate %	amount	Ra. P.		Ra. P.		Ra. P.	
	(1)	(2)	(3.0)	(3.1)	(4)	(5)	(6)			
<b>l. LAND :</b>										
1 Bidyastan Sarani, Baranagar ..	50,000.00	—	—	—	50,000.00	—	—	50,000.00	—	50,000.00
2 189 Gopal Lal Tagore Road, Baranagar	1,03,855.00	—	—	—	1,03,855.00	—	—	1,03,855.00	—	1,03,855.00
3 Rose Villa, Giridih ..	1,07,602.72	—	—	—	1,07,602.72	—	—	1,07,602.72	—	1,07,602.72
4 Biraja Kutir, Giridih ..	7,445.19	—	—	—	7,445.19	—	—	7,445.19	—	7,445.19
5 Takdah Players' Club, Darjeeling ..	25,998.50	—	—	—	25,998.50	—	—	25,998.50	—	25,998.50
Sub-total : (1)	2,94,799.41	—	—	—	2,94,799.41	—	—	2,94,799.41	—	2,94,799.41
<b>2. BUILDINGS :</b>										
1 189 Gopal Lal Tagore Road, Baranagar	31,777.39	2.5%	644.44	21,332.95	—	—	—	21,332.95	—	21,332.95
2 Bidyastan Sarani, Baranagar ..	—	—	—	—	—	—	10,218.05	10,218.05	—	10,218.05
3 Rose Villa, Giridih ..	93,263.30	..	2,331.58	90,931.72	—	—	—	90,931.72	—	90,931.72
4 Health Home, Giridih (a) ..	12,124.50	..	313.11	11,811.39	—	—	—	11,811.39	—	11,811.39
Sub-total : (2)	1,27,165.19	..	3,179.13	1,23,986.06	—	—	10,218.05	1,34,204.11	—	1,34,204.11
<b>3. SEWERS AND STRUCTURES :</b>										
1 Students' Hostel etc. at 200 Barrack-pore Trunk Road, Baranagar (b) ..	1,03,934.36	7.5%	7,785.08	96,139.28	13,161.29	—	—	1,09,300.57	—	1,09,300.57
2 189 Gopal Lal Tagore Road, Baranagar	44,081.44	..	3,306.11	40,775.33	—	—	—	40,775.33	—	40,775.33
3 Post Office at 204 Barrack-pore Trunk Road, Baranagar ..	428.54	..	34.78	393.76	—	—	—	393.76	—	393.76
4 Bidyastan Sarani, Baranagar ..	1,205.18	..	90.39	1,114.79	—	—	—	1,114.79	—	1,114.79
5 Petty construction at Giridih ..	5,588.52	..	418.87	5,169.65	—	—	—	5,169.65	—	5,169.65
Sub-total : (3)	1,55,270.74	..	11,645.31	1,43,625.43	13,161.29	—	—	1,56,786.72	—	1,56,786.72
4 GENERAL TELEPHONE SYSTEM ..	3,460.00	10%	346.00	3,114.00	—	—	—	3,114.00	—	3,114.00
5 MOTOR CARS ..	3,647.08	20%	729.42	2,917.66	—	—	—	2,917.66	—	2,917.66
Total : (1-5)	5,84,343.52	..	16,900.04	5,67,443.48	23,369.54	—	—	5,90,812.92	—	5,90,812.92

NOTES: (a) Situated on land, acquired as gift, the value of which has been ignored for the purpose of these accounts.  
 (b) Situated on land, acquired by the Institute out of its General Fund. [Note (a) of the Fixed Assets Schedule attached to the Institute's Balance Sheet.]

H. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.,  
Chartered Accountants

**INDIAN STATISTICAL INSTITUTE**

**SUPERVISION FEE FUND**

**BALANCE SHEET AS AT 31st MARCH 1971**

1969-70 Rs. P.	Fund and Liabilities	Rs. P.	1969-70 Rs. P.	Property and Assets	Rs. P.	Rs. P.
	<b>Fund :</b>			<b>Fixed Assets :</b>		
2,16,304.67	As per last account	.. 2,16,304.67		Land :		
	<b>Liabilities :</b>			At Calcutta—		
	Amount due to ISI Small			203 Barrackpore Trunk		
	Scale Industries Experi-			Road (a)	.. 97,556.95	
11,075.83	mental Unit	.. 14,610.20	1,12,218.11	At Giridih—		
				Farmland (b)	.. 14,061.16	1,12,218.11
				<b>Current Assets :</b>		
				Amount due from the Insti-		
				tute on Loan Account :		
			1,13,000.00	As per Schedule IX to the		1,13,000.00
				Institute's Balance Sheet		
				<b>Cash in hand :</b>		
			3,062.69	As per Schedule VI to the		6,996.96
				Institute's Balance Sheet		
<u>2,28,280.70</u>		<u>2,30,916.07</u>	<u>2,28,280.70</u>			<u>2,30,916.07</u>

