

INDIAN SOCIETY OF AGRICULTURAL STATISTICS

NINTH ANNUAL REPORT, 1955-56

THE Report gives a brief review of the Society's activities for one year from 1st July 1955 to 30th June 1956.

MEMBERSHIP

The Society's membership during the year was 143 as a result of a further revision of cases with long-standing arrears. The present members are classified as follows:—

| | | | | | |
|------------------|----|----|----|----|----|
| Honorary Members | .. | .. | .. | .. | 7 |
| Patrons | .. | .. | .. | .. | 5 |
| Life-Members | .. | .. | .. | .. | 39 |
| Ordinary Members | .. | .. | .. | .. | 92 |

Besides its regular membership, the Society is maintaining an additional mailing list of Subscribers to the Journal which includes important research institutions in India and abroad. It may be mentioned that the number of Foreign and Indian subscribers rose from 71 to 83 during the year. The Society, it will be recalled, is affiliated to the International Statistical Institute.

A list of the Members of the Society during the year under report is being published as Appendix I to this Report.

ACCOUNTS

The Society's funds have been divided into two: (i) General Account, Indian Society of Agricultural Statistics, (ii) Publication Fund Account, Indian Society of Agricultural Statistics. The accounts of the Society are being audited by the professional auditors since the year 1954-55. A brief statement of the receipts and expenditure of the Society during the year under report is as follows:—

| | Society's Account | | | Publication Fund | | | Total | | |
|-------------------------|-------------------|----|----|------------------|----|----|--------|----|----|
| | Rs. | A. | P. | Rs. | A. | P. | Rs. | A. | P. |
| Opening Balance | 24,405 | 7 | 9 | 16,823 | 11 | 6 | 41,229 | 3 | 3 |
| Receipt during the year | 7,543 | 13 | 0 | 2,660 | 3 | 9 | 10,204 | 0 | 9 |
| Expenditure | 4,634 | 12 | 9 | .. | .. | .. | 4,634 | 12 | 9 |
| Closing Balance | 27,314 | 8 | 0 | 19,483 | 15 | 3 | 46,798 | 7 | 3 |

The following grants-in-aid received by the Society during the year are acknowledged gratefully:—

| | Rs. | A. | P. |
|---|-------|----|----|
| 1. National Institute of Sciences of India .. | 500 | 0 | 0 |
| 2. Government of Orissa | 1,000 | 0 | 0 |
| 3. Government of Uttar Pradesh .. | 500 | 0 | 0 |
| 4. Government of Bombay | 500 | 0 | 0 |

An audited Statement of Accounts for the year 1955-56 is given at the end of this Report.

JOURNAL

Volume VI, Nos. 1 and 2, of the Journal of the Society were published during the year and the combined Volume VII is in the press and expected to come out shortly. Judging from the requests received for exchange the Journal continues to draw great appreciation in India and abroad. Among the requests for exchange approved by the Council of the Society during the year under report, are those from the Institute of Statistical Mathematics, Tokyo, Japan, and from the Mathematical Research Institute of the Hungarian Academy of Sciences, Budapest.

The publications received in exchange from different institutions are available in the Society's Office for reference, and a list of these is being published as Appendix II to this Report. Thanks to the kindness of the Vice-President of the Indian Council of Agricultural Research, the Society is now located in the spacious building of the Statistical Wing and it is now possible to build up a reference library for use of the Society's members.

The Hindi Supplement continues to be a feature of the Journal. This represents an attempt on the part of the Society to make the subject of statistics more widely understood through the national language.

OTHER ACTIVITIES

(a) Shri K. R. Damle, our past Executive President, was elected during the year as an Honorary Member of the Society in recognition of the valuable services he rendered to the Society.

The Society is fortunate in having Shri M. S. Randhawa as its present Executive President. Members will recall that the Society was established mainly through the personal efforts and the encouragement received from Shri Randhawa.

(b) The Society's publication *Sampling Theory of Surveys with Applications* by Dr. P. V. Sukhatme has been received well since its publication year before last. A Spanish translation of the book has been published in Mexico this year. The Society's edition of the book is nearly exhausted and an order has been placed with the Iowa State College Press (U.S.A.) for 600 copies of the book, as the Bangalore Press had dismantled the type.

(c) In order to consider ways and means for expanding the constructive activities of the Society, and for securing additional grant and creating necessary reserve funds for this purpose, a Sub-Committee consisting of Dr. S. R. Sen, Shri B. N. Datar, Dr. V. G. Panse and Dr. Uttam Chand was appointed by the Executive Council. This Sub-Committee has recommended that (i) the Society should organise seminars on suitable topics and bear the expenses of experts invited to participate in them, (ii) the Society should build up a good reference library for use of its members, and (iii) the Society should arrange to give fellowships to lecturers in statistics in universities and other institutions to enable them to work on research problems in statistics during long vacations at suitable centres. The details are being worked out.

