

THIRTIETH ANNUAL REPORT : 1961-62

- SEAL, ANIL : Fellow, Trinity College, Cambridge. 23 December 1961.  
STRACHBY, RT. HON. JOHN, M.P. 18 March-2 April 1962.  
NOVE, ALEXANDER : London School of Economics. 26 September 1961.  
WOLFENDALE, A. W. : Cosmic ray physicist, University of Durham. 19 September 1961.

*United Arab Republic*

- HAZEM MOHD., ABOU SERIE : Commercial Registration Suez, Ministry of Economy, U.A.R. 2-19 January 1962.  
HUSSEIN, HASAN M. : Professor of Statistics, Heliopolis University, Cairo; Under Secretary of State for Statistics. 13 January 1962.  
RIEK, HANNA : Vice-President, American University of Cairo; Head of Division of Public Services. 13 January 1962.

*United States of America*

- AUBLE, A. G. : Senior Statistician and Senior Operations Analyst, Stanford Research Institute, California; Director of Studies, International Statistical Education Centre, Calcutta. 16 July 1961-13 April 1962.  
BERNISON, BERNARD : Director, Communications Research Programme, Population Council, N.Y. 7 March 1962.  
BERRY, BRIAN J. L. : Assistant Professor of Geography, University of Chicago; Consultant, Calcutta Master Plan. 9 November 1961.  
BLISS, CHESTER I. : Biometrician, The Connecticut Agricultural Experiment Station; Professor, Yale University, New Haven, Connecticut. 14 December 1961-6 March 1962.  
BOSE, R. C. : Professor of Statistics, University of North Carolina. 10-12 October 1962.  
BOURDIN, D. G. : Professor of Mathematics, University of Illinois. 21-29 March 1962.  
CARROLL, JOHN J. : Professor of Economics, St. Lawrence University; Member, Ford Foundation Consultant Team, Calcutta Metropolitan Organisation. 24 March 1962.  
CHANDRASEKHAR, S., F.R.S. : Professor of Theoretical Astro-Physics, Yerkes Observatory, University of Chicago. 17-22 September 1961.  
ECHENVERIA, EDWARD : Ford Foundation Consultant, Calcutta Metropolitan Planning Organisation. 22 September 1961.  
ENNIS, EDWARD J. : Formerly of Justice Department, U.S.A.; businessman. 3 February 1962.  
FABRICANT, SOLOMON : Director of Research, National Bureau of Economic Research, New York. 11-18 November 1961.  
FITZ, GEMEN : President, Institute of Public Administration, New York. 27 February 1962.  
GREEN, LESLIE : Senior Specialist, International Urban Studies, Institute of Public Administration. 22 September 1961-27 February 1962.  
HSLA, DAVID YI-YUNG : Professor of Pediatrics, Northwestern University Medical School; Director, Genetic Clinic, Children's Memorial Hospital, Chicago, Illinois. 14 December 1961.  
JANSSEN, MARIUS B. : Professor of History, Princeton University, N. Jersey. 31 May 1961.

#### INDIAN STATISTICAL INSTITUTE

- KHARLEBY, E. A. :** Professor, National Bureau of Standards. *3-5 January 1962.*
- KISHINORI, HENRY, A. :** Consultant to President Kennedy; Professor, Harvard University. *19 January 1962.*
- MEYERPOLIS, NICHOLAS G. :** Professor of Physics, Institute of Computer Research, Chicago University. *3 October-3 November 1961.*
- ROSSER, COLLIN :** Ford Foundation Consultant, Calcutta Metropolitan Planning Organisation. *23 September 1961.*
- ROSEN, GEORGE :** Member, Consultant Team, Ford Foundation, Calcutta Metropolitan Planning Organisation. *24 March 1962.*
- SCHLOSS, HENRY H. :** Department of Business Economics, School of Business, University of Southern California, Los Angeles. *14 February 1962.*
- SHEPSON, WILLIAM C. :** Chief, Division of Foreign Labour Conditions, Bureau of Labour Statistics, U.S. Department of Labour, Washington D.C. *11 December 1961.*
- SHUWART, WALTER A. :** Bell Laboratory. *17 December 1961-14 February 1962.*
- VINEY, LELAND DE :** Associate Director, Rockefeller Foundation. *11 April 1961.*
- WANTLING, G. W. DALE :** Chief Education Adviser, Technical Cooperation Mission. *1 June 1961.*
- WELLS, STANLEY :** Member, Consultant Team, Ford Foundation, Calcutta Metropolitan Planning Organisation; Professor of Economics, University of Chicago. *24 March 1962.*
- WISSEKOFF, THOMAS E. :** research scholar, Harvard University. *5 September 1961-12 June 1962.*
- YONG, S. Y. :** Technical Assistant, Director of Engineering, Computer Division, Philco Corporation. *6 October-3 November 1961.*

#### *Union of Soviet Socialist Republics*

- ANUFREY, P. F. :** Head, Information Branch, Consulate-General of USSR, Calcutta. *9 August 1961.*
- DJALALANTS, G. C. :** Soviet Radio & Television Correspondent. *23 November 1961.*
- EFIMOV, G. :** Member, State Committee, USSR Council of Ministers for Cultural Relations with Foreign Countries. *3 February 1962.*
- EREL, P. D. :** Pro-Rector, People's Friendship University, Moscow. *3 April 1962.*
- GAFUROV, B. :** Director, Oriental Institute; Corresponding Member, USSR Academy of Sciences. *8 February 1962.*
- KOLLOVAY, VLADIMIR M. :** Institute of World Economics and International Relations, USSR Academy of Sciences. *1 December 1961.*
- KOLMOGOROV, A. N. :** Academician, Professor of Mathematics, University of Moscow. *14 April-12 May 1962.*
- KOMAR, I. V. :** Institute of Geography, USSR Academy of Sciences. *16 April-31 May 1961.*
- KORBLYN, EDWARD :** research scholar, USSR Academy of Sciences. Arrived *20 February 1962.*

THIRTIETH ANNUAL REPORT: 1961-62

- KUPIKO, V. M.: Acting Head, Information Branch, USSR Consul-General's Office, Calcutta. 3 February 1962.
- MINKOVESKY, E. F.: Mining Engineer; Corresponding Member, USSR Academy of Sciences. 9 January 1962.
- NIKOLAEV, V. A.: Senior Scientific Worker, Chair of Physical Geography, Moscow University. 11 October 1961-13 February 1962.
- PRDANYUK, IVAN MARKOVICH: Editor, *Radianska Ukraina* (Soviet Ukraine). 9 August 1961.
- PODKURKOV, VIKTOR SEMYONOVICH: Editor, *Sovetskaya Pechatj* (Soviet Press). 9 August 1961.
- POPOV, K. M.: Institute of Geography, USSR Academy of Sciences. 16 April-31 May 1961.
- RIABOCHIKOV, ALEXANDER M.: Dean, Geographical Faculty, Moscow University. 11 October 1961-13 February 1962.
- RODIN, L. E.: V. L. Komarov Botanical Institute, USSR Academy of Sciences. 12-21 May 1961.
- ZHUKOV, G. A.: Chairman, State Committee, USSR Council of Ministers for Cultural Relations with Foreign Countries. 3 February 1962.

*International Organizations*

- BANTEQUI, B. G.: Regional Statistician for Asia and Far East, Regional Office of Food & Agricultural Organization, Bangkok. 20-25 February 1962.
- MINORU, TSUKADA: Economics Affairs Officer, Agriculture Division, E.C.A.F.E., U.N., Bangkok. 23 September 1961.

**Appendix 4: Professor P. C. Mahalanobis's Tours Abroad**

*The U.S.S.R.* (28 March-3 April 1961): Professor P. C. Mahalanobis paid a short visit to Moscow (28 March-3 April) at the invitation of the Academy of Sciences, USSR. He had discussions mainly in connexion with the preliminary meeting of the International Non-Governmental Conference on Economic Development of Less Advanced Countries to be held in Geneva from 6-9 June 1961.

*Switzerland* (6 June-19 June 1961): Professor Mahalanobis (accompanied by Mrs. Mahalanobis) left Calcutta on 5 June to attend the Preliminary Meeting of the International Non-Governmental Conference on Economic Development of the Less Advanced Countries held in Geneva from 6 to 9 June. At this preliminary meeting, a resolution was adopted that a wider conference or other meetings should be held at a suitable time; and the Indian Statistical Institute was requested to continue to function as the Secretariat of the Conference.

*Yugoslavia* (19 June-5 July 1961): Professor and Mrs. Mahalanobis visited Yugoslavia from 19 June to 5 July as the guests of the Federal Planning Bureau. Professor Mahalanobis had discussions with State agencies for General Economic Affairs, the Committee for Foreign Trade and the National Bank of Yugoslavia. He gave lectures and had scientific discussions at the Planning Bureau, the Federal Statistical Office, the Institute of Interna-

#### INDIAN STATISTICAL INSTITUTE

tional Politics and Economics, the Economic Institute of Serbia, the Serbian Academy of Sciences and Arts, the Institute of Mathematics, the Writers Federation of Serbia and Slovenia, the Statistical Offices of Croatia and Slovenia, and other federal and republican institutions. Professor Mahalanobis also had discussions with Mr. Milentije Popovic, Minister of Scientific Research, about scientific collaboration between India and Yugoslavia. In the course of these discussions, a broad programme was laid down for collaboration between Yugoslavia and India at a technical level in economic planning and scientific research. Mrs. Mahalanobis spoke on Rabindranath Tagore and had discussions with various women's association and societies. They visited Zagreb and Lubyana where also they gave lectures and had discussions. It may be recalled that Professor and Mrs. Mahalanobis had visited Yugoslavia with Rabindranath Tagore in 1926.

*The United Kingdom* (5 July—23 July 1961): Professor and Mrs. Mahalanobis left Yugoslavia on 5 July and arrived in London the same day. He inaugurated a discussion on the Third Five Year Plan of India at the Overseas Development Institute London, and also had individual discussions in London with many economists and scientists including Professor J. Rotblat, Secretary-General of the Pugwash Conference of Scientists. He paid a short visit to Cambridge for further discussions regarding the proposed economic conference in India.

*The U.S.S.R.* (22 July—25 July 1961): Professor Mahalanobis left London on 22 July, and made a short halt in Moscow on his way back to India at the invitation of the Academy of Sciences, USSR, to have further discussions in the Academy. He returned to New Delhi on 26 July.

*France* (28 August—8 September 1961): Professor Mahalanobis left Calcutta on 26 August and, accompanied by Mrs. Mahalanobis from London, attended the 33rd session of the International Statistical Institute held in Paris from 29 August to 7 September where he presented a paper entitled "A Preliminary Note on the Consumption of Cereals in India" and participated in other scientific discussions.

*Czechoslovakia* (9 September—22 September 1961): Professor and Mrs. Mahalanobis arrived in Prague on 9 September after halting one night at The Hague to meet Dr. Tinbergen. They were guests of the Academy of Sciences of Czechoslovakia. Professor Mahalanobis delivered a number of lectures and had discussions at the Institute of Mathematics, the Institute of Economics, the Oriental Institute, and the Planning Board, and also in the Presidium of the Academy of Sciences. He also visited some of the institutions of the Academy of Sciences. He had discussions with the Prime Minister, the Minister of the State Planning Commission, and the Minister of Statistical Control regarding the ways and means of strengthening the scientific and economic collaboration between Czechoslovakia and India. During the course of these discussions arrangements were made for the exchange of scientific workers and specialists between the Academy of Sciences of Czechoslovakia and the Indian Statistical Institute. He returned to Delhi on 23 September.

*The U.S.S.R.* (5 October—6 October 1961): Professor Mahalanobis left New Delhi on 5 October 1961 and reached Moscow the same day to have further discussions in the Academy of Sciences on meetings and conferences on economic development, and also arrangements for the exchange of scientific personnel between the USSR and the Indian Statistical Institute.

### THIRTIETH ANNUAL REPORT : 1961-62

*Czechoslovakia* (6 October—8 October 1961) : Professor Mahalanobis reached Prague on 6 October, and had further discussions in the Presidium of the Academy of Sciences of Czechoslovakia to settle details in connexion with the exchange of scientific visits and collaboration in various fields with the Academy of Sciences.

*Switzerland* (8 October—20 October 1961) : Professor Mahalanobis reached Geneva on 8 October with Mrs. Mahalanobis who joined him from Prague. In Geneva he participated in the meetings of the Working Group on Sample Survey Methods, set up by United Nations, from 9 to 13 October.

*The United Kingdom* (22 October-22 November 1961) : Professor Mahalanobis and Mrs. Mahalanobis spent two nights at The Hague for discussions with Professor Tinbergen and reached London on 22 October. Professor Mahalanobis visited Liverpool on 25 October, at the invitation of the University of Liverpool, to give a public lecture on "Statistics in relation to Planning" on 26 October; and had seminar discussions in the Department of Geography and returned to London on 27 October. He went to Cambridge with Sri Pitamber Pant on 31 October by invitation to participate in discussions on planning and returned to London on 2 November. On 3 November, he went to Oxford to participate in discussions on planning by invitation, and then returned to London. In London he visited many institutions and continued to have group and individual discussions with scientists and economists. As he was not keeping well, he was admitted for a time in the Royal Free Hospital, London, for a medical check up.

*Yugoslavia* (22 November—25 November 1961) : Professor and Mrs. Mahalanobis arrived in Belgrade on 22 November. Professor Mahalanobis had further discussions in the Planning Board on 23 and 24 November, and with Mr. Milentije Popovic (Minister of Scientific Research), and at the Institute of Social Science, and the Faculty of Economics in the University.

*Bulgaria* (26 November—7 December 1961) : Professor and Mrs. Mahalanobis stayed in Sofia from 26 November to 7 December as guests of the Academy of Sciences of Bulgaria. Professor Mahalanobis had discussions in the Presidium of the Academy of Sciences, and with the Chairman of the Planning Commission (who is also a Vice-Premier), and the Vice-President of the Council of Ministers regarding collaboration between India and Bulgaria in scientific and economic matters. He gave a series of lectures and had discussions in the Institute of Economics, the Karl Marx Institute of Higher Education in Economics, the Institute of Mathematics, and in the Academy of Sciences. The University of Sofia conferred the degree of Doctor of Science (*honoris causa*) on Professor Mahalanobis at a special convocation on 4 December; he delivered a lecture on this occasion on the "Role of Science in Economic and National Development." Professor and Mrs. Mahalanobis had visited Sofia with Rabindranath Tagore in 1926. Mrs. Mahalanobis spoke about Tagore at a meeting arranged by the Association of Writers and also participated in other discussions.

*Istanbul* (8 December 1961) : They left Sofia on 7 December, and halted for a day at Istanbul, where Professor Mahalanobis visited the Technological University and had a full discussion with the Rector about scientific and technical collaboration.

*Bahrain* (8 December—11 December 1961) : Professor and Mrs. Mahalanobis made a short visit to Bahrain where Professor Mahalanobis had an interview with His Highness Shaikh Sulman Bin Hamad al Khalifah, K.C.M.G., K.C.I.E. He had discussions with some of the prominent local businessmen and gave a lecture at the Indian Association and met

## INDIAN STATISTICAL INSTITUTE

some of the Indian residents. Professor and Mrs. Mahalanobis returned to New Delhi on 11 December.

*Austria* (3 March—7 March 1962) : Professor Mahalanobis left on 3 March to attend the meetings of the Preparatory Committee to consider the organization of an international conference on economic cooperation and partnership, convened under the auspices of the Theodor Korner Foundation (Theodor Korner-Stiftungsfonds Zur Forderung von Wissenschaft und Kunst) in Vienna from 3 to 7 March 1962 under the chairmanship of Mr. Bruno Kreisky, the Foreign Minister of Austria. The Preliminary Conference was attended by 20 delegates and 7 observers from 12 countries.

*United Kingdom* (7 March—14 March 1962) : Professor Mahalanobis arrived in London from Vienna on 9 March after halting a night in Geneva and had discussions especially in connexion with a session of the Pugwash Conference in India in 1963. He returned to Calcutta on 15 March.

### Appendix 5: List of Research Papers, Reports and Scientific Lectures

#### 5.1 RESEARCH AND TRAINING SCHOOL

##### 5.1.1 PUBLISHED PAPERS

###### A. Theoretical Statistics

- P1 JOHN, S. (1961) : On Errors in Discrimination. *Ann. Math. Stat.*, 32, 1125-1144.
- P2 ——— (1961) : On the Evaluation of the Probability Integral of the Multivariate  $t$ -distribution. *Biometrika*, 48, 409-417.
- (P3) LAHIRI, D. B. (with Mahalanobis, P. C.) (1961) : Analysis of Errors in Censuses and Surveys with special reference to Experience in India. *Bulletin de l'Institut International de Statistique*, 38, (2) 401 and *Sankhyā*, 23, sr. A, 325-358.
- P3 MAHALANOBIS, P. C. (with Lahiri, D. B.) (1961) : Analysis of Errors in Censuses and Surveys with special reference to Experience in India. *Bulletin de l'Institut International de Statistique*, 38 (2), 401 and *Sankhyā*, 23, sr. A, 325-358.
- P4 PARTHASABATHY, K. R. (1961) : On the Integral Representation for the rate of Transmission for a Channel. *Illinois Jour. Math.*, 5, 299-305.
- P5 ——— (1961) : On the Category of Ergodic Measure. *Illinois Jour. Math.*, 5, 648-656.
- P6 ——— (1961) : On Testing the Mean Function of a Discrete Linear Process. *Sankhyā*, 23, sr. A, 221-224.
- P7 ——— (with Rao Ranga, R. and Varadhan, S. R. S. (1961) : On the Category Indecomposable Distribution on Topological Groups. *Trans. Amer. Math. Soc.* 102, 200-217.
- P8 PATHAK, P. K. (1961) : Evaluation of Moments of District Units in a Sample. *Sankhyā*, 23, sr. A, 415-420.
- P9 ——— (1961) : Use of 'Order-statistic' in without-replacement Sampling. *Sankhyā*, 23, sr. A, 409-414.

THIRTIETH ANNUAL REPORT : 1961-63

- P10 RAO, C. R. (1961): A Study of BIB Designs with Replications 11 to 15. *Sankhyā*, 23, sr. A, 117-127.
- P11 ——— (1961): Combinatorial Arrangements Analogous to Orthogonal Arrays. *Sankhyā*, 23, sr. A, 283-286.
- P12 ——— (1961): A Combinatorial Assignment Problem. *Nature*, 191.
- P13 ——— (1961): Generation of Random Permutations of given number of Elements using Random Sampling Numbers. *Sankhyā*, 23, sr. A, 305-307.
- P14 ——— (1962): Some Observation in Anthropometric Surveys: Anthropology Today. *Essays in Memory of D. N. Majumdar*, 135-149, Asia Publishing House.
- P15 ——— (1962): Use of Discriminant and Allied functions in Multivariate Analysis. *Sankhyā*, 24, sr. A, 149-154.
- (P7) RAO, RANGA, R. (with Parthasarathy, K. R. and Varadhan, S. R. S.) (1961): On the Category Indecomposable Distribution on Topological Groups. *Trans. Amer. Math. Soc.*, 102, 200-218.
- P16 ROY CHOUDHURI, D. K. (1961): Some Results on Quadrics in Finite Projective Geometry based on Galois fields. *Canadian Jour. Math.*, 14, 129-138.
- P17 SETHURAMAN, J. (1961): Conflicting Criteria of 'Goodness' of Statistics. *Sankhyā*, 23, sr. A, 187-190.
- P18 ——— (1961): Some Limit Theorems for Joint Distributions. *Sankhyā*, 23, sr. A, 379-386.
- (P7) VARADHAN, S. R. S. (with Rao Ranga, R. and Parthasarathy, K. R. (1961): On the Category Indecomposable Distribution on Topological Groups. *Trans. Amer. Math. Soc.*, 102, 200-218.

B. Economic Statistics

- P19 MAHALANOBIS, P. C. (1961): Talks on Planning. *Studies relating to Planning for National Development*, 6.
- P20 ——— (1962): Role of Science in Economic and National Development. *Indian Journal of Public Administration*, 8, 163-160.

C. Biology and Biochemistry

- P21 BRAHMACHARY, R. L.: A Paper-chromatographic Approach to the Problem of Soil enrichment by Earthworms. *Current Science*, 31, 148.
- P22 DAVEY, T. A. (1961): High Root Pressures in Palma. *Nature*, 192, 277-278.
- P23 ——— (1961): Importance Des racines Aériennes du cocotier. *Océanographie*, 16, 653-661.
- P24 ——— (1962): Climbing the Coconut. *World Crops*, 13, 468-470.
- P25 ——— (1961): Aerial Roots in the Areca Palm (*Areca catechu* L.). *Arcanum Journal*, 13, 72-78.
- P26 ——— (1961): Layering in the Cashew Tree. *Indian Cashew Journal*, 5, 7-9.
- P27 ——— (1962): The Non-inheritance in *Ocotea woelferi*. *Jour. Genet.*, 58, 42-50.

## INDIAN STATISTICAL INSTITUTE

- P28 MUKHERJEE, M. C. (1961): Sterility in *Drosophila Melanogaster* Consequent on using a Mammalian Oral Contraceptive. *Science and Culture*, 27, 497-498.
- P29 ——— (1962): Variation in the Segment Numbers of Indian Millipedes. *Jour. Genet.*, 58, 25-28.
- P30 PAL, P. R. (1962): Concentrative Uptake Process in Living Cells. *Natl. Acad. of Sci.*, 19, 249-252.

### D. Sociology

- P31 MUKHERJEE, R. (1962): Sociologists and Social Change in India Today in "Nature and Extent of Social Change in India", Decennial Celebrations Symposium, *Sociological Bulletin*, 11, 4-13.
- P32 ——— (1962): On Classification of Family Structures (Dimension: Kinship Composition). *Anthropology in India: Essays in Memory of D. N. Majumdar*, Asia Publishing House.

### E. Psychology

- P33 CHATTERJEE, S. (with Mukherjee, M.) (1961): Construction of a Table for Estimation of Item Validity Indices in terms of Davis Discrimination Indices for Criterion Groups based on Medium split. *Jour. Psychological Research*, 5, 85-96.
- (P33) MUKHERJEE, M. (with Chatterjee, S.) (1961): Construction of Table for Estimation of Item Validity Indices in terms of Davis Discrimination Indices for Criterion Groups based on Medium split. *Jour. Psychological Research*, 5, 85-96.

### F. Geology

- P34 BAKSI, S. (1962): Palynological Investigation of Simsang River Tertiaries South Shillong Front, Assam. *Bull. Geol. Min. Met. Soc. Ind.* No. 26.
- P35 BASUMALLICK, S. (1961): A Note on Vindhyan Sedimentation around Maihar, M.P. *Science and Culture*, 27, 546-547.
- P36 ——— (1961): Petrology and Zonation of the Rewa Sandstone in Maihar, M.P., *Quart. Jour. Geol. Min. Met. Soc. Ind.*, 34, 11-2.
- P37 JAIN, S. L. (1961): Monogenes of Indian Fresh-water Fishes, XI. Three New Trematodes belonging to the Genus *Dactylogyrus*. Diesing, 1850. *Jour. Zool. Sur. Ind.*, 13, 2, 99-107.
- P38 ——— (1962): New Species of the Genus *Urooleidus*, Mueller 1934, from Indian Fresh-water Fish. *Annals of Zoology*, 1962.
- P39 ——— (with Robinson, P. L. and Roy Chowdhury, T. K.) (1962): A New Vertebrate Fauna from the early Jurassic of the Deccan, India. *Nature*, 194, 4830, 755-757.
- (P39) ROY CHOWDHURY, T. K. (with Jain, S. L. and Robinson, P. L.) (1962): A New Vertebrate Fauna from the early Jurassic of the Deccan, India, *Nature*, 194, 4830, 755-757.



## THIRTIETH ANNUAL REPORT: 1961-62

## 5.1.3 PAPERS SUBMITTED FOR PUBLICATION

(The Journal to which the paper has been submitted for publication is mentioned within brackets).

## A. Theoretical Statistics

- 81 JOHN, S.: Further Results on Classification by W (*Sankhyā*).
- 82 ———: On Classification by the Statistics R and Z (*Sankhyā*).
- (89) KALYANPUNDARAM, G. (with Roy, J.): Use of Randomised Rounded off Multipliers in Sample Surveys (*Sankhyā*).
- 83 PATRAK, P. K.: On Simple Random Sampling with Replacement (*Sankhyā*).
- 84 ———: On Sampling with Unequal Probabilities (*Sankhyā*).
- 85 ———: On Sampling Schemes Providing Unbiased Ratio Estimators (*Sankhyā*).
- 86 PAUL, E. M.: Density in the Light of Probability Theory (*Sankhyā*).
- 87 PARTHASARATHY, K. R. (with Ranga Rao, R. and Varadhan, S. R. S.): On the Semi-group of Distributions on a Locally Compact Obelian Group. (*Illinois Jour. Math.*).
- 88 ROY, J. (with Tikū, M. L.): A Laguerre Series Approximation to the Sampling Distribution of Variance (*Sankhyā*).
- 89 ——— (with Kalyanpundaram, G.): Use of Randomised Rounded Multipliers in Sample Surveys (*Sankhyā*).
- 810 ROYRAUDHURY, D. K.: An Algorithms for Minimum Covers for Abstract Complex (*Canadian Jour. Math.*).
- 811 ———: Application of the Geometry of Quadrics for constructing Partially Balanced Incomplete Block Design (*Annals Math. Stat.*).
- 812 RAO, C. R.: Efficient Estimates and Optimum Inference Procedure in Large Samples (with discussion) (*J. Roy. Stat. Soc., 24, sr. B, 1, 1962*).
- 813 ———: A Note on a Generalised Inverse of Matrix with Applications to Problems in Mathematical Statistics. (*J. Roy. Stat. Soc. 24 sr. B, 1 1962*).
- 814 RAO, C. R.: Selection with restrictions (*J. Roy. Stat. Soc. 24, sr. B, 1, 1962*).
- 815 RAO, HANUMANTHA, T. V.: Inbreeding with Cyclical Mating (*Sankhyā*).
- 816 ———: On Horvitz and Thompsons Estimation (*Sankhyā*).
- (87) RAO, RANGA. R. (with Parthasarathy, K. R. and Varadhan, S. R. S.): On the Semi-group of Distributions on a Locally Compact Obelian Group (*Illinois Jour. Math.*).
- 817 SHAR, K. B.: Precision of Combined Estimate in Linked Block Design (*Sankhyā*).
- (88) TIKU, M. L. (with Roy, J.): A Laguerre Series Approximation to the Sampling Distribution of Variance (*Sankhyā*).
- (87) VARADHAN, S. R. S. (with Parthasarathy, K. R. and Rao, Ranga R.): On the Semi-group of Distributions on a Locally Compact Obelian Group (*Illinois Jour. Math.*).

## INDIAN STATISTICAL INSTITUTE

### B. Economic Statistics

- 818 MAHALANOBIS, P. C. : Preliminary Note on the Consumption of Cereals in India  
(*Bulletin de l'Institut International de Statistique*).

### C. Biology and Biochemistry

- 819 BRAHMACHARY, R. L. : Free Amino Acids in the Small Limnaea (*Experimentia*).
- 820 DAVIS, T. A. : Vegetative Propagation in the Coconut (*Cocos nucifera*) (*Nature*).
- 821 ——— : Asymmetrie and entrag bei kokospalmen (*Experimentia*).
- 822 ——— : Appareil pour l'escalade du cocotier et des autres palmiers à tronc tisseu  
(*Ol lagineus*).
- 823 ——— (with N. G. Pillai) : Exhaust of Macronutrients by the Coconut Palm.  
(*Indian Coconut Journal*).
- 824 ——— : Rejuvenation of Coconut Palms (*World Crops*).
- 825 ——— : Morphological Variations in *Areca catechu*. (*Areca Nut Monograph*).
- 826 PAL, P. R. : Intestinal Absorption of Amino Acids. (*Jour. Assoc. Physicians of India*)

### D. Sociology

- 827 BANDYOPADHYAY, SURAJ (with Chattopadhyay, Kumarananda) : Role of Social Factors in the Study of Consumption Pattern of Handicraft Products: An Exploratory Analysis (*Proceedings of the Tagore Centenary Celebration Seminar on Human Factor in the Growth of Rural Economy, Agro-Economic Research Centre, Visva-Bharati University*).
- (827) CHATTOPADHYAY, KUMARANANDA (with Bandyopadhyay, Suraj) : Role of Social Factors in the Study of Consumption Pattern of Handicraft Products: An Exploratory Analysis (*Proceedings of the Tagore Centenary Celebrations Seminar on Human Factor in the Growth of Rural Economy, Agro-Economic Research Centre, Visva-Bharati University*).
- 828 PAKRASHI, KANTI BHUBAN : A Study on Some Aspects of Structural Variations among the Immigrants of Durgapur—West Bengal, 1958 (*Man in India*).
- 829 ——— : A Study on Some Aspects of the Types of Households and Family Organization in Rural Bengal, 1946-47 (*The Eastern Anthropologist*).

### E. Demography and Medical Statistics

- 830 BISWAS, S. (with Potl, S. J.) : A Study of Child Health During the First Year of Life. (*Sankhyā*).
- 831 ——— : A Study of Amenorrhoea after Child Birth and its Relationship of Lactation Period. (*Indian Journal of Public Health*).
- 832 CHAKRAVARTI, B. (with Potl, S. J. and Malakar, C. R.) : Reliability of Data relating to Contraceptive Practices. (*Milbank Memorial Fund*).
- 833 GUPTA, P. B. : The Population Problem of India. (*Seminar*).

THIRTIETH ANNUAL REPORT : 1961-62

- (832) MALHAR, C. R. (with Potl, S. J. and Chakravarti, B.): Reliability of Data relating to Contraceptive Practices. (*Milbank Memorial Fund*).
- (830) POTL, S. J. (with Biswas, S.): A Study of Child Health during the First Year of Life. (*Sankhyā*).
- (832) ——— (with Chakravarti, B. and Malhar, C. R.): Reliability of Data relating to Contraceptive Practices. (*Milbank Memorial Fund*).
- 834 RAMAN, M. V.: Some Basic Considerations in the Promotion of Family Planning in India. (*Seminar*).

F. Psychology

- 835 ADHIKARI, K.: Sociological Elements in Industrial Relations in a Developing Economy. (*Indian Journal of Labour Economics*).
- 836 CHATTERJEE, S. (with Mukherjee, M.): Stability of Measured Interests. (*Education and Psychology*).
- 837 ——— (with Mukherjee, M.): Relation between Kuder Preference Record and a Non-Verbal Interest Inventory modelled after it to suit Indian Conditions. (*Jour. of Psychol. Res.*).
- 838 ——— (with Mukherjee, M.): A study on Co-workers' Rating. (*National Productivity Council*).
- 839 MUKHERJEE, M.: Effect of Practice on Test Scores. (*Jour. of Psycho. Res.*).
- (836) ——— (with Chatterjee, S.): Stability of Measured Interests. (*Education and Psychology*).
- (837) ——— (with Chatterjee, S.): Relation between Kuder Preference Record and a Non-Verbal Interest Inventory modelled after it to suit Indian Conditions. (*Jour. of Psychol. Res.*).
- (838) ——— (with Chatterjee, S.): A study on Co-workers' Rating. (*National Productivity Council*).

G. Geology

- 840 BASUMALLIK, S.: A Note on Thin Section Mechanical Analysis. (*Jour. Sed. Petrol.*).
- 841 ———: Crystal-optic Study on Secondary Overgrowth in Quarts. (*American Mineralogist*).
- 842 ———: Cross Ripples in Jodhpur Sandstone, Rajasthan, India. (*Jour. Sed. Petrol.*).
- 843 ———: On Certain Sedimentological Features of the Bhandar Sandstone in Maihar, M.P. (*Quart. Jour. Geol. Min. Met. Soc. of India*).
- 844 BAKSI, S.: Palynological Investigations of Sinsang River Tertiary, South Shillong Front, Assam. (*Journal of Geol. Min. Met. Soc. of India*).
- 845 JAIN, S. L. (with Robinson, P. L. and Roy Chowdhury, T.): A New Vertebrate Fauna from the Early Jurassic of the Deccan, India. (*Nature*).
- 846 ——— (with Robinson, P. L.): Some New Specimens of *Lepidotes* from the English Upper Jurassic. (*Proceedings of the Zoological Society of India*).

## INDIAN STATISTICAL INSTITUTE

- (845) RAY CHAUDHURY, T. (with Robinson, P. L. and Jain, S. L.): A New Vertebrate Fauna from the Early Jurassic of the Deccan, India. (*Nature*).
- 847 RAY CHAUDHURI, B.: A Suggested Revision of the Pre-Cambrian Stratigraphy of the Lower Godavari Valley. (*Science and Culture*).
- 848 RAY CHAUDHURI, B.: The Primary Source of Iron-ores in the so-called Pakhal formation in Lower Godavari Valley. (*Journal of Geol. Min. Met.Soc. of India*).
- 849 ———: Occurrence of Glauconite in the Purana Formations of the Lower Godavari Valley. (*Science and Culture*).
- 850 ———: Relation between Atomic Constitution and Lattice Parameters in some Hornblends. (*American Mineralogist*).

### 5.1.3 PAPERS READ AT CONFERENCES (as yet unpublished)

#### A. Theoretical Statistics

- C1 MAHALANOBIS, P. C.: Scientific base of Economic Development. (*Conference for International Co-operation and Partnership, Salzburg-Vienna, July 1962*).
- C2 ———: Problems of Internal Transformation. (*Conference for International Co-operation and Partnership, Salzburg-Vienna, July 1962*).
- C3 PATHAK, P. K.: On Simple Random Sampling with Replacement. (*49th session of the Indian Science Congress, Cuttack, January, 1962*).
- C4 ROYCHAUDHURY, D. K.: On some Connections between Minimum Covers and Balanced Incomplete Block Designs. (*International Statistical Institute, Paris, 1961*).
- C5 ———: Recent Advances on Cyclic Codes. (*Indian Mathematical Society, January, 1962*).