NOTES: (a) Value of the building on this land is shown in the Fixed Assets Schedule attached to the Institute's Balance Sheet [Items B.1.1. and C.1.1. and note (c) of Schedule 1].

(b) Land at Giridih—Farmland excludes Rs. 0,514.41 paid out of General Fund and included in the account of the Institute [Item A.2.1. and Note (b) of the Schedule 1].

S. P. Mukherjee  
Chief Accounts Officer

H. Ghoeh  
Joint Secretary

This is the Balance Sheet referred to in our report of even date.

Calcutta,  
20th December 1971.

P. K. Mitra & Co.  
Chartered Accountants

**THIRTY-NINTH ANNUAL REPORT : 1970-71**  
**STATISTICAL QUALITY CONTROL DEVELOPMENT FUND**

**BALANCE SHEET AS AT 31st MARCH 1971**

1969-70	Fund and Liabilities	Ra.	P.	1969-70	Property and Assets	Ra.	P.
—	Excess of S.Q.C. Receipts over Rs. 6.89 lakhs transferred from current expenditure account ..	1,39,107.43		—	Balance with Banks forming part of the Institute's Bank Account as shown in Schedule VII to the Institute's Balance Sheet ..	1,39,107.43	

<u>—</u>	<u>1,39,107.43</u>	<u>—</u>	<u>1,39,107.43</u>
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S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

This is the Balance Sheet referred to in our report of even date.

Calcutta,  
30th December 1971.

P. K. MITRA & Co.  
Chartered Accountants



THIRTY-NINTH ANNUAL REPORT : 1970-71

ELECTRONIC DATA PROCESSING AND COMPUTATION UNIT

INCOME AND EXPENDITURES ACCOUNT FOR THE YEAR ENDED 31st MARCH 1971

1969-70		Expenditure		1969-70		Income		1969-70	
Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
37,661.56		1. Salary and other remuneration ..		13,179.84		1. Service charges billed to :			
		2. Machine Tabulation expenses :				1. The Institute for :			
1,13,965.02		1. Hires and maintenance ..	2,37,685.58			a) Training ..	91,835.25		
		2. Carls, rent, electricity stores, stationery and other charges ..	38,869.87	2,76,465.45	8,19,879.55	b) Research work ..	81,832.95		
65,054.83		3. Depreciation on Fixed Assets :				c) Project work ..	81,134.30		
		As per schedule annexed ..		1,578.39		2. Training fee ..		2,24,802.50	
		4. Excess of income over expenditure transferred to Fund Account ..				3. Interest on investment ..		14,688.00	2,30,480.50
2,08,531.58						4. Excess of expenditure over income transferred to Fund Account ..			1,700.00
3,21,679.55				2,91,221.88					11,591.80
									38,539.38
									2,01,221.68

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

Calcutta.  
29th December 1971.

P. K. MITRA & Co.  
Chartered Accountants

ELECTRONIC DATA PROCESSING AND COMPUTATION UNIT

SCHEDULE OF FIXED ASSETS AS ON 31st MARCH 1971

particulars	value of assets as per last account		depreciation for the year		written down value		acquired during the year		value as on 31 March 1971	
	(1)	(2)	(3.1)	(3.2)	(4)	(5)	(6)	(7)		
	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
1. Furniture and fittings ..	8,205.15		10%	820.52	7,384.63		2,460.44		9,845.07	
2. Electrical equipment ..	3,899.45		10%	389.95	3,509.50		—		3,509.50	
3. Office machinery and equipment ..	1,781.28		10%	178.12	1,603.16		—		1,603.16	
4. Punching equipment ..	2,128.00		10%	212.80	1,915.20		—		1,915.20	
Total: ..	15,768.88			1,578.39	14,187.49		2,460.44		16,677.93	