(d) The 17th Annual Conference of the Indian Society of Agricultural Economics was held at Cuttack in the last week of December, 1956. Dr. S. R. Sen and Shri B. N. Datar attended the Conference on behalf of the Society. The International Statistical Institute is holding its next biennial session in August 1957 in Stockholm and the Society expects to be represented at this Conference.

(e) The Ninth Annual General Meeting of the Society was held at New Delhi in January, 1956. The members showed a keen enthusiasm in attending this meeting and participating in the discussions. The meeting was inaugurated by President Dr. Rajendra Prasad, and the Society continues to enjoy the privilege of his guidance as its President. The inauguration was followed by a technical address by Prof. P. C. Mahalanobis, the subject being "Agricultural Statistics in Relation to National Planning in India". A session for reading of contributed papers was held and it was presided over by Dr. P. V. K. Iyer. A symposium on the "Role of a Statistician in Agriculture and Animal Husbandry Research" was also organised under the Chairmanship of Dr. R. J. Kalamkar. A popular lecture on "Agriculture and the Second Five-Year Plan" by Dr. V. K. R. V. Rao, Director of Delhi School of Economics, was one of the feature of the meeting.

The abstracts of papers presented at the session are given below:—

1. *A simple design in sampling with varying probabilities.* A. R. Sen, Indian Council of Agricultural Research, New Delhi.

The design is mainly intended to meet the disadvantage of a negative value of an unbiased estimate of the variance of the estimated total in the Midzuno and Sen case. Simple expressions for the estimates of the total and of the variance of the estimated total have been derived.

2. *On the efficiencies of various systems of sampling with varying probabilities.* M. Rajagopalan, Indian Council of Agricultural Research, New Delhi.

Exact expressions for the probabilities are obtained for the case where the units are selected with p.p.s. in the first $r = 2$ draws, and with equal probability in the remaining draws, selection being without replacement. Efficiencies of various systems have been compared using a hypothetical example. All these systems do not appear to be more efficient than sampling with p.p.s. with replacement for higher correlations between the auxiliary variate and the variate under study.

3. *Joint asymptotic distribution of the median and U-statistics.* B. V. Sukhatme, Indian Council of Agricultural Research, New Delhi.

Let x_1, x_2, \dots, x_n be a random sample of independent observations from a population with c.d.f. $F(x - \theta)$ and density function $f(x - \theta)$, θ being the population median. Let $\psi(t_1, t_2, \dots, t_s)$ be a real valued, bounded and symmetric function of its arguments with $s \leq n$. Let $U_n = (s^n)^{-1} \sum \psi(t_1, t_2, \dots, t_s)$.

Assuming that $f(x)$ is continuous in some neighbourhood of the origin with $f(0) \neq 0$ it has been shown that the joint asymptotic distribution of the sample median and U_n is asymptotically normal. This result has been extended to random vectors as also to generalised U-statistics.

4. *On some extensions in double sampling.* R. B. Hora, Indian Council of Agricultural Research, New Delhi.

The paper considers the extension of double sampling technique to multistage designs together with systematic sampling. Ratio and regression estimates have been considered for each and their variances worked out. Optimum allocations with relevant cost functions have also been investigated.

5. *Some remarks on Mood's two-sample test for variances*, B. V. Sukhatme, *Indian Council of Agricultural Research, New Delhi*.

The paper considers some properties of a two-sample test suggested by Mood in 1954 for comparing variances against general alternatives. The asymptotic normality of the test statistic is proved both under the hypothesis and the alternative. A general formula for the variance is derived and the exact distributions in the null case are tabulated for some small samples.

6. *Multiple decisions in k normal population*. Daroga Singh, *Indian Council of Agricultural Research, New Delhi*.

Let there be k normal populations $N(\mu_i, \sigma^2)$, $i = 1, 2, \dots, k$, with unknown means and a common known variance σ^2 , and suppose that a random sample of size n is drawn from each of the k populations. It is desired to choose a group of populations, say $r \leq k$ which includes the population with the greatest mean. The paper gives a procedure for choosing the r populations.

7. *Planning and analysis of experiments in cultivators' fields*. Uttam Chand and T. F. Abraham, *Indian Council of Agricultural Research, New Delhi*.

The paper considers the relative efficiency of 4, 5 and 6 plot models. The problem of optimum allocation and the optimum number of experiments has also been considered in terms of the cost and the loss functions.

8. *Tables of orthogonal polynomials when the independent variable is in geometric progression*, Daljit Singh, *Indian Agricultural Research Institute, New Delhi*.

Two sets of tables for fitting orthogonal polynomials to data, where the dose intervals proceed in a geometric series of the type 2^r , have been constructed, the first including the control ($x_1 = 0$) and the second without the control ($x_1 = 1$). Polynomial constants upto the fourth degree for $n = 3, 4, 5$ and up to the third degree for $n = 6, 7, 8$ have been worked out.

9. *Analysis of Latin Squares when several plots are missing*. M. N. Das, *Indian Council of Agricultural Research, New Delhi*.