#### B. Biology

- C6 DAVIS, T. A.: Pneumatophores in *Cocos nucifera*. (*49th session of the Indian Science Congress*).
- C7 ———: Possibility of increasing the Life-span of the Coconut Palm. (*49th Session of the Indian Science Congress*).
- C8 ———: The Importance of the Aerial Roots in *Cocos nucifera*. (*49th session of the Indian Science Congress*).
- C9 ———: An Electronic Device to detect Certain Insect Pests. (*49th session of the Indian Science Congress*).

#### C. Regional Planning

- C10 RAO, V. L. S. P. (with Bhat L. S.): Regional Framework for Resource Planning. (*Council of Geographer's Seminar, Cuttack, January, 1962*).
- C11 ———: Macro-Urban analysis: Geographer's Contribution. (*Council of Geographer's Seminar, Cuttack, January, 1962*).
- (C10) BHAT, L. S. (with Rao, V. L. S. P.): Regional Framework for Resource Planning. (*Council of Geographer's Seminar, Cuttack, January 1962*).

THIRTIETH ANNUAL REPORT : 1981-82

D. *Sociology*

- C12 BANDOPADHYAY, S. (with Chattopadhyay, K.): Notes on the Method of Studying Rural Society. (49th Session of the Indian Science Congress).
- (C12) CHATTOPADHYAY, K. (with Bandopadhyay, S.): Notes on the Method of Studying Rural Society. (49th Session of the Indian Science Congress).

E. *Statistical Quality Control*

- C13 MATTHEI, A.: Organising Statistical Quality Control (*Symposium on SQC, Jamshedpur Productivity Council, March 1962*).

F. *Geology*

- C14 RAYCHAUDHURI, B.: Relation between Atomic Constitution and Lattice Parameters in some Hornblende. (49th Session of the Indian Science Congress).
- C15 SENGUPTA, S.: Shear Emplacement of thin Limestone Bands along Granite Contact, (26°11' : 74°26'), east of Kharwa, Rajasthan. (49th Session of the Indian Science Congress).

5.1.4 WORKING PAPERS, NOTES AND REPORTS

- W1 BAKSI, S.: Annotated Bibliography of Indian Palynology.
- W2 BANDYOPADHYAY, S. and CHATTOPADHYAY, K.: Notes on Classification of Family Structures.
- W3 BANDYOPADHYAY, S. and MUKHERJEE, R.: Variations in Cohort-children Ratio in West Bengal and Girdih.
- W4 CHATTERJEE, S. and MUKHERJEE, M.: Report on RTS Selection Tests Part I—M.Stat., Part II—B. Stat.
- W5 ———: Development of a Test Battery for selecting Students for the Librarianship Training Course of Bengal Library Association (BLA).
- (W2) CHATTOPADHYAY, K. and BANDYOPADHYAY, S.: Notes on Classification of Family Structures.
- (W10) DEAR, S. K. and ROY, J.: A Study in the Pattern of Consumer Expenditure in Rural and Urban India, Part II: Changes during the period July 1964-June 1969.
- W6 JAIN, S. L. (with Robinson, P. L.): A Description of the Indian Species of *Lepidotes* and an Examination of the Evolution of the Genus.
- W7 JOHNSON, P.: A preliminary Note on the Geology of a pre-Gondwana inlier, Franchita-Godavari Valley, Andhra Pradesh, India.
- W8 MUKHERJEE, R.: Family: Its Structural Classification (Mimeographed).
- (W3) MUKHERJEE, R. and BANDYOPADHYAY, S.: Variations in Cohort-children Ratio in West Bengal and Girdih.
- (W4) MUKHERJEE, M. and CHATTERJEE, S.: Report on RTS Selection Tests Part I—M.Stat., Part II—B. Stat.

## INDIAN STATISTICAL INSTITUTE

- (WB) MUKHERJEE, M. and CHATTERJEE, S. : Development of a Test Battery for selecting Students for the Librarianship Training Course of B.L.A.
- WB PAL, M. N. : Index of Concentration of Resources—a Contribution to Method in Regional Analysis.
- (W12) PANTHARATHY, G. and SETHURAMAN, J. : Fixed Interval Analysis.
- (W13) ——— : Non-Parametric Methods.
- W10 ROY, J. and DEAN, S. K. : A Study in the Pattern of Consumer Expenditure in Rural and Urban India, Part II: Changes during the period July 1964–June 1969.
- W11 ROY CHOWDHURY, T. K. : Metapossurid from the Maleri Beds of India (Ph.D. Thesis, London University).
- W12 SETHURAMAN, J. and PANTHARATHY, G. : Fixed Interval Analysis.
- W13 ——— : Non-Parametric Methods.

### 5.1.5. BOOK REVIEWS AND ABSTRACTS OF PAPERS

The Research and Training School helped in the preparation of abstracts of statistical papers published in India and Pakistan for the *International Journal of Abstracts* issued by the International Statistical Institute. Dr. C. R. Rao was the Regional Editor and the following members of the staff reviewed one or more articles each : S. John, K. R. Parthasarathy, T. B. Hanumantha Rao, K. R. Shah, J. Sethuraman, J. Roy, S. R. S. Varadhan and C. S. Ramakrishnan.

### 5.1.6 SPECIAL LECTURES

- ADHIKARI, K. : 1. Introduction to the Study of Industrial Social Psychology; 2. The Historical Background on Modern Industrial Social Psychology; 3. The Field and Problems of Social Psychology; 4. The Nature of Social-psychological Analysis; Dynamics of Behaviour.
- CHAUDHURI, S. : A lecture at the Physiology section of the 49th session of the Indian Science Congress on Statistical Analysis of Data of comparison of weight, height and haematological values of new-born babies of the Punjab and Bengal.
- DAVIS, T. A. : 1. A lecture at the Science Association, Jamshedpur Co-operative College on 'Certain Physiological and Genetical Aspects of Coconut'. 2. A radio talk at the AIR, Calcutta, on the instruments devised by him.
- MATTHAI, A. : a) A course of lectures at Asian Trade Union College, Calcutta : 1. Family Budget Enquiries and Construction of Cost of Living Indices; 2. Motion and Time Studies; 3. Job Evaluation; 4. Payment by Results. b) Lecture at Indian Society for Corrosion and Coating, Calcutta, on Statistical Quality Control in Chemical Industry. c) Lecture at the Central Glass and Ceramic Research Institute on Statistical Methods in Chemical Industry. d) Lecture at the Symposium on Statistical Quality Control organized by the Jamshedpur Productivity Council, on Organising for Statistical Quality Control.

### THIRTIETH ANNUAL REPORT : 1961-62

- PAL, P. R. :** 1. Lecture at the Indian Association for the Cultivation of Science, Calcutta, on Tritium as Tracer in Biochemical Research; 2. Two lectures at the Department of Biochemistry and Department of Neurochemistry of the Christian Medical College, Vellore, on (i) Use of Tritium in Biological Research and (ii) Active Transport of Amino acids in Mammalian Cells; 3. A lecture at the Symposium on 'Malabsorption Syndrome' (organized by Gastro-enterological Society of India) on 'Transport of Amino acids through Gastro-intestinal membrane; 4. A course of lectures to the post-graduate students in Biochemistry of Calcutta University, on 'Isotope techniques in Biochemistry.'
- PRABASA RAO, V. L. S. :** 1. Lecture in Faculty of Social Science, Delhi University. On Regional Concept and Scope; 2. Four lectures to students of Architecture and Town Planning, New Delhi, on Delimitation of Regions and Regional Planning; 3. One lecture on the Orientation Course in Geography, at the Institute of Economic Growth, Delhi; 4. Five lectures on problems in Geography at Osmania University, Hyderabad; 5. A course of lectures to post-graduate students in Geography of Madras University, on Regional Concept and Delimitation of Regions.
- RAO, C. R. :** a) Special University lectures in Statistics, University of London : 1. Some New Tests in Large Sample Theory; 2 and 3. On Problems of Discrimination with Multiple Characters. b) Joint Seminars of the Imperial College, Birkbeck College and University College, London : 4. A Generalized Inverse of Matrix and Applications to Problems in Mathematical Statistics; 5. Some New Problems in Multivariate Analysis. c) University of Birmingham : 6. Use of Discriminant and Allied Functions in Multivariate Analysis. d) Research meeting of the Royal Statistical Society, London : 7. Efficient Estimates and Optimum Inference Problems. e) University of Aberdeen, Scotland : 8. Second order of efficiency in Estimation. f) University of Zurich, Switzerland : 9. Testing Prior to the Application of Discriminant Functions.'
- ROY, S. K. :** A lecture at the Botany Section of the 49th session of the Indian Science Congress on 'Sociological Problems in Cultivated Plants.

#### 5.1.7 SEMINARS AND SPECIAL LECTURES

- BRODY, E. J. :** Algebraic Topology.  
**DE, P. K. :** Chemical Engineering Problem.  
**PARTHASARATHY, K. P. :** Ergodic Theory.  
**PAUL, E. M. :** Probability and Number Theory.  
**VARADHAN, S. R. S. :** Limit Theorems in Probability Theory.

#### 5.2 PLANNING DIVISION

##### 5.2.1 PUBLISHED PAPERS

###### A. Delhi Unit

- 1 **AHUJA, K. (1961) :** A Short Note on East European Trade. *The Indian Economic Journal*, January.  
2 ——— (1962) : Export Projections for India. *Economic Weekly*, Special Number, July.

## INDIAN STATISTICAL INSTITUTE

- 3 BHAGAWATI, JAGDISH (1962) : The Socialist Pattern of Society and Foreign Trade. *Economic Weekly*, Special Number, July.
- 4 ——— (1962) : The Case for Devaluation. *Economic Weekly*, August.
- 5 ——— : Reviews of Books on International Trade. *Journal of Political Economy and Economic Journal*.
- 6 ——— (1962) : Economics of Scale, Distribution of Industry and Programming. *Economic Weekly*, August.
- 7 ——— : Distributive Shares in India : *Indian Economic Review*.
- 8 BHAT, L. S. (1962) : Population Studies : A Regional Approach. *Bombay Geographical Jour.*, 8 & 9.
- 9 ——— : Population Density and Growth in India : Regional Analysis. *Bulletin on Proceedings and Papers of the Indian Council of Geographers*, New Delhi.
- 10 PAUL, M. N. (1962) : Quantitative Delimitation of Regions. *Bombay Geographical Jour.*, 8 & 9.
- 11 PRAKASA RAO, V. L. S. : Regionalisation for Planning in India. *Bulletin on Proceedings and Papers of the Indian Council of Geographers*, New Delhi.
- 12 RUDRA, A. (1961) : Growth of Output and Income in India, *Perspective*, June.
- 13 ——— (1962) : Multisector Models for Planning. *Economic Weekly*, Annual Number.

### B. Calcutta Unit

- 1 BHOWAL, A. K. (1961) : Planning and Choice of Technique. *Perspective*, 1.
- 2 CHATTERJEE, A. (1961) : Factor Shares in National Income, 1956-57. *Arthaniti*, July.
- 3 ——— (1961) : Wage-profit Relation in Indian Manufacturing Industries, 1947-48. *Perspective*, December.
- 4 DEY, B. (1961) : Some Aspects of Economic Development of the Eastern Regions of India. *44th Conference Number, All India Economic Conference*, Dharwar, December.
- 5 MAHALANOBIS, P. C. (1961) : Studies Relating to Planning for National Development. *Talks on Planning*.
- 6 ——— (1961) : National Income, Investment and National Development. *Talks on Planning*.
- 7 ——— (1961) : A Note on Problems of Scientific Personnel. *Science and Culture*, 27, 3, 110-123.
- 8 ——— and MUKHERJEE, M. (1961) : Operational Research Models used for Planning in India. *Proceedings of the Second Operational Research International Conference*.
- 9 MUKHERJEE, M. (1962) : National Income in India during the Last Decade in a Decade of Economic Development and Planning in India. *Asian Study Press*.
- 10 ——— (1962) : On a Type of Growth Models depicting Transition to Capital Intensive Production Processes. *Economic Affairs*, Annual Number, January.
- (8) ——— and MAHALANOBIS, P. C. (1961) : Operational Research Models used for Planning in India. *Proceedings of the Second Operational Research International Conference*.



### THIRTIETH ANNUAL REPORT : 1961-62

- 11 FRYLAI, T. (1962) : Problem relating to Measurement of Output Originating in the Banking Sector. *Economic Affairs*, Annual Number, January.
- 12 ——— (1961) : Certain Aspects of Utilization of Rural Transport in India. *Economic Affairs*, September.

#### 5.3.2 PAPERS SUBMITTED FOR PUBLICATION OR READ AT CONFERENCES

##### A. Delhi Unit

- 1 BHAGWATI, JADDER : Domestic Distortions, Tariffs, and Theory of Optimum Subsidy. (*Journal of Political Economy*).
- 2 ——— : Survey of Pure Theory of International Trade. (*The Economic Journal*).
- 3 CHAKRAVARTY, A. K. : On Factors Influencing Raisings of Coal. (*Selected papers presented at the Econometric Conference*).
- 4 KANSAL, S. M. and SALUJA, M. R. : Preliminary Estimates of Total Consumption Expenditure : 1957-58—1960-61. (*Third Indian Conference on Research in National Income*).
- 5 RUDRA, A. : India-1975. (*Collection of Essays, Poland*).
6. ——— : Value and Price. (*The Journal of the School of Advanced Studies, Paris*).
- (4) SALUJA, M. R. and KANSAL, S. M. : Preliminary Estimates of Total Consumption Expenditure : 1957-58—1960-61. (*Third Indian Conference on Research in National Income*).
- 7 UPADHYAY, P. K. : Non-monetised Investment. (*Third Indian Conference on Research in National Income*).

##### B. Calcutta Unit

- 1 BHATTACHARYA, A. and IYENGAR, N. S. : On the Effect of Differentials in Consumer Price Index on the Lorenz Measure of Inequality. (*Second Indian Econometric Conference, Waltair, June 1961*).
- 2 BHOWMICK, K. and DUTTA, B. : Inter-industrial (Mining and Large-scale Manufacturing) Flow. (*Third Indian Conference on Research in National Income, Bombay, November 1961*).
- 3 CHAKRAVARTY, A. K. : A Comparative Study of Input-output and other methods for estimating Value added by Sectoral Origin. (*Third Indian Conference on Research in National Income*).
- 4 CHATTERJEE, B. : The Indian Agrarian Set-up : A Study in Paradox. (*Second Indian Econometric Conference*).
- 5 CHATTERJEE, G. S. and MAITRA, T. : A Study of Income from Trade in India. (*Third Indian Conference on Research in National Income*).
- 6 DATTA BOY, S. K. : Is Railway Financial Control Today What it Ought to Be ! (*Fiftieth Anniversary Number of Transport, Bombay*).

INDIAN STATISTICAL INSTITUTE

- 7 DUT, B.: Production, Utilisation and Cost-structure of Mining in India, 1954-55. (*Indian Minerals, Geological Survey of India*).
- (2) ——— and BHOWAS, K.: Inter-industrial (Mining and Large-scale Manufacturing) Flows. (*Third Indian Conference on Research in National Income*).
- 8 DHAR, S. K. and ROY, D.: A Study on the Pattern of Consumer Expenditure in Rural and Urban India, Part II: Changes during the period July 1954-June 1959. (*Second Indian Econometric Conference*).
- 9 IYENGAR, N. S.: Estimation of Quality Elasticities for Certain Commodities from NSS data. (*Second Indian Econometric Conference*) (*Sankhyā*).
- 10 ——— and MUKHERJEE, M.: A Note on the Derivation of Size Distribution of Personal Household Income from a given Size Distribution of Consumer Expenditure. (*Second Indian Econometric Conference*).
- (1) ——— and BHATTACHARYA, A.: On the Effect of Differentials in Consumer Price Index on the Lorenz Measure of Inequality. (*Second Indian Econometric Conference*).
- 11 ——— and SINHA, P. N.: On the Estimates of Marginal Propensity to Consume in India and Some Other Countries. (*Second Indian Econometric Conference*) (*The International Economic Review*).
- (5) MAITRA, T. and CHATTERJEE, G. S.: A Study on Income from Trade in India. (*Third Indian Conference on Research in National Income*).
- 12 MUKHERJEE, G. P. and SEN, P.: Localisation and Productivity of Major Indian Industries. (*Second Indian Econometric Conference*).
- (10) MUKHERJEE, M. and IYENGAR, N. S.: A Note on the Derivation of Size Distribution of Personal Household Income from a given Size Distribution of Consumer Expenditure. (*Second Indian Econometric Conference*).
- 13 NAQVI, S.: Price Policy for Agricultural Development. (*Annual Conference of the Indian Society of Agricultural Economics, Patna, 21-23 December 1961*).
- 14 NARAYANAN, B. and ROY, BINA: The Movement of Distributive Shares in India. (*Third Indian Conference on Research in National Income*).
- 15 ——— and TITTEE, G.: An Econometric Model for India. (*Second Indian Econometric Conference*).
- 16 PARTHASARATHY, G. and SETHURAMAN, J.: Fixed Interval Analysis. (*Second Indian Econometric Conference*).
- 17 PARTHASARATHY, K. R.: On Testing the Mean of a Discrete Linear Process. (*Second Indian Econometric Conference*).
- 18 PIPAL, T.: Contribution of Rural Transport Enterprises to Gross National Income of India, 1955-56. (*Third Indian Conference on Research in National Income*).
- (14) ROY, BINA and NARAYANAN, B.: The Movement of Distributive Shares in India. (*Third Indian Conference on Research in National Income*).

THIRTIETH ANNUAL REPORT : 1961-62

- (8) ROY, J. and DHAR, S. K. : A Study on the Pattern of Consumer Expenditure in Rural and Urban India. Part II : Changes during the period July 1964-June 1959. (*Second Indian Econometric Conference*).
- (12) SHN, P. and MUKHERJEE, G. P. : Localization and Productivity of Major Indian Industries. (*Second Indian Econometric Conference*).
- (16) SETHURAMAN, J. and PARTHASARATHY, G. : Fixed Interval Analysis. (*Second Indian Econometric Conference*).
- 19 SINGH, P. N. : On Linkage Coefficients for the Indian Economy. (*Second Indian Econometric Conference*).
- 20 ——— : Some Estimates of Marginal Capital Productivity for Indian Manufacturing Industries. (*Second Indian Econometric Conference*).
- (11) ——— and IVENGAR, S. N. : On the Estimates of Marginal Propensity to Consume in India and Some Other Countries. (*Second Indian Econometric Conference*) (*The International Economic Review*).
- 21 SOM, R. K. : A Note on Marginal Spending. (*Second Indian Econometric Conference*).
- (15) TRITNER, G. and NARAYAN, R. : An Econometric Model for India. (*Second Indian Econometric Conference*).

5.2.3 WORKING PAPERS AND TECHNICAL NOTES

A. Delhi Unit

- 1\* AHUJA, K. : Export Projection and Trends : 1975.
- 2\* ——— and BHAGWATI JAGDISH : A Survey on Benefits to Exporters from Export Promotion Schemes.
- (2)\* BHAGWATI, JAGDISH and AHUJA, K. : A Survey of Benefits to Exporters from the Export Promotion Schemes.
- 3\* ——— and CHOUDHURI, M. D. : Economies of Scales and Location of Aluminium Industry in India.
- 4\* ——— and CHOUDHURI, M. D., DUTTA, P. K. and SHARDAMANI, K. : Regional Allocation in Long-term Planning.
- 5\* BHAT, L. S. in collaboration with Perspective Planning Division, Planning Commission : A General Regional Plan for South India.
- 6 ——— and PRAKASA RAO, V. L. S. : Regional Framework for Resource Planning.
- 7\* ———, PRAKASA RAO, V. L. S. and SATHYANARAYAN, S. : The Concept of Core Area in Regionalisation with Special Reference to Sugar Industry in South India.
- 8\* ——— and SATHYANARAYAN, S. : Agricultural Regions in South India.
- 9 CHAKRAVARTI, A. K. : Report on the Structure of the Indian Economy 1953-54.
- 10\* ——— and RAMASWAMI, C. : Pilot Inter-industry Model on Growth of Indian Economy.
- (3)\* CHOUDHURI, M. D. and BHAGWATI, JAGDISH : Economies of Scale and Location of Aluminium Industry in India.

\* Denotes study in progress.

INDIAN STATISTICAL INSTITUTE

- (4)\* CHOUDHURI, M. D., BHAGWATI, JAGDISH, DUTTA, P. K. and SHARDAMANI, K. : Regional Allocation in Long-term Planning.
- 11\* ——— and KOOLA, PUSHPAM P. : A Macro-economic Exercise on Savings and Efficiency of Investments for a 15-year Planning Model for India.
- 12 ——— in collaboration with Perspective Planning Division : A note on Economics of Dieselization of the Indian Railways.
- 13 ——— in collaboration with Perspective Planning Division : Cost Benefit Aspects of Manufacture of Phosphorous.
- 14 ——— in collaboration with Perspective Planning Division and Lefebvre, Louis. (MIT) : Transportation Policy.
- (4)\* DUTTA, P. K., BHAGWATI, JAGDISH, CHOUDHURI, M. D., and SHARDAMANI, K. : Regional Allocation in Long-term Planning.
- 15\* KANSAL, S. M. and KOOLA, P., RAMSUNDER, A. V., RUDRA, A., SALUJA, M. R., SHARMA, H. C., in collaboration with Perspective Planning Division : Structure of the Indian Economy in 1975-76.
- 16 ——— and SALUJA, M. R. : Preliminary Estimates of Total Consumption Expenditure, 1957-58-1960-61.
- (11)\* KOOLA, PUSHPAM P. and CHOUDHURI, M. D. : A Macro-economic Exercise on Savings and Efficiency of Investments for a 15-year Planning Model for India.
- (15)\* ——— and KANSAL, S. M., RAMSUNDER, A. V., RUDRA, A., SALUJA, M. R. and SHARMA, H. C. in collaboration with Perspective Planning Division : Structure of the Indian Economy 1975-76.
- 17 KOO-CHUN, CHAO : Utilisation of Rural Manpower.
- 18 PAL, M. N. : Index of Concentration of Resources—A Contribution to Method in Regional Analysis.
- 19\* PANDALAI, M. S., in collaboration with Perspective Planning Division : A Fifteen-year Plan for Educational Development, India, 1961-76.
- 20 PRAKASA RAO, V. L. S. : Macrounvan Analysis—Geographers' Contribution.
- (6) ——— and BHAT, L. S. : Regional Framework for Resource Planning.
- (7)\* ——— and BHAT, L. S. and SATHYANARAYAN, S. : The Concept of Core Area in Regionalisation with Special Reference to Sugar Industry in South India.
- 21 PRAKASH, VINOD and RAMSUNDER, A. V., SHARMA, H. C., in collaboration with Perspective Planning Division : A Preliminary Study on Unit Consumption Data.
- (11)\* RAMASWAMI, C. and CHAKRAVARTI, A. K. : Pilot Inter-industry Model on Growth of Indian Economy.
- (15)\* RAMSUNDER, A. V. and KANSAL, S. M., KOOLA, P., RUDRA, A., SALUJA, M. R., SHARMA, H. C., in collaboration with Perspective Planning Division : Structure of the Indian Economy 1975-76.
- (21) ——— and PRAKASH, VINOD and SHARMA, H. C., in collaboration with Perspective Planning Division : A Preliminary Study on Unit Consumption Data.

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\* Denotes study in progress.

THIRTIETH ANNUAL REPORT: 1961-63

- (15)\* RUDRA, A. and KANSAL, S.M., KOOLA, P., RAMSUNDER, A.V., SALUJA, M. R., SHARMA, H. C. in collaboration with Perspective Planning Division: Structure of the Indian Economy in 1975-76.
- 23 SALUJA, M. R.: A Bibliography with Brief Notes on the work done on Consumption Studies.
- (16) ——— and KANSAL, S. M.: Preliminary Estimates on Total Consumption Expenditure; 1957-58-1960-61.
- (15)\* ——— and KANSAL, S. M., KOOLA, PUSFAM, P., RAMSUNDER, A. V., RUDRA, A. and SHARMA, H. C. in collaboration with Perspective Planning Division: Structure of the Indian Economy in 1975-76.
- (8)\* SATEYANARAYAN, S. and BHAT, L. S.: Agricultural Regions in South India.
- (7)\* ——— and BHAT, L. S. and PRAKASA, RAO, V. L. S.: The Concept of Core Area in Regionalisation with Special Reference to Sugar Industry in South India.
- (4)\* SHARDAMANI, K., BHAGWATI, JAODISH, CHOUDHURY, M. D., DUTTA, P. K.: Regional Allocation in Long-term Planning.
- (15)\* SHARMA, H. C. and KANSAL, S. M., KOOLA, PUSFAM P., RAMSUNDER, A. V., RUDRA, A., SALUJA, M. R., in collaboration with Perspective Planning Division: Structure of Indian Economy in 1967-76.
- (21) ——— and PRAKASH VINOD and RAMSUNDER, A. V. in collaboration with Perspective Planning Division: A Preliminary Study on Unit Consumption Data.
- 23 UPADHYAY, P. K.: Non-monetised Investment.
- 24 ——— in collaboration with Perspective Planning Division: Price Policy for Irrigation Undertakings.
- 25 ——— in collaboration with Perspective Planning Division: Price Policy for Coal Undertakings.
- 26 ——— in collaboration with Perspective Planning Division, Andreatta, N. and Harberger, A. (M.I.T.): Price Policy for Electricity Undertakings.

B. Calcutta Unit

(Working paper number/dates of release are given in brackets)

- 1 AIKAT, J., BHATTACHARYA, N., IYENGAR, N. S., SOM, R. K., DE, A. K., BHATTACHARYA, S. and GUHA, S.: A Note on the Availability of NSS Data for Studies on Levels of Living (219/10 April 1961).
- 2 BISWAS, A. K. and BISWAS, H. P.: Engel Elasticity of Consumption Expenditure on some selected items and Estimation of Increase in their Demand during the Third Five Year Plan (238/29 July 1961).
- (2) BISWAS, H. P. and BISWAS, A. K.: Engel Elasticity of Consumption Expenditure on some selected items and Estimation of Increase in their Demand during the Third Five Year Plan (238/29 July 1961).

\* Denotes study in progress.

### INDIAN STATISTICAL INSTITUTE

- 3 BHATTACHARYA, N. and IYENGAR, N. S. : Changes in the Pattern of Distribution of Persons, by Monthly per capita total Consumer Expenditure over NSS Rounds 219/7 April 1961).
- (1) ——— and IYENGAR, N. S., AIKAT, J., SOM, R. K., DE, A. K., BHATTACHARYA, S. and GUHA, S. : A Note on the Availability of NSS Data for Studies on Levels of Living (219/10 April 1961).
- 4 ——— and IYENGAR, N. S. : The Effect of Differentials In the Consumer Price Index on the Lorenz Measure of Inequality (225/28 June 1961).
- 5 ——— and NAIB, K. G. C. : Effect of Degree of Urbanisation on the Consumer Expenditure Pattern in India. (242/23 December 1961).
- (1) BHATTACHARYA, S., BHATTACHARYA, N., IYENGAR, N. S., AIKAT, J., SOM, R. K., DE, A. K. and GUHA, S. : A Note on the Availability of NSS Data for Studies on Levels of Living (219/10 April 1961).
- 6 CHATTERJEE, B. : The Indian Agrarian Set-up : A Study in Paradox (233/5 July 1961).
- 7 CHATTERJEE, G. S. and MAITRA, T. : A Study of Trade in India (221/15 April 1961).
- 8 CHATTERJEE, I. : The Nutritional Food Cost and its Economic impact on the Cost of Milk Production (241/2 December 1961).
- 9 ——— and SAHA, S. : India's Cows and Plough Cattle and their Inter-relation with Work and Milk Production (239/23 September 1961).
- 10 CHATTERJEE, N. K. : Domestic Employees of Calcutta (earnings and Some Other Aspects) (237/26 July 1961).
- (1) DE, A. K., BHATTACHARYA, N., IYENGAR, N. S., AIKAT, J., SOM, R. K., BHATTACHARYA, S. and GUHA, S. : A Note on the Availability of NSS Data for Studies on Levels of Living (219/10 April 1961).
- 11 DHAR, S. K. and ROY, J. : A Study in the Pattern of Consumer Expenditure in Rural and Urban India, Part II : Changes during the period July 1954-June 1959 (232/5 July 1961).
- (1) GUHA, S., BHATTACHARYA, N., IYENGAR, N., S. AIKAT, J., SOM, R. K., DE, A. K. and BHATTACHARYA, S. : A Note on the Availability of NSS Data for Studies on Levels of Living (219/10 April 1961).
- (3) IYENGAR, N. S. and BHATTACHARYA, N. : Changes in the Pattern of Distribution of Persons by Monthly per-capita total Consumer Expenditure over NSS Rounds (218/7 April 1961).
- (1) ——— and BHATTACHARYA, N., AIKAT, J., SOM, R. K., DE, A. K., BHATTACHARYA, S. and GUHA, S. : A Note on the Availability of NSS Data for Studies on Levels of Living (219/10 April 1961).
- 12 ——— and MUKHERJEE, M. : A Note on the Derivation of Size Distribution of Personal Household Income from a given size Distribution of Consumer Expenditure (224/28 June 1961).
- (4) ——— and BHATTACHARYA, N. : The Effect of Differentials in the Consumer Price Index on the Lorenz measure of inequality. (225/28 June 1961).

THIRTIETH ANNUAL REPORT : 1961-62

- 13 IYENGAR, N. S. and SINOH, P. N. : Estimates of Marginal Propensities in India and some other countries (226/28 June 1961).
- 14 ——— : A Note on Quality Sensitiveness to changes in Standard of Living (236/7 July 1961).
- (7) MAITRA, T. and CHATTERJEE, G. S. : A Study of Trade in India. (221/15 April 1961).
- 15 MAITY, SANAT : A Comparative Study of Civil Police Force and Crime in the Districts of West Bengal and Calcutta from 1931-1957. (240/24 November 1961).
- 16 MAZUMDAR, H. and SOLOMON, M. J. : Inventory Holding by Manufacturers in India and United States 1950-1958 (Revised and enlarged). (222/1 May 1961).
- 17 MUKHERJEE, G. P. and SEN, P. : Localization and Productivity of Major Indian Industries (234/5 July 1961).
- (12) MUKHERJEE, M. and IYENGAR, N. S. : A Note on the Derivation of Size Distribution of Personal Household Income from a given size Distribution of Consumer Expenditure (224/28 June 1961).
- (5) NAIR, K. G. C. and BHATTACHARYA, N. : Effect of Degree of Urbanisation on the Consumer Expenditure Pattern in India (242/23 December 1961).
- 18 NARAYANAN, R. and TINTNER, G. : An Econometric Model for India (230/12 April 1961).
- 19 PARTHASARATHY, G. and SETHURAMAN, J. : Fixed Interval Analysis (230/3 July 1961).
- 20 PARTHASARATHY, K. R. : On Testing the Mean of a Discrete Linear Process (231/3 July 1961).
- 21 PIPAL, TAPAN : An Estimate of National Income Originating from Rural Transport Enterprise in India, 1955-56 (223/24 May 1961).
- 22 RANGACHARY, S. : The Impact of the Population Growth on the Economic Development of India (235/5 July 1961).
- 23 RAO, K. K. : On a Method of deriving Size Distribution of Personal Income (244/12 March 1962).
- (12) ROY, J. and DHAB, S. K. : A Study on the Pattern of Consumer Expenditure in rural and urban India. Part II : Changes during the period July 1954-June 1959. (232/5 July 1961).
- 24 RUTHERFORD, R. S. G. : Some Notes on the possible Errors Involved in using 'Income Per-capita' Information to measure the Concentration of 'Income per income earner' Distributions. (243/23 December 1961).
- (8) SAHA, S. and CHATTERJEE, I. : India's Cow and Plough Cattle and their inter-relation with work and Milk Production. (238/23 September 1961).
- (19) SETHURAMAN, J. and PARTHASARATHY, G. : Fixed Interval Analysis. (230/3 July 1961).
- (17) SEN, P. and MUKHERJEE, G. P. : Localization and Productivity of Major Indian Industries (234/5 July 1961).
- (18) SINOH, P. N. and IYENGAR, N. S. : Estimates of Marginal Propensities in India and some other countries (226/28 June 1961).

INDIAN STATISTICAL INSTITUTE

- 25 **STRAZ, P. N.** : On Linkage Coefficients for the Indian Economy (227/29 June 1961).  
 26 ——— : Some Estimates of Marginal Capital Productivity for Indian Manufacturing Industries (228/29 July 1961).  
 (16) **SOLOMON, M. J.** and **MASUMDAR H.** : Inventory holding by Manufacturers in India and United States, 1950-1958. (Revised and enlarged) (222/1 May 1961).  
 (1) **SOM, R. K., BHATTACHARYA, N., IYENGAR, N. S., AHUJA, J., DW, A. K., BHATTACHARYA, S. and GUHA, S.** : A Note of the availability of NSS Data for Studies on Levels for Living (219/10 April 1961).  
 27 **SOM, R. K.** : A Note on Marginal Spending (229/3 July 1961).  
 (18) **TITTERTON, G.** and **NARAYANAN, R.** : An Econometric Model for India. (230/12 April 1961).

5.3 NATIONAL SAMPLE SURVEY

5.3.1 LIST OF NATIONAL SAMPLE SURVEY REPORTS (AS ON 7 MAY 1962)

(Number within parentheses indicated draft reports)

sl. no.	report no.	title
1	1	General Report No. 1 on the First Round (October 1960-March 1961), December 1962.
2	2	Tables with Notes on the Second Round (April-June 1961), December 1963.
3	3	Tables with Notes on the Third Round (August-November 1961), March 1964.
4	4	Survey of Persons in the "Live-Register" of Delhi Employment Exchange (August-September 1961, <i>ad hoc</i> , March 1964).
5	5	Technical Papers on Some Aspects of the Development of the Sample Design, March 1964.
6	6	Survey of Faridabad Township (March-April 1964), December 1964.
7	7	Couple Fertility (Second Round : April-June 1961 and Fourth Round : April-June 1963), December 1965.
8	8	Report on Preliminary Survey of Urban Employment (September 1963, <i>ad hoc</i> , March 1966).
9	9	Sample Survey of Displaced Persons in the Urban Area of Bombay State (July-September 1963, <i>ad hoc</i> , October 1967).
10	10	First Report on Land Holdings, Rural Sector, (Eighth Round : July 1964-March 1965), February 1968.
11	11	Report on Sample Survey of Manufacturing Industries, 1949-1960, September 1968.
12	12	A Technical Note on Age Grouping, October 1968.
13	13	Report on Small-scale Transport Operation (Seventh Round, October 1963-March 1964), November 1968.