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

P. K. MITRA & Co.  
Chartered Accountants

INDIAN STATISTICAL INSTITUTE

HONEYWELL H-400 COMPUTER UNIT

BALANCE SHEET AS AT 31st MARCH 1971

1969-70		Fund and		1969-70		Property and Assets						
Rs.	P.	Liabilities	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
		1. Loan from Government of India :			1. Expenditure incurred for :							
18,00,000.00		As per last account	10,00,000.00	10,29,844.50	.1 Cost of Honeywell H-400 Computer							
		2. Grant-in-aid from Government of India transferred from Capital Projects & Expenditure Account		6,84,788.04	As per last account . . .	10,29,844.50						
		4,60,000.00		47,087.22	.2 Custom duty and importation charges on above							
					As per last account . . .	6,84,788.04						
					.3 Insurance charges on above							
					As per last account . . .	47,087.22	17,61,719.78					
					Less : depreciation written off during the year @ 20% . . .			3,52,343.95	14,09,375.81			
10,71,189.50		3. Liabilities	5,71,168.50		.4 Cost of motor alternator :							
					As per last account . . .	27,297.94						
					.5 Custom duty and importation charges on above :							
					As per last account . . .	10,858.47	10,858.47					
					.6 Insurance charges on above : . .							
					As per last account . . .	373.63	373.63	38,328.04				
					Less : depreciation written off during the year @ 10% . . .			3,832.80	34,495.24			
					.7 Cost of magnetic tape							
					As per last account . . .	41,325.00		41,325.00				
					Less : depreciation written off during the year @ 20% . . .			8,385.00	33,060.00			
					.8 Air Conditioning :							
					As per last account . . .	1,01,186.50		1,01,186.50				
					Less : depreciation written off during the year @ 15% . . .			15,177.98	85,008.52			
					.9 Electrical installation :							
					As per last account . . .	48,334.82		48,334.82				
					Less : depreciation written off during the year @ 10% . . .			4,833.48	43,601.34			
					Additions during the year	48,334.82		1,191.60	44,662.84			
					.10 Construction of floor etc. :							
					As per last account . . .	37,433.54		37,433.54				
					Less : depreciation written off during the year @ 2 1/2% . . .			835.84	36,407.70			
					Additions during the year			190.00	30,063.70			
28,71,189.50		carried over	30,21,168.50	20,28,327.86	Carried over				16,44,298.11			

THIRTY-NINTH ANNUAL REPORT : 1970-71

HONEYWELL H-400-COMPUTER UNIT

BALANCE SHEET AS AT 31st MARCH 1971—Contd.

1969-70		1969-70		Property and Assets		1969-70		1969-70	
Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.	Rs.	P.
Brought Forward ..		20,21,169.50		20,28,227.68		Drought forward ..		18,44,326.11	
2. Advance for customs duty : As per last account ..				48,041.50				48,041.50	
3. Balance with Banks forming part of the Institute's Bank Account as shown in Schedule VII to the Institute's Balance Sheet ..				5,73,121.27				5,21,733.77	
4. Excess of expenditure over income : As per last account .. Add : for the year ..				21,678.62				21,678.62 3,85,389.05	4,07,067.67
<u>28,71,169.50</u>		<u>26,21,169.50</u>		<u>28,71,169.50</u>					<u>28,21,169.50</u>

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

We have examined the above Balance Sheet of the Indian Statistical Institute Honeywell H-400 Computer Unit as at 31st March 1971 and the annexed Income and Expenditure Account for the year ended that date with the books and records maintained by the Institute and produced to us and the information and explanations given and have found them to be in accordance therewith.

Calcutta,  
29th December 1971

P. K. MITRA & Co.  
Chartered Accountants

HONEYWELL H-400 COMPUTER UNIT

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 1971

1969-70		1969-70		Income	
Rs.	P.	Rs.	P.	Rs.	P.
Depreciation on :					
—	1. Honeywell H-400 Computer ..	3,82,343.95		21,678.62	Excess of expenditure over income ..
—	2. Motor Alternator ..	3,832.80			3,85,389.05
—	3. Magnetic tape ..	8,266.00			
15,823.55	4. Air Conditioning ..	15,177.08			
5,159.72	5. Electrical installation ..	4,833.48			
896.65	6. Construction of floor etc. ..	935.84			
<u>21,678.62</u>		<u>3,85,389.06</u>		<u>21,678.62</u>	<u>3,85,389.05</u>

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

Calcutta,  
29th December 1971.