The general method of analysis of Latin squares when any number of plots are missing in any manner, provided there is at least one column or row and one treatment unaffected, has been indicated. The exact analysis, including calculation of standard errors, has been deduced in two special cases, viz., (i) when the plots are missing in separate row,

column and treatment, and (ii) the missing plots belong to the same row, column or treatment, but the row, etc., are not completely missing.

10. *Mitscherlich regression and the meaning of German Fertility Soil Survey.* V. N. Murty, Central Tobacco Research Institute, Rajahmundry.

The method followed by O. W. Willcox in his investigation of the results of the German Soil Survey of 1930 has been re-examined using the principle of least squares. It has been found that his hypothesis regarding the constancy of the efficiency of the fertilizer does not seem to hold good. A method of fitting the curve to unequally spaced doses is also given.

INDIAN SOCIETY OF AGRICULTURAL STATISTICS

*Proceedings of the Ninth Annual General (Business) Meeting of the
Indian Society of Agricultural Statistics, held on 7th January 1956,
at the Statistical Wing of the Indian Council of Agricultural
Research, Library Avenue, New Delhi-12*

The following were present:—

1. Prof. James N. Warner (*in the Chair*); 2. Shri R. Giri;
3. Dr. V. G. Panse; 4. Shri J. S. Srivastava; 5. Dr. Uttam Chand;
6. Shri Daroga Singh; 7. Dr. N. S. R. Sastry; 8. Shri K. V. R. Sastry;
9. Dr. B. V. Sukhatme; 10. Shri M. N. Das; 11. Dr. K. Kishen;
12. Shri V. N. Amble; 13. Dr. S. S. Prabhu; 14. Shri H. K. Chawla;
15. Dr. G. R. Seth; 16. Shri C. N. Dafal; 17. Dr. A. R. Sen;
18. Shri T. P. Abraham; 19. Dr. P. N. Saxena; 20. Shri V. N. Murty;
21. Dr. R. J. Kalamkar; 22. Shri N. S. Choudhry;
23. Shri J. S. Sarma; 24. Shri V. S. Menon; 25. Shri M. C. Satyanarayana;
26. Shri Y. S. Kapse; 27. Shri V. K. Mokashi;
28. Shri S. S. Narula; 29. Shri T. R. Gupta.

Item No. 1

Confirmation of the Proceedings of the Eighth Annual General (Business) Meeting of the Society

The Proceedings of the Eighth Annual General (Business) Meeting held on 26th November 1954, at New Delhi, were read out and adopted after the Secretary explained the circumstances in which the present meeting was being held at New Delhi instead of at Lucknow.

Item No. 2

Secretary's Annual Report

The Secretary's Report for the year 1954-55 was read out. The Secretary also informed the members that a donation from the Government of Bombay was sanctioned for the year under report but not yet received, and that the accounts presented were unaudited so far as the Council was taking steps to appoint a professional auditor for this purpose. With regard to the last para of the Report the Chairman inquired as to the best manner in which the Society could acknowledge the help and encouragement it received from its past Executive President Shri K. R. Damle. The Secretary informed him that, as on previous

occasion in the case of S. Datar Singh, the Executive Council had recommended his election as a Honorary Member of the Society. The report was then adopted.

Item No. 3

Consideration of the question regarding the defaulting members

The Secretary read out the replies received from different societies bearing on the question, and placed before the meeting the following Bye-laws, as recommended by the Executive Council, for the consideration of the members:—

1. The membership of the members whose subscription is in arrears for two years may be terminated by the Executive Council after due notice. They will continue to be treated as members during this period.
2. Should a defaulting member wish to re-enroll, he may do so as a new member provided
 - (a) he pays arrears for two years,
 - (b) he becomes a life-member by paying Rs. 225 notwithstanding any past payment made.

Some members expressed the views that if a defaulting member did not re-enroll, the issues of the Journal of the Society sent to him during the two-year-period would represent a loss to the Society. The Secretary explained that the object was to encourage membership of the Society and not to discontinue sending the Journal as soon as members' subscription fell in arrears. The Chairman also pointed out the protection afforded to the Society by the suggested time limit of two years. The Bye-laws were then approved unanimously. Also the incorporation of the words "due notice" was left to the discretion of the Executive Council.

Item No. 4

Election of Office-bearers

In accordance with the practice followed, the nominations of the Executive Council for the election of Office-bearers for the year 1955-56 were placed before the House. No additional nominations were made by the members present. Dr. N. S. R. Sastry and Prof. Warner expressed a desire to withdraw their names but this was also not agreed to, and nominations proposed by the Executive Council were approved unanimously. As a result, the following Office-bearers were elected for the year 1955-56:—

President :

Dr. Rajendra Prasad.

Executive Presidents :

Shri M. S. Randhawa, I.C.S.

Vice-President :

Prof. D. R. Gadgil.

Dr. P. V. Sukhatme.

Other Members of the Executive Council :

Shri B. N. Datar.

Dr. R. J. Kalamkar.