## THIRTIETH ANNUAL REPORT : 1961-62

sl. no.	report no.	title
14	14	Some Characteristics of the Economically Active Population, (Fourth to Seventh Rounds : April 1952-March 1954), <i>March 1959</i> .
15	15	Report on Sample Survey of Manufacturing Industries, 1951, <i>December 1958</i> .
16	16	Report on Sample Survey of Employment and Unemployment (May-November 1955), <i>May 1959</i> .
17	17	Calcutta Employment Survey (September 1953), <i>May 1959</i> .
18	18	Tables with Notes on Fourth Round Consumer Expenditure Survey (April-September 1952), <i>September 1959</i> .
19	19	Report on Small Scale Manufacturing : Household Enterprises (October 1953-March 1954).
20	20	Pattern of Consumer Expenditure (Second to Seventh Rounds : April 1951-March 1954).
21	21	Report on Small-scale Manufacturing Establishments (Ninth Round : May-November 1955).
22	22	Report on Sample Survey of Manufacturing Industries 1952.
23	23	Report on Sample Survey of Manufacturing Industries 1953.
24	24	Report on Household Retail Trade (Seventh to Ninth Rounds : October 1953-September 1955).
25	25	Sample Verification of Livestock Census, 1956.
26	26	A Preliminary Report on Housing Conditions (Seventh Round : October 1953-March 1954).
27	27	Some Basic Information about Sample Villages (Ninth Round : May-November 1955).
28	28	Report on the Sample Survey of Manufacturing Industries (1954(1)).
29	29	Notes on Some Results of the Land Utilisation Survey (Tenth Round : December 1955-May 1956).
30	30	Report on Land Holdings (2) (Operational Holdings in Rural India) (Eighth Round : July 1954-April 1956).
31	31	Tables with Notes on Household Transport Operations (Eighth to Tenth Rounds : July 1954-May 1956).
32	32(I)	Some Aspects of Costs of Cultivation (major crop) (Fifth to Seventh Rounds : October 1952-March 1954).
33	32(II)	Some Aspects of Cost of Cultivation (further crops) (Fifth to Seventh Rounds : October 1952-March 1954).
34	32(III)	Some Aspects of Cost of Cultivation of Minor Cereals Crops, Pulses and Sugar-cane (Fifth to Seventh Rounds : October 1952-March 1954).
35	23	Tables with Notes on Wages, Employment, Income and Indebtedness of Agricultural Labour Households in Rural Areas (Eleventh and Twelfth Rounds : August 1956-August 1957).

INDIAN STATISTICAL INSTITUTE

sl. no.	report no.	title
36	34	Tables with Notes on Employment and Unemployment (Tenth Round : December 1955-May 1956).
37	35	Tables with Notes on Livestock Products (Fifth to Seventh Rounds : April 1952-March 1954).
38	36	Report on Land Holdings (3) (Some Aspects of Ownership Holdings) (Eighth Round : July 1954-April 1955).
39	37	Survey of Book Reader's Preference in India (Thirteenth Round : September 1957-May 1958).
40	38	Some Results of the Land Utilisation Survey and Crop-cutting Experiments (Thirteenth Round : September 1957-May 1958).
41	39	Tables with Notes on Consumer Expenditure (Eighth Round : July 1954-March 1955).
42	40	Tables with Notes on Consumer Expenditure (Ninth Round : May-November 1955).
43	41	Household Retail Trade (Tenth Round : December 1955-May 1956).
44	42	Report on Small Scale Manufacturing Household Enterprises Smaller than Registered Factories (Seventh to Eighth Rounds : October 1953-April 1955).
45	43	Tables with Notes on Small Scale Manufacturing Household Enterprises Smaller than Registered Factories (Ninth and Tenth Rounds : May 1955-May 1956).
46	44	A Note on Profession, Services and Financial Operations (Fourth to Eighth Rounds : April 1953-April 1955).
47	45	Indian Villages : A Study of Some Social and Economic Aspects (Tenth to Twelfth Rounds : December 1955-August 1957).
48	46	Tables with Notes on Consumption Expenditure on Agricultural Labour Households in Rural India (Eleventh and Twelfth Rounds : August 1956-August 1957).
49	47	Tables with Notes on Consumer Expenditure (Tenth Round : December 1955-May 1956).
50	48	Preliminary Estimates on Birth and Death Rates and the Rate of Growth of Population (Fourteenth Round : July 1958-July 1959).
51	49	Report on Morbidity (Thirteenth Round : September 1957-May 1958).
52	50	Tables with Notes on Housing Condition (Tenth Round : December 1955-May 1956).
53	51	Tables with Notes on Housing Condition (Eleventh Round : August 1956-January 1957).
54	52	Tables with Notes on Employment and Unemployment (Eleventh and Twelfth Rounds : August 1956-August 1957).

THIRTIETH ANNUAL REPORT : 1961-62

sl. no.	report no.	title
55	53	Tables with Notes on Internal Migration (Ninth, Eleventh, Twelfth and Thirteenth Rounds : May 1953-May 1958).
56	54	Vital Rates (Seventh Round : October 1953-March 1954).
57	55	Report on Sample Survey of Manufacturing Industries 1954(2) : Exploratory Survey of Scheduled Industries.
58	56	Report on Sample Survey of Manufacturing Industries 1955(1) : Survey of Scheduled Industries.
59	(44)	Tables with Notes on Employment and Unemployment (Thirteenth Round : September 1957-May 1958)—Urban.
60	(46)	Report on Land Holdings (4) Rural Sector. (Eighth Round : July 1954-April 1955).
61	(49/1-3)	Preliminary Estimates of Rural Retail Prices (Fourteenth Round : July 1958-June 1959), sub-rounds 1-3.
62	(50)	Notes on the Results of the Land Utilisation Survey and Crop-cutting Experiments (Twelfth Round : March 1957-August 1957).
63	(57)	Report on Employment and Unemployment (Ninth Round : Supplementary : May-November 1955).
64	(60)	Notes on the Results of the Land Utilisation Survey and crop-cutting Experiments. (Eleventh Round : August 1956-February 1957).
65	(61)	Some Results of the Land Utilisation Survey and Crop-cutting Experiments. (Fourteenth Round : July 1958-June 1959).
66	(64)	Tables with Notes on Pattern of Household Ownership and Profession of Land in Rural Areas 1950-51 to 1953-54 (Eighth Round : July 1954-April 1955).
67	(66)	Report on Sample Survey of Manufacturing Industries 1956(1).
68	(68/1)	Tables with Notes on Small Scale Manufacture : Rural (Fourteenth Round : July 1958-June 1959).
69	(68/2)	Tables with Notes on Small Scale Manufacture—Rural and Urban (Fourteenth Round : July 1958-June 1959).
70	(69)	Consumer Expenditure by Levels of Household Expenditure (Thirteenth Round : September 1957-May 1958).
71	(70)	Tables with Notes on Farming Condition and Practices in Rural Indian Areas 1953-54 (Eighth Round : July 1954-April 1955).
72	(72)	Tables with Notes on Consumer Expenditure (Eleventh Round : August 1956-January 1957).
73	(73)	Report on Land Holdings (5), Rural Sector—States (Eighth Round : July 1954-April 1955).
74	(74)	Report on the Sample Survey of Manufacturing Industries 1955 (2).
75	(75)	Tables with Notes on Rural Indebtedness (Eighth Round : July 1954-April 1955).

INDIAN STATISTICAL INSTITUTE

sl. no.	report no.	title
76	(76)	Some Results of the Land Utilisation Survey and Crop-cutting Experiments (Fifteenth Round : July 1959-June 1960).
77	(77)	Tables with Notes on Milk production (Twelfth Round : March 1957-August 1957).
78	(78)	Technical Paper on Sample Design (Fourteenth Round : July 1958-June 1959).
79	(79)	Tables with Notes on Consumer Expenditure (Twelfth Round : March-August 1957).
80	(80)	Tables with Notes on Consumer Expenditure (Thirteenth Round : September 1957-May 1958).
81	(81)	Tables with Notes on Some Aspects of Cost of Cultivation of paddy, wheat, barley, maize, millet, pulses, oilseeds and vegetables (Fifth-Seventh Rounds : April 1952-March 1954).
82	(82)	Tables with Notes on Housing Condition (Twelfth Round : March-August 1957).
83	(83)	Tables with Notes on Animal Husbandry (Eleventh Round : August 1956-January 1957).
84	(84)	Indian Villages : A Study on Some Social and Economic Aspects (Thirteenth Round : September 1957-May 1958).
85	(85)	Report on the Sample Survey of Manufacturing Industries 1956 (2).
86	(86)	Report on Manufacturing Industries 1957 (1).
87	(87)	Tables with Notes on Employment and Unemployment in Urban Areas (Fourteenth Round : July 1958-June 1959).
88	(88)	Tables with Notes on Rural Employment and Unemployment (Fourteenth Round : July 1958-June 1959).
89	(89)	Fertility and Mortality Rates in Rural India (Fourteenth Round: July 1958-June 1959).
90	(90)	Tables with Notes on Household Receipts and Disbursements in Urban Area Fourteenth Round : July 1958-June 1959).
91	(91)	Tables with Notes on Manufacturing Industries 1957 (2).
92	(92)	Tables with Notes on Manufacturing Industries 1957 (3).
93	(93)	Tables with Notes on Household Receipt and Disbursements in Rural Areas (Fourteenth Round : July 1958-June 1959).
94	(94)	Report on Land Holdings—Urban Sector (Eighth Round : July 1954-April 1955).

THIRTIETH ANNUAL REPORT : 1961-62

sl. no.	report no.	title
95	(95)	Tables with Notes on Average Budget of Agricultural Labour Household in Rural Area (Eleventh and Twelfth Rounds : August 1956-August 1957).
96	(96)	Tables with Notes on Dwelling Habits on Occupants of the two room Government Residences in New Delhi, July 1960.
97	(97)	Tables with Notes on Consumer Expenditure (Preliminary) (Fifteenth Round : July 1959-June 1960).
98	(98)	Tables with Notes on the Survey of Scheduled Industries 1958. The Sample Survey of Manufacturing Industries, 1958.

5.3.2 RESULTS SUBMITTED TO THE GOVERNMENT NOT INCLUDED IN THE LIST GIVEN IN APPENDIX 5.3.1 (AS ON 7 MAY 1962)

1. Some Tables on Family Living Surveys (Middle Class) for all the 45 centres : Agra, Ajmer, Ahmedabad, Allahabad, Amritsar, Bangalore, Bhopal, Bombay, Calcutta, Chandigarh, Cuttack-Bhubaneswar, Delhi, Gauhati, Gulbarga, Gwalior, Hubli-Dharwar, Hyderabad-Secunderabad, Indore, Jabbalpur, Jaipur, Jammu, Jodhpur, Kanpur, Kharagpur, Kozhikode, Kurnool, Lucknow, Madras, Madurai, Mangalore, Meerut, Muzaffarpur, Nagpur, Patna, Poona, Rajkot, Ranchi, Sambalpur, Shillong, Simla, Srinagar, Tiruchirappalli, Trivandrum, Vijayawada, Waltair.
2. Some Tables on Family Living Surveys (Working Class) for all the 50 centres: Ahmedabad, Ajmer, Alleppey, Alwaye, Ammathi, Amritsar, Asansol, Balaghat, Banaras, Barbil, Bangalore, Bhabnagar, Bhopal, Bombay, Calcutta, Chickmangalur, Coimbatore, Coonor, Darjeeling, Delhi, Digboi, Doom-Dooms, Guntur, Gwalior, Howrah, Hyderabad, Indore, Jaipur, Jalpaiguri, Jammunanagar, Jamshedpur, Jharia, Kanpur, Kodarma, Kolar Gold Field, Lahar, Madras, Madurai, Mariani, Monghyr, Munda-khyam, Nagpur, Noamundi, Rangapura, Raigunj, Saharsanpur, Sambalpur, Solapur, Srinagar.

5.3.3 PUBLISHED PAPERS

- P1 BANERJEE, S. K. (1961) : On Confidence Interval for the Two Means Problem based on separate Estimates of Variance and Tabulated Values of *T*-table. *Sankhyā*.
- P2 MAITRA, P. (1961) : Economic Ideas of Dr. Tagore. *Calcutta Review*, November.
- P3 ——— (1962) : On the Eve of Take-off. *Economic Affairs*. January.
- P4 MUKHERJEE, H. L. (with Som, R. K.) (1962) : Analysis of Variance of Demographic Variables. *Sankhyā* 24, sr. B, 1 & 2.
- P5 MURTHY, M. N. (1962) : Variance and Confidence Interval Estimation. *Sankhyā* 24, sr. B, 1 & 2.
- (P4) SOM, R. K. (with Mukherjee, H. L.) (1962) : Analysis of Variance of Demographic Variables. *Sankhyā* 24, sr. B, 1 & 2.
- P6 ——— (1962) : Computation of National Income in India : Two Aspects of Adjustment. *Economic Weekly*, March.

## INDIAN STATISTICAL INSTITUTE

### 5.3.4 PAPERS SUBMITTED FOR PUBLICATION

(The Journal to which the paper has been submitted for publication is mentioned within brackets)

- S1 BANERJEE, S. K. : The Problem of testing Linear Hypothesis about Population Means when the Population Variances are not equal. (*Sankhyā*).
- S2 MATTEL, P. : Economics of Land Reforms in India. (Seminar on *Human Factor in the Growth of Rural Economy*, Agro-Economic Research Centre, Viswabarhati University).
- S3 ——— : Large-scale Industries since Independence. (*Economic Growth in India since Independence*, Lucknow University).
- S4 MURTHY, M. N. : Almost Unbiased Estimators based on Interpenetrating Sub-Samples. (*Sankhyā*).
- S5 ——— : The work of the United Bureau of the Census with Emphasis on Sample Designs and Control of Errors in Censuses and Surveys. (*Sankhyā*).
- S6 ——— : Assessment and Control of Errors in Census and Surveys. (*Sankhyā*).
- S7 ——— : Product Method of Estimation. (*Sankhyā*).
- S8 ——— : Generalised Unbiased Estimation in Sampling from finite Populations. (*Sankhyā*).
- S9 ——— : Some Recent Advances in Sampling Theory. (*J.A.S.A.*).
- S10 ——— : A Note on Determination of Sample Size. (*Sankhyā*).
- S11 MURTHY, M. N. (with Sethi, V. K.) : Self-weighting Design at Tabulation Stage. (*Sankhyā*).
- (S11) SETHI, V. K. (with Murthy, M. N.) : Self-weighting Design at Tabulation Stage. (*Sankhyā*).
- S12 SOM, R. K. : Use of Interpenetrating Samples in Demographic Studies. (*Sankhyā*).
- S13 ——— : A New Approximation to the True Infant Mortality Rate. (*Sankhyā*).

### 5.3.5 PAPERS READ AT CONFERENCES (AS YET UNPUBLISHED)

- C1 INDIAN STATISTICAL INSTITUTE : The Use of the National Sample Survey in the Estimation of the Current Birth and Death Rates in India. (*International Population Conference, New York, 1961*).
- C2 MAJUMDAR, M. : Ages at Marriages and Marriage Rates in India. (*International Population Conference, New York, 1961*).
- C3 PARTHASARATHY, G. (with Sethuraman, J.) : Fixed Interval Analysis. (*All India Second Econometric Conference, Waltair, 1961*).
- (C3) SETHURAMAN, J. : Fixed Interval Analysis. (*Second Econometric Conference*).
- C4 SOM, R. K. : A Note on Marginal Spending. (*All India Second Econometric Conference, Waltair, 1961*).
- C5 ——— : A new Approximation to the True Infant Mortality Rate. (*49th session : Indian Science Congress, Cuttack, 1962*).

## THIRTIETH ANNUAL REPORT: 1961-62

### 5.3.6 REPORTS AND THESES (AS YET UNPUBLISHED)

- R1 MURTHY, M. N. (with Nanjamma, N. S., Roy, A. S. and Parthasarathy, G.): Bibliography on Sampling Theory and Methods (mimeographed).
- (R1) NANJAMMA, N. S. (with Murthy, M. N., Roy, A. S. and Parthasarathy, G.): Bibliography on Sampling Theory and Methods (mimeographed).
- R2 PARTHASARATHY, G.: Sampling on Successive Occasions and Self-weighting Designs (M.Stat. thesis of the I.S.I.).
- (R1) ——— (with Murthy, M. N., Nanjamma, N. S. and Roy, A. S.): Bibliography on Sampling Theory and Methods (mimeographed).
- (R1) ROY, A. S. (with Murthy, M. N., Nanjamma, N. S. and Parthasarathy, G.): Bibliography on Sampling Theory and Methods (mimeographed).

### 5.3.7 LIST OF WORKING PAPERS

- W.P.1 JOSHI, K.: A Note on the Nature of Basic Data on Large Industrial Establishments in India. *March 1967.*
- W.P.2 DAS, RHEA and MITRA, SHIB K.: Evaluation of the NSS 11th Round Training and Discussion Conference of July 1956. *March 1957.*
- W.P.3 MASUMDAR, M.: Growth of Urban Delhi. *March 1957.*
- W.P.4 SARKAR, B. N.: Concept of Household Memberships in National Sample Survey. *August 1968.*
- W.P.5 SARKAR, D.: Baranagar: A Demographic Study—Growth of Population and Population Characteristics. *December 1968.*
- W.P.6 MURTHY, M. N. and SETHI, V. K.: Self-weighting Design at Tabulation State. *February 1959.*
- W.P.7 SOM, P. K., PILLAI, B. T., DE, A. K., and MUKHERJEE, H. L.: A Note on the Testing of Experimental Census Questionnaire of Adachimachi, Japan. *May 1959.*
- W.P.8 DUTTA MASUMDAR, D. K.: Reliability of NSS Estimates of Milk and Milk Products. *September 1959.*
- W.P.9 SANJAL, S. K., SINHA, S. K. and SAHA, R. P.: Some Suggestions for Agricultural Census 1960. *September 1959.*
- W.P.10 SOM, R. K. and DE, A. K.: Rate of Births, Deaths and Growth from the National Sample Survey Rounds, 1953-59. *November 1959.*
- W.P.11 DE, A. K.: Rates of Births occurring in the Household Premises: NSS 13th Round (Rural): (September 1957-May 1958. *November 1959.*
- W.P.12 DUTTA MASUMDAR, D. K.: Pattern of Consumer Expenditure on Milk and Milk Products. *December 1959.*
- W.P.13 MUKHERJEE, G. P. and BANERJEE, N.: Statistical Study of the Size-efficiency relationship of the Jute Textile Industry of India. *January 1960.*
- W.P.14 PILLAI, B. T. and SOM, R. K.: A Note on Family Planning: NSS Type Study on Population and Vital Statistics.

## INDIAN STATISTICAL INSTITUTE

- W.P.15 DAS, N. C. and MUKHERJEE, H. L.: Pro-testing of 1961 Census of India Draft Questionnaire. *April 1960.*
- W.P.16 SOM, R. K. and BOSE, S. S.: A Note on the Household Size and the Household Expenditure. *May 1960.*
- W.P.17 GANGULY, A. and DAS, N. C.: Progress of literacy in West Bengal Household Comparative Study: 1959. *May 1960.*
- W.P.18 SINHA, A.: Some Results of Public Opinion Enquiry in Calcutta, 1956. *June 1960.*
- W.P.19 DUTTA MUZUMDAR, D. K.: Reference Period in Family Budget Enquiries. *October, 1960.*
- W.P.20 RAO, G. D.: Estimation of Real Income Differences between Rural and Urban Areas on the Basis of NSS Price Data. *November 1960.*
- W.P.21 DASGUPTA, N. K.: Technical Note on Handloom Industry. *August 1961.*
- W.P.22 SARKAR, D.: On Consumption Pattern of Different Levels of per capita Land Possessed. *August 1961.*
- W.P.23 GHOSH, S.: Cement Industry in India: An Analytical Study of its Efficiency (1952-57). *August 1961.*
- W.P.24 DUTTA MAZUMDAR, D. K.: Estimates of Increase in Demand for Services and certain Miscellaneous Items during Third and Fourth Five Year Plans. *December 1961.*

### 5.3.8 LIST OF TECHNICAL NOTES

- N.1 SENGUPTA, J. M.: On Perimeter Bias in Sample Cuts of Sample Size. *November 1957.*
- N.2 SENGUPTA, J. M. On the Use of Motor Vehicles in Crop-cutting Survey and A Sampling of the Road Side Pilot only. *November 1957.*
- N.3 SENGUPTA, J. M. and ROY, A.: Some Studies on the Estimated Rates of Food Consumption based on Household Interviews with varying Lengths of Reference Period. *November 1957.*
- N.4 SENGUPTA, J. M., DUTTA, N. C., and ROY, S.: Experimental Land Utilisation Surveys in Cadastrally Unsurveyed Areas through direct plot to plot observations, Bihar 1956-57. *November 1957.*
- N.5 SENGUPTA, J. M. and TALUQDAR, N. N.: The Possibilities of an Indirect Estimation of Paddy yield from Auxiliary Plant Characters. *March 1959.*
- N.6 SENGUPTA, J. M., ROY, A. and TALUQDAR, J. N.: Some Studies relating to the Variation in Rates of Consumption and Purchase for a few Selected Food Items. *November 1959.*
- N.7 SENGUPTA, J. M. and SINHA, A.: Some Studies on the Consumption of Food and Clothing. *January 1960.*
- N.8 SENGUPTA, J. M.: Special Crop Survey Experiments at Jalgaon and Murshidabad 1958-59. *September 1960.*



### THIRTIETH ANNUAL REPORT : 1961-62

- N.9 SENGUPTA, J. M. : A Study of the Field Cost for the Collection of Household Consumption Data by an Interview Method. *January 1961.*
- N.10 SENGUPTA, J. M., TALUQDAR, J. N. and SEN, T. : Studies on the Consumption of Specific Drugs through Retail Sale in Calcutta. *February 1961.*
- N.11 Some results from Pilot Surveys on Land Utilisation and Crop yields in West Bengal during the years 1957-58 to 1960-61. *December 1961.*
- N.12 SENGUPTA, J. M. : An Experimental Study for the Estimation of per capita Consumption of Total Cereals in Rural Households. *December 1961.*
- N.13 CHOWDBURY, P. : A Note on the Sampling Errors of the Areas estimated from Special Crop Surveys in West Bengal 1951-60. *February 1962.*
- N.14 SENGUPTA, J. M. : Enumeration of Fruit Trees in Land Utilisation Surveys. *March 1962.*
- N.15 Some Results of the Joint Crop-cutting Experiments on Kharif jowar in mixture at Bundi (Rajasthan), November-December 1960. *July 1961.*
- N.16 Preliminary Results of the Joint Crop-cutting Experiments on Rabi crops in Barh (Bihar), February-April 1961 (Draft) : *October 1961.*

### 5.4 ELECTRONICS DIVISION

#### 5.4.1 PUBLISHED PAPERS

1. DUTTA MAJUMDAR, D. (1961) : A Magnetic Drum Digital Storage Systems. *J.I.T.E.* 7.1, 27-38.
2. ——— (1962) : Design of an Electronic Correlator Using Magnetic Drum. *J.I.T.E.* 8.2, 83-92.
3. SEN GUPTA, A. (1962) : Fractile Graphical Analysis. *Publication of the Hungarian Central Office.* 2, 76-84.

#### 5.4.2 PAPERS SUBMITTED FOR PUBLICATION

(The Journal to which the paper has been submitted for publication is mentioned within brackets)

1. BASU, S. : Design of Diode Transister Logical Circuits (NOR). (*J.I.T.E.*)
- (2) BISWAS, R. (with Dutta Majumdar, D.) : A Self-strobed Reading Method for Magnetic Drum Memory. (*I.J.P.*)
- (4) CHATTERJEE, J. S. (with Dutta Majumdar, D., Metropolis, N., Mitra, S. K., Nag, B., Yong, S. Y.) : An Experimental Computer. (*Proceedings of Congress of International Federation for Information Processing 1962.*)
2. DUTTA MAJUMDAR, D. (with Biswas, R.) : A Self-strobed Reading Method for Magnetic Drum Memory. (*I.J.P.*)
- (4) DUTTA MAJUMDAR, D. (with Chatterjee, J. S., Metropolis, N., Mitra, S. K., Nag, B., Yong, S. Y.) : An Experimental Computer. (*Proceedings of Congress of International Federation for Information Processing 1962.*)
3. ——— : A Study on Recording and Reproduction of Digital Data on and from Magnetic Drum Surface. (*I.J.P.*)

INDIAN STATISTICAL INSTITUTE

- (4) METROPOLIS, N. (with Chatterjee, J. S., Dutta Majumdar, D., Mitra, S. K., Nag, B., Yong, S. T.): An Experimental Computer. (*Proceedings of Congress of International Federation for Information Processing 1962*).
4. MITRA, S. K. (with Chatterjee, J. S., Dutta Majumdar, D., Metropolis, N., Nag, B., Yong, S. Y.): An Experimental Computer. (*Proceedings of Congress of International Federation for Information Processing 1962*).
- (4) NAG, B. (with Chatterjee, J. S., Dutta Majumdar, D., Metropolis, N., Mitra, S. K., Yong, S. Y.): An Experimental Computer. (*Proceedings of Congress of International Federation for Information Processing 1962*).
- (4) YONG, S. Y. (with Chatterjee, J. S., Dutta Majumdar, D., Metropolis, N., Mitra, S. K., Nag, B.): An Experimental Computer. (*Proceedings of Congress of International Federation for Information Processing 1962*).

Appendix 6 : Electronics Division

6.1 LIST OF COMPUTER PROGRAMMES

Type of Problem	Sponsoring Authority	Numerical Method and Check	Programmed by
1. Surge Tank Problem	B.E. College, Sitapur	Method of Iteration	A. Ghosh
2. Matrix Inversion	Research Section, Electronics Division, Indian Statistical Institute	Orthogonalisation Method of S. K. Mitra	S. Mukherjee
3. Numerical Integration Problem	Defence Research Institute, Kanpur	Simpson' Rule	-do-
4. Crystal Structure Problem	Saugar University	Method based on Fourier Series	-do-
5. Population Projection Problem	Research and Training School, Indian Statistical Institute	—	R. Bose
6. Inversion of a Square Matrix of order $36 \times 36$	Planning Division, Indian Statistical Institute	Method of Partition	-do-
7. Standard Error Problem	National Sample Survey, Indian Statistical Institute	—	-do-
8. Solution of a System of Linear Equations having 24 Unknowns	Jadavpur University	Pivotal Condensation Method	-do-
9. Testing of Equality of Means of Two Normal Populations	Indian Council of Agricultural Research, New-Delhi	Gauss' Method of Integration	P. Banerjee
10. Problem on Trajectories	Research Establishment, Government of India	—	P. K. Mitra
11. Fractile Graphical Analysis	Indian Statistical Institute	—	A. San Gupta
12. Adult Equivalent scale on Consumption	Planning Division, Indian Statistical Institute	Sum Check	B. Chanda

THIRTIETH ANNUAL REPORT: 1981-82

Type of Problem	Sponsoring Authority	Numerical Method and Check	Programmed by
13. Matrix Condensation	Punjab University	Sum Check and check of Symmetry of Results	-do-
14. Problem on Turbulence	Atomic Energy Establishment, Trombay	Correlation and Fourier Analysis	-do-
15. Numerical Integration	Science College, Calcutta University	Gauss' Method	-do-
16. Crystal Structure	Presidency College, Calcutta	Method based on Fourier Series & Sum Check	-do-
17. Cross Correlation, Cospectra and Quadrature Spectra	Atomic Energy Establishment, Trombay	Sum Check	-do-
18. Power Flow Problem	State Electricity Board, Government of West Bengal	Iterative Method	M. Roy
19. Calculation of the Maximum and Minimum of the Response to the Tapping Test in Seismograph	B.E. College, Sibpur	Modified Newton-Raphson Method	-do-
20. Problem of Magnetic Field Components	Research Section, Electronics Division, Indian Statistical Institute	—	-do-
21. Calculation of the Zeros of a Determinant whose Elements are given functions of Bessel Functions	Jadavpur University	Regula Falsi Method	-do-
22. Problem on Binding Energy of Atoms	Physics Department, Science College, Calcutta University	Least Square Method	M. Roy
23. Solution of Second Order Simultaneous Differential Equations	Science College, Calcutta University	Adam's Method	-do-
24. Numerical Integration	Indian Association for the Cultivation of Science, Jadavpur	Gauss' Method	-do-

6.2 LIST OF SUB-ROUTINES AVAILABLE IN THE PROGRAMME LIBRARY

For HEC2M

1. Evaluation of the  $n$ th root of a proper fraction.
2. Multiplication of two Square Matrices upto an order 18.
3. Evaluation of the Eigen Values of Real Symmetric Matrix.
4. Calculation of the Eigen Vectors of a Real Symmetric Matrix by a finite iteration process with predetermined Eigen Values.
5. Multiplication of two rectangular matrices with check.

## INDIAN STATISTICAL INSTITUTE

6. Inversion of Matrix upto order 16 by the Pivotal Condensation method.
7. Solution of Linear Equations upto a maximum of 32 variables.
8. Linear Programming by Simplexing Method for a maximum of 500 elements.
9. Calculation of the Square Root of a Number.
10. Computation of  $\sin x$  and  $\cos x$  by the method of Chebyshev's Polynomials.
11. Multiplication of Rectangular Matrices (with sum check) of orders  $m \times n$  and  $n \times p$  where  $m+n+p = 750$ .
12. Evaluation of  $\tan^{-1} x$  by Chebyshev's Polynomial.

### For URAL

1. Matrix Multiplication of two matrices each upto 36 orders in floating point arithmetic.
2. Determination of Latent Roots (Eigen Values) of Symmetrical Matrices upto 28 order.
3. Determination of the Latent Vectors (Eigen Vectors) of Matrices upto 20 order when all the roots are known.
4. Inversion of Matrix upto 50 order by Pivotal Condensation.
5. Rapid Inversion of Matrix upto order 18.
6. Evaluation of square root of a number.
7. Evaluation of exponential, sine, cosine and logarithmic functions.

### Appendix 7 : A Note on Demographic Research

Population problems began to receive serious attention from the 1930's. The only sources of data available at that time were the successive decennial censuses and the vital statistics provided by the registration departments; the latter were known to be wholly inadequate both in quality and quantity. Professor Mahalanobis pointed out in 1937 (1) that long-range forecasts of the growth of population were not reliable and of little value, but the growth of population in the immediate future was of supreme importance to national welfare. He emphasised that scientifically planned sample surveys could adequately meet the needs for demographic research, provide estimates of population growth, and furnish useful information for the study of differential fertility and mortality and the factors associated with them. He further stated that demographic data secured through inter-causal sample surveys could also supply independent external checks on the decennial census returns.

Although the collection of the primary data was completed in the population census of 1941, tabulation was severely out down owing to war conditions. Fortunately, a two-per-cent systematic sample census slip (called the Y-sample after Mr. M. W. M. Yeatts, the Census Commissioner) had been preserved. At the instance of the Indian Statistical Institute, the Government of India agreed to entrust the Institute with the task of tabulation of the 1941 census data on the basis of the 2 per cent Y-sample in respect of certain important census characteristics such as age, sex, means of livelihood, etc. The Government of India also sanctioned a grant to this Institute to conduct experimental studies on sampling census slips tabulation. Work on this project based on the 1941 census slips of Hazaribagh district (Bihar) was initiated in this Institute by D. B. Lahiri and others (2). As a result of this study

### THIRTIETH ANNUAL REPORT : 1961-62

valuable information was obtained for the preparation of efficient designs of sample selection of census slips for tabulation purposes as well as for sample surveys of population. Besides, some analytical work in the sphere of graduation of birth rates and labour measurement from census were done in the Institute (3).

After the 1961 census, further work on population sampling was carried out in this Institute for the National Sample Survey (NSS) on the basis of the census frames. The construction of a suitable frame for urban sample selection was made by S. J. Poti and others (4), and currently this problem has been taken up on an all-India scale by the NSS Programme Committee. A good deal of useful demographic data are being systematically collected in the National Sample Survey. In the second and fourth rounds of the National Sample Survey, detailed information was collected on the fertility history of the couples and other demographic characteristics on an all-India basis. The past trend in fertility and its differentials with respect to socio-economic characteristics were studied in great detail by A. Dasgupta and his associates (5). Extensive data on urban and rural employment (6), rural-urban migration, etc. were collected in the subsequent rounds of the NSS and analysed by S. Bhattacharyya, K. C. Dutta, N. G. K. Nair and others. Further, a detailed study of some characteristics of the economically active population based on the demographic data collected in the fourth to the seventh rounds of the NSS was carried out by R. K. Som and others (7).

Besides the collection and analysis of demographic data, studies of methodological importance were carried out in the Institute. An assessment of the validity of demographic statistics based on interpenetrating sub-samples was made by Mahalanobis and Dasgupta (8). Some (9) has further illustrated the use of the interpenetrating sub-samples in demographic studies, including fractile graphical analysis, a technique developed by Mahalanobis in demographic studies. Som and H. L. Mukherji have made an analysis of variance studies of demographic variables (10). Further, notable contributions in this field have been made by Lahiri, Dasgupta, and Som. Lahiri (11) has suggested various methods of external and internal checks for assessing errors and Mahalanobis and Lahiri (12) have analysed the errors in censuses and surveys with special reference to the experiences in the National Sample Survey. Som (13) has developed a technique, based on a suitable statistical model, for the correction of the recall lapse in demographic data : further analysis has been presented in a paper by the Institute at the International Population Conference, New York, 1961 (14). The recall lapse in infant death reporting has been studied by Som and N. C. Das (15) and the problems of the determination of the fertility trends and differentials in defective registration areas by Dasgupta (16). Dasgupta has also studied the accuracy of age reporting on basis of Census, NSS and other material (17). Some (18) has suggested a new approximation to the true infant mortality rates. A study of the comparability of census economic data was carried out by Daniel Thorner and Alice Thorner (19). Further studies on the census methods were carried out by Som, B. T. Pillai and others (20; 21; 22). The results of surveys on family planning have been analysed by Som, S. Sengupta, and Pillai (23; 24). A. Ganguly and N. C. Das (25) have studied the progress of literacy in rural West Bengal on the basis of survey data.