P. K. MITRA & Co.  
Chartered Accountants



## INDIAN STATISTICAL INSTITUTE GENERAL PROVIDENT FUND

### AUDITORS' REPORT

We report that we have audited the Balance Sheet as at 31st March, 1971, of the Indian Statistical Institute General Provident Fund, signed by us under reference to this report and relative Income and Expenditure Account for the year ended on that date with books and records of the Fund maintained by the Institute and produced to us and the information and explanations given, and subject to the remarks mentioned below, have found them to be in accordance therewith.

The remarks referred to above are :

1. A Board of Trustees as envisaged in Rule 14 read with Rule 2(1) of the Rules of the Fund was formed and the Trust Deed was registered on 28th September, 1970. However, the investments of the Fund continued to be held in the name of the Institute and the Bank Account of the Fund were also maintained in its name as at 31st March, 1971. These investments and Bank Account are required to be transferred to the Trustees.

2. No Income-tax has been deducted from the amounts paid in settlement of the Member's Account pending recognition of the Fund by the Commissioner of Income-tax under the Income-tax Act, 1961. The Institute has, however, undertaken to meet any liability which may arise in the event of non-recognition of the Fund.

3. As appears from Schedule VI and VII annexed to the Institute's Accounts, the amounts shown as cash balances (both in hand and at Bank) in the Balance Sheet dealt with by this report represent the balancing figures.

4. Membership subscriptions were neither deposited to the Fund's Bank Account nor invested in the manner required by the Rule 12 of the Fund. The net amounts were retained by the Institute and a sum of Rs. 17,600/- was allowed by the Institute to the Fund by way of interest for the year ended 31st March, 1971.

5. In respect of accounting year ended 31st March 1971, no interest has been declared payable to the members as required by Rule 13 of the Fund. According to the Minute dated 22nd August, 1969, of the Council of Indian Statistical Institute, the allocation to the Members' Accounts will be made when the appropriate rate of interest is ascertained from the audited accounts for the year 1970-71.

6. Under the provisions of Rule 11 of the Fund, Interest/Income should be included in the accounts as and when received. These accounts, however, include interest accrued and due in case of Government Promissory Notes and in all other cases interest accrued whether due or not.

7. The extent of the amounts of employers' contribution and interest thereon forfeited from time to time under Rule 25 and available for disposal of the Trustees as provided in Rule 27 has been Rs. 1.70 lakhs out of Rs. 6,87,219.74 undistributed income as per Income and Expenditure Account of 1969-70. These amounts as and when arise

THIRTY-NINTH ANNUAL REPORT : 1970-71

were, however, credited to the Income and Expenditure Account of the Fund for the respective years. Moreover, the extent, if any, to which such forfeited amounts have been distributed to the member-subscribers as interest has been Rs. 81,304.60 as per rate of interest fixed at 5% for the year 1968-70 by the Board of Trustees as well as by the Council.

8. The house/sites for houses purchased by the members out of withdrawals from the Fund were not assigned to the Trustees as stipulated in Rule 21(f)(i) of the Rules of the Fund.

Calcutta,  
29th December 1971

P. K. MITRA & Co.  
*Chartered Accountants*

INDIAN STATISTICAL INSTITUTE

INDIAN STATISTICAL INSTITUTE

1969-70		Funds and Liabilities		BALANCE SHEET	
Rs.	P.	Rs.	P.	Rs.	P.
		Members' own subscription :			
		As per last account	51,82,025.88		
		Add : during the year	7,91,770.33		
			59,73,796.21		
		Less : refunded during the year	80,874.68	58,92,921.53	
51,82,025.88		Less : withdrawal to date		1,01,960.00	57,90,961.53
		Employer's contribution :			
		As per last account		51,82,025.88	
		Add : during the year (including Rs. 2,761.04 in respect of employees on deputation)		7,91,770.33	
			59,73,796.21		
51,82,025.88		Less : (i) refunded during the year	76,205.81		
		(ii) amounts forfeited	5,668.77	80,874.68	58,92,921.53
		Members' voluntary subscription :			
		As per last account		1,97,744.80	
		Add : during the year		55,744.38	
				2,53,489.18	
1,97,744.80		Less : refunded during the year		16,999.20	2,36,489.78
		Interest payable :			
		a) On member's own subscription :			
		As per last account	14,34,770.24		
		Add : for the year 1969-70	3,05,509.41	17,40,279.65	
		Less : paid during the year		21,035.80	
14,34,770.24		Less : withdrawal to date		17,19,252.85	18,84,025.85
				38,500.00	
		b) On employer's contribution :			
		As per last account		13,08,010.45	
		Add : for the year 1969-70		2,81,560.24	
				16,90,570.69	
13,08,910.45		Less : (i) paid during the year	18,623.39		
		(ii) amount forfeited	390.73	18,920.12	15,71,840.87
		c) On member's voluntary subscription :			
		As per last account		40,223.52	
		Add : for the year 1969-70		10,595.43	
				50,818.95	
40,223.52		Less : paid during the year		2,531.14	48,287.81
		Undistributed income including amounts forfeited as per Income and Expenditure Account			9,14,116.54
5,87,219.74		Liabilities			33,017.02
28,808.91					
1,40,61,738.22				1,81,71,787.41	