Dr. C. R. Rao.

Dr. K. R. Nair.

Dr. K. Kishen.

Prof. J. N. Warner.

Dr. S. R. Sen.

Dr. G. R. Seth.

Dr. N. S. R. Sastry.

Honorary Secretary :

Dr. V. G. Panse.

Honorary Joint-Secretary :

Dr. Uttam Chand.

Honorary Treasurer :

Dr. P. N. Saxena.

Editors :

Dr. V. G. Panse.

Dr. P. V. Krishna Iyer.

(With the assistance of Dr. K. R. Nair and Dr. G. R. Seth).

*Item No. 5**Fixing the venue and time of the next Annual General Meeting of the Society*

The Secretary informed the House that its suggestion in the matter will be taken into account but the final decision may be left to the Executive Council. He pointed out the likelihood of holding an International Seminar on the *Cost of Production in Agriculture* sometime next winter and that it would be useful to hold the annual meeting of

the Society in conjunction with it. Dr. Kishen said that his invitation to hold the next meeting at Lucknow still stands. Some members expressed the view that for those coming to Delhi from outside to attend the meeting the notice was short and that only a short session had been arranged. The Secretary agreed that the notice was rather short owing to circumstances beyond control and explained that the short programme was a consequence of the short notice. He promised that the Executive Council will do its best to provide proper notice and fuller programmes in future. The final decision regarding the next Annual General Meeting was then left to the Executive Council of the Society.

Item No. 6

Any other business with the permission of the Chair

The Society expressed its gratitude for the services rendered to the Society by Shri K. R. Damle and unanimously elected him as an Honorary Member of the Society.

Finally Dr. Kalamkar proposed a vote of thanks to the Chair which was carried with applause and the meeting terminated.

APPENDIX I

A List of Members of the Society

HONORARY MEMBERS

1. Sir C. V. Raman, F.R.S., Director, Raman Research Institute, Hebbal Post, Bangalore-6.
2. Sir Pheroze Kharegat, 85/A, Napean Sea Road, Malabar Hill, Bombay.
3. Shri K. M. Munshi, Governor of Uttar Pradesh, Government House, Lucknow.
4. Shri C. D. Deshmukh, Chairman, University Grants Commission, UNESCO Building, Old Mill Road, New Delhi.
5. Shri Datar Singh, Development Adviser and Additional Secretary (Kashmir Affairs), Ministry of Home Affairs, New Delhi.
6. Shri K. R. Damle, Chairman, Tariff Commission, Government of India Buildings, 101, Queen's Road, Bombay-1.
7. Shri Jairamdas Daulatram, 5, Metcalfe Road, Delhi.

PATRONS

1. Shri G. D. Birla, Birla House, New Delhi.
2. Sir Sri Ram, 22, Curzon Road, New Delhi.
3. Shri M. S. Randhawa, Vice-President, Indian Council of Agricultural Research, Queen Victoria Road, New Delhi.
4. The Governor, Reserve Bank of India, Central Office, P.O. Box No. 406, Bombay.
5. The Director, Sir Dorabji Tata Trust, Bombay House, Bruce Street, Bombay.

MEMBERS OF THE SOCIETY

1. Shri T. P. Abraham, Statistician, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
2. *Shri O. P. Agrawal, Department of Statistics, Purdue University, Lafayette (Indiana), U.S.A.
3. *Shri V. N. Amble, Statistician, A.H., Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.

Denotes Life-Members of the Society.

4. Shri R. S. Asthana, Statistician, Department of Agriculture, U.P., 46, Sitla Prasad Road, Lucknow.
5. *Shri G. R. Ayachit, Regional Officer, National Sample Surveys, Cabinet Secretariat, 'B' Barracks, Janpath, New Delhi.
6. *Dr. R. R. Bahadur, Prof. of Statistics, Indian Statistical Institute, Calcutta.
7. Shri K. M. Bashir, Regional Officer, National Sample Surveys, No. 3, Kankannally Road, "Basavangudi", Bangalore-4.
8. *Shri S. D. Bokil, Statistician, Indian Central Sugarcane Committee, 19-20, Rohatak Road, Delhi.
9. Shri Rameshwar Calla, Senior Investigator, Central Statistical Organisation, 'B' Barracks, Janpath, New Delhi.
10. Shri R. M. Chatterjee, Department of Agriculture, U.P., Chhattar Manzil, Lucknow.
11. Shri H. K. Chawla, Investigator, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
12. Shri S. S. Chiney, Assistant Statistician, Department of Agriculture, Agricultural Research Institute, Bombay State, Nagpur.
13. Shri N. S. Choudhary, Assistant Director, Central Statistical Organisation, 'B' Barracks, Janpath, New Delhi-1.
14. Shri S. C. Choudhary, Deputy Economics and Statistical Adviser, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi.
15. Shri C. N. Dafal, Senior Statistical Assistant, Office of the Statistician, Department of Agriculture, Poona.
16. Shri Daroga Singh, Statistician, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
17. Shri M. N. Das, Statistician, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
18. *Shri B. N. Datar, Assistant Chief (Labour), Employment and Social Service Division, Planning Commission, New Delhi.
19. *Shri M. V. Divatia, Director, Bureau of Economics and Statistics, Finance Department, Hyderabad (A.P.).
20. Dr. J. P. Ecimovic, Sermazeva 3, Zagreb (Yugoslavia).
21. Prof. S. K. Ekambaram, 2961-A, Saraswathipuram, Mysore.