Pilot surveys are also being carried out for the purpose of developing suitable techniques for special purposes. In this connexion, reference may be made to the health survey conducted in West Bengal wherein the validity of morbidity and other health statistics

## INDIAN STATISTICAL INSTITUTE

collected through the usual agencies of the NSS were assessed by S. J. Poti and his associates (26).

The Government of India is interested at present in assessing the current growth rate of the population for the formulation of the Third Five-Year Plan. On the recommendation of the Working Group in Vital and Health Statistics of the Planning Commission, a major item was included in the NSS fourteenth round to collect relevant population data for studying the growth rates in rural areas. The results of a provisional analysis based on the data have been presented by Som and others (27). The age-specific fertility and mortality rates by sex obtained from the same round have also been analysed by A. K. De and Som (28), and Majumdar (30) based on NSS 7th round data.

The analysis of morbidity data, collected in the NSS on an exploratory basis in the earlier rounds, have been analysed by Som, Das and Do (29) and by Majumdar (30). Recently in the 17th round (1961-61), a pilot study on morbidity is being conducted through the NSS on an all-India basis, to determine the optimum recall period for recording sickness by personal interview, and to assess the effects of different probes and proxy interviews on the sickness rates. The results of migration data, collected in some rounds of the NSS have been presented by S. Sengupta (31). Dasgupta (23) has discussed the various types and measures of migration.

With the help of a grant from the Ministry of Health, a centre for demographic research has recently been established in the Institute to study the factors associated with fertility and mortality. A team including S. J. Poti, M. V. Raman, P. B. Gupta and some research workers have been engaged in such research projects since the latter part of 1957. A number of research projects has been dealt with by this centre, among which the study of social mobility and their demographic effects by Poti and S. Dutta (32), the enquiry on prevalence of contraceptive practices and their demographic effects on fertility and the reliability of data relating to contraceptive practices by Poti, C. Malakar and B. Chakraborty (34; 35) may be mentioned. A study of the existing information on population for development planning in India was carried out at the instance of the United Nations by Poti and others (36). The other studies include those on child health during the first year of life by Poti and S. Biswas (37), amenorrhoea after child birth and its relationship with lactation period by Biswas (38), fertility differentials by level of living by Gupta and Malakar (39), and a method of improving the validity of the cause of death statistics by Raman (40). The question of bias in systematic sampling in the population censuses has been examined by Lahiri (41) and the accuracy index of census age distributions by Dasgupta (42). Marriage data collected in the NSS 7th round was analysed by Majumdar (30).

The projection of the population in India has been by Dasgupta and M. Majumdar in 1954 (43), by Poti and others in 1958 (36) and by Som and A. K. De in 1960 (44). De and Som have prepared abridged life tables for rural India on the basis of NSS data (45).

The current population trends and the associated problems have been discussed by Mahalanobis at several places, and also by Dasgupta (46) and Som (47).

A project has recently been taken up by the Institute to study the effective methods of the reduction of fertility by contraceptive methods. A team comprising R. K. Mukherjee, B. K. Som, (Miss) A. Sengupta, and (Miss) L. Khan is responsible for this work.

THIRTIETH ANNUAL REPORT : 1961-62

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4. POTT, S. J. (1954) : A Population Sample Frame for Calcutta City, Indian Statistical Institute, 1954. (Maps showing geographical boundaries of 30 census circles in Calcutta city comprising a population of about 2 lakhs and of the blocks within them have been included in this note).
5. DASGUPTA, A., SOM, R. K., MAJUMDAR, M. and MITRA, S. N. (1955) : Couple-Fertility, Report No. 7, National Sample Survey, Government of India, 1955. (Demographic data from the second and fourth rounds of the NSS were used for this study. The fertility rates have been analysed in great detail to bring out the trend in historical fertility and to study differential fertility with respect to social and economic classes).
- 6(a). REPORT ON PRELIMINARY SURVEY OF URBAN UNEMPLOYMENT, SEPTEMBER, 1955. Report No. 8, National Sample Survey, Government of India, 1955. (This is a preliminary study carried out in 1953 covering towns with a population of about 50,000 but excluding the four big cities of Calcutta, Bombay, Madras and Delhi for the purpose of formulating suitable concept and definitions and developing suitable designs of employment, unemployment and under-employment in future. Besides offering a number of statistical tables of gainfully occupied and unemployed persons, the report gives considerable amount of demographic data on migration, level of living, intensity of employments etc.).
- 6(b). REPORT ON EMPLOYMENT AND UNEMPLOYMENT, PRELIMINARY, May-November, 1955. Report No. 16, National Sample Survey, Government of India, 1955. (This survey undertaken in the ninth round of the NSS is the first of its kind to be carried out on an all-India basis. The demographic particulars of the gainfully occupied and unemployed persons have been extensively analysed in this report. The problem of under-employment has also been dealt with in considerable detail.).
- 6(c). REPORT ON CALCUTTA EMPLOYMENT SURVEY, PRELIMINARY, September 1953. Report No. 17, National Sample Survey, Government of India, 1955. (This is a preliminary study carried out in 1953 in Calcutta City. This survey was undertaken to formulate the concepts and definitions and for developing suitable designs of surveys of employment, unemployment and under-employment. Besides offering a number of statistical tables of gainfully occupied and unemployed persons, the report gives considerable amount of demographic data on migration, education, intensity of employment, etc. In this survey 5,000 households were selected by multi-stage sampling, the household being the ultimate sampling unit.

INDIAN STATISTICAL INSTITUTE

- 6(d). REPORT ON EMPLOYMENT AND UNEMPLOYMENT, May-November 1965 (Supplementary). Draft No. 57, Indian Statistical Institute, 1960. (This report is based on the complete material of the 9th round of the NSS and presents further results of analysis, including the choice of the reference period).
- 6(e). TABLES WITH NOTES ON EMPLOYMENT AND UNEMPLOYMENT, 11TH AND 12TH ROUNDS, August 1956-August 1957. Report No. 53, National Sample Survey, Government of India, 1960. (This report is based on data collected from about 47,000 sample households from the rural and urban areas of the country).
- 6(f). TABLES WITH NOTES ON EMPLOYMENT AND UNEMPLOYMENT, 13TH ROUND, September 1957-May 1958, URBAN. Draft No. 44, Indian Statistical Institute, 1960. (This report is based on data collected from about 13,000 sample households from the urban areas of India, to which the coverage was restricted in this round).
- 6(g). TABLES WITH NOTES ON EMPLOYMENT AND UNEMPLOYMENT IN URBAN AREAS, 14TH ROUND, July 1958-June 1959. Draft No. 87, Indian Statistical Institute, 1961.
- 6(h). TABLES WITH NOTES ON RURAL EMPLOYMENT AND UNEMPLOYMENT, 14TH ROUND, July 1958-June 1959. Draft No. 88-1, Indian Statistical Institute, 1962.
7. REPORT ON SOME CHARACTERISTICS OF THE ECONOMICALLY ACTIVE POPULATION. REPORT No. 14, National Sample Survey, Government of India, 1958-59. (This report is based on demographic data collected in the different surveys included in the fourth to seventh rounds of the NSS, covering about 90,000 sample households spread over the entire country. In this report, labour force participation in different sectors of industry by age groups and other demographic characteristics have been analysed in detail. Further, comprehensive studies on working life expectancy, intensity of employment, reasons for under-employment and occupational mobility have also been made).
8. MANALAWOTE, P. C. and DASGUPTA, A. (1964): The use of Sample Surveys in Demographic Studies in India. World Population Conference, Rome, 1964. (9/CONF/13/194). (This paper discusses how the accuracy of demographic statistics from the point of view of both sampling and non-sampling errors could be quickly assessed by the method of inter-penetrating sub-samples).
9. SOM, R. K.: The use of interpenetrating samples in demographic studies, *Sankhyā* (under publication). (This paper illustrates, on the basis of NSS and other data, the use of the technique of inter-penetrating sub-samples in demographic studies, in examining the investigator bias, supplying the margins of uncertainty, providing basis for fractile graphical analysis, supplying advanced estimates on basis of part-samples and providing control at all stages of collection, processing and analysis).
10. SOM, R. K. and MUKHERJEE, H. L. (1962): Analysis of variance of demographic variables, *Sankhyā* (B), 24, 13. (The analysis of variance of four demographic variables proportions of population economically active, literate, aged 50 years and above and sex-ratio has been made on the basis of the interpenetrating sub-samples in the 9th round of the NSS. The conclusion is that the survey was generally under statistical control).



THIRTIETH ANNUAL REPORT : 1961-62

11. LAHIRI, D. B. (1968) : Recent Development in the Use of Techniques for Assessment of Errors in Nation-wide Surveys in India. *Bulletin de l'Institut International de Statistique*, Stockholm, 1968, 28, 2, 71. (This paper discusses various methods of external and internal checks for assessing errors in censuses and large scale demographic surveys with particular emphasis on the method of 'self-validation' in demographic data).
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## INDIAN STATISTICAL INSTITUTE

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24. SOM, R. K. and PILLAI, B. T. (1960) : A note on family planning, NSS Type Study. NSS Working Paper No. 14, Indian Statistical Institute, 1960. (The data collected in two villages each in Assam, Bihar, and Kerala in 1958 suggest that there is generally a universal desire for family planning but a simultaneous lack of knowledge and of equipment).
25. GANGULY, A. and DAS, N. C. (1960) : Progress of literacy in West Bengal. NSS Working Paper No. 16, Indian Statistical Institute, 1960. (The data of the West Bengal Survey conducted by the Institute in the same set of sample households after an interval of three years, suggest that the rate of increase in rural literacy in West Bengal was of the order of 1 per cent per year).
26. POTT, S. J., RAMAN, M. V., BISWAS, S. and CHAKRABORTY, B. : (1959) : A Pilot Health Survey in West Bengal, 1955, *Sankhyā*, 21, 1 & 2. (This pilot survey was undertaken with the object of evolving a suitable method for the collection of morbidity, disability and medical care statistics. It also deals with the relative accuracies in the classification of causes of morbidity by medical and non-medical investigation).
27. PRELIMINARY ESTIMATES OF BIRTH AND DEATH RATES AND OF THE RATE OF GROWTH OF POPULATION. Draft Report No. 48, Government of India, 1961. (The rates of birth, death, and growth, and of migration, obtained from the data collected during the NSS 14th round, 1958-59, from about 1.2 million sample households in 2,538 sample villages, have been presented for the different States and population zones. The other results relate to the infant death proportion, the occurrence of births and deaths by place and type of attendance, and some population characteristics. The results of analysis from the 7th to the 14th rounds of the NSS suggest an almost constant birth but a steadily declining death rate, leading to an increasing rate of growth of population).
28. FERTILITY AND MORTALITY RATES IN RURAL INDIA. Draft No. 89, Indian Statistical Institute, 1961. (Age specific fertility rates and age-sex specific mortality rates, obtained from the NSS 14th round, have been presented for the different States).

THIRTIETH ANNUAL REPORT: 1961-62

29. **REPORT ON MORBIDITY.** Report No. 49, National Sample Survey, Government of India, 1961. (This report gives the incidence and prevalence rates and the average duration of sickness from data collected from about 38,000 sample households all over India in the 7th, 11th, 12th and 13th rounds of the NSS. The causes of sickness, expenditure on medicines and medical services and medical facilities in rural India, are also discussed).
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31. **INTERNAL MIGRATION.** Report No. 53, National Sample Survey, Government of India, 1962. (This report gives the analysis of results of the migration data collected for the labour force in the 9th, 11th and 12th rounds of the NSS and for the general population in the 13th round, urban).
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34. **POTI, S. J., MALAKAR, C. and CHAKRABORTY, B. (1959):** Enquiry into the Prevalence of Contraceptive Practices in Calcutta city, 1956-57. Report of the Proceedings of the Sixth International Conference on Planned Parenthood, 1959, New Delhi. (This study relates to an assessment of the prevalence of different types of contraceptive practices and their effect in the reduction of pregnancies among three major social classes in Calcutta city. It also deals with some important cultural characteristics of these social classes and their relation to family planning).
35. **POTI, S. J., MALAKAR, C. and CHAKRABORTY, B. (1960):** Reliability of data relating to contraceptive practices. Milbank Memorial Fund. (To test the reliability of data on contraceptive practices, a comparison of the independent statements of husbands and wives was made from the same survey as above. The reporting errors of husbands were mostly ascribable to recall lapse; while little reliability could be put on the statements of the wives).
36. **POTI, S. J., et al. (1957-58):** A study of existing Information on Population in relation to Development Planning in India, Indian Statistical Institute, 1957-58. (This report prepared at the instance of the U.N. gives an integrated summary of the findings of various demographic surveys and censuses so as to present a picture of the past demographic trends in India. Attempts have also been made to utilize these results to estimate future population for development planning).

## INDIAN STATISTICAL INSTITUTE

37. POTI, S. J. and BISWAS, S. : A study of child health during the first year of life. *Sankhyā* (under publication). (Morbidity, mortality, and development of infants have been studied in relation to birth weight, social status, housing, etc., and a maturity standard evolved in the basis of the birth weight from the data collected from about 500 women who were admitted as in-patients in a Calcutta hospital labour ward).
38. BISWAS, S. : A study of amenorrhoea after child birth and its relationship to lactation period. *Ind. J. Pub. Health*. (A method analogous to Abott's formula in probit analysis has been applied; the results suggest that mothers have a very slender chance of conception during the days of breast feeding).
39. GUPTA, P. B. and MALAKAR, C. : Fertility differentials by levels of living and adjustment of birth and death rates. *Sankhyā* (under publication). (A method has been evolved for the adjustment of the under-reporting of births and deaths and such adjusted rates have been studied by economic differentials).
40. RAMAN, M. V. : A method of improving the validity of cause of death statistics. *Sankhyā* (under publication).
41. LAHRI, D. B. (1954) : On the question of biases in systematic sampling in population censuses. *Proc. World Population Conference, Vol. VI, Rome*. (The bias in systematic sampling of individuals for the preparation age, sex, marital status etc. tables has been examined on the basis of 1951 census of India sampling data).
42. DASGUPTA, A. (1954) : Accuracy Index of census age distribution. *Proc. World Population Conference, Vol. IV, Rome*. (The accuracy index of census age distributions, proposed by the U.N., has been discussed).
43. DASGUPTA, A. and MAJUMDAR, M. (1954) : Population Projections, India, 1951-2001. Planning Working Paper No. 7, Indian Statistical Institute, 1954.
44. SOM, R. K. and DE, A. K. (1960) : Current population estimates for India. Indian Sociological Conference, Lucknow, 1960.
45. DE, A. K. and SOM, R. K. (1962) : Abridged Life Tables for rural India, 1957-58. (Life Tables have been prepared on the basis of the NSS 14th round sex-age specific mortality rates in India).
46. DASGUPTA, A. (1955) : Population problem in the Indian Setting. Seminar on Population Problems in Asia and the Far East, Bandung, 1955. (This paper discusses the population problems in India in the perspective of resources and the programmes of the five year plans).
47. SOM, R. K. (1960) : Population trends and problems in India. Chapter in *India's Population*, Asia Publishing House, 1960. (The population trends and problems in India have been discussed on the basis of the NSS and other sources of data. With an almost stationary birth rate and steadily declining death rate, the rate of growth was seen to increase very rapidly in the recent decade in India. The general under-utilization of manpower, with shortages at peak periods of agricultural activities, was also revealed).

## THIRTIETH ANNUAL REPORT : 1961-62

### Appendix 8 : Library, Records, Museum and Photography

**News Clippings :** Newspaper articles and news items relating to Statistics, Economics and Planning from 22 representative Indian dailies were regularly clipped and the number of clippings made and processed during the period was 1,060, bringing the total number of clippings made so far to 38,362.

**Circulating Library :** The workers' Circulating Library had a total book collection of 17,333 on 31 March 1962. The total number of books added in the current year was 1,856, of which 1,351 were in Bengali. 338 in English, 165 in Hindi and 12 in Urdu. Of the books added during the year, 1,836 books were purchased and 20 were received as gifts. As in previous years books were rotated among the libraries in Delhi, Giridih and Calcutta. The total number of books issued from the Calcutta centre was 33,035 of which 89% were fiction. 5,009 volumes were issued from the Giridih Branch, of which 4,283 were in Bengali, 495 in Hindi, 119 in Urdu and 112 in English.

**Museum :** The systematic acquisition, indexing and filing of specimens proceeded steadily during the year. The specimens included 33 letters, 34 manuscripts and printed documents relating to important researches and investigations, and 20 photographs.

**Records Unit :** About 3,063 project files were processed, of which 1,548 were checked in the Central Records Unit. The total number of indexed files is 14,394. 6,844 sheets of C. S. maps were sorted, 2,891 checked, 4,136 arranged, and 3,753 processed. 2,778 sheets of C. S. maps were mended through the *Kalyanasri*. 13,827 copies of newspapers were sorted, checked and arranged. The Central Records Unit also received various office files and records for preservation.

The Library Records Unit was reorganized in the western shed at 203 B. T. Road and the sorting and cataloguing of serials and officials were undertaken. During the period, 492 volumes of serials were sorted and 400 duly catalogued. Altogether 284 titles of reprints were catalogued. During the year 3,027 volumes were issued for reference.

**Photography :** Documentary reproduction work consisted of 4,326 frames of microfilms, 6,253 photoprints from microfilms and 696 photostat prints. The Photography Unit also took 1,373 photographs of important functions, individuals, groups etc. and made 3,400 bromide enlargements. About 127 reproductions were made from old photographs. The Unit also took about 500 feet of movie picture in black and white and colour. It rendered services to guests including the development of films (35 mm roll films), 34; bromide enlargements, 260; lecture slides, 61; and the photo-reproduction of old photographs, 20.

The Library has also acquired and installed one Thermofax microfilm reader-printer, model Filmac-100; two Japanese Docagraph readers; and one Recordak Microfile Camera (model AF) together with accessories and an adequate supply of films out of Ford Foundation grants. With a view to utilising the increased capacity of the new Microfile Camera, the Library is now planning to extend the facilities of microfilm service to scientific workers of other institutions and to organize the service commercially.

**Giridih Library :** From the Giridih Branch of the Library altogether 1,213 items were issued, of which 1,127 were issued from the Reference Section and 86 items from the Lending Section.

**Documentation Research & Training Centre :** A unique event during the year was the opening of a new Documentation Research and Training Centre at Bangalore. This

## INDIAN STATISTICAL INSTITUTE

originated in discussions which Dr. S. R. Ranganathan had with Professor Mahalanobis in Europe in 1956, and later with Sri J. Saha in Delhi in 1961. Further discussions took place between Sri Saha and Dr. Ranganathan at Calcutta bearing on the need to provide extensive training in documentation in India to cope with larger needs of our growing economy. In September 1961, the Institute decided to open the new centre under Dr. Ranganathan, who is to work as its head and as a professor in an honorary capacity. The centre came into operation from April 1962 with the following objects in view :

1. The course is intended to offer a comprehensive instruction in the theory and practice of documentation. It lays emphasis on imparting theoretical knowledge of a high order and at the same time of equipping the students with the necessary professional competence based on practical experience. It will train up each year 10-12 persons selected from all countries of the world, but special preference will be given to Asian and African candidates. Persons with good post-graduate degrees in science are eligible for admission. The Centre will also conduct periodical seminars on different aspects of documentation, open to persons from India and abroad.

2. The Centre will work in close collaboration with the INSDOC, Indian Standards Institution, factories, commercial houses, national laboratories and universities. Apart from doing fundamental research in documentation, it will also design schedules for documentation work in particular enterprises. It will welcome documentalists to reside at the Centre and to improve their own designs for documentation work in collaboration with the research staff.

3. Provision has also been made to invite senior Indian and foreign documentalists as guest teachers to deliver lectures on the subjects of their speciality and to participate in the research programmes.

A large bungalow with a spacious compound has been rented for the Centre at 696, 11th Cross Road, Bangalore-3.

### Appendix 9 : Medical Welfare Unit

9.1 STATEMENT SHOWING NUMBER OF WORKERS AND MEMBERS OF THEIR FAMILIES ATTENDED TO DURING THE YEAR 1961-62

	months	no. of patients	total percentage to total	home-visits made
	(1)	(2)	(3)	(4)
April	1961	1,636	6.9	104
May	1961	2,010	8.5	89
June	1961	2,139	9.0	87
July	1961	2,337	9.9	92
August	1961	2,451	10.4	65
September	1961	2,484	10.4	113
October	1961	2,390	9.9	68
November	1961	2,166	9.0	82
December	1961	2,048	8.5	87
January	1962	1,498	6.1	86
February	1962	1,328	5.3	60
March	1962	1,483	6.2	55
<b>total</b>		<b>22,749</b>	<b>100.0</b>	<b>929</b>

THIRTIETH ANNUAL REPORT: 1961-62

2 STATEMENT SHOWING RECEIPT AND CONSUMPTION OF MEDICINES DURING THE YEAR 1961-62

Receipt	Amount		Consumption	Amount	
	Ra.	n.P.		Ra.	n.P.
1. Opening Balance as on 1.4.61					
(a) Medicines	6,746.71				
(b) Appliances	2,469.51	9,817.22			
2. Medicines purchased during:			1. Amount billed for medicines supplied (including arrears)		
April 1961			April 1961	4,127.89	
May "			May "	3,297.94	
June "			June "	4,327.55	
July "	3,747.75		July "	3,638.60	
August "	3,770.11		August "	4,377.14	
September "	2,240.56		September "	2,977.04	
October "	5,032.11		October "	4,788.78	
November "	2,036.77		November "	5,000.58	
December "	7,841.34		December "	4,485.37	
January 1962	5,329.39		January 1962	3,784.16	
February "	6,074.84		February "	3,385.86	
March "	1,815.49		March "	2,929.09	47,005.47
3. Appliances (oxygen cylinder) accessories	3,642.95		2. Articles given free of cost, damaged, or lost (approx.)		130.00
4. Vaccination lymph	4,838.78	51,840.73	3. Cost of T.A.B.C. + Small-pox vaccine given free	380.88	250.00
5. Amount realised from workers from previous outstanding a/c		155.17	4. Closing Balance:		
6. Amount yet to be realised including current outstanding		4,500.00	1) Medicines	16,713.13	
			2) Appliances	2,849.47	21,662.60
			Total Ra.		86,948.07
			Total Ra.		86,948.07

## INDIAN STATISTICAL INSTITUTE

### Appendix 10 : List of Trainees, Programme of Lectures and Examinations in the Various Courses

#### 10.1 RESEARCH SCHOLARS AND ADVANCED STUDENTS

(With fields of research)

1. (Mrs.) M. Iyer, M.A. (Mathematics), (Poona).
2. T. V. Hanumantha Rao, M.A. (Mathematics), (Andhra), Two-year ISI training: *Information Theory and Coding Theory*.
2. G. Kalyansundaram, B.A. (Hona.) (Mathematics), (Madras). Professional Statistician's Certificate of the ISI and IARS; *Design of Experiments*.
4. B. Krishnamurti, M.A. (Mathematics), (Madras), Three-year ISI training: *Operations Research*.
5. K. R. Parthasarathy, M.A. (Mathematics), (Madras), Three-year ISI training, Ph.D. ISI; *Information Theory and Stochastic Processes*.
6. C. Ramanujacharyulu, M.Sc. (Statistics), (Osmania); *Combinatorial Analysis*.
7. S. Rangachary, M.A. (Mathematics), (Madras), Diploma in Economics Madras; *Applied Statistics and Demography*.
8. R. Ranga Rao, M.A. (Mathematics), (Madras), Three-year ISI training, D.Phil. (Calcutta); *Probability*.
9. (Miss) K. V. Rukmini, M.A. (Mathematics), (Madras); Two-year ISI training.
10. S. R. Srinivas Varadhan, M.A. (Statistics), (Madras); *Stochastic Processes*.
11. K. Vijayan, M.Sc. (Statistics), (Kerala); *Combinatorial Analysis (including Information Theory and Codes)*.
13. Rash Behari Deb Sharma, M.A. (Mathematics), (Allahabad), Two-year Professional Statistician's Certificate of the ISI and IARS; *Sample Surveys*.
13. A. Bhattacharjee, M.Sc. (Zoology), (Calcutta); *Gerontology*.
14. M. L. Tikku, M.A. (Statistics), (Patna); *Design of Experiments*.
15. (Mrs.) Kamini Adhikari, Ph.D. (Psychology), (Lucknow); *Psychology*.
16. M. B. Chakravarti, D.Phil. (Physical Anthropology), (Calcutta); *Physical Anthropology and Human Genetics*.

#### 10.2 OFFICERS ON DEPUTATION

The list below gives the names of officers on deputation, the deputing authority and the duration of their training at the Institute.

1. N. D. Karunaratne, Department of Economics, University of Ceylon, (joined in January 1962).
2. Jan Mohamad, University of Jammu and Kashmir, (27 December 1961-5 March 1962).

#### 10.3 M. STAT. DEGREE COURSE (1961-62)

##### 10.3.1 TRAINEES IN THE SECOND YEAR M. STAT. DEGREE COURSE LISTED BY FIELDS OF SPECIALIZATION AND IN-SERVICE TRAINING.

###### *Planning and Econometrics*

- |  |                                       |
|--|---------------------------------------|
| 1. Ganapati Narayana Moorthy, M.A. (Madras)  | 3. Ishwar Natarajan, M.A. (Madras)    |
| 2. Venuganati Ramakrishna Rao, M.A. (Andhra) | 4. Satya Dev Sharma, M.A. (Allahabad) |
| 5. Subramaniam Swami, B.A. (Hona.) (Delhi)   |                                       |



## THIRTIETH ANNUAL REPORT : 1961-62

### Statistical Quality Control

- |   |  |
|---|--|
| 6. Krishnaswami Balasubramanian, M.A. (Madras)          | 12. Koduvayur Rama Iyer Parthasarathy, M.A. (Madras)     |
| 7. Tattamangalam Sitaramayor Chidambaram, M.A. (Madras) | 13. Namburu Tulasi Veerageneysa Rangn Rao, M.A. (Andhra) |
| 8. Buddhiraju Bhujanga Veera Kishore, M.A. (Andhra)     | 14. Tanjore Sankarow Ananthaswamy Rao, M.A. (Madras)     |
| 9. Kalambur Srinivasan Krishnan, M.A. (Madras)          | 15. Deb Ranjan Sen, M.Sc. (Poona)                        |
| 10. Gurrakonda Manaswamy Naidu, B.A. (Andhra)           | 16. Balakrishna Servathan Shonai, M.A. (Bombay)          |
| 11. Subramania Panchapakesan, M.A. (Madras)             | 17. Makki Thimmappaiah Subramanyya, M.A. (Madras)        |

### Advanced Probability

- |  |  |
|--|--|
| 18. Vairetil Vishwanath Mouon, B.Sc. (Hons.) (Bonnara) | 20. Bhagavatula Lakshmi Surya Prakash Rao, M.A. (Andhra) |
| 19. Tarun Kumar Mukherjee, M.Sc. (Calcutta)            |  |

*Examinations (1961-62)* : The Mid-term examination was held on the following general subjects : Multivariate Analysis, Design of Experiments, Sample Surveys, Statistical Inference, Operations Research, Advanced Probability, Planning and Econometrics, Statistical Quality Control.

*Calendar (1961-62)* : The total number of working days (including training at the Central Statistical Organisation, Government of India, New Delhi, and field training at Giridih, excluding examinations, etc.) : 260

Lectures	14 August-2 December 1961
Field training at Giridih	3 December-10 December 1961
Lectures	11 December-16 December 1961
Mid-term examination	18 December-23 December 1961
Vacation	26 December-9 January 1962
Lecture & in-service training	10 January-8 July 1962
Final examination	9 July-10 July 1962

### 10.3.2 TRAINEES ADMITTED TO THE M. STAT. FIRST YEAR (1961-62)

- |  |  |
|--|--|
| 1. Tatapudi Aehyuta Ramiah, B.A. (Hons.) (Andhra)            | 9. Ranjit Mohan Passi, M.A. (Punjab)                       |
| 2. Chillumuri Prabhakar Babu, M.Sc. (Venkateswara)           | 10. Akundi Srinivas Rao, M.Sc. (Madras)                    |
| 3. Trichay Neelragham Balasubramanian, B.A. (Hons.) (Madras) | 11. Talluri Jagannadha Rao, B.A. (Hons.) (Andhra)          |
| 4. (Miss) Minati Basu Roychoudhury, M.A. (Calcutta)          | 12. Tamvada Venkata Subramanya Rao, B.Sc. (Hons.) (Andhra) |
| 5. Gopal Das Jhol, M.A. (Delhi)                              | 13. Binnayath Sarkar, M.Sc. (Calcutta)                     |
| 6. (Miss) Parizhajan Kaur Kanwar, M.A. (Punjab)              | 14. Rameshwar Prasad Sinha, M.Sc. (Alibabad)               |
| 7. Sista Nagendra Bhushanam, B.A. (Hons.) (Andhra)           | 15. Rashi Singh Srivastava, M.A. (Delhi)                   |
| 8. Mallela Parthasarathy, M.A. (Andhra)                      | 16. Jonnavithula Venkatasappiah, B.A. (Hons.) (Andhra)     |
|  | 17. Bulusu Venkata Ramaswami, M.Sc. (Madras)               |
|  | 18. Ubandhamthur Venugopalakrishna, B.A. (Hons.) (Madras)  |

## INDIAN STATISTICAL INSTITUTE

### 10.3.3 IARS TRAINEES IN THE M. STAT. FIRST YEAR COURSE

- |  |  |
|--|--|
| 1. Ravinder Nath Behl, M.A. (Punjab)       | 5. Nittala Subrahmanya Sastri, B.A. (Hons.) (Andhra) |
| 2. Jatinder Singh Mehta, M.A. (Punjab)     | 6. Rakhai Ranjan Sen, M.Sc. (Calcutta)               |
| 3. Kapa Raghavendra Prasad, M.Sc. (Madras) | 7. Pram Kumar Singh, M.A. (Allahabad)                |
| 4. Desiga Ramamohanrao, M.A. (Benares)     | 8. Sakamuri Subba Rao, M.A. (Allahabad)              |
|  | 9. Sushanta Kumar Roy, M.Sc. (Calcutta)              |

*Calendar* : (1961-62) : Total number of working days excluding examination etc. : 202

Lectures	7 August 1961-15 October 1961
Puja Vacation	16 October 1961-23 October 1961
Lectures	24 October 1961-10 December 1961
Preliminary examination	11 December 1961-15 December 1961
Vacation	16 December 1961- 9 January 1962
Lectures	10 January 1962- 5 May 1962
Preparatory holidays	7 May 1962-12 May 1962
Annual examination	14 May 1962-19 May 1962

### 10.4 : B. STAT. DEGREE COURSE

#### 10.4.1. TRAINEES IN THE B. STAT. DEGREE COURSE, SECOND YEAR (1961-62)

- |  |   |
|--|---|
| 1. Ajay Kumar Adhikari, I.Sc. (Calcutta)           | 14. Gopalakrishna Kishna Kadekodi, Pre-University (Poona) |
| 2. (Miss) Asruti Basu, I.Sc. (Bombay)              | 15. Bibekendu Majumdar, Higher Secondary (West Bengal)    |
| 3. (Miss) Archana Banerjee, I.Sc. (Calcutta)       | 16. (Miss) Mariam Paulose, Pre-University (Kerala)        |
| 4. Anil Chandra Basu, I.Sc. (Calcutta).            | 17. Jammalamadaka Sreenivasa Rao, Pre-University (Andhra) |
| 5. (Miss) Ruma Bose, I.A. (Calcutta)               | 18. Jahar Lal Saha, I.Sc. (Calcutta)                      |
| 6. Vijay Vyankatesh Buche, Pre-University (Nagpur) | 19. Bishnu Prasad Sarkar, I.Sc. (Calcutta)                |
| 7. Sedhan Chandra Chakravarti, I.Sc. (Calcutta)    | 20. Nitya Ranjan Sarkar, B.Sc. (Calcutta)                 |
| 8. Prabir Kumar Chakravarti, I.Sc. (Calcutta)      | 21. Fabian Theykanath Sebastian, Pre-University (Kerala)  |
| 9. Gour Mohan Chatterjee, I.Sc. (Calcutta)         | 22. Venkataraman Sundaresarajan, Pre-University (Madras)  |
| 10. Swadesh Ranjan Dasgupta, I.Sc. (Calcutta)      |   |
| 11. Nirmalendu Goswami, I.Sc. (Calcutta)           |   |
| 12. Mahendra Pal, I.Sc. (U.P. Board)               |   |
| 13. Iviash Johar, I.Sc. (U.P. Board)               |   |

*Examinations* (1961-62) : The terminal examination was held on the following subjects : Mathematics I & II, Statistics (theory and practical), Economics, Physics and Chemistry.

*Periodical Examinations* : The first term was held on the following subjects : Mathematics and Probability, Economics, Physical Chemistry, Engineering, Probability, Statistics and Geology. The second term was held on the following subjects : Biology Physics, Chemistry, Probability, Economics, Mathematics and Statistics.