Notes : (a) Members' own subscription and employer's contribution include balances due to employees who ceased their employment with the Institute within 31 March 1971, but their accounts remained unsettled at that date.

(b) In terms of the Rules of the Fund, the Council of the Indian Statistical Institute was functioning as Trustees of the Fund pending appointment of a Board of Trustees, which was constituted by a deed of Trust only on 25th September 1970. However it was not yet been possible to transfer the fund in the name of the Board of Trustees because the recognition of the Fund by the Income Tax Commissioner has not yet been obtained and is in the final stages. Therefore, the authentication of the accounts of the Indian Statistical Institute General Provident Fund for the year ended 31st March 1971 by the members of the Board of Trustees is not possible. As in previous years, the accounts have, however, been authenticated by the Joint Secretary and the Chief Accounts Officer of the Institute.

S. P. Mukherjee  
Chief Accounts Officer

H. Ghosh  
Joint Secretary

THIRTY-NINTH ANNUAL REPORT : 1970-71

GENERAL PROVIDENT FUND

as at 31st March 1971

1969-70		Property and Assets			
Rs.	P.	Rs.	P.	Rs.	P.
<b>Investments at cost:</b>					
a) Government Promissory Notes:					
		Rs. 18,85,000/-	3% conversion loan 1946-48	..	..
		Rs. 13,00,000/-	4 1/2% loan 1955	..	..
		Rs. 62,50,000/-	6 1/2% loan 1959	..	..
		Rs. 20,25,000/-	6 1/2% loan 1962	..	..
		Rs. 23,00,000/-	6 1/2% loan 1960	..	..
					1,23,10,844.80
Rs. 1,28,40,000/- (market value Rs. 1,18,68,350.00)					
		b) Rs. 50,000/-	12 year National Plan Savings		
			Certificates	..	..
					50,000.00
1,22,11,649.29					1,23,60,844.80
		14,24,433.00	Loans to members	..	..
					14,38,411.00
		8,844.00	Relief loan to members	..	..
					1,77,326.00
<b>Current Assets:</b>					
<b>Interest accrued:</b>					
a) On Government Promissory Notes (excluding interest accrued but not due and including interest paid at the time of purchase of securities)					
5,27,843.38				6,28,581.14	
24,000.00				28,000.00	
b) On 12 year National Plan Savings Certificates					
23,128.88					6,56,561.14
					—
c) On fixed deposit with State Bank of India, Shamshar					
Amount due from the workers in respect of members' own subscription					
					1,068.64
Amount due from the Institute on loan account					
					14,00,000.00*
<b>Cash balance:</b>					
In custody of the Institute (as shown in Schedule VI to the Institute's Balance Sheet)					
28,990.01					10,428.87
With Banks on Current Accounts:					
(i) With State Bank of India, Strand Road					
					18,027.68
(ii) With Banks forming part of the Institute's Bank Account as shown in Schedule VII to the Institute's Balance Sheet					
1,18,027.86					1,00,000.00
					31,86,106.01
<hr/>					
		1,60,61,738.22			1,61,71,787.01

\* Loan arising on account of non-receipt of residual grant for 1970-71 has been repaid on 13th April 1971 and invested.

This is the Balance Sheet referred to our report of even date.