Denotes Life-Members of the Society.

22. Prof. D. R. Gadgil, Director, Gokhale Institute of Politics and Economics, Poona.
23. Shri T. R. Gupta, Senior Investigator, Central Statistical Organisation, 'B' Barracks, Janpath, New Delhi.
24. Mr. R. B. Hora, Department of Mathematics, University of Washington, Seattle, Washington.
25. Dr. V. S. Huzurbazar, Professor of Statistics, University of Poona, Poona.
26. *Dr. P. V. Krishna Iyer, Senior Scientific Officer (Stat.), Defence Science Organisation, N.P.L. Buildings, New Delhi-12.
27. Shri S. S. Iyer, Statistician, Government Sugarcane Research Station, Shahajahanpur, U.P.
28. *Dr. R. J. Kalamkar, Additional Agricultural Commissioner, Indian Council of Agricultural Research, Queen Victoria Road, New Delhi.
29. Shri Y. S. Kapse, Statistical Assistant, Institute of Plant Industry, Indore.
30. Prof. J. N. Kapur, "Narain Niketan", 11/3, Daryaganj, Delhi.
31. *Shri A. C. Kayastha, Statistical Assistant (I.C.A.R.), C/o. Statistician, Department of Agriculture, 455, Model Town, Ludhiana, Punjab.
32. *Dr. K. Kishen, Chief Statistician, Department of Agriculture, Chota Chhattar Manzil, Lucknow, U.P.
33. *H. S. Konijn, Esquire, Department of Economics, University of Sydney, Sydney, NSW, Australia.
34. *Shri R. S. Koshal, F.A.O., Statistical Expert, 7, Sharia Lazoghil, P.O. Box 22-23, Garden State, Cairo (Egypt).
35. *Prof. D. S. Koshambi, Tata Institute of Fundamental Research, Apollo Pier Road, Bombay.
36. Shri O. G. Kundalkar, Senior Statistical Assistant, Office of the Statistician, Department of Agriculture, Bombay State, Poona.
37. Dr. D. N. Lal, Head of the Department of Statistics, Patna University, Patna (Bihar).
38. *Shri D. Y. Lele, Deputy Director, National Sample Surveys, Gurdwara Road Hutments, New Delhi.
39. Shri Mahendra Nath, C/o. Shri Amar Nath, 8, Patel Chest Flats, Probyn Road, Delhi-8.

Denotes Life-Members of the Society.

40. *Shri Mahesh Chand, Lecturer in Economics and Statistics, 349, Katra, Allahabad, U.P.
41. Shri M. Malye, Agriculturist, Babyngton, 10, Kilpauk Garden Road, Madras.
42. *Prof. M. Masuyama, Institute of Physical Therapy and Internal Medicine, Tokyo University, Bunkyo-ku, Tokyo (Japan).
43. *Sir Chunilal B. Mehta, C/o. Chunilal B. Mehta & Co., 43, Mahatma Gandhi Road, Bombay.
44. Shri V. S. Menon, Research Officer, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi.
45. Shri V. N. Murthy, Statistician, Central Tobacco Research Institute, Rajahmundry.
46. Dr. U. S. Nair, Professor of Statistics, Statistical Laboratory, University of Travancore, Trivandrum.
47. *Dr. R. D. Narain, Chief, Sampling Section, F.A. Organisation of U.N., Viale delle Terme di Caracalla, Rome, Italy.
48. Prof. V. V. Narlikar, Head, Mathematics Department, Banaras Hindu University, Banaras.
49. Shri S. S. Narula, Investigator, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
50. Shri N. P. Natu, Office of the Soil Physicist, Government of Bombay, College of Agriculture, Poona.
51. *Shri G. M. Panchang, Central Water and Power Research Station, P.O. Box No. 18, Poona.
52. *Shri M. V. Pandit, "Laxmi Bhawan", 466, Sandhurst Road, Bombay.
53. Shri V. N. Pandit Rao, Senior Statistical Assistant, Office of the Statistician, Department of Agriculture, Bombay State, Poona.
54. *Dr. V. G. Panse, Statistical Adviser, Indian Council of Agricultural Research, Statistical Wing, Library Avenue, New Delhi-12.
55. Dr. V. N. Patankar, C/o. Ahmedabad Textile Industry's Research Association, Navarangpura, Ahmedabad.
56. Shri S. G. Patki, 371, Rasta Peth, Poona-2.
57. *Prof. G. S. Pirolkar, New India Assurance Company, Mahatma Gandhi Road, Bombay-1.