### THIRTIETH ANNUAL REPORT : 1961-62

*Calendar* (1961-62) : Total number of working days excluding examinations etc. : 246

Lectures	17 July 1961-14 October 1961
Puja Vacation	16 October 1961-23 October 1961
Lectures	24 October 1961- 9 December 1961
Preliminary examination	11 December 1961-15 December 1961
Lectures	16 December 1961-3 March 1962
Spring recess	5 March 1962-10 March 1962
Lectures	12 March 1962-19 May 1962
Preparatory leave	20 May 1962-22 May 1962
Examination	23 May 1962- 9 June 1962
Vacation	11 June 1962-22 July 1962

#### 10.4.2 : TRAINEES ADMITTED TO THE B. STAT. FIRST YEAR (1961-62)

- |  |  |
|--|--|
| 1. P. M. Abraham, Pre-University (Kerala)                          | 17. Lakshmalani Suchet Bhagvan, I.Sc. (Calcutta)             |
| 2. Pranab Kumar Basu, I.Sc. (Calcutta)                             | 18. Samir Kumar Majumdar, I.Sc. (Calcutta)                   |
| 3. Prodyot Kumar Basu, I.Sc. (Calcutta)                            | 19. Ramachandra Mathrubutham, B.Sc. (Madras)                 |
| 4. Dattaraya Subraya Bhat, Pre-University (Karnatak)               | 20. Madan Lal Mittal, I.Sc. (Punjab)                         |
| 5. Parthasarathi Bhattacharjee, I.Sc. (Orisahi)                    | 21. M. Muralidharan, B.Sc. (Kerala)                          |
| 6. K. P. Kunjunny Bhattathiripad, Pre-University (Kerala)          | 22. Kumbakonam Srinivas Narayana, Pre-University (Madras)    |
| 7. Aloke Chakravarti, Senior Cambridge                             | 23. Tapan Kumar Pechal, Higher Secondary (West Bengal Board) |
| 8. Nityananda Chatterjee, I.Sc. (Calcutta)                         | 24. N. D. Prebbakar, Pre-University (Poona)                  |
| 9. Sharad Ganjan Chivata, Pre-University (Poona)                   | 25. Asit Baran Raha, I.Sc. (Calcutta)                        |
| 10. (Miss) Sadhana Lazman Deshpande, Higher Secondary (Poona)      | 26. Gogulapati Ramkriehna, B.Sc. (Andhra)                    |
| 11. (Miss) Usri Gangopadhyay, Higher Secondary (West Bengal Board) | 27. Mallajonyula Venkata Ramanishi, B.Sc. (Andhra)           |
| 12. Basudev Ghosh, Higher Secondary (West Bengal Board)            | 28. Ranjit Kumar Roy, I.Sc. (Calcutta)                       |
| 13. Prebhat Prasad Ghosh, Higher Secondary (West Bengal Board)     | 29. Saris Kumar Ray, Pre-University (Calcutta)               |
| 14. Keshav Chandra Gupta, I.Sc. (Punjab)                           | 30. Arijit Roychoudhuri, I.Sc. (Calcutta)                    |
| 15. Jagdish Chandra Guria, I.Sc. (Calcutta)                        | 31. Gouri Shankar Roychoudhuri, I.Sc. (alCoutta)             |
| 16. (Miss) Mary Kuriyan, Pre-University (Kerala)                   | 32. Kamal Kumar Roy, I.Sc. (Calcutta)                        |
| 34. Velamakanni Venkateswarlu, Pre-University (Andhra)             | 33. C. Sanathanan Pillai, Pre-University (Kerala)            |
|  | 34. (Miss) Ritabari Sen, I.Sc. (Calcutta)                    |
|  | 35. Bibekanda Seth, I.Sc. (Calcutta)                         |

*Calendar* (1961-62) : Total number of working days excluding examination etc. : 223

Lectures	14 August 1961-16 October 1961
Puja Vacation	16 October 1961-23 October 1961
Lecture	24 October 1961-3 December 1961
Preliminary examination	4 December 1961- 8 December 1961

## INDIAN STATISTICAL INSTITUTE

Field training at Giridih	10 December 1961-17 December 1961
Lectures	19 December 1961- 3March 1962
Spring recess	5 March 1962-10 March 1962
Lectures	12 March 1962-19 May 1962
Preparatory leave	21 May 1962-28 May 1962
Examination	29 May 1962- 9 June 1962
Vacation	11 June 1962-22 July 1962

### 10.5 EDUCATIONAL TOURS, EXCURSIONS AND VISITS BY B. STAT. & M. STAT. STUDENTS

The students were taken to the following places. The names of teachers accompanying the party are mentioned against the places visited.

1. Meteorological Department (5 October 1961)—Sri A. B. Gupta (B. Stat. 2nd year students).
2. Indian Museum (26 October 1961)—Dr. B. Raychudhuri (B. Stat. 2nd year students).
3. Indian Museum (2 November 1961)—Sri T. K. Roychudhury (B. Stat. 1st year students).
4. Phosphate Co. (24 January 1962)—Dr. P. K. De (B. Stat. 1st year students).
5. Geological excursion to Giridih, including visit to Rajgaria Mica Mines and Karharbari Coal Mines (11-13 December 1961)—Sri T. K. Raychudhuri (B. Stat. 1st year students).
6. Bengal Chemical Factory (25 November 1961)—Dr. P. K. De (M.Stat. 2nd year and One-year Apprentice course students).

### 10.6 STATISTICAL OFFICERS' COURSE

(Jointly by the Indian Statistical Institute and the Central Statistical Organisation)

*List of Trainees* : Sponsoring authority, duration of training and subject of specialisation, if any, are shown against each name)

1. Jagdamba Prasad Khare, *Office of the Cane Commissioner, Lucknow* (9 months, Sampling theory and techniques).
2. Visheshwar Dayal, *Directorate of Agriculture, Lucknow* (9 months, Sampling theory and techniques).
3. Mahalur Singh Verma, *Planning Research and Action Institute, Lucknow* (6 months).
4. Surendra Prasad Joshi, *Directorate of Economics and Statistics, Bhopal* (6 months).
5. Surendra Prasad Verma, *Office of the Community Development, Bihar* (9 months, Socio-economic Survey).
6. Jasvair Singh Bhalla, *Economic and Statistics Adviser, Punjab* (6 months).
7. Ghulam Ahmad Dar, *Planning Department, Jammu & Kashmir* (6 months).
8. Ashutosh De, *Department of Economic & Statistics, Assam* (6 months).
9. Iresh Ranjan Das, *Labour Bureau, Ministry of Labour and Employment, Simla* (9 months, Economic Statistics).
10. Krishna Dutt Kaushik, *Ministry of Community Development & Cooperation, New Delhi* (9 months, Agricultural Statistics).
11. Baldev Raj Katyal, *Central Statistical Organisation, New Delhi* (9 months, Planning Statistics).

## THIRTIETH ANNUAL REPORT : 1961-62

12. J. N. Ray Choudhuri, *Central Statistical Organisation, New Delhi* (5 months).
13. K. N. Srinivasan, *Central Statistical Organisation, New Delhi* (9 months, Census and Vital Statistics).
14. Kali Charan Mathur, *Irrigation & Power, New Delhi* (5 months).
15. Hira Singh Gahlot, *Forest Research Institute, Dehra Dun* (9 months, Agricultural Statistics).
16. R. L. Ahuja, *National Sample Survey, New Delhi* (5 months).
17. Ahyuta Nanda Miara, *Bureau of Statistics & Economics, Cuttack, Orissa* (9 months, Economic Statistics).
18. Om Prakash Gupta, *Planning Commission, New Delhi* (9 months, Economic Statistics).
19. Chabra Dhar Bhatt, *Directorate of Economics & Statistics, Himachal Pradesh* (9 months, National Income & Regional Income Estimation).
20. V. Subbrayalu, *Bureau of Statistics, Pondicherry* (9 months, Agricultural Statistics).
21. Nighthoujam Tombi Singh, *Statistical Bureau, Manipur* (5 months).
22. Nandebam Babu Singh, *Statistical Bureau, Manipur* (5 months).

### 10.7 SHORT-TERM STATISTICIAN'S TRAINING COURSE

#### 10.7.1 JUNIOR COURSE : CALCUTTA (MARCH 1961-SEPTEMBER 1961)

(TOTAL NUMBER OF WORKING DAYS : 93)

*List of successful trainees :* Fortythree students were originally admitted, out of whom 23 satisfied the minimum attendance requirements. The following 12 were awarded certificates of successful completion of the course.

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|--|--|
| 1. Natarajan Ramakrishna, B.Sc. (Madras)     | 7. Pranab Kumar Singh Roy, B.M.E. (Jadavpur) |
| 2. Amal Kumar Mukherjee, B.Sc. (Calcutta)    | 8. Manoranjan Majumdar, B.A. (Calcutta)      |
| 3. Kamal Kishore Seth, B.Sc. (Rajputana)     | 9. Nihar Kumar Basu, M.Sc. (Jadavpur)        |
| 4. Pranabendra Mohan Mitra, B.Sc. (Calcutta) | 10. Dilip Ranjan Majumdar, B.Sc. (Calcutta)  |
| 5. Chittaranjan Paul, B.Sc. (Calcutta)       | 11. Madan Mohan Lal, M.Sc. (Allahabad)       |
| 6. Bimal Krishna Pramanik, B.M.E. (Jadavpur) | 12. Sair Kumar Deb, B.A. (Calcutta)          |

*Examination :* Three periodical tests were held on the following subjects : Data Processing, Probability, Numerical Mathematics, and Descriptive Statistics.

There were six papers in the final examination :

Paper I : Probability; Paper II : Official Statistics and Statistical Methods, Paper III : Design of Experiments and Sample Surveys, Paper IV : Statistical Quality Control, Vital Statistics and Economic Statistics; Paper V : Practical on subjects covered in Paper I and II; Paper VI : Practical on subjects covered in papers III and IV.

#### 10.7.2 SENIOR COURSE : CALCUTTA (MARCH 1961-SEPTEMBER 1961)

(Total number of working days : 75)

*List of Successful Trainees :* Fourteen students were originally admitted : all satisfied the minimum attendance requirement and the following 9 were awarded certificates of successful completion of the course :

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|---|---|
| 1. Sushil Kumar Thamb, B.A. (Jalunder)          | 5. Konkepudi Gopalakrishna, B.A. (Andhra) |
| 2. Gurubaksh Singh, B.A. (Punjab)               | 6. Pappu Venkata Rao, B.Sc. (Andhra)      |
| 3. Kodali Venkata Krishnamurthy, B.A. (Andhra)  | 7. Chaba Sankar Rao, B.A. (Andhra)        |
| 4. Nilmutat Ahyutan, B.Sc. (Kerala)             | 8. Madan Mohan Agrawal, M.Sc. (Agra)      |
| 9. Srikanth Balakrishna Palakar, B.Sc. (Bombay) |   |

## INDIAN STATISTICAL INSTITUTE

**Examination :** Three periodical tests were held on the following subjects: Planning and Economic Statistics, Statistical Quality Control and Sample Surveys

There were seven papers in the final examination :

Paper I : Algebra, Linear Estimation, Analysis of Variance, Multivariate Analysis and Design of Experiments; Paper II- Estimation, Tests of Hypothesis, Sampling Distributions and Sample Surveys; Paper III: Practical on subjects covered in Paper I and II; Paper IV : (special subject) Statistical Quality control; Paper VI and VII: Practical on subjects covered in Papers IV and V respectively.

### 10.7.3 JUNIOR COURSE : CALCUTTA (SEPTEMBER 1961-MARCH 1963)

(Total number of working days : 94)

**List of successful trainees :** Thirtyseven students were originally admitted; all satisfied the minimum attendance requirements and the following 15 were awarded certificates of successful completion of the course :

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|---|--|
| 1. Binod Chandra De, M.Sc. (Calcutta)               | 8. Onkar Singh Gill, B.A. (Delhi)              |
| 2. Bhupati Prasanna Bhattacharyya, B.Sc. (Calcutta) | 9. Radharaman Dutta, M.Sc. (Calcutta)          |
| 3. K. V. Raman, B.Sc. (Madras)                      | 10. Pabitra Ranjan Ghose Roy, M.Sc. (Calcutta) |
| 4. Umash Singh, M.Sc. (Agra)                        | 11. Kalpa Janardana Rao, M.Sc. (Nagpur)        |
| 5. Shyamal Roychoudhuri, M.Sc. (Calcutta)           | 12. Pradip Kumar Bandopadhyay, B.A. (Calcutta) |
| 6. Sankar Kumar Roy, B.Sc. (Calcutta)               | 13. Pijush Ranjan Sen Gupta, B.Com. (Calcutta) |
| 7. Guru Narayan Samanta, B.A. (Calcutta)            | 14. Sitwanath De, B.Com. (Calcutta)            |
|   | 15. Asim Kumar Gupta, B.Sc. (Calcutta)         |

**Examination :** Two periodical tests held were on the following subjects : Presentation of Data, Probability, Descriptive Statistics, Economic Statistics, Vital Statistics and Official Statistics.

There were four papers in the final examination :

Paper I : Probability and Statistical Methods; Paper II; Official Statistics and Descriptive Statistics; Paper III : Practical (Descriptive Statistics and Statistical Methods); Paper IV : Statistics and Economic Statistics (theory and practical).

### 10.7.4 SENIOR COURSE : CALCUTTA (SEPTEMBER 1961-MARCH 1962)

(Total number of working days : 85)

**List of successful trainees :** Eighteen students were originally admitted; all satisfied the minimum attendance requirements and the following 12 were awarded certificates of successful completion of the course :

- |   |   |
|---|---|
| 1. Raman Ramamoorthy, B.Sc. (Delhi)       | 7. Nihar Kumar Banerjee, M.Sc. (Jadavpur)     |
| 2. Sali Kumar Choudhuri, B.Sc. (Calcutta) | 8. Sisir Kumar Deb, B.A. (Calcutta)           |
| 3. Chitta Ranjan Paul, B.Sc. (Calcutta)   | 9. Bimal Krishna Pramanik, B.M.Sc. (Jadavpur) |
| 4. Anil Kumar Mukherjee, B.Sc. (Calcutta) | 10. Debi Das Chatterjee, M.Sc. (Calcutta)     |
| 5. Natarajan Ramakrishnan, B.Sc. (Madras) | 11. Madan Mohan Lal, M.Sc. (Allahabad)        |
| 6. Kama Kishore Seth, B.Sc. (Rajputana)   | 12. Manoranjan Majumdar, B.A. (Calcutta)      |

### THIRTIETH ANNUAL REPORT : 1961-62

**Examination :** Two periodical tests were held on the following subjects: Economic Statistics and Sample Survey, Statistical Quality Control and Algebra, Multivariate Analysis and Statistical Methods.

There were seven papers in the final examination :

Paper I : Algebra, Multivariate Analysis and Design of Experiments. Paper II : Estimation, Tests of hypothesis and Sample Survey. Paper III : Practical on subjects covered in Papers I and II. Paper IV : (Special subject) : Statistical Quality Control. Paper V : (Special subject) : Planning and Economic Statistics. Paper VI and VII : Practical on subjects covered in papers IV and V respectively.

#### 10.8 ONE-YEAR EVENING COURSE IN STATISTICS, BOMBAY (MAY 1961-APRIL 1962)

##### LIST OF TRAINEES

- |   |   |
|---|---|
| 1. N. R. Satumane, B.Sc. (Stat. & Matha.)               | 16. (Miss) Celine Lobo, B.A.                            |
| 2. J. R. Murthy, B.Sc. (Matha.)                         | 17. T. Mohan Chandra Menon, M.A. (Econ.)                |
| 3. Shankar P. Joshi, B.A. (Hona.)                       | 18. Mooheria Srinivasrao, B.Sc. (Phys) M.A.*<br>(Econ.) |
| 4. Deshpande S. Sadasiv, M.Sc. (Matha.)                 | 19. K. Padmanabha Iyer, B.Sc. (Matha.)                  |
| 5. Rajendra Shankar Patil, B.Sc. (Matha. & Stat.)       | 20. M. V. Pai, B.Sc. (Phys. & Matha.)                   |
| 6. C. Padmanabhan, B.Sc.                                | 21. C. Prabhakaran, B.Sc. (Matha. & Stat.)              |
| 7. Padukone Ganapati Rao Doverso, B.Sc. (Matha.)        | 22. V. S. Shetty, B.A. (Econ.)                          |
| 8. Mukund Datta Shanbhag, B.Sc. (Matha.)                | 23. V. V. Menon, B.Sc. (Stat. & Matha.)                 |
| 9. V. B. Gormdia, B.Sc. (Matha. & Stat.)                | 24. G. V. Hosmane, M.Sc. (Stat.)                        |
| 10. Chittoor V. Lakshmanan, B.Sc. (Phys. & Matha.)      | 25. N. S. Halaohandra, B.Sc. (Stat. & Matha.)           |
| 11. (Miss) Kolakar Usha Keshav, B.A.                    | 26. N. Sethumadhavan, B.A.                              |
| 12. Umesh Chandra Agarwal, M.Sc. (S.I.S.I.<br>(Bombay)) | 27. A. George Mathew, B.A. (Matha.)                     |
| 13. K. K. Sethyananathan, B.Sc. (Stat. & Matha.)        | 28. C. K. Abraham, B.Sc. (Matha. & Stat.)               |
| 14. K. Murlidhar, B.Sc. (Matha.)                        | 29. Dominic Po, B.Sc. (Phys. & Chem.)                   |
| 15. A. Vishwanathan, B.Sc. (Stat. & Matha.)             | 30. I. G. Mirchandani, B.Sc. (Chem. & Phys.)            |

#### 10.9 ONE-YEAR EVENING COURSE IN STATISTICS, NEW DELHI (MARCH 1961-FEBRUARY 1962)

(In collaboration with the Central Statistical Organisation, Government of India)

##### LIST OF TRAINEES

- |  |  |
|--|--|
| 1. Madan Lal Sethi, M.A. (Econ.) (Ministry of Defence)                                 | 7. Hem Raj, M.A. (Matha.) (Ministry of Transport & Communications)                                 |
| 2. Kalides Neogy, B.Sc. (Ministry of Defence)  | 8. Satya Pal Denis, M.A., (Matha.) (Ministry of Transport & Communications)                        |
| 3. Kakani Rama Mohan Rao, B.Sc. (Hona.) (Stat.); (Ministry of Works, Housing & Supply) | 9. B. D. Jainam, B.A. (Hona.) (Matha.) B. Ed., (Ministry of Community Development and Cooperation) |
| 4. Ratan Lal Gangal, M.A. (Econ.) (Ministry of Labour & Employment)                    | 10. N. K. Gupta, M.A. (Econ.) (Ministry of Food & Agriculture)                                     |
| 5. Vinod Kumar, M.A. (Matha.), (Delhi State)   |  |
| 6. Anil Kumar, M.A. (Econ.), (Delhi State)   |  |

## INDIAN STATISTICAL INSTITUTE

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|---|--|
| <p>11. Ohmi Lal Kaul, M.A. (Maths.) (Ministry of Food &amp; Agriculture)</p> <p>12. Ishwar Prasad Gupta, M.Sc. (Maths.) (Ministry of Home Affairs)</p> <p>13. Kanahya Lal Banerji, B.A. (Hons.) (Maths.) (Ministry of Finance)</p> <p>14. Rajindra Singh Kanwar, M.A. (Econ.) (Ministry of Finance)</p> <p>15. Om Parkash Kohli, M.A. (Hist.) (Ministry of Finance)</p> <p>16. Rabbuhar Datta Joshi, M.A. (Maths.) (Reserve Bank)</p> <p>17. Shadi Lal, M.A. (Econ.) (Planning Commission)</p> <p>18. Jagdish Prasad Gupta, M.A. (Maths.) (Planning Commission)</p> <p>19. T. V. Krishna, M.Sc. (Maths.) (Cabinet Secretariat)</p> <p>20. Har Swaroop Kapoor, M.Sc. (Maths.), LL.B. (Ministry of Education, Scientific Research &amp; Cultural Affairs)</p> <p>21. Ghanashyam Khurana, M.A. (Maths.), M.A. (Philosophy) (Ministry of Education)</p> <p>22. Sanmukh Singh Jolly, M.A. (Econ.) (Ministry of Health)</p> <p>23. Dhanpal Singh Jain, M.Sc. (Maths.) (D.A.V. Higher Secondary School)</p> <p>24. Hrishikesh Sharma, B.Com., M.A. (Econ.) (National Council of Applied Economic Research)</p> | <p>25. Narinder Kumar Chopra, M.A. (Maths.) (Private)</p> <p>26. Locher Raj Khurana, M.A. (Econ.) (Ministry of Commerce &amp; Industry)</p> <p>27. Sudarshan Kumar Birpal, M.A. (Maths.) (Cabinet Secretariat)</p> <p>28. (Miss) Chandra Kanta Verma, B.A. (Bharat Yuvak Samaj)</p> <p>29. Pandit Datta Traya Lalraj Kant, M.Com. (Ministry of Commerce &amp; Industry)</p> <p>30. Prem Sagar, M.A. (Econ.) (Reserve Bank)</p> <p>31. Satish Chandra Mahrotra, M.A. (Econ.) (Ministry of Food &amp; Agriculture)</p> <p>32. Subhash Chandra Grover, B.A. (Ministry of Transport &amp; Communications)</p> <p>33. V. Bhaskaran, M.Sc. (Stat.) (Ministry of Works, Housing &amp; Supply)</p> <p>34. Mrs. S. Kumar, M.A. (Maths.), B.T. (Delhi Administration)</p> <p>35. Narinder Kumar Geertam, B.A. (Ministry of Health)</p> <p>36. Padmakar Dushpande, M.A. (Econ.) (Cabinet Secretariat)</p> <p>37. Prem Kumar Sharma, B.A. (Ministry of Finance)</p> <p>38. Tara Chand, M.A. (Econ.) (Ministry of Finance)</p> <p>39. Krishan Kumar Sharma, B.A. (Ministry of Irrigation &amp; Power)</p> |
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### 10.10 ONE-YEAR EVENING COURSE IN STATISTICS, MADRAS (SEPTEMBER 1961-AUGUST 1962)

#### LIST OF TRAINEES

- |  |   |
|--|---|
| <p>1. P. R. Somesundaram, B.A. (Dip.Stat.)</p> <p>2. S. Ranganathan, B.A.</p> <p>3. S. Parthasarathy, M.A.</p> <p>4. G. Ranganathan, B.A. (Hons.)</p> <p>5. N. Dandapani, M.Sc. (Maths.)</p> <p>6. T. V. Rajagopalan, B.A. (Hons.)</p> <p>7. V. Sundararajan, B.A. (Hons.)</p> <p>8. A. M. Sirajuddin, M.A.</p> <p>9. K. Sriramulu, B.A. (Hons.)</p> <p>10. M. V. Lakshmanaswamy, M.A.</p> | <p>11. N. Bhima Rao, B.A. (Hons.)</p> <p>12. P. A. Kirubakaran, Samuel, B.Sc.</p> <p>13. Krishnasahasri Ragothamas, B.A. (Hons.)</p> <p>14. K. Venkataraman, B.A. (Hons.)</p> <p>15. R. Sarangan, B.Sc. (Stat., Maths.)</p> <p>16. R. Vijendra Rao, B.A. (Maths.)</p> <p>17. V. Balasubramanian, B.A. (IBI trained)</p> <p>18. (Miss) C. V. Mohana, M.Sc.</p> <p>19. Jayaraman, B.Sc.</p> <p>20. Prakasa Rao, Karuturi, M.A.</p> <p>21. S. V. Venkatarajan, B.Sc. (Stat.)</p> |
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## THIRTIETH ANNUAL REPORT : 1961-62

### 10.11 COMPUTER'S TRAINING COURSE, JUNIOR AND SENIOR, CALCUTTA

#### 10.11.1 TRAINEES ADMITTED TO THE JUNIOR COURSE (MORNING) (MARCH 1961-SEPTEMBER 1961)

- |   |  |
|---|--|
| 1. Asoke Kumar Kundu, I.Sc. (Calcutta)      | 7. S. K. Dilwar Ali, I.Sc. (Calcutta)          |
| 2. Syamal Kumar Dutta, I.Sc. (Calcutta)     | 8. T. Santhe Krishnan, B.Com. (Calcutta)       |
| 3. Sanilmoy Basu, I.Sc. (Calcutta)          | 9. Timir Baran Bhattacharjee, I.Sc. (Calcutta) |
| 4. Samir Kanti Biswas, I.Sc. (Calcutta)     | 10. Gobinda Chandra Dutta, B.Com. (Calcutta)   |
| 5. Biswanath Chatterjee, I.Sc. (Calcutta)   | 11. Tarak Pam, I.Sc. (Calcutta)                |
| 6. Murari Mohan Panja, B.Sc. (Calcutta)     | 12. Gopal Chandra De, B.Sc. (Calcutta)         |
| 13. Asoke Kumar Mukherjee, I.Sc. (Calcutta) |  |

#### 10.11.2 TRAINEES ADMITTED TO THE JUNIOR COURSE (EVENING) (MARCH 1961-SEPTEMBER 1961)

- |   |   |
|---|---|
| 1. Manoo Ranjan Chowdhury, B.Sc. (Calcutta)   | 12. Sunil Kumar Banerjee, B.Com. (Calcutta)   |
| 2. Amal Kumar Pathak, B.Sc. (Calcutta)        | 13. Reemay Jana, B.A. (Calcutta)              |
| 3. Sunip Das Gupta, I.Sc. (Calcutta)          | 14. Swadesh Ranjan Gupta, B.Com. (Calcutta)   |
| 4. Subhas Chandra Sarkar, I.Sc. (Calcutta)    | 15. Sudhansu Kumar Banerjee, B.Sc. (Calcutta) |
| 5. Dwijendra Chandra Chanda, I.Sc. (Calcutta) | 16. Aak Kumar Gangopadhyay, B.A. (Calcutta)   |
| 6. Govinda Chandra Laha, I.Com. (Calcutta)    | 17. Timir Kumar Chatterjee, I.Com. (Calcutta) |
| 7. Harindra Kumar Aditya, I.Sc. (Calcutta)    | 18. Mohamad Abdul Gani, I.Com. (Calcutta)     |
| 8. Dilip Kumar Ghose, I.Sc. (Calcutta)        | 19. Amal Kumar Basu, B.Com. (Calcutta)        |
| 9. Ananda Ranjan Masmundar, I.Sc. (Calcutta)  | 20. Arup Kumar Chowdhury, B.Sc. (Calcutta)    |
| 10. Sudhir Kumar De, I.Com. (Calcutta)        | 21. Manoo Kanti Das, I.Sc. (Calcutta)         |
| 11. Tushar Kanti Dutt, B.Sc. (Calcutta)       | 22. Birendra Chandra Roy, I.Sc. (Calcutta)    |

#### 10.11.3 TRAINEES ADMITTED TO THE SENIOR COURSE (EVENING) (MARCH 1961-SEPTEMBER 1961)

- |  |   |
|--|---|
| 1. Banai Badan Chatterjee, B.Com. (Calcutta) | 6. Tripti Sakhar Dutt Roy, L.C.E. (Engineering) |
| 2. Rabindra Kumar Bhar, I.Sc. (Calcutta)     | 8. Alok Naah For Chowdhury, I.Sc. (Calcutta)    |
| 3. Brajeshwar Mukherjee, I.Sc. (Calcutta)    | 8. Aohinsya Kumar Sengupta, B.Sc. (Calcutta)    |
| 4. Arup Kumar Paul, I.Sc. (Calcutta)         | 9. Birendra Pan, I.Sc. (Calcutta)               |
| 5. Mukul Ranjan Ganguly, I.Sc. (Calcutta)    | 10. Alok Kumar Sen, I.Sc. (Calcutta)            |
| 11. Sarad Kumar Sen, I.Sc. (Calcutta)        |   |

#### 10.11.4 TRAINEES ADMITTED TO THE JUNIOR COURSE (MORNING) (SEPTEMBER 1961-FEBRUARY 1962)

- |  |   |
|--|---|
| 1. Mrinal Kanti Sarkar, I.Sc. (Calcutta)     | 6. Aloke Kumar Bhattacharjee, I.Com. (Calcutta) |
| 2. Anjan Kumar Aiq, B.Sc. (Calcutta)         | 9. Debabrata Mustafi, I.Sc. (Calcutta)          |
| 3. Arun Ranjan Chowdhury, I.A. (Calcutta)    | 10. Ramendra Kumar Das, I.Sc. (Calcutta)        |
| 4. Srinivas Shukla, I.Sc. (Calcutta)         | 11. Urbibrasa Chatterjee, I.Sc. (Calcutta)      |
| 5. Gouranga Deb Paul, B.Sc. (Calcutta)       | 12. Baisi Chandra Ghosh, I.Sc. (Calcutta)       |
| 6. Bimal Chandra Karmaakar, I.Sc. (Calcutta) | 13. Kalipada Das, H.B. (Calcutta)               |
| 7. Sankar Nath Chatterjee, I.Sc. (Calcutta)  | 14. Babindra Nath Ghose, I.Sc. (Burdwan)        |
| 15. Dilip Kumar Ghosh, I.Sc. (Calcutta)      |   |

## INDIAN STATISTICAL INSTITUTE

### 10.11.5 TRAINERS ADMITTED TO THE JUNIOR COURSE (EVENING)

(SEPTEMBER 1961-MARCH 1962)

- |  |  |
|--|--|
| 1. Durga Prasad Ghosh, I.Sc. (Calcutta)      | 9. Govinda Chandra Pal, I.Sc. (Calcutta)       |
| 2. Bholanath Masumder, I.Sc. (Calcutta)      | 10. Hiralal Gangopadhyay, I.Sc. (Calcutta)     |
| 3. Bierwanath Dutta, I.Sc. (Calcutta)        | 11. Binoy Kumar Das, I.Sc. (Calcutta)          |
| 4. Arun Kumar Dutta, B.Sc. (Calcutta)        | 12. Saili Kumar Basu, I.Sc. (Calcutta)         |
| 5. Santanu Saha, I.Sc. (Calcutta)            | 13. Jamini Bhushan Das, B.Sc. (Calcutta)       |
| 6. Sunil Kumar Ghosh, I.Sc. (Calcutta)       | 14. Mihir Kumar Roychoudhury, B.Sc. (Calcutta) |
| 7. Sudhish Chandra Goewami, I.Sc. (Calcutta) | 15. Monaj Kumar Sarkar, I.Sc. (Calcutta)       |
| 8. Sasanka Sekhar Sengupta, I.Sc. (Calcutta) | 16. Sanjib Kumar Chakravarty, I.Sc. (Calcutta) |
| 17. Indu Bhushan Patra, B.Com. (Calcutta)    |  |

### 10.11.6 TRAINERS ADMITTED TO THE SENIOR COURSE (EVENING)

(SEPTEMBER 1961-MARCH 1962)

- |   |   |
|---|---|
| 1. Sudhanahu Banerjee, B.Sc. (Calcutta)     | 8. Sunil Kumar Banerjee, B.Com. (Calcutta)      |
| 2. Govinda Chandra Laha, I.Com. (Calcutta)  | 9. Gopal Chandra Dey, H.S. (Calcutta)           |
| 3. Asoke Kumar Ganguly, B.A. (Calcutta)     | 10. Govinda Chandra Dutta, M.Com. (Calcutta)    |
| 4. Ananda Ranjan Masumder, I.Sc. (Calcutta) | 11. Timir Haren Bhattacharjee, I.Sc. (Calcutta) |
| 5. Dilwar Ali, I.Sc. (Utkal)                | 12. Dwijendra Chandra Chanda, I.Sc. (Calcutta)  |
| 6. Subhas Chandra Sarkar, I.Sc. (Calcutta)  | 13. Amei Kumar Pathak, B.Sc. (Calcutta)         |
| 7. Syamal Kumar Dutta, I.Sc. (Calcutta)     | 14. Rasamay Jana, B.A. (Calcutta)               |
| 15. Sunip Das Gupta, I.Sc. (Calcutta)       |   |

### 10.12 THREE-MONTH COURSE IN PUNCHED CARD SYSTEMS

(MARCH-MAY 1962)

- |   |   |
|---|---|
| 1. Gurbaksh Singh, B.A. (Punjab)                  | 11. Amar Nath Dey, B.Sc. (Calcutta)               |
| 2. Jnanankur Sen, B.Sc. (Calcutta)                | 12. C. Gopinathan Nair, B.A. (Madras)             |
| 3. Prasannjit Kumar Sengupta, B.Com. (Calcutta)   | 13. Vankatesa Ramakrishnan, B.Com. (Calcutta)     |
| 4. Mani Gopal Bhattacharjee, B.A. (Calcutta)      | 14. Dulal Chandra Banerjee, B.A. (Calcutta)       |
| 5. Sambhu Nath Sen, B.Com. (Calcutta)             | 15. Siba Kumar Mukherjee, B.Sc. (Calcutta)        |
| 6. Sankar Bhaduri, B.Sc. (Calcutta)               | 16. Amiya Kumar Ghosh, B.Sc. (Calcutta)           |
| 7. Manujendra Kumar Dhar, B.Sc. (Calcutta)        | 17. Subhas Chandra Roychoudhury, B.Sc. (Calcutta) |
| 8. Sita Ram Tibrewal, B.Com. (Calcutta)           | 18. Keshab Chandra Banerjee, B.Com. (Calcutta)    |
| 9. Gauranga Deb Pal, B.Sc. (Calcutta)             | 19. Bidhu Bhushan Guha, B.Com. (Calcutta)         |
| 10. Bollisetty Satyanarayana Murty, B.A. (Andhra) | 20. Ranjit Singh, M.A. (Banaras)                  |

### 10.13 SUMMER COURSE (ADVANCED) FOR STATISTICIANS

(8 MAY-JUNE 1961)

#### 1. LIST OF PERSONS ATTENDING FROM OUTSIDE

1. Abdul Aleem, M.Sc. (Lucknow), Demonstrator, Dept. of Mathematics & Statistics, Muslim University, Aligarh.
2. S. Mantaz Ali, M.Sc. (Lucknow), Two-year ISI Training, Lecturer, Dept. of Mathematics & Statistics, Muslim University, Aligarh.
3. C. B. Bhagwan, M.Sc. (Andhra), Lecturer in Statistics, Andhra University, Waltair.