P. K. MITRA & Co.  
Chartered Accountants

## INDIAN STATISTICAL INSTITUTE

### INDIAN STATISTICAL INSTITUTE GENERAL PROVIDENT FUND

#### INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH 1971

1969-70	Expenditure		Ra. P.		1969-70	Income		Ra. P.	
Ra. P.	Ra.	P.	Ra.	P.	Ra. P.	Ra.	P.	Ra.	P.
5,18,236.76	Excess of income over expenditure carried down ..		8,18,886.38			Interest :			
						(i) On G P Notes (including income on redemption less Bank charges) Ra. 3,647.69 ..		7,42,922.61	
						(ii) On 15 year National Plan Savings Certificate ..		4,000.00	
						(iii) On fixed deposit with the Bank ..		11,861.12	
						<u>7,58,783.92</u>			
					4,20,182.95	Loss : Interest paid for purchase of G P Notes ..		46,517.02	
						(iv) From Institute on loan account ..		17,600.00	
						(v) Realised on loan given to the member		89,119.47	
5,18,236.76			8,18,886.38		5,18,236.76			8,18,886.38	
	Interest for 1969-70 on :				0,23,802.50	Amount brought forward from last account ..		6,87,219.74	
	(i) Own subscription : Members' & Ceased members' 3,05,909.41				9,313.10	Amount forfeited during the year ..		8,065.00	
3,88,631.66	(ii) Employer's contribution: Members' & Ceased Members' 3,61,260.37		2,81,050.24			Excess of income over expenditure brought down ..		8,18,886.38	
14,431.48	(iii) Members' voluntary subscription 10,296.43		5,98,035.08						
	Balance carried over to Balance Sheet		9,14,116.54						
14,61,462.45			16,12,171.62		14,61,462.45			16,12,171.62	

B. P. Mukherjee  
Chief Accounts Officer

B. Ghosh  
Joint Secretary

Calcutta,  
20th December 1971.

P. K. Mitra & Co.  
Chartered Accountants.

#### GOVERNING BODY OF THE RESEARCH AND TRAINING SCHOOL : 1970-71

1. Shri K. P. S. Moon, Chairman (*ex-officio*); 2. Professor P. C. Mahalanobis, Honorary Secretary (*ex-officio*); 3. Dr. C. R. Rao, Director, RTS (*ex-officio*); 4. Dr. B. B. Ghosh, Acting Editor, Capital, (*Associated Chambers of Commerce of India*); 5. Dr. S. N. Sen, M.A., Ph.D., Vice-Chancellor, Calcutta University (*Indian Economic Associations*); 6. Shri G. K. Bhagat, Mosra, Bengal Pottery, Ltd., (*Federation of Indian Chambers of Commerce and Industry*); 7. Dr. N. T. Mathow, Director, Central Statistical Organisation (*Government of India*); 8. Shri B. N. Maheshwari, Joint Secretary, Ministry of Finance (*Financial Adviser, Department of Statistics, Department of Expenditure, Government of India*); 9. Professor S. S. Srikhande, F.N.I., Head, Department of Mathematics, University of Bombay (*National Institute of Sciences of India*); 10. Shri V. V. Divatia, Adviser, Department of Statistics, Reserve Bank of India; 11. Professor S. K. Bose, Director, Indian Institute of Technology, Kharagpur (*Inter-University Board of India & Ceylon*); and 12. Dr. Bhabatosh Dutta, M.A., Ph.D.; 13. Dr. B. R. Seshachar, D.Sc., F.N.I. Dean, Faculty of Sciences, University of Delhi; 14. Shri Jagjit Singh, M.A., F.R.S.S., Chairman and Managing Director, Indian Drugs & Pharmaceuticals Ltd.; 15. Dr. B. P. Adhikari, M.Sc. (Cal.), Dr. ex.Sc. (Paris); 16. Shri Partha Ray, I.A.S.; 17. Dr. D. K. Bose, M.A., Ph.D.; 18. Shri Pitambar Pant, M.Sc., Member, Planning Commission, Government of India (*Council of the Indian Statistical Institute*).

#### LIST OF MEMBERS OF DIFFERENT COMMITTEES : 1970-71

##### *Finance Committee of the Council*

1. Chairman of the Institute (*ex-officio*) or his nominee; 2. Secretary of the Institute (*ex-officio*) or his nominee; 3. Director of the Research and Training School (*ex-officio*) or his nominee; 4. Dr. B. P. Adhikari; 5. Dr. B. P. Banerjee; 6. Dr. Bhabatosh Dutta; 7. Dr. Amartya Sen; 8. Professor H. C. Ghosh; 9. Shri S. C. Roy; 10. Shri P. Ray (*Member-Secretary*) or in his absence, a person nominated by the Secretary or the Chairman; 11 & 12. Two representatives nominated by the Government of India—Cabinet Secretary (Shri T. Swaminathan) or his representative and Joint Secretary, Ministry of Finance (Shri B. N. Maheshwari).

##### *Finance Committee of the Governing Body*

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