Denotes Life-Members of the Society.

58. Dr. R. N. Poduval, Deputy Economics and Statistical Adviser, Ministry of Agriculture, New Delhi.
59. Shri V. N. Poornapregna, Crop Statistician, Office of the Director of Statistics, Secunderabad (Hyderabad) (A.P.).
60. Dr. S. S. Prabhu, Indian Veterinary Research Institute, Izatnagar, U.P.
61. Shri R. Raghunathan, Statistician, National Sample Surveys, Cabinet Secretariat, 'B' Barracks, Janpath, New Delhi.
62. Shri G. S. Rajaraman, Statistician (Research), Indian Central Cotton Committee, Ballard Estate, Bombay.
63. Shri Ram Gopal, Regional Officer, National Sample Surveys, Cabinet Secretariat, 'B' Barracks, Janpath, New Delhi.
64. Dr. B. Ramamurti, Joint Director, Central Statistical Organisation, 'B' Barracks, Janpath, New Delhi.
65. Dr. L. A. Ramdas, Meteorological Observatory, Poona.
66. *Dr. C. R. Rao, Professor and Head of the Division of Theoretical Research and Training, I.S.I., 203, Barrackpore Trunk Road, Calcutta-35.
67. *Shri V. R. Rao, Deputy Director, National Sample Surveys, Cabinet Secretariat, Gurudwara Road Hutments, New Delhi.
68. Shri K. C. Raut, Assistant Statistician, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
69. Roe Goodman, Esqr., Agricultural Statistician (F.A.O.), C/o. Chief of Mission, Casilla 10095, Santiago de Chile (South America).
70. *Dr. A. R. Roy, Professor of Statistics, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.
71. Shri V. B. Sahasrabudhe, Assistant Statistician, Institute of Plant Industry, Indore.
72. Shri P. S. Sahota, Statistician, Department of Agriculture, Ludhiana, Punjab.
73. Shri A. N. Sankaran, Junior Scientific Officer (Statistics), Central Food Technological Research Institute, V.V. Mohalla P.O., Mysore.
74. Shri J. S. Sarma, Assistant Economics and Statistical Adviser, Ministry of Agriculture, New Delhi.

75. *Shri K. V. R. Sastry, Statistician, Food and Agricultural Organisation of the United Nations, Regional Office of the Near East, 7, Sharia Lazoghil, P.O. Box 22-23, Garden City, Cairo (Egypt).
76. *Dr. N. S. R. Sastry, Director of Statistics, Department of Statistics, Reserve Bank of India, Bombay.
77. Shri M. C. Satyanarayana, Assistant Statistician, Indian Coffee Board, P.O. Box No. 2, Bangalore.
78. Dr. P. N. Saxena, Statistician, Indian Agricultural Research Institute, Pusa, New Delhi.
79. Dr. A. R. Sen, Assistant Economics and Statistical Adviser, Directorate of E. & S., Ministry of Agriculture, New Delhi.
80. Dr. S. R. Sen, Economics and Statistical Adviser, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi.
81. *Dr. G. R. Seth, Deputy Statistical Adviser, Indian Council of Agricultural Research, Statistical Wing, Library Avenue, New Delhi-12.
82. Dr. N. G. Shabde, Principal, Vidarbha Mahavidyalaya, Amravati (Bombay).
83. Shri G. C. Shaligram, Statistical Assistant, Cotton Research Station, Nanded (Bombay).
84. Shri B. S. Seshagiri, Deputy Statistician, Civil Supplies Department, Secretariat, Bombay.
85. *Prof. Fairfield Smith, Institute of Statistics, Box No. 5457, Raleigh, North Carolina (U.S.A.).
86. Shri M. V. Sohoni, Amerchand Mansion, Block D-3, Second Floor, Mayo Road, Bombay-1.
87. Shri S. J. Somasundaram, Statistician, Department of Census and Statistics, Colombo, Ceylon.
88. Shri J. S. Srivastava, Research Officer, Indian Council of Agricultural Research, Queen Victoria Road, New Delhi.
89. Shri M. P. Srivastava, Deputy Director, Central Statistical Office, Darbhanga House, 25, Akbar Road, New Delhi.
90. *Dr. B. V. Sukhatme, Senior Statistician, Indian Council of Agricultural Research, Statistical Wing, New Delhi-12.

* Denotes Life-Members of the Society.