### THIRTIETH ANNUAL REPORT : 1961-62

4. J. P. Das, M.A. (Patna), Ph.D. (Lond.), Lecturer, Post-Graduate Dept. of Psychology, Ravenshaw College, Utkal University, Cuttack.
5. K. N. Datta, Com. Certificate I (ISI), Statistician, Toolkai Experimental Station, Indian Tea Association, Jorhat, Assam.
6. Abdul Hai, M.Sc. (Lucknow), Lecturer, Dept. of Mathematics & Statistics, Muslim University, Aligarh.
7. N. C. Jain, M.Sc. (Lucknow), Lecturer in Statistics, Banaras Hindu University, Varanasi.
8. P. C. Joseph, M.A. (Madras), Professor of Mathematics & Statistics, St. Zsaseph College, Palai (Kerala).
9. A. Ahmed Khan, M.Sc. (Aligarh), Lecturer, Dept. of Mathematics & Statistics, Muslim University, Aligarh.
10. V. S. Malindeo, M.Sc. (Bombay), Statistical Officer, Bureau of Economics & Statistics Government of Maharashtra, Bombay.
11. N. S. Mani, M.Sc. (Hons.) (Mysore), Two-year ISI Training, Industrial Engineer, Sarabhai Chemicals, Baroda.
12. R. S. Munavalli, M.A. (Karnatak), Lecturer in Statistics, Karnatak College, Dharwar.
13. B. S. C. Murti, M.Sc. (Banaras), Two-year ISI Training, Research Assistant, Karamchand Premchand (P) Ltd., Ahmedabad.
14. S. B. Mandi, M.Sc. (Gauhati), Lecturer in Statistics, Gauhati University, Gauhati.
15. A. G. Pathak, M.Sc. (Baroda), Lecturer in Statistics, M.S. University of Baroda, Baroda.
16. M. Pratap, M.A. (Agra), Professor of Statistics, J. V. College, Baraut (Meerut).
17. C. S. Raman, M.Sc. (Mysore), Statistician, Economics Department, University of Madras, Madras.
18. J. Ranganathan, M.A. (Madras), Additional Professor of Statistics, Presidency College, Madras.
19. J. S. Rao, B.Sc. (Hons.) (Andhra), Two-year ISI Training, Senior Scientific Officer, Physics Division (ATIRA), Ahmedabad.
20. D. K. Sanyal, B.Sc. (Calcutta), Technical Assistant, Toolkai Experimental Station, Indian Tea Association, Jorhat, Assam.
21. A. R. Sarkar, B.Sc. (Calcutta), Statistical Assistant, Toolkai Experimental Station, Indian Tea Association, Jorhat, Assam.
22. (Misc), N. S. Shakuntala, M.Sc. (Mysore), Senior Scientific Assistant (Stat.), Defence Science Laboratory, New Delhi.
23. J. Singh, M.Sc. (Lucknow), Lecturer in Statistics, Vikram University, Ujjain.
24. N. K. Singh, M.Sc. (Lucknow), Lecturer in Statistics, Banaras Hindu University, Varanasi.
25. U. P. Singh, M.Sc. (Lucknow), Assistant Professor, Gorakhpur University, Gorakhpur.
26. A. B. L. Srivastava, M.Sc. (Lucknow), Ph.D. (Kharagpur), Head of the Dept. of Statistics, Meerut College, Meerut.
27. R. C. Srivastava, M.Sc. (Lucknow), Lecturer in Statistics, Banaras Hindu University, Varanasi.
28. V. G. Tikokar, M.Sc. (Poona), Lecturer Dept. of Applied Mathematics, Indian Institute of Science, Bangalore.
29. R. S. Tyagi, M.Sc. (Lucknow), Head of the Dept. of Statistics, D. N. Degree College, Meerut.
30. K. N. Yawalkar, M.Sc. (Nagpur), Chief Research Officer, Joint Cipher Bureau, Ministry of Defence New Delhi.

#### 2. PERSONS FROM THE INDIAN STATISTICAL INSTITUTE

1. N. S. Iyengar, B.Sc. (Hons.) (Mysore), Three-year ISI Training, Technician, Planning Division.
1. N. K. Das Gupta, M.Sc. (Calcutta), Statistician's Diploma, Technician, N.S.S.
3. G. Parthasarathy, B.A. (Hons.) (Madras), Three-year ISI Training, Technician, N.S.S.
4. P. N. Singh, M.Sc. (Banaras), Three-Year ISI Training Technician, Planning Division.

## INDIAN STATISTICAL INSTITUTE

5. A. K. Sinha, M.Sc. (Allahabad), Three-year ISI Training, Statistician, Flood Research Unit.
6. K. G. K. Murty, B.Sc. (Hons.) (Madras), Three-year ISI Training, Technical Officer, SQC Unit, Calcutta.
7. G. M. Naidu, B.A. (Venkateshwara), Statistician's Diploma, Statistical Assistant, Flood Research Unit.

### 3. LECTURES GIVEN AT THE SUMMER COURSE 1961

#### 3.1 Full Courses

1. *Combinatorial Problems* (Professor S. S. Shrikhande, Banaras Hindu University, Banaras).
2. *Stochastic Processes* (Queueing and Storage) (Dr. N. U. Prabhu, Karnatak University, Dharwar).
3. *Order Statistics* (Professor M. Sibuya, Visiting Professor at the International Statistical Education Centre, Calcutta).
4. *Markov Processes* (General Theory) (Sri S. R. S. Varadhan, Indian Statistical Institute).
5. *Information Theory* (Sri K. R. Parthasarathy, Indian Statistical Institute).
6. *Operations Research* (Sri C. S. Ramakrishnan, Indian Statistical Institute).
7. *Recent Advances in the Theory of Sampling and Large Scale Sample Surveys* (Applied) (Sri M. N. Murthy, Indian Statistical Institute).
8. *Non-parametric Methods* (Sri J. Sethuraman, Indian Statistical Institute).
9. *Multivariate Analysis* (Dr. J. Roy and Sri S. John, Indian Statistical Institute).
10. *Response Surfaces* (Dr. J. Roy, Indian Statistical Institute)
1. *Statistical Inference* (Dr. D. Basu, Indian Statistical Institute).

#### 3.2 Special Lectures

1. *Fractile Graphical Analysis* (Professor P. C. Mahalanobis).
2. *Statistical Analysis of Observations on Inbreeding in Andhra Pradesh* (Professor J. B. S. Haldane and S. D. Jayakar).

### 10.14 TRAINING AT THE INTERNATIONAL STATISTICAL EDUCATION CENTRE, CALCUTTA

#### 10.14.1 FIFTEENTH TERM . JULY 1961-APRIL 1962

*List of trainees* : Against each country is shown within brackets the number of applications received followed by a list of trainees admitted. Two candidates from Japan received scholarships equivalent in value to the Colombo Plan Junior Fellowships; and all the other twentytwo foreign students received Colombo Plan Junior Fellowships.

#### *Burma* (2)

1. Daw Ma Than Da, *Central Statistical and Economics Department, Rangoon.*
2. Daw Mar Mar Zin, *Central Statistical and Economics Department, Bangoon.*

#### *Ceylon* (1)

3. K. Nadarajah, *Department of Census and Statistics, Colombo.*

#### *India* (7)

4. R. L. Sinha, *Department of Cooperation and Sugarcane, Patna.*
5. S. M. Perumal, *Neyveli Lignite Corporation Ltd., Madras.*
6. K. Sharma, *Director of Statistics, Patna.*

THIRTIETH ANNUAL REPORT : 1961-62

7. D. K. Sharma, *Directorate of Economics & Statistics, Madhya Pradesh, Bhopal.*
8. T. P. Radhappan, *Department of Statistics, Madras.*

*Iran (3)*

9. F. Aghajani, *Ministry of Education, Tehran.*
10. A. H. Naraghi, *Ministry of Justice, Tehran.*
11. G. Estifa Fani, *Ministry of Finance, Tehran.*

*Japan (2)*

12. H. Honda *Prime Minister's Office, Tokyo.*
13. H. Mitsuya, *Statistical Standards Bureau, Tokyo.*

*Philippines (8)*

14. Idefonso M. Cruz, *Agricultural Economics Division, Quezon City.*
15. Felix B. Villamayor, *Agricultural Economics Division, Quezon City.*
16. Mamerto Damasco, *Agricultural Economics Division, Quezon City.*
17. Juan N. Pordesimo, *Agricultural Economics Division, Quezon City.*
18. Juan C. Biag, *Bureau of the Census and Statistics, Manila.*
19. Loreto C. Olivares, *Bureau of the Census and Statistics, Manila.*
20. Antonio U. Benedicto, *Philippines National Bank, Manila.*
21. Guadalupe B. Escano (Mrs.), *Bureau of Public Schools, Manila.*

*Thailand (3)*

22. Sumana Thimkrajang (Miss), *Chulalongkorn University, Bangkok.*
23. Sappadda Pawanarith (Miss), *Chulalongkorn University, Bangkok.*
24. Somporn Palang (Miss), *Chulalongkorn University, Bangkok.*

*Examinations :* The following examinations were held :

*Pre-training tests :* Mathematics, Statistics and Economics.

*Periodical tests :* Economics, Statistics Principles I, Auxiliary Mathematics I, Economic Statistics I, Statistical Measures, Statistics Principles II, Machine Tabulation and Programming (Punched Card systems), Auxiliary Mathematics II, Sampling Theory, Demography and Vital Statistics, Official Statistics (CSO).

*Final Examination :* Statistics measures, Statistics Principles (Part I), Economics Statistics, Introduction to Sampling Theory (Part II) Econometrics, Analysis of Variance and Designs of Experiments, Sample Designs and Large-scale Sample Surveys.

*Calendar :* Number of working days, including training at CSO and Field Training at Girdih : 204

Lectures : Course in General Methodology	1 August 1961-1 November 1961
Training at CSO, Delhi, including	
Specialisation courses	6 November 1961-14 December 1961
Field training at Girdih :	17 December 1961-23 December 1961
Further course in Statistical Methodology:	27 December 1961-21 February 1961
Specialisation course :	26 February 1962- 7 April 1962

**INDIAN STATISTICAL INSTITUTE**

**10.14.2. NUMBERS OF STUDENT PARTICIPANTS, CLASSIFIED BY COUNTRIES AND YEARS**

(The figures in brackets are the numbers of students admitted to Special Course, whereas the others are those admitted to the Regular Course)

country	year														
	1860-61	'61	'62	'63	'63	'63	'64	'64	'65-66	'65-67	'67-68	'68-69	'69-70	'70-71	'71-72
1. Afghanistan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2. Albania	4	4	5	7	8	2	3	1	-	5	3	1	1	1	3
3. Cambodia	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
4. Ceylon	-	3	3	1	-	1	-	1	-	3	1	2	1	2	1
5. India	3	10	12	10	5	7	12	15	5	11*	3	3	3 <sup>o</sup>	7	5
6. Indonesia	-	-	3	-	1	3	3	3	3	-	-	3	7	3	27
7. Iraq	-	-	1	-	-	-	-	-	(2)	-	(1)	3	-	2	3
8. Iran	-	-	1	-	-	-	-	-	-	-	-	-	-	2	1
9. Japan	1	1	1	-	-	3	-	-	-	4	3	3	1	3	(5)
10. Laos	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
11. Malaya	-	2	1	1	1	1	1	1	-	-	-	1	1	1	-
12. Nepal	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
13. New Zealand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Pakistan	6	10	6	10	13	6	1	3	3	4	-	-	-	-	64
15. Philippines	-	-	6	4	6	3	3	3	3	3	4	6	4	6	6
16. Singapore	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
17. South Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18. Sri Lanka	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-
19. Syria	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
20. Thailand	-	3	4	3	3	-	-	-	-	3	4	3	4	1	3
21. United Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22. Viet Nam	3	2	-	-	-	-	-	-	-	-	-	-	(3)	-	-
Total	18	38	40	37	30	25	24	37	11	50	16	39	38	30	34

\* One student each did not complete the Term.

THIRTIETH ANNUAL REPORT : 1961-62

10.14.3 NUMBER OF FELLOWSHIP/SCHOLARSHIPS HELD BY STUDENTS DURING DIFFERENT TERMS

(Unless otherwise indicated, the fellowships/scholarships were junior fellowships awarded by the Government of India under TCS of Colombo Plan)

country	1960-61		'61		'62		'63		'63		'63		'64		'65-66		'66-67		'67-68		'68-69		'69-70		'70-71		'71-72		total		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1. Burma	-	-	1	7 <sup>a</sup>	1	2	2	1	-	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	2	23	
2. Ceylon	-	2	2	1	-	1	-	1	-	1	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	
3. Indonnesia	-	-	2	-	-	1	3	3	3	-	-	-	-	5	7	3	-	5	7	3	-	5	7	3	-	5	7	3	-	57	
4. Iran	-	-	-	-	-	-	-	-	3 <sup>a</sup>	-	-	-	-	14	3 <sup>a</sup>	-	-	14	3 <sup>a</sup>	-	-	14	3 <sup>a</sup>	-	-	14	3 <sup>a</sup>	-	-	34	
5. Japan	1 <sup>a</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2	1	2	2	2	1	2	2	2	2	2	2	14	
6. Laos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
7. Malaya	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
8. Nepal	-	2	-	1 <sup>b</sup>	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	
9. New Zealand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
10. Pakistan	-	6	3	4	6	6	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34	
11. Philippines	-	-	4	4	6	3	3	2	3	2	4	6	4	6	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	67
12. Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
13. Singapore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
14. South Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	1	-	-	-	-	-	-	-	-	-	-	4	
15. Syria	-	-	1 <sup>a</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 <sup>a</sup>	
16. Thailand	-	1	3	2	2	-	-	-	-	-	-	-	-	-	-	2	4	3	4	1	3	4	1	3	4	1	3	4	1	3	26
17. United Arab Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
18. Viet Nam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
19. Viet Nam	1	13	16	19	16	16	16	12	11	6	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	230

a—UN fellowships; b—Government of India senior scholarship under Colombo Plan Scheme; c—4 out of 7 were ILO fellowships; d—Government of India JSEC scholarship outside Colombo Plan Scheme; e—Government of India, Ministry of Education scholarship; f—Indian Statistical Institute scholarships.  
 (Total number of junior fellowships under Colombo Plan : 206; senior scholarships under Colombo Plan : 1)

**INDIAN STATISTICAL INSTITUTE**

**10.15 NUMBERS OF CANDIDATES APPLIED FOR ADMISSION, APPEARED AT SELECTION TESTS AND ADMITTED TO VARIOUS COURSES**

**10.15.1 FULL TIME COURSES**

course	number		
	applied	appeared at selection tests	admitted
1. Research and Advanced Studies	68	53	17*
2. One-year Apprentice Course	—	—	8
3. M.Stat. 1st year	181	135	27
4. M.Stat. 2nd year (direct admission)	—	1	1
M.Stat. 2nd year (by promotion from 1st year)	—	—	19
5. B.Stat. 1st year	722	573	38
6. B.Stat. 2nd year	—	—	22
7. Statistical Officers' Course (Jointly with the CSO)	—	—	22
8. Officer-on-deputation	—	—	2
9. International Statistical Education Centre	26	—	24
10. Six-week Summer Course for Statisticians (May-June 1961)	—	—	27
Sub-total	907	762	205

\* Includes 5 continuing from previous year, and two foreign students.

**10.15.2 EVENING COURSES**

course	number		
	applied	appeared at selection tests	admitted
sub-total	907	762	205
1. Short-term Statistician's Course, Junior, Calcutta			
a) March-September 1961	171	77	43
b) September 1961-March 1962	112	63	37
2. Short-term Statistician's Course, Senior, Calcutta			
a) March-September 1961	—	—	16
b) September 1961-March 1962	—	—	18
3. Computer's Training Course, Junior, Calcutta			
a) March-September 1961	130	50	28
b) September 1961-March 1962	139	77	48
4. Computer's Training Course, Senior, Calcutta			
a) March-September 1961	20	20	14
b) September 1961-March 1962	18	18	10
5. Three-month Evening Course on Punchcard Systems, Calcutta (March-May 1962)	125	65	20
6. One-year Evening Course, Delhi (in Collaboration with the CSO) (March 1961-February 1962)	—	—	30
7. Six-month advanced course in Statistics, Delhi (September 1961-March 1962)	80	—	20
8. One-year Evening Course for Statisticians, Bombay (May 1961-April 1962)	75	53	30
9. One-year Evening Course for Statisticians, Madras (September 1961-August 1962)	154	94	21
Total	2,021	1,270	549



THIRTIETH ANNUAL REPORT : 1961-62

Appendix 11 : Professional Examinations and Awards for Professional Work

11.1 LIST OF CANDIDATES WHO HAVE RECEIVED ASSOCIATESHIP OF THE  
INDIAN STATISTICAL INSTITUTE SINCE ITS INCEPTION

1952-53

Abraham Matthai : Results of research work embodied in the following papers :

1. Estimation of Parameters from Incomplete Data with Application to Design of Sample Surveys.
2. On Methods of handling Algebraic Signs on the Hollerith Multiplier.
3. The Applicability of Large Sample Tests for moving Average and Autoregressive Schemes to Series of Short Length—an Experimental Study.
4. The Use of Commercial Punched Card Machines for Statistical Analysis with Special reference to time Series Problems.

Debabrata Basu : Report on the professional work done in the Indian Statistical Institute from September 1950 to February 1962, consisting of :

1. On the Limit of Points of Relative Frequencies.
2. A Note on the Power of the best Critical Region for increasing Sample Size.

Indra Mohan Chakravarti : Report on the professional activities consisting of :

1. Bengal Labour Enquiry.
2. Special cereal and Milk Consumption Enquiry.
3. Non-household enterprise study.
4. Technical studies on Bengal Crop-cutting Experiments.
5. Joint paper on Experimental Survey for Estimation of Cinchona yield in Madras.

Jogabrat Roy : Distribution of Blood Groups in India.

Saligram Raja Rao : Report on the professional work done during 1948-51 consisting of :

1. On the Limiting Forms of Statistical Distribution.
2. Normal Curve as Approximation to Statistical Distribution.
3. The Applicability of Large Sample Tests for moving Averages and Autoregressive Schemes to series of Short Length—an Experimental Study.
4. Autoregression Series.
5. Design of Glass Profile in Canal Falls.
6. Design of Channels in Alluvium in Sind.

1957-58

Chittur Sivaramakrishniyer Ramakrishnan : Dual of Two-associate PBIB Design and Contributions to Designs involving only Two Replications, together with a List of all such Designs.

Dwijendra Kumar Raibansudhury : On some Extensions of pps Sampling.

Ganapati Para Parasuram Patil : On Some Problems of Estimation in a Class of Discrete Distribution.

Ganapati Hariharan : Report on the professional work in statistics carried out by him as a member of the S.Q.C. Unit.

INDIAN STATISTICAL INSTITUTE

1958-59

V. Srinivasan (CSO) : Report on professional work in the fields of Statistical Quality Control, Labour Force and National Income.

11.2 LIST OF CANDIDATES WITH ADDRESSES WHO HAVE RECEIVED THE STATISTICIAN'S DIPLOMA IN 1961 AND IN THE PAST YEARS.

August 1961

1. R. G. Narasimhan, Statistical Quality Control Unit, Indian Statistical Institute, 9B Esplanade East, Calcutta 1.
2. C. S. Ramachandran, Department of Statistics, Reserve Bank of India, Bombay 1.

August 1962

3. Shalini Dhavle, Gokhale Institute of Politics and Economics, Poona 4.
4. Prithvi Raj Dogra, 28/A, Rajendra Nagar, New Delhi 5.
5. C. G. Gopalakrishna, Department of Statistics, Reserve Bank of India, Bombay 1.
6. Kusum Ramarao Pradhan, c/o Professor Beni Lal, Banaras Hindu University, Varanasi 5.
7. H. Ramanurthi, Central Water and Power Commission, Shahjehan Road, New Delhi.

August 1963

8. Hemlata Vaman Gadkari, c/o Sri Moni Mohan Mukherjee, Indian Statistical Institute, Calcutta 35.
9. Vasant Jagannatha Puntambekar, Bureau of Economics and Statistics, Bombay 32.

August 1964

10. Yamuna Shridhar Ghaisas, Gokhale Institute of Politics and Economics, Poona 4.
11. T. Jacob, Apprentice, SQC Unit, Indian Statistical Institute, Bombay 1.

August 1965

12. Sadasshiv Ramchandra Gokhle, Divisional Statistician, State Transport Corporation, Sholapur Division, Sholapur, C. Rly.
13. Pramod Kumar Gupta, c/o Messrs. Duncan Brothers and Co. Ltd., 31 Netaji Subhas Road, Calcutta 1.
14. Gopaldas S. Monga, Ramji Mandir, Kamati Garden, University Road, Baroda 2.
15. Rajgopala Rangarajan, Deputy Director of Statistics, Central Water and Power Commission, Shahjehan Road, New Delhi.

March 1966

16. T. Chollaswamy, Research Officer, Labour Bureau, 69 D. G. R. E. Buildings, New Delhi.
17. Krishnamurti Ramachandran, 21 Sakaji Naiken Street, Kumbakonam.

THIRTIETH ANNUAL REPORT : 1961-62

September 1956

18. Avtar Singh Chawla, 44 Rehgarhpura, Karol Bagh, New Delhi 5.
19. Niranjan Singh, Research Officer, Central Statistical Organisation, New Delhi.

April 1957

20. Dipak Chakravarti, Statistician, Good Year Tyre and Rubber Co. of India Ltd., Calcutta 17.

September 1957

21. Charan Singh Grewal, Regional Officer, National Sample Survey, 16-A Anaf Ali Road, New Delhi.
22. Srikantan Viswanath, Assistant Education Officer (Statistics), University Grants Commission, New Delhi 2.

March 1958

23. Sankar Bhaduri, 18-B, Prince Golan Md. Road, Calcutta 26.
24. Vasudeo Vyasacharya Ghalsasi, Department of Statistics, Reserve Bank of India, Bombay 1.
25. Arvind Parasuram Joag, 689, Sadashiv Peth, Poona 2.
26. Triloke Khosla, 111 Telang Road, Matunga, Bombay 19.

September 1958

27. Sukumar Chakravarti, Indian Statistical Institute, Calcutta 35.
28. Nirmal Kanti Das Gupta, Indian Statistical Institute, Calcutta 35.
29. Anant Raghobendra Kulkarni, Research Assistant, Gokhale Institute of Politics and Economics, Poona 4.
30. Shashikant Dattaray, 21C, 2nd Floor, Dadoba Jagannath Trust Buildings, Gamdevi Road, Bombay 7.
31. Narayan Mahabaleshwar Palekar, 1/16 Shanti Nivas, French Bridge, Bombay 7.
32. V. R. Rajagopala Sarma, Indian Statistical Institute, Calcutta 35.
33. Jagdish Narain Srivastava, 31/20, West Patel Nagar, New Delhi 12.

March-April 1959

34. Ved Parkash Aggarwal, Assistant Research Officer, Central Water and Power Research Station, Poona 3.
35. Amalendu Sen Gupta, Indian Statistical Institute, Calcutta 35.
36. Jugal Kishore Sharma, 827, Mantolla, Paharganj, New Delhi.
37. Tilak Raj Talwar, 18, Jawahar Nagar, Delhi 6.

INDIAN STATISTICAL INSTITUTE

September 1959

38. Brij Mohan Pal Khullar, Statistical Officer, National Defence Academy, Kharagrasta, Poona.

April 1960

39. Raghunath Shanker Abhyankar, Department of Statistics, Reserve Bank of India, Bombay 1.  
40. Ram Kishore Gupta, Technical Centre, Civil Aviation Department, Opp. Safdar Jung Airport, New Delhi.  
41. Govind Bajirao Joshi, MS/RB III 6/3, C. Rly. Quarter, Kolwada, Sion, Bombay 22.  
42. Sham Sundar Narula, 346 Double Storey, New Rajendra Nagar, New Delhi 5.  
43. Sreeram Ganesh Pande, 3 Shreeram Niwas, Woolen Mill Lane, Bombay 28.  
44. Chhakkilal Prajapat, 162/1, Labour Colony, Babupurwa, Kanpur.  
45. Awadesh Kumar Singh, Statistics Group, Defence Research Laboratory, Kanpur.  
46. Rajendra Kumar Tripathi, Statistics Group, Defence Research Laboratory, Kanpur.

September 1960

47. Nikhil Ranjan Dhar, Indian Statistical Institute, Calcutta 35.  
48. Jagdish Narain Garg, c/o Sri Lakshmi Narain Garg, Vill. Tihar, House No. 423, New Delhi 18.  
49. Dharam Vir Gulati, Productivity Centre, Ministry of Labour and Employment, Churchgate, Bombay 1.  
50. Ashim Kumar Mukherjee, 4/3 Gomes Lane, Ground Floor, Calcutta 14.  
51. Gurrankonda Munaswamy Naidu, Indian Statistical Institute, Calcutta 35.  
52. Makhan Lal Razdan, Room No. 127, 'E' Block, Psychological Research Wing, New Delhi 11.

March 1961

53. Rabindra Nath Banerjee, Vill. Kamdahari, P.O. Garia, 24 Parganas.  
54. Chuni Gopal Bhattacharyya, Vill. Nabagram, P.O. Mankundu, Hooghly.  
55. Nirmalendu Bhowmik, Indian Statistical Institute, Calcutta 35.  
56. Bhagwati Prasad Dyundi, E-175 Moti Bag 1, New Delhi.  
57. Brij Mohan Mahajan, 32-H, Jangpura Extension, New Delhi 14.

September 1961

58. Shrish Chandra Basu Ray, Indian Statistical Institute, New Delhi 14.  
59. Asoko Kumar Das Gupta, Indian Statistical Institute, New Delhi 14.  
60. Pawan Kumar Jain, Institute of Agricultural Research Statistics, New Delhi 12.  
61. K. Jayachandran, CII/51, Moti Bagh, New Delhi 3.  
62. Ranajit Kumar Naha, Indian Statistical Institute, Calcutta 35.

THIRTIETH ANNUAL REPORT : 1961-62

63. Venkatesubramanian Radhakrishnan, 27-A, Thambuchetty Road, Cox Town, Bangalore 1.
64. Salil Kumar Chaudhuri, Indian Statistical Institute, Calcutta 35.
65. Kultar Singh Bedi, 10E/25, East Patel Nagar, New Delhi.
66. Chandrasekhar Shankar Joshi, 12A/24, W.A.E., Karol Bagh, New Delhi 5.
67. Vasant Trimbak Jumde, 512, Shanwar Peth, Poona 2.
68. R. L. Khanna, Assistant Statistician, Department of Agriculture, Himachal Pradesh, Solan, Simla-Hills.
69. Saraschandra Gopal Moghe, Deehmukh Niwas, Warty Colony, Nasik.
70. Upadrashta Muralikrishna, o/o Sri R. Ramakrishnayya, Qr. No. B/67, Sector 16, Rourkela 3, Orissa.
71. N. Puroshottam Reddy, House No. B2, Malakpet Govt. Colony, Hyderabad. Deccan, Andhra Pradesh.

11.3 LIST OF SUCCESSFUL CANDIDATES IN PROFESSIONAL EXAMINATIONS

(Roll numbers are mentioned within brackets after the names)

11.3.1 STATISTICIAN'S DIPLOMA EXAMINATION, MARCH 1961

A. GENERAL PAPERS

*Paper I (Theoretical)*

- |   |  |
|---|--|
| 1. V. Balasubramanian (BB1), B.A. (Madras)              | 7. Gajanan Shridhar Mate (B6), B.Sc. (Poona)             |
| 2. K. P. Ganesan (BB3), B.Sc. (Madras)                  | 8. D. Eswaran (B7), B.A. (Madras)                        |
| 3. Rudravarani Lakshminantha Rao (BB6), M.Sc. (Benaras) | 9. Kalvel Venkatesubbayyar Nataraman (B9), B.A. (Madras) |
| 4. Rajaram Bhalohandra Bhole (BB12), B.Sc. (Poona)      | 10. Tharuvai Narayana Haribaran (B13), B.A. (Madras)     |
| 5. S. T. Nagarathinam (BB15), B.A. (Madras)             | 11. Jayakrishna Misra (C10), M.Sc. (Benaras)             |
| 6. Debinder Kumar Bhatia (B1), M.A. (Punjab)            | 12. M. Thomas Baby (C34), B.Sc. (Kerala)                 |

*Paper II (Theoretical)*

- |  |   |
|--|---|
| 1. Rudravarani Lakshminantha Rao (BB6), M.Sc. (Benaras)  | 5. Jayakrishna Misra (C10), M.Sc. (Benaras)   |
| 2. Shiwaaji Annaji Jadhav (B3), B.Com. (Hona.) (Benaras) | 6. M. Thomas Baby (C34), B.Sc. (Kerala)       |
| 3. Salil Kumar Chaudhuri (B16), B.Sc. (Hona.) (Calcutta) | 7. Raj Kumar Nandy (C40), M.Sc. (Calcutta)    |
| 4. K. Alagaraja (C8), B.A. (Hona.) (Madras)              | 8. Asoke Das Gupta (C41), B.Sc. (Calcutta)    |
|  | 9. Harbans Lal Dhingra (D6), M.A. (Punjab)    |
|  | 10. Darsana Singh (D8), M.A. (Punjab)         |
|  | 11. Prem Nath Dave (D35), M.A. (Punjab)       |
|  | 12. Mohan Vinayak Phatak (P3), M.Com. (Poona) |

*Paper III (Theoretical)*

- |   |  |
|---|--|
| 1. V. Balasubramanian (BB1), B.A. (Madras)    | 3. Hari Raghunath Kulkarni (B9), B.Sc. (Hona.) (Poona) |
| 2. Kalliah Nath Anand (C7), B.Sc. (Allahabad) |  |

INDIAN STATISTICAL INSTITUTE

Paper VI (Practical)

1. Gejanan Shridhar Mate (B6), B.Sc. (Poona)
2. Sallil Kumar Choudhuri (B16), B.Sc. (Calcutta)
3. Akhil Nath Bhattacharyya (C3), B.Sc. (Calcutta)
4. K. Alagaraja (C8), B.A. (Hons.) (Madras)
5. Rabindra Nath Banerjee (C26), B.Sc. (Calcutta)
6. Nirmalendu Bhowmic (C28), M.Sc. (Calcutta)
7. Harbans Lal Dhingra (D6), M.A. (Punjab)
8. Lal Singh (D10), M.A. (Punjab)
9. Ram Sarup Mahla (O18), M.A. (Punjab)
10. Bhagwati Prasad Dymdi (D34), B.A. (Allahabad)
11. V. S. Tulpale (D27), M.Sc. (Bombay)

Paper VII (Practical)

1. Venkatesubramanian Radhakrishnan (BB4)\*, M.Sc. (Poona)
2. Gejanan Shridhar Mate (B4), B.Sc. (Poona)
3. Sallil Kumar Choudhuri (B16), B.Sc. (Hons.) (Calcutta)
4. Mrinal Kanti Samanta (O1), B.Sc. (Calcutta)
5. Kailash Nath Anand (O7) B.Sc. (Allahabad)
6. K. Alagaraja (O8), B.A. (Hons.) (Madras)
7. M. Thomas Baby (O34), B.Sc. (Kerala)
8. C. Subramanian (C26), B.A. (Madras)
9. Raj Kumar Nandy (C40), M.Sc. (Calcutta)
10. Nandri Chinnam Raja (O48), B.Sc. (Andhra)
11. Y. Shiva Rao (D1), B.Sc. (Andhra)
12. Harbans Lal Dhingra (D6), M.A. (Punjab)
13. Chiranjiv Lal Verma (D26),
14. Ranbir Rai Bagga (D28), M.A. (Punjab)
15. Rajendra Kumar Goswami (D34), M.A. (Punjab)
16. Brij Mohan Mahajan (D36), M.A. (Punjab)

B. SPECIAL PAPERS

Papers IV and V (Theoretical)

(i) Economic Statistics

1. Rabindra Nath Mukherjee (C31), B.A. (Calcutta)
2. M. Thomas Baby (O34), B.Sc. (Kerala)
3. Harbans Lal Dhingra (D6), M.A. (Punjab)
4. Lal Singh (D10), M.A. (Punjab)

(ii) Statistical Quality Control

1. Kailash Nath Anand (O7), B.Sc. (Allahabad)
2. Gopal Chandra Mukhopadhyay (O11), M.Sc. (Calcutta)
3. C. Subramanian (C26), B.A. (Madras)
4. Chittirapu Hanumantha Rao (C63), B.Sc. (Andhra)

(iii) Sample Survey (Applied)

1. Devinder Kumar Bhatia (B1), M.A. (Punjab)
2. Malay Chand Chatterjee (O18), B.Sc. (Calcutta)
3. Dipendra Narayan Ghosh (O19), B.Sc. (Calcutta)
4. Panchanan Maacharek (O43), M.A. (Calcutta)
5. Kanakendra Nath Dutta (C63), B.Sc. (Calcutta)
6. Harbans Lal Dhingra (D6), M.A. (Punjab)
7. Chandrasekhar Shankar Joshi (D23), M.Sc. (Nagpur)

(iv) Design of Experiments (Applied)

1. K. P. Ganesan (B23), B.Sc. (Madras)
2. Azim Kanti Bhowic (C6), B.Sc. (Calcutta)
3. Rabindra Nath Banerjee (C26), B.Sc. (Calcutta)
4. Shambhu Nath Bajpai (D23), B.A. (Calcutta)
5. Probir Kumar Banerjee (D41), M.Sc. (Lucknow)

(v) Probit Analysis

1. Narendra Nath Singh (D16),
2. Brij Mohan Mahajan (D36), M.A. (Punjab)

\* Denotes distinction

THIRTIETH ANNUAL REPORT : 1961-62

(vi) *Theories of Inference*

1. Barwari Lal (D8), M.A. (Agra)

*Papers VIII and IX (Practical)*

(i) *Economic Statistics*

1. M. Thomas Baby (C84), B.Sc. (Kerala)

(ii) *Statistical Quality Control*

1. Kalliah Nath Anand (C7), B.Sc. (Allahabad)      4. Sriah Chandra Basu Ray (C38), B.Sc. (Calcutta)  
2. Chuniopal Bhattacharyya (C38), B.Sc. (Calcutta)      5. M. Thomas Baby (C84), B.Sc. (Kerala)  
3. Ved Parkash Malhotra (C38), B.A. (Punjab)      6. V. S. Talpale (D27), M.Sc. (Bombay)

(iii) *Design of Experiments (Applied)*

1. Mrinal Kanti Samanta (C1), B.Sc. (Calcutta)      2. Asim Kanti Biswas (C6), B.Sc. (Calcutta)  
3. Chuniopal Bhattacharyya (C32), B.Sc. (Calcutta)

(iv) *Probit Analysis*

- Brij Mohan Mahajan (D86), M.A. (Punjab)

(v) *Vital Statistics and Population Studies*

- Bairam Kohli (D37), M.A. (Punjab)

11.3.2 COMPUTER'S CERTIFICATE EXAMINATION, MARCH 1961

*Part IA Section I*

1. Sankar Subramanian (B1), Pre-University (Kerala)      6. Kalipada Chatterjee (C43), B.Com. (Calcutta)  
2. M. Pichaimuthu Chettiar (B8), I.Sc. (Bombay)      7. Banahi Badan Chatterjee (C61)\*, B.Com. (Calcutta)  
3. Nitya Ranjan Chakravarti (C8), B.Sc. (Calcutta)      8. Inderjit Sehdev (D1), I.A. (Punjab)  
4. Sambhu Nath Mukherjee (C10), I.Sc. (Calcutta)      9. Jai Dayal Grover (D3), I.A. (Punjab)  
5. Ira Sen (C16)\*, I.Sc. (Calcutta)      10. Sukh Dev Verma (D4), I.Sc. (Punjab)  
11. Kedar Nath (D7), I.Sc. (Punjab)

*Part IA Section II*

1. Shibadhan Banerjee (C30), I.Sc. (Calcutta)      3. Jai Dayal Grover (D3), I.A. (Punjab)  
2. Banahi Badan Chatterjee (C61), B.Com. (Calcutta)      4. Sukh Dev Verma (D4), I.Sc. (Punjab)

*Part IB Section II*

1. Bibhas Chandra Sasmal (C20), B.Sc. (Calcutta)      3. Haribhushan Dutta (C42), I.Com. (Calcutta)  
2. Samarendra Barua (C36), B.A. (Calcutta)

*Part IB Section II*

7. Ira Sen (C16), I.Sc. (Calcutta)      2. Prasanta Sen (C34) I.Sc. (Calcutta)

*Part IC Section I*

1. Pranabendra Bhaduri (C44), B.Sc. (Calcutta)      8. Gour Chandra Mukherjee (C28), Matriculate (Calcutta)  
2. Sanat Kumar Sen (C31), Matriculate (Patna)      9. Haribhushan Dutta (C42), B.Com. (Calcutta)  
3. Manoj Kanti Ghosh (C26), Matriculate (Patna)      10. Arun Chandra Chakravarti (C44) Matriculate (Calcutta)  
4. Nagendra Chandra Das (C31), B.A. (Calcutta)  
5. Prasanta Sen (C34), I.Sc. (Calcutta)  
6. Praanun Sengupta (C36), B.A. (Calcutta)  
7. Samarendra Barua (C36), B.A. (Calcutta)  
11. Pratima Sen (C45)\*, B.A. (Calcutta)  
12. Shyamal Kumar Sen (C48), B.Sc. (Calcutta)  
13. Nanduri Chinnam Raju (C50), B.Sc. (Andhra)

\* Denote study in progress.