91. *Dr. P. V. Sukhatme, Chief, Statistical Branch, Economics Division, Food and Agricultural Organisation of the United Nations, Rome, Italy.
92. *Dr. S. Swaroop, Division of Health Statistics, W.H.O., Palais des Nations, Geneva (Switzerland).
93. Dr. Bhagwan Das Tikkiwal, Head, Department of Statistics, Karnatak University, Dharwar (Mysore).
94. *Prof. V. D. Thawani, Professor of Mathematics, Gauhati University, University Colony, Tribune, Gauhati (Assam).
95. *Sir Roger Thomas, Sind Land Development Company, Mirpur-Khas (Sind), Pakistan.
96. *Shri Jagendra B. Trivedi, Statistician, Waniawad, Bhuj-Kutch.
97. Shri Ujagar Singh Bawa, Research Officer, Health Division, Planning Commission, New Delhi.
98. *Dr. Uttam Chand, Professor of Statistics, Indian Council of Agricultural Research, Statistical Wing, Library Avenue, New Delhi-12.
99. Shri K. N. Vaswani, Senior Marketing Officer (Research), 'P' Block, New Delhi.
100. *Dr. Sundari Vaswani, Quality Control Unit, Indian Statistical Institute, Government of India Buildings, Queen's Road, Bombay.
101. *Prof. J. N. Warner, Head, Department of Dairy Technology, Allahabad Agricultural Institute, P.O. Agricultural Institute, Allahabad.
102. The Secretary, Ahmedabad Textile Industry's Research Association, Navarangpura, Ahmedabad.
103. The Chief Marketing Officer, Indian Coffee Board, Bangalore.
104. The Statistician, Department of Animal Husbandry, Mysore State, Bangalore.
105. The State Statistician for Mysore, New Public Offices, Bangalore.
106. The Department of Statistics, University of Bombay, Bombay.
107. The Assistant Secretary, Indian Central Cotton Committee, P.B. No. 1002, Bombay.
108. The Director, Bureau of Economics and Statistics, Government of Bombay, Second Floor, Secretariat (Ann.), Bombay-1.

* Denotes Life-Members of the Society.

109. The Librarian, Department of Research and Statistics, Reserve Bank of India, P.B. No. 1036, Bombay-1.
110. The Director, Central Rice Research Institute, Cuttack.
111. The President, Forest Research Institute, P.O. New Forest, Dehra Dun, U.P.
112. The Director, Institute of Plant Industry, Indore, M.P.
113. The Statistician, Department of Agriculture, Rajasthan, Jaipur.
114. The Director of Economics and Statistics, Government of Rajasthan, Directorate of Economics and Statistics, Jaipur.
115. The Director of Rubber Research Institute of Malaya, P.B. No. 150, Kuala-Lumpur (Malaya).
116. The Director of Economic Intelligence and Statistics, Economics and Statistics Department, Civil Secretariat, Lucknow.
117. The Hon. Librarian, Lucknow University Tagore Library, Lucknow.
118. The Director, Indian Veterinary Research Institute, Mukteshwar-Kumaun, U.P.
119. The Director of Statistics, Department of Statistics, Government of Madras, Fort St. George, Madras.
120. The Secretary, Indian Central Tobacco Committee, 14, Victoria Crescent Road, Egmore, Madras.
121. The Librarian, Indian Agricultural Research Institute, Pusa, New Delhi-12.
122. The Director, Central Waterpower, Irrigation and Navigation Research Station, Poona-1.
123. The Forest Statistician, Bombay State, Poona-1.
124. The Director, Sugarcane Research and Development, Bihar, Pusa.
125. The Statistician, Department of Land Records, M.P., Gwalior.
126. The Director of Statistics and Planning, Government of Saurashtra, Rajkot.
127. The Secretary, Indian Lac Cess Committee, Ranchi, Bihar.
128. The Horticulturist, Government Fruit Research Station, Saharanpur, U.P.
129. The Director of Statistics, Assam, Shillong.
130. The Registrar, Gauhati University, Assam, Gauhati.
131. The Librarian, Banaras Hindu University, Banaras.

APPENDIX II

List of Publications Received in Exchange for the Society's Journal.

Biometrics

Vol. 6, (1950), Nos. 1 to 4.

Vol. 7, (1951), Nos. 1 to 4.

Vol. 8, (1952), Nos. 1 to 4.

Vol. 9, (1953), Nos. 1 to 4.

Vol. 10, (1954), Nos. 1 to 4.

Vol. 11, (1955), Nos. 1 to 4.

Vol. 12, (1956), No. 3.

Indian National Scientific Documentation Centre List

Vol. 2, No. 1, 1st January 1955.

Vol. 2, Nos. 1 to 24, from January to 31st December 1955
(two issues per month).

Vol. 3, Nos. 1 to 24, from 1st January to 31st December 1956.

Vol. 4, Nos. 1 to 10, from 1st January to May 1957.

Insdoc Reports for 1954-55 and 1955-56.

Główny Urząd Statystyczny, Warszawa, Poland

Study and Practise of Statistics, Vol. 1, Nos. 1 to 4 (1950); Vol. 2,
Nos. 1 to 3 (1951).

Rocznik Statystyczny, 1955, (Vol. 15); 1956, (Vol. 16).

Biuletyn Statystyczny 1957, (Vol. 1)

Institute of Statistical Mathematics, Tokyo, Japan

Proceedings

Vol. 1, Nos. 1 & 2, (1953).

Vol. 2, Nos. 1 & 2, (1954).