# INDIAN STATISTICAL INSTITUTE

## Part IO Session II

1. Ram Chandra Mitra (C88), B.A. (Calcutta)      2. Nanduri Chinanna Raju (C60), B.Sc. (Andhra)

### 11.2.3 STATISTICIAN'S DIPLOMA EXAMINATION, SEPTEMBER 1961

#### A. GENERAL PAPERS

##### Paper I (Theoretical)

- |   |  |
|---|--|
| 1. Ajit Vinayak Pandit (B4), B.Com. (Bombay)                | 13. Suresh Chandra Rai (B6), M.Sc. (Banaras)                     |
| 2. Subhas Chandra Damodar Kulkarni (B6),<br>B.Com. (Bombay) | 13. Ram Parkash Ketyal (D9), M.A. (Punjab)                       |
| 3. Madhukar Jaiiram Agni (B8), B.Com. (Bombay)              | 14. Man Mohan Dua (D13), M.A. (Delhi)                            |
| 4. Ashok Jagannath Kankare (B8), B. Com.<br>(Bombay)        | 15. Madan Gopal Mittal (D21), M.A. (Delhi)                       |
| 5. Wagesh Rama Satumane (B12), B.Sc. (Poona)                | 16. Dev Raj Taneja (D23), M.A. (Punjab)                          |
| 6. Saason Ramon Moses (B20), M.Sc. (Bombay)                 | 17. Chellammal Ramaswami (D24), B.Sc. (Hons.)<br>(Madras)        |
| 7. K. Alagaraja (C21), B.A. (Hons.) (Madras)                | 18. Jammalamadaka Satsyanarayana (D31), B.A.<br>(Hons.) (Andhra) |
| 8. Srikanth B. Palekar (C33), B.Sc. (Bombay)                | 19. R. Ramasathan (M3), B.Sc. (Madras)                           |
| 9. C. Sankara Rao (C34), B.A. (Hons.) (Andhra)              | 20. S. Rajagopalan (M8), B.Sc. (Madras)                          |
| 10. N. Aohyutan (C36), B.Sc. (Kerala)                       | 21. V. L. Vijaya Raghavan (M8), B. Sc.<br>(Madras)               |
| 11. Raj Kumar Nandy (C44), M.Sc. (Calcutta)                 |  |

##### Paper II (Theoretical)

- |   |   |
|---|---|
| 1. Rajaram Bhalohandra Bhale (BB4), B.Sc.<br>(Poona)      | 3. Raman Ramamoorthy (C4), B.Sc. (Hons.)<br>(Delhi) |
| 2. Shankar Purushottam Joshi (B7) B.A. (Hons.)<br>(Poona) | 4. Pawan Kumar Jain (D46), M.Sc. (Agra)             |

##### Paper III (Theoretical)

- |   |   |
|---|---|
| 1. Shrikant Atmaram Alwani (B17), B.Sc.<br>(Bombay)     | 7. C. Subrahmanian (C38), B.A. (Madras)                     |
| 2. Asoka Kumar Dea Gupta (C13), B.Sc. (Calcutta)        | 8. Srish Chandra Basu (C46), B.Sc. (Calcutta)               |
| 3. Benoy Roy (C16), B.Sc. (Calcutta)                    | 9. Salil Kumar Chandhuri (C47), B.Sc. (Hons.)<br>(Calcutta) |
| 4. Ranajit Kumar Naha (C19), B.Sc. (Calcutta)           | 10. K. Jayahendran (D8), M.A. (Madras)                      |
| 5. K. Alagaraja (C31), B.A. (Hons.) (Madras)            | 11. Kulter Singh Bedi (D18), M.A. (Punjab)                  |
| 6. Sourindra Mohan Mukherjee (C23), B.Sc.<br>(Calcutta) | 12. Pawan Kumar Jain (D49), M.Sc. (Andhra)                  |
13. Rudravaram Lakshminikanta Rao (M5), M.Sc. (Banaras)

##### Paper VI (Practical)

- |   |   |
|---|---|
| 1. Venkatesubramanian Radhakrishnan (BB1),<br>M.Sc. (Poona) | 3. Shankar Narayan Bhattacharjee (C30), B.Sc.<br>(Calcutta) |
| 2. Rajaram Bhalohandra Bhale (BB4), B.Sc.<br>(Poona)        | 4. Banawari Lal (D4), M.A. (Agra)                           |
5. Man Mohan Dua (D13), M.A. (Delhi)

##### Paper VII (Practical)

- |   |   |
|---|---|
| 1. Raman Ramamoorthy (C4), B.Sc. (Hons.)<br>(Delhi) | 3. Madan Mohan Agrawal (C50), M.Sc. (Adra)              |
| 2. Kanakendra Nish Dutt (C89), B.Sc. (Calcutta)     | 4. Chandrasekhar Shankar Joshi (D38), M.Sc.<br>(Nagpur) |
5. Pawan Kumar Jain (D4), M.Sc. (Agra)



THIRTIETH ANNUAL REPORT: 1961-62

B. SPECIAL PAPERS

Papers IV and V (Theoretical)

(i) Statistical Quality Control

1. Gajanan Shridhar Mate (B13), B.Sc. (Poona)
2. C. Sankara Rao, (C34), B.A. (Hons.) (Andhra)
3. Kodali Venkatakrishna Murthy (C14), B.Sc. (Andhra)

(ii) Sample Surveys (Applied)

1. Akhil Nath Bhattacharyya (C6), B.Sc. (Calcutta)
2. Lal Singh (D6), M.A. (Punjab)
3. Jammalamadaka Sanyanarayana (D31), B.A. (Hons.) (Andhra)
4. V. Balasubramanian (M1), B.A. (Madras)

(iii) Sample Surveys (Theory)

1. C. Sankara Rao (C34), B.A. (Hons.) (Andhra)
2. Man Mohan Das (D13), M.A. (Delhi)

(iv) Design of Experiments (Applied)

Iqbal Singh (D55), M.A. (Punjab)

(v) Economic Statistics

Kodali Venkatakrishna Murthy (C14),  
B.A. (Andhra)

(vi) Vital Statistics and Population Studies

Shankar Furushotam Joshi (B7), B.A. (Hons.) (Poona)

(vii) Genetics

Nagendra Nath Singh (D47)

Papers VIII and IX (Practical)

(i) Statistical Quality Control

1. Venkatesubramanian Radhakrishnan (BB1), B.Sc. (Poona)
2. Hartishna Manilal Thakkar (BS), B.Sc. (Hons.) (Bombay)
3. Kodali Venkatakrishna Murthy (C14), B.A. (Andhra)
4. Balli Kumar Chaudhuri (C47), B.Sc. (Hons.) (Calcutta)
5. Madan Mohan Agarwal (C80), M.Sc. (Agra)

(ii) Sample Surveys (Applied)

1. Prakash Chandra Kundu (C3), M.Sc. (Calcutta)

(iii) Sample Surveys (Theory)

1. Shrikant Atmaram Aiwani (B17)\*, B.Sc. (Bombay)

(iv) Design of Experiments (Applied)

1. Shrikant Atmaram Aiwani (B17), B.Sc. (Bombay)
2. Mohammad Sellim (D18), B.Sc. (Lucknow)

(v) Economic Statistics

1. Madan Mohan Agrawal (C80), M.Sc. (Agra)

(vi) Genetics

Narendra Nath Singh (D47), Matriculate (Calcutta)

(vii) Psychology and Education

1. Ram Sarup Mahta (D36), M.A. (Punjab)

(viii) Probis Analysis

1. Narendra Nath Singh (D47), Matriculate (Calcutta)

INDIAN STATISTICAL INSTITUTE

11.3.4 COMPUTER'S CERTIFICATE EXAMINATION, SEPTEMBER 1961

Part 1A Section 1

- |   |   |
|---|---|
| 1. Subir Kumar Basu Thakur (C5)*, B.Sc. (Calcutta)    | 9. Tripti Shekhar Dutta Roy (C80)*, Matriculate (Bihar)                     |
| 2. Sk. Dilwar Ali (C7), I.Sc. (Utkal)                 | 10. Jharna Gupta (C47)*, I.A. (Calcutta)                                    |
| 3. Brajeshwar Mukherjee (C8), I.Sc. (Calcutta)        | 11. Ajay Kumar Bose (C60), S.F. (Board of Secondary Education, West Bengal) |
| 4. Amarendra Nath Paul (C11), Matriculate (Calcutta)  | 12. Amalendu Niyogi (C68), I.Com. (Calcutta)                                |
| 5. Anshu Kumar Ganguly (C13), B.A. (Hons.) (Calcutta) | 13. Sarvan Kumar Dhawan (D3), I.Sc. (Punjab)                                |
| 6. Kahudiram Maiti (C18)*, I.Sc. (Calcutta)           | 14. Suresh Chand Seluja (D3)*, I.Sc. (Punjab)                               |
| 7. Govinda Chandra Laha (C20), I.Com. (Calcutta)      | 15. Jagdish Lal Seluja (D4), Matriculate (Punjab)                           |
| 8. Sunil Kumar Banerjee (C25), B.Com. (Calcutta)      | 16. Joseph Anthony Gough (D6), Matriculate (Madras)                         |
|   | 17. Manik Majumdar (C3), Pre-University (Bihar)                             |

Part 1A Section 11

- |  |  |
|--|--|
| 1. Subir Kumar Basu Thakur (C5)*, B.Sc. (Calcutta)     | 4. Sudhansu Ranjan De (C43), B.Com. (Calcutta)     |
| 2. Kahudiram Maiti (C18)*, I.S. (Calcutta)             | 5. Sarvan Kumar Dhawan (D2), I.Sc. (Punjab)        |
| 3. Tripti Shekhar Dutta Roy (C40), Matriculate (Bihar) | 6. Jagdish Lal Seluja (D4), Matriculate (Punjab)   |
|  | 7. Joseph Anthony Gough (D5), Matriculate (Madras) |

Part 1B Section I

- |   |  |
|---|--|
| 1. Subodh Chandra Sarcar (C1), B.Com. (Calcutta)            | 7. Ira Sen (C51), I.Sc. (Calcutta)                       |
| 2. Subir Kumar Basu Thakur (C5), B.Sc. (Calcutta)           | 8. Tripti Mohan Chatterjee (C53), Matriculate (Calcutta) |
| 3. Alok Kumar Sen (C10), I.Sc. (Calcutta)                   | 9. Anil Kumar Sen Gupta (C50), I.Com. (Calcutta)         |
| 4. Nidhir Chakravarty (C36), Matriculate (Calcutta)         | 10. Marut Baran Chakraborty (C57), I.Com. (Calcutta)     |
| 5. Tripti Shekhar Dutta Roy (C40), Matriculate (Bihar)      | 11. Akhilenda Datta (C69), B.A. (Calcutta)               |
| 6. Sudhir Chandra Chakraborty (C49), Matriculate (Calcutta) | 12. Sarvan Kumar Dhawan (D3), I.Sc. (Punjab)             |

Part 1B Section II

- |  |   |
|--|---|
| 1. Subir Kumar Basu Thakur (C5) B.Sc. (Calcutta) | 4. Kalipada Chatterjee (C44) B.Com. (Calcutta)  |
| 2. Alok Kumar Sen (C10) I.Sc. (Calcutta)         | 5. Anil Kumar Sen Gupta (C50) I.Com. (Calcutta) |
| 3. Sourendra Nath Pal (C30) B.Com. (Calcutta)    | 6. Nani Gopal Roy (C80) I.A. (Calcutta)         |

Part 1C Section I

- |  |   |
|--|---|
| 1. Kahudiram Maiti (C18) I.Sc. (Calcutta)        | 3. Ira Sen (C51) I.Sc. (Calcutta)             |
| 2. Shib Shashdan Banerjee (C43) I.Sc. (Calcutta) | 4. Amal Kumar Sen Gupta (C81) B.A. (Calcutta) |

Part 1C Section II

- |   |   |
|---|---|
| 1. Kahudiram Maiti (C18) I.Sc. (Calcutta) | 4. Sudhansu Ranjan De (C 2) B.Com. (Calcutta)     |
| 2. Prasanta Sen (C09) B.A. (Calcutta)     | 5. Anil Kumar Bhattacharyya (C46) I.A. (Calcutta) |
| 3. Prasanta Sen (C0 ) I.Sc. (Calcutta)    | 6. Ira Sen (C51) I.Sc. (Calcutta)                 |
|   | 7. Ranjit Kumar Ray (C 66) I.Com. (Calcutta)      |

Part 2A Section I

1. Sakshendu Maitra (C60)

\* Denotes distinction

THIRTIETH ANNUAL REPORT: 1961-62

11.A. SUMMARY OF RESULTS IN EXTERNAL EXAMINATIONS FOR ALL PAPERS FROM 1961-62 TO 1961-62

A. STATISTICIAN'S DIPLOMA EXAMINATION

	paper	year										total		
		1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71		1971-72	
General Papers	I	R	42	59	66	69	82	133	67	63	111	80	117	838
		A	24	37	43	45	48	78	61	47	92	66	102	631
		P %	6	9	4	6	18	29	30	13	32	19	33	191
	II	R	38	47	50	48	41	82	57	30	59	44	61	552
		A	18	27	33	28	21	39	50	24	51	35	55	281
		P %	7	9	17	10	9	21	18	11	33	10	18	161
	III	R	31	48	45	44	42	77	40	33	51	59	72	536
		A	16	23	29	28	25	43	23	29	44	49	62	360
		P %	8	9	10	11	4	11	15	15	16	10	16	122
	VI	R	23	22	27	34	23	42	55	45	106	80	80	547
		A	15	19	22	31	19	37	51	41	100	78	73	496
		P %	3	1	5	18	2	12	18	5	16	29	16	132
VII	R	22	22	24	31	24	41	52	23	63	65	53	420	
	A	15	19	29	27	20	38	47	21	60	53	47	376	
	P %	3	4	4	4	6	11	8	10	11	21	21	86	
IV	R	19	13	23	23	27	66	64	54	52	54	58	543	
	A	14	9	20	20	22	41	56	45	48	43	40	394	
	P %	13	4	17	14	7	19	32	20	31	28	18	291	
V	R	19	12	23	19	27	37	45	39	63	54	59	387	
	A	14	8	18	14	22	23	41	27	35	45	46	313	
	P %	12	2	9	7	15	14	24	14	27	22	18	164	
VIII	R	13	9	13	14	23	27	48	36	56	56	58	392	
	A	10	8	13	13	21	29	30	34	54	53	51	325	
	P %	4	4	2	3	7	9	14	10	26	19	13	117	
IX	R	13	3	16	20	23	33	30	35	67	58	58	363	
	A	10	3	18	17	20	31	34	34	66	53	51	334	
	P %	3	2	6	6	9	12	3	10	14	17	12	94	
All Papers	R	217	229	306	300	292	648	468	337	625	538	616	4470	
	A	136	162	223	223	212	353	401	302	570	375	533	3569	
	P %	57	44	74	78	75	133	155	112	205	183	163	1257	
		42	29	32	35	35	36	30	37	36	34	31	35	

Note: a) R = number registered; A = number appeared; P = number passed and % = percentage of pass (approx.).

b) Since 1956-57 the examination is held twice in the year.

# INDIAN STATISTICAL INSTITUTE

## B. COMPUTER'S CERTIFICATE EXAMINATION

	paper	year											total
		1951 -52	1952 -53	1953 -54	1954 -55	1955 -56	1956 -57	1957 -58	1958 -59	1959 -60	1960 -61	1961 -62	
IA(I)	R	133	59	67	37	144	334	139	50	83	65	63	1053
	A	93	54	60	24	134	303	130	44	79	58	55	926
	P	48	19	31	16	88	105	84	12	17	23	23	476
	%	53	35	53	47	71	61	70	27	21	48	51	25
IA(II)	R	131	76	78	51	163	330	203	70	108	74	74	1342
	A	96	68	67	48	136	280	184	60	95	67	68	1179
	P	26	26	10	11	38	71	48	30	23	13	11	396
	%	29	38	15	23	23	25	25	32	23	19	16	25
IB(I)	R	87	68	79	52	132	243	168	65	84	81	79	1138
	A	67	57	65	49	108	215	168	59	79	77	70	1008
	P	4	4	9	2	27	23	54	4	11	7	15	159
	%	6	7	14	4	25	10	32	7	14	9	21	11
IB(II)	R	88	63	73	47	130	275	144	74	90	71	69	1123
	A	61	53	60	43	99	223	136	64	88	68	62	966
	P	12	9	7	0	9	60	14	8	28	12	8	187
	%	20	17	12	0	0	26	10	13	32	18	13	17
IC(I)	R	34	34	31	19	48	135	87	40	49	38	27	537
	A	34	23	26	12	34	123	65	37	46	38	25	484
	P	6	3	6	2	1	39	22	8	12	4	17	119
	%	18	9	18	16	2	32	26	12	26	11	78	26
IC(II)	R	32	30	26	20	37	95	69	33	27	33	26	438
	A	23	29	23	14	29	27	65	30	24	33	25	392
	P	4	8	6	10	18	47	19	5	6	18	9	146
	%	17	21	27	71	55	54	29	17	18	55	26	37
2A	R												2
	A												2
	P												1
	%												50
All Papers	R	505	290	353	228	648	1303	900	332	446	362	339	5645
	A	376	298	302	260	580	1143	763	294	421	341	305	4968
	P	102	67	68	41	179	344	241	40	96	62	89	1258
	%	27	23	23	20	84	30	32	17	23	24	29	27

Note: (a) R = number registered; A = number appeared; P = number passed and % = percentage of pass (approx.).

(b) Since 1956-57 the examination is held twice in the year.

### THIRTIETH ANNUAL REPORT: 1961-62

#### C. STATISTICAL FIELD SURVEY CERTIFICATE EXAMINATION: JUNIOR AND SENIOR

paper	year										total	
	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960		
	-53	-53	-54	-55	-56	-57	-58	-58	-60	-61		
TA	R	323	10	9	37	98	72	18	4	17	3	591
	A	210	7	6	32	58	54	17	1	15	3	403
	P	88	1	4	9	22	31	6	0	3	1	165
	%	42	14	67	38	38	57	35	0	20	33	41
TB	R	323	18	10	36	98	86	22	3	17	3	616
	A	206	13	7	32	55	64	20	1	15	3	416
	P	44	4	5	15	18	36	9	0	0	1	132
	%	21	31	71	47	33	56	45	0	0	33	32
TC	R	159	13	8	30	92	79	20	3	16	3	423
	A	85	9	5	21	50	58	16	1	15	3	303
	P	24	3	4	9	10	36	9	1	-	-	96
	%	28	33	80	43	20	62	56	100	-	-	36
2A	R	29	1	10	25	92	123	25	2	8	8	323
	A	17	1	9	19	66	88	24	2	6	7	239
	P	4	0	4	10	23	32	13	1	3	2	91
	%	24	0	44	53	35	36	54	50	33	29	38
2B	R	28	3	12	29	92	121	36	3	14	7	305
	A	17	3	11	24	67	99	30	3	11	5	270
	P	0	0	5	14	13	18	2	1	4	1	58
	%	0	0	45	58	16	18	7	33	36	20	22
All Papers	R	882	45	49	157	472	491	121	15	72	24	2308
	A	535	33	38	128	296	363	107	8	62	21	1591
	P	160	8	22	57	86	163	39	3	9	5	542
	%	10	24	58	45	29	42	36	38	14	24	34

Note: (a) R = number registered; A = number appeared; P = number passed and % = percentage of pass (approx.).

(b) During 1954-55, 1956-57 and 1957-58 the examinations were held twice in the year.

(c) The examination was not held during the year 1961-62.

## INDIAN STATISTICAL INSTITUTE

### Appendix 12 : External Activities

Sri Suraj Bandyopadhyay, Sociological Research Unit, attended the 49th session of the Indian Science Congress at Cuttack in January 1962 and read a paper in the Anthropology and Archaeology section. He communicated a paper to the seminar on the Human Factor in the Growth of Rural Economy held in Santiniketan under the auspices of the Agro-Economic Research Centre, Visva-Bharati University, in March 1962.

Sri Sarat Banerjee, Deputy Librarian, joined the Documentation Research Study Circle under Dr. S. R. Ranganathan at Bangalore in May 1961 and worked for six weeks on Analytico-synthetic Classification and Documentation. He attended the Colloquium on Documentation organised by the Technical Information Centre, Electronics Research and Development Establishment, Ministry of Defence, Government of India, at Bangalore, in June 1961.

Sri L. S. Bhat, Regional Survey Unit, participated in a seminar of the Council of Geographers, India, and the 49th session of the Indian Science Congress. He also took part in a seminar on Regionalisation for Planning in India organised jointly by the Council of Geographers, India, the School of Town Planning and Architecture and the Institute of Town Planners in February 1962 and also in a seminar on Teaching on Geography at the Central Institute of Education, New Delhi, in February 1962.

Sri N. Bhattacharyya, Planning Division, read a paper at the Second Econometric Conference at Waltair in June 1961.

Sri K. Biswas, Planning Division, read a paper at the Third Indian Conference on Research in National Income at Bombay in November 1961.

Sri A. K. Chakravarty, Planning Division, read a paper at the Third Indian Conference on Research in National Income.

Sri G. S. Chatterjee, Planning Division, read a paper at the Third Indian Conference on Research in National Income.

Sri I. Chatterjee, Planning Division, read a paper at the 49th session of the Indian Science Congress.

Sri Kumarananda Chattopadhyay, Sociological Research Unit, read a paper in the Anthropology and Archaeology section of the 49th session of the Indian Science Congress. He communicated a paper to the seminar on the Human Factor in the Growth of Rural Economy held in Santiniketan under the auspices of the Agro-Economic Research Centre, Visva-Bharati University.

Dr. S. Chaudhuri, Haematological Research Unit, attended the 49th session of the Indian Science Congress and delivered a lecture at the Physiology section.

Sri S. Chaudhuri, Library, read a paper on Some Problems of Translation of Japanese Scientific Documentation at the seminar on Scientific and Technical Translation held under the auspices of the Indian National Scientific Documentation Centre in New Delhi from 30 January 1962 to 1 February 1962.

Sri T. A. Davis, Research and Training School, delivered a lecture on Certain Physiological and Genetical Aspects of Coconut at the Science Association of Jamshedpur Co-operative College. He presented a paper at the 49th session of the Indian Science Congress.

Sri B. Dey, Planning Division, presented a paper at the Third Indian Conference on Research in National Income. He also presented a paper at the Indian Economic Conference, sponsored by the Indian Economic Association held at the Karnatak University in December 1961.

### THIRTIETH ANNUAL REPORT : 1961-62

Sri Amalendu Ganguly, National Sample Survey, attended a meeting of the Indian Council of Medical Research in Hyderabad in September 1961, in connection with the preparation of the Diet Atlas.

Sri N. S. Iyengar, Planning Division, read papers at the Second Econometric Conference.

Sri S. M. Kansal, Planning Division, Delhi, participated in the Third Indian Conference on Research in National Income.

Sri D. B. Lahiri, National Sample Survey, attended as a representative of the Institute the First Conference of the Central Technical Advisory Council of Statistics in New Delhi in December 1961.

Sri T. Maitra, Planning Division, presented a paper at the Third Indian Conference on Research in National Income.

Dr. H. Majumdar, Planning Division, visited the Reserve Bank of India, Bombay, in connection with his studies on savings. He attended the seminar on the Methodology of Research in Labour Economics at Poona in June 1961.

Dr. A. Matthal, Research and Training School, delivered a course of four lectures on 1. Family Budget Enquiries and Construction of List of Living Indices, 2. Motion and Time Studies, 3. Job Evaluation and 4. Payment by Results, at the Asian Trade Union Congress in Calcutta; one lecture on Statistical Quality Control in the Chemical Industry at the Indian Society of Corrosion and Coating, Calcutta; one lecture on Statistical Methods in Chemical Industry at the Central Glass and Ceramics Research Institute, Calcutta, and one lecture on Organising for Statistical Quality Control at the symposium on Statistical Quality Control organized by the Jamshedpur Productivity Council.

Sri G. P. Mukherjee, Planning Division, read a paper at the Second Indian Econometric Conference.

Sri M. Mukherjee, Head, Planning Division, read a note on The Derivation of Size Distribution of Personal Household Income from a Given Size Distribution of Consumer Expenditure at the Second Indian Econometric Conference. He attended meetings of the Steering Committee of the Indian Conference on National Income in Bombay in November and December 1961. He was appointed a member of the Advisory Committee on National Income and attended its first meeting in December 1961. He also attended the First Conference of the Central Technical Advisory Council of Statistics in New Delhi in December 1961 and the Third Indian Conference on Research in National Income.

Dr. Ramkrishna Mukherjee, Sociological Research Unit, participated in the Decennial Symposium of the Indian Sociological Society at Mysore in October 1961, and in a seminar on the Human Factor in the Growth of Rural Economy held in Santiniketan under the auspices of Agro-Economic Research Centre, Visva-Bharati University. He was consulted on teaching and research in sociology by the UNESCO Research Centre, New Delhi; Calcutta Metropolitan Organization; the Ford Foundation, New Delhi; and the Centre for Urban Studies, University College, London.

Sri M. N. Murthy, National Sample Survey, attended the First Conference of the Central Technical Advisory Council of Statistics and the Third Indian Conference on Research in National Income. He gave lectures in the seminar held under the auspices of the Indian Agricultural Research Statistics in New Delhi in December 1961.

Sri S. Naqvi, Planning Division, read a paper at the Annual Conference of the Indian Society of Agricultural Economics at Pilani in December 1961. He attended a seminar on the Human Factor in the Growth of Rural Economy held in Santiniketan under the auspices of Agro-Economic Research Centre, Visva-Bharati University.

## INDIAN STATISTICAL INSTITUTE

Sri R. Narayanan, Planning Division, presented a paper at the Third Indian Conference on Research in National Income.

Manoj Niyogi, Premaahri Dutta, Kalyan Saha and C. V. Subba Rao, Library, were deputed to attend the seminar on Bibliographic Control and Organization in India held under the auspices of the Indian Library Association in Calcutta during 10-12 February 1962.

Dr. P. R. Pal, Research and Training School, was invited by the Gastroenterological Society of India to participate in a symposium held at Indore on 20 January 1962. He also presented a paper. He delivered two lectures at the Christian Medical College, Vellore, on 30 and 31 October 1961. He read a paper at the 49th session of the Indian Science Congress.

Sri G. Parthasarathy, National Sample Survey, read a paper at the Second Indian Econometric Conference.

Sri K. R. Parthasarathy, Research and Training School, read a paper at the Conference of the Mathematical Society at Ahmedabad in December 1961.

Sri P. K. Pathak, Research and Training School, presented a paper at the 49th session of the Indian Science Congress.

Sri M. N. Paul, Regional Survey Unit, contributed a paper on Statistical Approach to Regional Planning at a seminar on Regionalization for Planning in India organized in February 1962 jointly by the Council of Geographers, India, the School of Town Planning and Architecture and the Institute of Town Planners.

Sri Tapan Piplai, Planning Division, presented a paper at the Third Indian Conference on Research in National Income.

Sri V. L. S. Prakasa Rao, Regional Survey Unit, delivered a lecture on Regional Concept and Scope at the Faculty of Social Sciences, Delhi University; four lectures on Delimitation of Regions and Regional Planning to the students of Architecture and Town Planning, New Delhi, one lecture on the Orientation Course in Geography at the Institute of Economic Growth, Delhi; five lectures on Problems in Geography at the Osmania University, Hyderabad, and a course of lectures on Regional Concept and Delimitation of Regions for the students of geography at the Madras University. He participated in a seminar on Regionalisation for Planning in India organized jointly by the Council of Geographers, India, School of Town Planning and Architecture and the Institute of Town Planners in February 1962; and in a seminar on the Teaching of Geography at New Delhi in February 1962. He attended the 49th session of the Indian Science Congress.

Dr. B. Raichaudhury, Research and Training School, presented a paper at the 49th session of the Indian Science Congress.

Sri D. K. Raichaudhury, Research and Training School, read a paper at the Conference of the Indian Mathematical Society at Ahmedabad in December 1961.

Sri Debabrata Rej, Library, presented a paper on Translation, a Speciality (Theory and Practice) at the seminar on Scientific and Technical Translations held under the auspices of the Indian National Scientific Documentation Centre in New Delhi from 30 January 1962 to 1 February 1962.

Sm. Bina Roy, Planning Division, presented a paper at the Third Indian Conference on Research in National Income.

Sri S. K. Roy, Research and Training School, gave a lecture at the Botany Section of the 49th session of the Indian Science Congress.

Sri Jyoti Prakash Roy Choudhuri, Library, presented a paper on Certain Terminological Problems as encountered in Economics and Statistical Documents published in China



### THIRTIETH ANNUAL REPORT : 1961-62

since 1949 at the seminar on Scientific and Technical Translations held under the auspices of the Indian National Scientific Documentation Centre, New Delhi.

Sri Jibananda Saha, Chief Librarian, attended the Indian Standards Convention at Kanpur held from 25 to 30 December 1961 and presented a paper, Accommodation for Visiting Research Workers, at a seminar on Housing and Preservation of Documents. He also presented a paper on the Problems and Prospects of Bibliographical Organization in India at a seminar on Bibliographic Control and Organization in India held under the auspices of the Indian Library Association in Calcutta during 10-12 February 1962.

Sri M. R. Saluja, Planning Division, Delhi, participated in the Third Indian Conference on Research on National Income.

Sri P. N. Singh, Planning Division, read a paper at the Second Econometric Conference.

Sri R. K. Som, National Sample Survey, attended the Expert Committee meeting held under the chairmanship of the Registrar-General of Census in New Delhi in April 1961 for revising the CSO population projections in the light of the results of the 1961 Census. He presented a paper at the 49th session of the Indian Science Congress and participated in a seminar on the Errors of Sample Surveys. On an invitation from the Demographic Training and Research Centre, Bombay, he acted as Discussion Leader of a seminar on Demographic Data through Sample Surveys during January-February 1962. He represented the Institute at the first meeting of the Preparatory Committee in Bombay in February 1962 of the Asian Population Conference to be held in October 1963 under the auspices of the United Nations Economic Commission for Asia and the Far East and the Government of India.

Sri P. K. Upadhyay, Planning Division, Delhi, participated in the Third Indian Conference on Research in National Income.

Sri S. R. S. Varadhan, Research and Training School, presented a paper at the Conference of the Indian Mathematical Society at Ahmedabad in December 1961.

#### Appendix 13 : Statistical Quality Control

Details regarding staff, training courses, promotional work and member factories are furnished in the following table :

	1960-61	1961-62
<i>Personnel</i>		
(a) Technical Assistants	26	32
(b) Graduate Assistants	6	7
(c) Apprentices	14	18
	<b>46</b>	<b>57</b>
<i>Training Courses</i>		
Number of courses	12	10
Duration in weeks	22	20
Number of trainees	393	177
<i>Promotional Work</i>		
Lectures and talks	26	26
Conferences, symposia and seminars	26	22
Factories visited	72	101
Pilot studies	13	23
<i>Member Factories</i>		
Number at the beginning of the year	65	77
Casualties during the year	11	21
New enrolments during the year	23	24
Number at the end of the year	77	80

## INDIAN STATISTICAL INSTITUTE

### Appendix 14 : Publications

#### *Indian Statistical Series*

1. Some Aspects of Multivariate Analysis by S. N. Roy
2. Industrial Statistics by A. I. Ezhov
3. Race Elements in Bengal by D. N. Majumdar and C. Radhakrishna Rao
4. Essays on Economic Planning by Oskar Lange
5. Tables of Random Normal Deviates by J. M. Sengupta and Nikhilesh Bhattacharya
6. Studies on Consumer Behaviour by Amalendu Ganguly; J. Roy and R. G. Laha; Ashok Rudra and Bina Roy; Deb Kumar Bose; J. Roy and S. K. Dhar; J. Roy, I. M. Chakravarti and R. G. Laha; and A. K. Chakravarti
7. A Demonstration Planning Model for India by Jan Sandee
8. Planning for India : Selected Explorations in Methodology by Ragnar Frisch
9. The Environs of Tagore by Hashim Amir Ali
10. Then and Now by Hashim Amir Ali
11. Experiments in Statistical Sampling in the Indian Statistical Institute by P. C. Mahalanobis.
12. Some Basic Planning Problems by Charles Bettelheim
13. Mysore State Volume I : An Atlas of Resources edited by A. T. A. Learmonth and L. S. Bhat
14. Talks on Planning by P. C. Mahalanobis

#### *Indian Statistical Institute Library Bibliographic Series*

1. Union List of Learned Periodicals (Calcutta Region) comp. by J. Saha. 1959.
2. English-Russian and Russian-English Dictionary of Statistics, Economics and Planning comp. by L. I. Lukin; J. Saha and D. Rej. 1959.
3. Classified Catalogue of Books on Engineering and Technology. 1961.