Vol. 3, Nos. 1 & 2, (1955).

Vol. 4, Nos. 1 & 2, (1956).

Annals of the Institute of Statistical Mathematics

Vol. 7, No. 2, (1956).

Bulletin of Mathematical Statistics, Research Association of Statistical Sciences, Fukoka, Japan

Vol. 4, Nos. 1 to 2, (December 1950).

Vol. 5, Nos. 1 to 2, (September 1952).

Vol. 5, Nos. 3 to 4, (June 1953).

Vol. 6, Nos. 1 to 2, (December 1955).

Vol. 6, Nos. 3 to 4, (March 1956).

Publications of the Mathematical Institute of the Hungarian Academy of Sciences.

Vol. 1, F.A.S.C. -1-2 (1956) Budapest

Academy of Sciences of U.S.S.R., Moscow

I. *Journal of the Institute of Polytechnic and Scientific Knowledge*

Series V, Nos. 10 to 36, (1955).

Series V, Nos. 1 to 15, (1956).

Series V, Nos. 17 to 20, (1956).

Series V, Nos. 21 to 23, (1956).

Series V, Nos. 24 to 36, (1956).

II. *Bulletin of Academy of Sciences of U.S.S.R., Series Mathematics*

Vol. 19, Nos. 1 to 6, (1955).

Vol. 20, Nos. 2 to 4, (1956).

Vol. 20, Nos. 5 to 6, (1956).

Vol. 21, No. 1, (1957).

III. *Achievements of Mathematical Sciences*

Vol. X, Edition 1 (63) to 4 (66), (1955).

Vol. XI, Edition 1 (67) to 4 (70), (1956); 5 (71) to 6 (72), (1956).

Vol. XII, Edition 1 (73), (1957).

IV. *Mathematical Records, New Series*

Vol. 36 (78), 1 to 3, January to June 1955.

Vol. 37 (79), 1 to 3, July to August and November to December 1955.

Vol. 38 (80), 1 to 4, January to April 1956.

Vol. 39 (81), 1 to 4, May to August 1956.

Vol. 40 (82), 1 to 2, 1956.

Vol. 41 (83), 1, 1957.

Special Publications: List of 13 Books (*vide* attached list).

Political Economics.

Tables of Integrals of Sine and Cosine.

Annales Universitatis Mariae Curie Skoldoswki, Lublin, Poland

Vol. V, (1951), Section A, Mathematics.

Vol. VI, (1952).

Vol. VII, (1953).

Vol. VIII, (1954).

Scientific Publication of South-East Asia UNESCO, Delhi.

Name Index to issues 1 to 4, (1949-50):

Bibliography: No. 7, January to June 1952.

No. 8, July to December 1952.

No. 9, January to June 1953.

No. 10, July to December 1953.

No. 11, January to June 1954.

South Asia Social Science Abstract for 1953 & 1954.

Social Science Bibliography (India) for 1953-54.

Bibliography of Scientific Publication of South and South-East Asia, Vol. 2, No. 3, (October 1956); Vol. 2, No. 4, (January 1957).

LIST OF 13 RUSSIAN BOOKS (TITLES IN ENGLISH)

1. Tagiyev, G. .. *State Insurance in the U.S.S.R., 1953, pp. 95.*
2. Glotov, I. .. *The Material Interests of the Collective Farms, the Collective Farmers and Workers of the Motor Tractor Stations, 1954, pp. 88.*
3. Anisimov, N. .. *The Growth of Agriculture in the Fifth Five-Year Plan, 1953, pp. 215.*
4. Pod'yachikh, P. G. .. *The All-Union Population Census of 1939, 1953, pp. 148.*
5. Menzhinski, E. A., Solodkin, R. G. and Shershnev, E. S. .. *Contemporary International Trade of the Capitalist Camp, 1954, pp. 111.*
6. Notkin, N. I. .. *Problems of the Determination of the Economic Effectiveness of Capital Investments in the Industry of the U.S.S.R., 1953, pp. 112.*

7. Eidelman, M. R. .. *Statistics of Material-Technical Supply*, 1953, pp. 224.
8. Frei, L. I. .. *International Calculations and Financing of Foreign Trade in Capitalist Countries*, 1954, pp. 338.
9. Prof. Rubinstein, G. L.,
Gogol, B. I., Kulikov,
A. G. and Moskvina, V. I. .. *Economics of Soviet Trade* (Editing by Prof. M. M. Lifitz, 1950, pp. 568.
10. Trakhtenberg, Acad. I. A. .. *The Credit-Monetary System of Capitalism after World War II*, 1954, pp. 188.
11. Gozulov, A. I. .. *Statistics of Economics*, 1953, pp. 539.
12. Lyapunov, Acad. A. M. .. *Collected Works*, (Mathematician, Geometry), 1954, Vol. I, pp. 448.
13. Bernstein, C. N. .. *Collected Works* (Mathematician, Constructive Theory of Functions), 1954, Vol. II, pp. 628.