#### *Technical Publications*

1. Statistics Workbook by I. M. Chakravarti, R. G. Laha and J. Roy
2. Practical Exercises in Statistical Computation by S. R. Rao  
Vo. I-Elementary; Vol. II-Advanced
3. Introduction to Sampling Theory (Part I & II Combined) by M.N. Murthy
4. Introduction to Sampling Theory (Part II) by M. N. Murthy
5. The Work of the United States Bureau of the Census with Emphasis on Sampling Designs and Control of Errors in Censuses and Surveys by M. N. Murthy
6. Operators in Hilbert Space by V. S. Varadarajan
7. Elements of Algebra : A Self-study Course for Statistics Students by S. K. Mitra
8. Planning Regions in the Mysore State: The Need for Readjustment of Direct Boundaries by V. L. S. P. Rao and L. S. Bhat
9. Riemannian Physics by R. L. Brahmaachary  
*Lecture Notes of Summer Course (Advanced) for Statisticians (May-June 1961)*
1. Combinatorial Problems by S. S. Shrikhande
2. Stochastic Processes (Queueing and Storage) by N. U. Prabhu and Markov Processes (General Theory) by S. R. S. Varadhan.
3. Information Theory by K. R. Parthasarathy.
4. Order Statistics by M. Sibuya and Non-Parametric Methods by J. Sethuraman.
5. Some Recent Advances in Sampling Theory by M. N. Murthy and Operations Research by C. S. Ramakrishnan.
6. Fractile Graphical Analysis by P. C. Mahalanobis.

**PART 4**  
**AUDITOR'S REPORT AND AUDITED STATEMENT OF ACCOUNTS**

**REPORT BY MESSRS. LOVELOCK & LEWES**  
**CHARTERED ACCOUNTANTS**

LOVELOCK & LEWES  
Chartered Accountants

Post Box No. 900  
4, Lyons Range, Calcutta-1.

In your reply please  
refer to No. AKM/PN/948

**AUDITORS' REPORT TO THE CHAIRMAN**  
**AND THE MEMBERS OF THE INDIAN STATISTICAL INSTITUTE**

We have examined the Receipts and Payments Accounts in respect of Current Expenditure, Capital Accounts and the Subsidiary Fund Accounts of the Indian Statistical Institute for the year ended 31st March, 1962, with the books and records maintained by the Institute and subject to the following remark, have found them to be in accordance therewith.

The sum of Rs. 3784.46 spent on additional Electrical Fittings at rented houses has been charged to Capital Account instead of Current Expenditure Account.

Calcutta,  
17th October 1962.

Sd/-Lovelock and Lewes  
*Chartered Accountants*

## INDIAN STATISTICAL INSTITUTE

### Indian Statistical Institute : Receipts and Payments Accounts

<i>To Receipts</i>		Re.	n.P.	Re.	n.P.
1.	Opening Balance :				
	(i) Cash in hand and at Banks with Central Office ...	50,490.84			
	(ii) With Branches and sub-offices ...	49,837.10			
	(iii) Unadjusted Suspense of 1960-61 ...	2,00,290.24			
	(iv) Loans unrecovered from staff for educational and house building purposes etc. as per last account ...	32,973.43			
	(v) Security Deposits ...	15,158.94			
	(vi) Books for R.T.S. and Night School students ...	13,815.05		3,71,574.60	
2.	Membership Subscriptions ...			6,443.10	
3.	Fees for training courses and sale proceeds of syllabus etc. ...			37,380.42	
4.	Amount received from scoring and tabulation work done by the Psychometry Unit for Christian Medical College, Vellore ...			2,335.86	
5.	Tuition fees for language classes ...			371.00	
6.	Examination fees and other receipts ...			10,185.00	
7.	Receipts from produce at Giridih Experimental Farm etc. ...			3,342.66	
8.	S.Q.C. Receipts from non-Governmental Sources :				
	(i) Membership fees ...	78,100.00			
	(ii) Training fees etc. ...	34,480.00			
	(iii) Service Charges ...	1,29,048.77		2,41,598.77	
9.	Receipts for work done by :				
	(i) Electronic Sector ...	11,600.00			
	(ii) Maintenance Workshop ...	55,528.32			
	(iii) UNTAA ...	37,780.00		1,04,906.32	
10.	Block Grants from the Government of India for non-project Sectors :				
1.	Research and Training School ...	13,33,300.00			
2.	International Statistical Education Centre ...	99,700.00			
3.	Statistical Quality Control ...	3,39,600.00			
4.	Pilot Project for Surveys in Regional Planning ...	72,500.00			
5.	Computing Machines and Electronic Laboratory ...	4,22,100.00			
6.	Utilisation of Soviet Equipment (UNTAA) ...	3,06,700.00			
7.	Economic Wing ...	3,35,300.00			
8.	Operational Research Unit ...	4,01,800.00		33,08,000.00	
11.	Receipt by transfer out of current year's capital grant to meet expenditure on books and journals in current expenditure account :				
1.	Research and Training School ...	65,000.00			
2.	International Statistical Education Centre ...	5,000.00			
3.	Statistical Quality Control ...	10,000.00			
4.	Pilot Project for Surveys in Regional Planning ...	4,000.00			
5.	Utilisation of Soviet equipment (UNTAA) ...	8,000.00			
6.	Economic Wing ...	10,000.00			
7.	Operational Research Unit ...	10,000.00		1,12,000.00	
12.	Contract payment by Government of India for National Sample Survey and Integrated Activities Sector :				
	(i) Paid directly to the Institute ...	24,00,000.00			
	(ii) Paid through Army Statistical Organisation ...	66,000.00			
	(iii) Paid for slab work ...	1,62,000.00		26,28,000.00	
13.	Receipt for minor project etc. :				
1.	Amount received from Director of Health Services, Government of India for demographic studies ...	45,000.00			
2.	Amount received from Director of Health Services, Government of India for family planning survey ...	37,500.00			
3.	Amount received from Calcutta Metropolitan Planning Organisation for certain surveys ...	26,250.00		1,08,750.00	
14.	Amount received as sale proceeds of Institute's own publications ...			1,602.75	
15.	Sub-total: (2-14) ...			Re. 65,64,015.88	

### THIRTIETH ANNUAL REPORT : 1961-62

(current expenditure) for the year ended 31 March 1962

		<i>By Payments</i>	
		Rs.	nP.
		Rs.	nP.
1.	(i) Salary, dearness allowance, honoraria ... ..	65,54,073.89	
	(ii) Employer's contribution for workers' Provident Fund (outstanding liabilities as per contra) ... ..	4,17,067.50	
	(iii) Overtime allowances ... ..	2,60,304.89	62,38,376.37
2.	Contribution to Leave Salary fund ... ..		5,96,440.46*
3.	Contribution to Gratuity Fund ... ..		2,50,270.44*
4.	Travelling expenses ... ..		2,90,764.80
5.	Visiting Professors, Scientists, fellows, foreign experts (including Rs. 1,15,000/- spent through the Scholarship, Stipend, Visiting Professors and Fellows Fund) ... ..		1,81,432.10
6.	Scholarships, stipends, fellowship allowance and other assistance to trainees (including Rs. 1,15,000/- spent through the Scholarship, Stipend, Visiting Professors and Fellows Fund) ... ..		1,76,705.88
7.	Prizes to workers for initiative etc. ... ..		12,739.93
8.	Machine Tabulation expenses :		
	(i) Hire and maintenance of tabulating equipment, key punches, and verifiers including freight, transport and other charges ... ..	8,45,956.07	
	(ii) Cost of cards and cabinets etc. ... ..	2,58,211.01	
	(iii) Payments to Army Statistical Organisation direct by the Government of India as per contra ... ..	66,000.00	11,70,167.08
9.	Printing and Publication (including paper for printing) ... ..		1,47,706.42
10.	Society type activities ... ..		35,731.83
11.	Examination expenses ... ..		28,214.41
12.	Books and Journals (including cost of binding etc.) ... ..		1,38,868.07
13.	Expenses of Translation Unit in Japan ... ..		6,747.40
14.	Microfilm, Photo, audiography etc. ... ..		20,777.31
15.	Laboratory and Workshop Stores, tools and minor accessories ... ..		1,60,776.08
16.	Repairs, maintenance and replacement of machineries, equipment, accessories, furniture and fittings etc. ... ..		96,891.48
17.	Stationeries and consumable stores ... ..		1,54,898.50
18.	Audit fees and expenses :		
	(i) Lovelock & Lewes ... ..	13,081.16	
	(ii) P. C. Nandi & Co. ... ..	4,000.00	17,081.16
19.1	Electricity and telephone charges ... ..	1,54,053.52	
2.	Postage, Telegram, M.O. Commission, freight etc. ... ..	55,619.38	2,10,572.90
20.	Bank charges and interest ... ..		71,738.28
21.	Other miscellaneous expenses viz., advertisement, insurance premium, law charges, cooly, cartage, conveyance and other petty expenses like hot weather contingencies etc. ... ..		1,02,773.95
22.	Rent, rates and taxes (including those of field, camp and out-station premises) ... ..		1,70,505.94
23.	Repairs and maintenance of land and buildings including petty construction ... ..		1,12,955.75
24.	Transport ... ..		71,364.84
25.	Workers' welfare and amenities (including overtime tiffin) ... ..		2,05,708.27
26.	Development at Director's discretion ... ..		1,000.00
27.	Materials and other charges for experimental farming and Rice Research Scheme at Oiridih etc. ... ..		8,274.44
28.	Sub-total : (1-27) ... ..		Rs. 1,06,79,575.07

\* Per contra—vide item 21 on receipt side : subject to adjustments.

**INDIAN STATISTICAL INSTITUTE**

**Indian Statistical Institute : Receipts and Payments Accounts**

		<i>To Receipts</i>	
		Rs.	n.P.
16.	Ford Foundation grant held in deposit account with American Express Co. Inc. :		
.1	Receipts during the year (\$ 20,000) ... ..	94,050.00	
.2	Refund of travellers cheques ... ..	5,225.45	99,275.45
17.	Amount received from the Government of India, Ministry of Finance in reimbursement of disbursements to the trainees of the ISEC under the Technical Co-operation Scheme, Colombo Plan for parts of 1960-61 and 1961-62 ...		1,01,392.16
18.	Arrear dues received from :		
(i)	Director of Health Services for Demographic Studies ...	60,586.62	
(ii)	Government of India for Non-project Sectors (1960-61) ...	3,00,000.00	3,00,588.62
19.	Miscellaneous receipts viz., sale proceeds of waste paper, cards etc. ... ..		5,649.28
20.	Sundry deposits payable (at close of the year) ... ..		56,808.41
21.	Outstanding liabilities for payment :		
(i)	of Employer's share of contribution to ISI General Provident Fund for 1961-62 ... ..	4,17,097.50	
(ii)	to Leave Salary fund :		
as per last account ... ..	95,550.97		
add during the year ... ..	5,98,440.48	6,91,991.43	
(iii)	to Gratuity fund :		
as per last account ... ..	3,21,503.96		
add during the year ... ..	2,60,270.44	5,71,774.39	16,80,863.41
22.	Outstanding liabilities for goods and services ... ..		1,03,437.88
23.	Temporary advance taken from Capital Expenditure account during the year ... ..		1,18,000.00
24.	(i) Overdraft from State Bank of India, Shambazar Branch (against transfer of proportionate amount of securities from safe-custody account to overdraft account) ...	13,80,525.22	
(ii)	Cash Credit advance from State Bank of India, Shambazar Branch, against guarantee from Government of India ... ..	22,65,356.10	38,45,881.38
25.	Sub-total (16-24) ... ..		Rs. 61,71,894.59
26.	Grand Total (1+15+25) ... ..		Rs. 1,31,08,385.07

**THIRTIETH ANNUAL REPORT : 1961-62**

(current expenditure) for the year ended 31 March 1962

<i>By Payments</i>		Rs.	n.P.	Rs.	n.P.
29.	Expenditure incurred against Ford Foundation grant for :				
	(i) Staff training abroad etc. ....	73,848.	84		
	(ii) Library equipment subsequently reimbursed	29,838.	23	1,03,686.	87
30.	Disbursement of Fellowship allowance to ISEC trainees under Colombo Plan			68,737.	81
31.	Outstanding liabilities for payment of employer's contribution (incorporation of balances as per last account) :				
	(i) I.S.I. General Provident fund	2,88,899.	92		
	(ii) Leave Salary fund	95,650.	97		
	(iii) Gratuity fund	3,21,503.	96	7,06,954.	84
32.	Outstanding liabilities for goods and services (incorporation of balance as per last account)			58,689.	29
33.	Deposit (incorporation of balance as per last account)			44,518.	82
34.	Loan to staff for educational and house building purposes and relief loan etc. (at the close of the year)			30,637.	34
35.	Purchase of books for R.T.S. and Night School students (pending adjustment)			12,377.	99
36.	Security deposits receivable (at the close of the year)			21,620.	30
37.	Unadjusted advances (at the close of the year) :				
	(i) Advance against T.A. and other dues against which bills are awaited and/or under examination for adjustment	1,52,166.	24		
	(ii) Advances to suppliers, contractors etc. against goods and services	5,529.	09		
	(iii) Advances against special projects and experiments	19,156.	03		
	(iv) Imprest Cash and/or working capital with different departments, sections, units etc.	29,810.	12		
	(v) Advances to Visiting Professors	1,154.	91		
	(vi) Festival and other recoverable advances	10,640.	78	2,18,447.	17
38.	Repayment of loan from Scholarship, stipend and Visiting Professors fund			31,000.	00 <sup>(4)</sup>
39.	Overdraft from State Bank of India as per last account			8,62,883.	96
40.	Closing balances :				
	Cash in hand and at Banks with Bamnager and other Branches and Sub-offices including Translation Unit in Japan (Rs. 4,449.84 with Nath Bank Ltd. in liquidation)			2,70,255.	81
41.	Sub-total (29-40) :			Rs. 24,28,810.	00
42.	Grand Total (28+41) :			Rs. 1,31,08,385.	07

(a) Out of temporary loans amounting to Rs. 6,81,000/- taken from funded accounts for current expenditure remaining unpaid upto 31-3-61 an amount of Rs. 31,000/- (item no. 38 of expenditure side) having been repaid during the year under report, the position of outstanding loans as at the close of the year 1961-62 comes as under :

(i)	Leave Salary Fund	Rs. 2,45,000.	00
(ii)	Gratuity Fund	Rs. 3,18,000.	00
(iii)	Supervision Fee Fund	Rs. 60,000.	00
(iv)	Development Fund I	Rs. 27,000.	00
		Rs. 6,50,000.	00

Calcutta,  
17th October, 1962

In terms of our report of even date  
Sd/- LOVELLOCK & LEWIS  
Chartered Accountants

**INDIAN STATISTICAL INSTITUTE**

**Indian Statistical Institute : Receipts & Payments Account for the year ended 31 March 1962**

**SCHOLARSHIP, STIPENDS, VISITING PROFESSORS AND FELLOWS FUND**

<i>To Receipts</i>		Rs.	n.P.	Rs.	n.P.
<b>1. Opening balance :</b>					
i) Cash in hand and at Banks	...	...	...	34,560.71	
ii) Advance recoverable from Current Expenditure Account as per last account	...	...	...	31,000.00	65,560.71
<b>2. Amount provided for award of scholarships, stipends etc. transferred from Current Expenditure Account</b>					
	...				1,16,000.00
<b>3. Amount provided for Visiting Professors, Fellows, foreign experts and scientists etc. transferred from Current Expenditure Account</b>					
	...	...	...		1,15,000.00
				Rs. 2,95,560.71	
<i>By Payments</i>					
<b>1. Payment of scholarships, stipends and fellowship during the year</b>					
	...	...	...		1,60,537.12
<b>2. Expenses for Visiting Professors, Fellows, foreign experts and scientists during the year</b>					
	...	...	...		1,34,910.46
<b>3. Closing balance :</b>					
i) Cash in hand and at Banks	...	...	...	113.12	
ii) Temporary advances made to Current Expenditure Account as per last account	...	...	...	31,000.00	
<i>Less</i> realised during the year	...	...	...	31,000.00	113.12
				Rs. 2,95,560.71	

Calcutta,  
17th October, 1962

In terms of our report of even date

Sd/. LOVELOCK & LEWIS  
Chartered Accountants



**THIRTIETH ANNUAL REPORT : 1961-62**

**Indian Statistical Institute : Receipts & Payments Account for the year ended 31 March 1962**

**LEAVE SALARY FUND**

		<i>To Receipts</i>			
		Rs.	n.P.	Rs.	n.P.
<b>1. Opening Balance :</b>					
i)	Cash in hand and at Banks ... ..		3,081.38		
ii)	Temporary advances recoverable as per last account from :				
a)	Capital Expenditure Account ... ..	6,48,000.00			
b)	Current Expenditure Account ... ..	2,45,000.00		7,96,081.38	
<b>2. Amounts received towards employer's contribution on account of a worker on deputation ... ..</b>					
					178.90
				<b>Rs.</b>	<b>7,96,260.18</b>

		<i>By Payments</i>			
		Rs.	n.P.	Rs.	n.P.
<b>1. Leave salary payment :</b>					
i)	Value of earned leave enjoyed ... ..	4,14,588.08			
ii)	Payment in lieu of leave refused	89,333.79		5,03,921.87	
<b>2. Closing Balance :</b>					
i)	Cash in hand and at Banks ... ..		9,389.39		
ii)	Temporary advances made to				
a)	Capital Expenditure Account as per last account ... ..	5,48,000.00			
	Less realized during the year	5,10,000.00		38,000.00	
b)	Current Expenditure Account as per last account ... ..		2,45,000.00	2,92,389.39	
				<b>Rs.</b>	<b>7,96,260.18</b>

**Note :** The following amounts which were payable from the Current Expenditure Account of the Institute to this Fund during the years mentioned, have remained unrecovered up to 31-3-62 for

i) year 1959-60 ... ..	Rs.	81,600.00
ii) year 1960-61 ... ..	Rs.	74,180.97
iii) year 1961-62 ... ..	Rs.	8,96,440.48
	<b>Rs.</b>	<b>8,91,961.45</b>

In terms of our report of even date.

Sd/- LOVELL & LEWIS  
Chartered Accountants

Calcutta,  
17th October, 1968

## INDIAN STATISTICAL INSTITUTE

Indian Statistical Institute : Receipts & Payments Account for the year ended 31 March 1962

### GRATUITY FUND

<i>To Receipts</i>		Rs.	n.P.	Rs.	n.P.
1. Opening Balance :					
i) Cash in hand and at Banks ... ..		1,493.27			
ii) Temporary advances recoverable from :					
a) Capital Expenditure Account as per last account ...		4,72,000.00			
b) Current Expenditure Account as per last account ...		3,18,000.00		7,91,493.27	
2. Amount received towards employer's contribution on account of a worker on deputation ... ..					59.37
				Rs.	7,91,552.64
<i>By Payments</i>					
1. Gratuity Payments ... ..					
					13,719.13
2. Closing balance :					
i) Cash in hand and at Banks ...		2,933.46			
ii) Temporary advances made to :					
a) Capital Expenditure account as per last account ... ..	4,72,000.00				
<i>Less</i> : Realised during the year	15,000.00	4,57,000.00			
b) Current Expenditure Account as per last account ... ..		3,18,000.00		7,77,833.46	
				Rs.	7,91,552.64

*Notes* : The following amounts which were payable from the Current Expenditure Account of the Institute to this fund during the years mentioned have remained unrecovered upto 31-3-62 :  
for

i) year 1959-60 ... ..	Rs.	1,48,164.00
ii) year 1960-61 ... ..	"	1,73,339.95
iii) year 1961-62 ... ..	"	2,50,270.44
		Rs. 5,71,774.39

In terms of our report of even date.

Calcutta,  
17th October 1962

Sd/- LOVELL & LEWIS  
Chartered Accountants

THIRTIETH ANNUAL REPORT : 1961-62

Indian Statistical Institute : Receipts & Payments Account for the year ended 31 March 1962

DEVELOPMENT FUND No. 1

<i>To Receipts</i>			
		Rs. nP.	Rs. nP.
i. Opening balance :			
i)	Cash in hand and at Banks ... ..	11,124.16	
ii)	Temporary advances recoverable as per last account from :		
a)	Capital Expenditure Account ... ..	81,397.78	
b)	Current Expenditure Account ... ..	27,000.00	1,10,521.94
			Ra. 1,19,521.94

<i>By Payments</i>			
		Rs. nP.	Rs. nP.
i. Closing balance :			
i)	Cash in hand and at Banks ... ..	11,521.94	
ii)	Temporary advances made to :		
a)	Capital Expenditure Account as per last account ... ..	81,397.78	
	Less realised during the year ... ..	397.78	81,000.00
b)	Current Expenditure Account as per last account ... ..	27,000.00	1,10,521.94
			Ra. 1,19,521.94

In terms of our report of even date.

Calcutta,  
the 17th October, 1962

Sd/ LOVELOCK & LEWIS  
Chartered Accountants

**INDIAN STATISTICAL INSTITUTE**

Indian Statistical Institute : Receipts & Payments Account for the year ended 31 March 1962

**DEVELOPMENT FUND No. II**

<i>To Receipts</i>		Rs.	nP.
1. Opening balance :			
i) Cash in hand and at Banks ... ..		1,39,504.91	
ii) Advances recoverable from Capital Expenditure Account as per last account ... ..		2,09,611.76	
iii) G.P. Notes at cost (face value Rs. 50,000/-) as per last account ... ..		45,533.75	
iv) Value of assets acquired from the fund (at cost) ... ..		3,82,081.96	7,56,735.38
2. Interest received on investment in G.P. Notes ... ..			
			1,496.00
3. Recovery against Capital outlay ... ..			
			21,381.75
			Rs. 7,79,610.13

<i>By Payments</i>		Rs.	nP.
1. Expenditure on Capital outlays upto last year's account ... ..			
			3,82,081.96
2. Expenditure during the year :			
.1 Purchase of property (Rose Villa) at Giridih (Rs. 85,000/- less Rs. 501/- paid in previous year) ... ..		84,499.00	
.2 Purchase of property (Biroja Kutir) at Giridih (Rs. 6,725/- less Rs. 875/- paid in previous year) ... ..		5,850.00	
.3 Cost of construction of ISI Students' Hostel at 206 B. T. Road ... ..		16,994.71	
.4 Repairs, renovations and petty constructions etc., at Rose Villa, Biroja Kutir etc. ... ..		3,764.24	1,11,107.95
3. Closing balance :			
i) Cash in hand and at Banks ... ..		51,886.47	
ii) Temporary advances made to Capital Expenditure account as per last account 2,09,611.76			
Less : realised during the year ... 611.76		2,09,000.00	
iii) G.P. Notes at cost (face value Rs. 50,000/-) ... ..		45,533.75	3,06,420.22
			Rs. 7,79,610.13

In terms of our report of even date.

Calcutta,  
17th October, 1962

Sd/- LOVELOCK & LEWIS  
Chartered Accountants

THIRTIETH ANNUAL REPORT : 1961-62

Indian Statistical Institute : Receipts & Payments Account for the year ended 31 March 1962

SUPERVISION FEE FUND

*To Receipts*

	Rs.	nP.	Rs.	nP.
1. Opening balance :				
i) Cash in hand and at Banks ... ..	4,855.	53		
ii) Advances recoverable from Current Expenditure Account as per last account ... ..	60,000.	00	64,855.	53
2. Advances recoverable as per last account from :				
i) Small Industries experimental Unit run by the Institute	36,238.	33		
ii) Small Industries experimental Unit in villages ...	3,192.	90	39,431.	23
3. Cost of land at Baranagar and Giridih as per last account ...			1,12,218.	11
			Rs.	2,16,304.87

*By Payments*

	Rs.	nP.	Rs.	nP.
1. Temporary advances to small industries experimental unit run by the Institute				
as per last account ... ..	36,238.	33		
Less realised during year ... ..	4,186.	83	32,051.	50
Add advances as per last account to carry out experiments in village units ... ..			3,192.	90
2. Land at Baranagar and Giridih as per last account ...			1,12,218.	11
3. Closing balance :				
i) Cash in hand and at Banks ... ..	8,842.	36		
ii) Temporary advances to Current Expenditure Account as per last account ... ..	80,000.	00	88,842.	36
			Rs.	2,16,304.87

In terms of our report of even date.

Calcutta,  
17th October, 1962

Sd/- LOVELOCK & LEWIS  
Chartered Accountants

# INDIAN STATISTICAL INSTITUTE

## Indian Statistical Institute : Receipts & Payments

I.S.I. GENERAL

<i>To Receipts</i>		Rs.	nP.	Rs.	nP.
<b>1. Opening balance :</b>					
i)	Cash in hand and at Banks .. .. .	7,86,172.87			
ii)	G.P. Notes at cost as per last account (Face value of G.P. Notes Rs. 22,70,000/-) .. .. .	18,74,784.29			
iii)	National Savings Certificate as per last account (Present value Rs. 1,12,600/-) .. .. .	1,00,000.00			
iv)	Loan outstanding with the workers as per last account	3,34,528.00		30,94,485.16	
<b>2. Employer's Contribution due to fund on account of 1960-61 received from Institute during the year .. .. .</b>					
				2,88,899.92	
<b>3. Workers own subscription to the fund during the year .. .. .</b>					
				4,17,216.34	
<b>4. Employer's contribution to the fund for the year .. .. .</b>					
				nil <sup>a)</sup>	
<b>4.1 Amount received towards Employer's contribution on account of a worker on deputation .. .. .</b>					
				118.75	
<b>5. Workers Voluntary Subscription to the Fund during the year .. .. .</b>					
				35,322.00	
<b>6. Interest received during the year against loan given to members .. .. .</b>					
				19,227.07	
<b>7. Interest on Investments :</b>					
i)	G.P. Notes .. .. .	79,824.50			
ii)	For deferred payment by Institute on account of Employer's Contribution for 1960-61 repaid during the year .. .. .	14,445.00		93,969.80	
				30,49,238.74	

THIRTIETH ANNUAL REPORT: 1961-62

Account for the year ended 31 March 1962

PROVIDENT FUND

		<i>By Payments</i>	
		Rs. nP.	Rs. nP.
1.	Payment to workers : their P.F. dues (on leaving service) ..		60,573.54
2.	Payment of interest to workers on closing of accounts as in item no. (1) above .. .. .		7,812.67
3.	Repayment of workers Voluntary Subscription ..		10,918.37
4.	Payment of Interest to workers against their Voluntary Subscription .. .. .		1,293.74
5.	Loans to Members :		
	Outstanding from previous year .. ..	3,34,528.00	
	Since added during the year .. .. .	6,73,640.31	
		10,08,068.31	
	Less amount realised during the year .. ..	5,49,960.31	4,58,108.00
6.	Closing balance :		
	i) Cash in hand and at Banks .. .. .	14,35,748.13 <sup>(a)</sup>	
	ii) G.P. Notes at cost as per last account (Face value Rs. 22,70,000/-) .. .. .	18,74,784.29	
	iii) National Savings Certificate as per last account (present value Rs. 1,17,000/-) .. .. .	1,00,000.00	34,10,532.42
			Rs. 39,49,238.74

(a) An amount of Rs. 4,17,097.59 was due to the fund on 31-3-62 as Employer's contribution, but was not paid by the Institute for want of resources. This amount and interest for deferred payments thereof along with over-riding interest in respect of securities is expected to be recovered during 1962-63.

(b) Rs. 13,00,000/- out of this amount was placed in 90 days fixed deposit @ 3½ p.a. early in 1962-63 and has since been invested in Government of India 4½% loan of 1965.

In terms of our report of even date.

Calcutta,  
17th October, 1962

Sd/- LOVLOCK & LEWIS  
Chartered Accountants

INDIAN STATISTICAL INSTITUTE

India Statistical Institute : Receipts and Expenditure on Capital Accounts

		<i>To Receipts</i>	
		Rs.	nP.
1.	Opening balance :		
	Stock of building and other materials for work under progress and other construction etc. (as per last account) ..		4,48,727.27
2.	On account payment received from Government of India against current year's capital expenditure .. ..	17,50,000.00	
	<i>Less</i> amount transferred to Current Expenditure Account for Books and Journals .. ..	1,12,000.00	16,38,000.00
3.	On account payment received from Government of India in reimbursement of Capital Expenditure incurred by the Institute :		
.1	during 1959-60 .. .. .	85,864.00	
.2	during 1960-61 .. .. .	3,00,000.00	
.3	during 1959-60 for 206 B.T. Road .. .. .	24,376.00	
.4	upto 1958-59 for 202 B.T. Road .. .. .	1,20,000.00	
.5	during 1959-60 for 202 B.T. Road .. .. .	7,976.00	5,38,216.00
4.1	Refund of deposit from Land Acquisition Collector, on account of dropping of proposal of acquisition of 20 B.T. Road .. .. .	250.00	
.2	Receipt by transfer from Current Expenditure Account establishment & contingent charges deducted by the Land Acquisition Collector out of the deposit for acquisition of above land .. .. .	250.00	500.00
5.	Recovery against Capital outlay on account of :		
.1	Victoria Front Printing Press .. .. .	8,000.00	
.2	Repairs etc. done in rented premises No. 48/6 Kaahinath Dutta Road .. .. .	530.00	8,530.00
	<b>Total</b> .. .. .		<b>Rs. 26,33,973.27</b>



THIRTIETH ANNUAL REPORT : 1961-62

for the year ended 31 March 1962

By Expenditure

	Rs.	nP.	Rs.	nP.
1. Expenditure on land and properties :				
1. Payment for acquisition of land in village Makatspur, Giridih	61,144.	01		
2. Part payment in advance towards purchase and/or acquisition of land at 108 Gopal Lal Tagore Road .. ..	3,744.	03		
3. Payment to the Housing Commissioner, Delhi Administration for acquisition of land in Delhi .. ..	4,00,000.	00		
4. Earnest money for land at Baroda .. ..	501.	00	4,85,389.	04
2. Expenditure on buildings, sheds and structures :				
1. Institute main building at Baranagar .. ..	71,740.	72		
2. Construction of sheds and structures at—				
(a) 203 B.T. Road .. ..	78,815.	99		
(b) 109 G. L. Tagore Road .. ..	8,850.	43	83,866.	43
3. Planning, designing and other works in connection with the construction of building at				
(a) 205 B.T. Road .. ..	32,000.	00		
(b) 203 B.T. Road .. ..	10,000.	00	43,000.	00
4. Partitions, structures etc. at Delhi .. ..	3,319.	27		
5. Repairs, renovations & construction etc. at Geopptu Niwas .. ..	16,711.	66	2,16,938.	07
3. Expenditure on account of repairs, maintenance and construction of properties of Government of India : Repairs, renovations and new construction etc. at 202 B.T. Road .. ..			43,931.	18
4. Expenditure on machinery, equipment etc. :				
1. Purchase of one motor vehicle .. ..	10,220.	30		
2. Electrical equipment for Laboratories, teaching classes, buildings and other purposes .. ..	86,781.	41		
3. Generating Sets—3 Nos. .. ..	32,315.	25		
4. Calculating, punching and tabulating equipment .. ..	9,483.	45		
5. Office machineries and equipment .. ..	14,980.	55		
6. Workshop equipment .. ..	74,216.	37		
7. Laboratory equipment .. ..	1,64,599.	33		
8. Furniture and fittings .. ..	1,04,108.	78		
9. Books and journals .. ..	69,201.	88		
10. Telephone under the O.Y.T. Scheme—2 lines .. ..	5,080.	00		
11. Electronic laboratory equipment .. ..	96,696.	01	6,76,662.	33
5. Additional electrical fittings at rented houses .. ..			3,784.	46
6. Recoverable Capital expenditure .. ..			2,631.	05
7. Repayment of loan taken from different funds of the Institute :				
1. Leave Salary fund .. ..	5,10,000.	00		
2. Gratuity fund .. ..	16,000.	00		
3. Developments fund I .. ..	397.	78		
4. Developments fund II .. ..	811.	70	5,26,009.	54 <sup>(a)</sup>
8. Temporary advances to meet Institute's Current expenditure during the year .. ..			1,18,000.	00
9. Advance/part payment against purchase of				
i) land .. ..	16,000.	00		
ii) machinery and equipment .. ..	48,602.	82		
iii) construction materials .. ..	16,793.	06	77,395.	97
10. Closing stock of building materials for work under progress and other constructions .. ..			5,02,907.	48
11. Cash in hand and at Banks .. ..			324.	15
Total .. ..			Rs. 26,33,973.	27

(a) Out of temporary loans amounting to Rs. 13,11,000.54 taken from funded accounts for Capital expenditure remaining unpaid upto 31-3-61, an amount of Rs. 5,26,000.54 (item no. 7 of expenditure side) having been repaid during the year under report, the present position of outstanding loans at the close of the year 1961-62 comes as under :

i) Leave Salary fund .. ..	Rs.	38,000.	00
ii) Gratuity fund .. ..	Rs.	4,57,000.	00
iii) Development fund No. I .. ..	Rs.	81,000.	00
iv) Development fund No. II .. ..	Rs.	2,09,000.	00
	Rs.	7,85,000.	00

In terms of our report of even date.

Sd/- LOYLOCK & LAWNS  
Chartered Accountants

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