



TWENTY - SECOND
**ANNUAL
REPORT**
APRIL 1968 - MARCH 1969

INDIAN STANDARDS INSTITUTION

Manak Bhavan

9 Bahadur Shah Zafar Marg, New Delhi I

THIS REPORT WILL BE PRESENTED BY THE EXECUTIVE COMMITTEE
TO THE GENERAL COUNCIL OF ISI AT ITS NEXT ANNUAL MEETING

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ACKNOWLEDGEMENT

Indian Standards Institution takes the opportunity of expressing its deep appreciation for the specialized technical assistance and financial support received during the year under review from the ever-growing circle of its members, and other individuals and organizations interested in its work, whose valuable contributions have made ISI what it is today.

The pattern of this growing co-operative activity is an index of the all-round realization that through standardization lies the road to industrial progress and trade efficiency, ultimately leading to economic advancement of the country.

Encouraged by the faith reposed in, and conscious of the expectations from it, the Institution looks forward, with confidence, to the future of its working in progressive partnership with interests representing industry, trade and commerce; research, science and technology; Government; consumers and purchasers.

PART I

GENERAL REVIEW

The end of the year 1968-69 marks the successful completion of 22 years of Indian Standards Institution in the service of industrial development of the country. During the period, the Institution made concerted efforts for the promotion of standardization and quality control in different sectors of economy through its multifarious activities, including preparation and promotion of Indian Standards, development of ISI Certification Marks Scheme, promotion of in-plant standardization activity, training of standards engineers and creation of quality consciousness.

During the year 1968-69, all-round progress was maintained in the activities of the Institution. In the field of standardization, side by side with the preparation of new Indian Standards, greater emphasis was laid on consolidating the achievements already made with an intensive drive for implementation of standards. 285 more licences were issued under the ISI Certification Marks Scheme, and goods of the total annual production value of Rs 4 200 million (approx) were brought under the purview of the Scheme. Many new items of consumption and general interest were covered by the Scheme. The ISI Laboratory facilities were developed further to cope with testing work at the Headquarters and at Bombay, Calcutta and Madras Branch Offices.

The Twelfth Indian Standards Convention was held at Bhubaneswar, providing a forum for scientists, technologists, manufacturers, policy-makers, purchasers and consumers. A number of subjects of topical interest relating to standardization and industrial development were discussed at the Convention.

Many Indian Standards were adopted by manufacturing and purchase organizations, both in public and private sectors, departments of Central and State Governments as well as local bodies. The Committee on Public

Undertakings of the Lok Sabha recommended that in order to develop the indigenous industry for raw materials, spares and components, plant and machinery, etc, efforts should be made to rationalize the specifications to bring them in line with the available Indian Standards.

For providing training in standardization methods and techniques to promote in-plant standardization practices in Indian industries, training and survey programmes were conducted in Madras and Calcutta.

The Institution provided facilities for training of technical personnel from the developing countries of Asia and Africa. The Centralized Training Programme for the year 1968 was attended by participants from Philippines and Thailand while in the programme beginning from January 1969 there were participants from UAR, Burma, Philippines, Aden and Ceylon.

The Institution participated actively in the work of standardization at international level and rendered assistance to the neighbouring countries in the establishment and promotion of standards activity.

The twenty-fourth meeting of General Council of the Institution was held on 28 March 1969 under the Chairmanship of Shri Fakhruddin Ali Ahmed, Union Minister for Industrial Development, Internal Trade and Company Affairs, and President of ISI. Shri Jehangir J. Ghandy and Shri Keshub Mahindra were elected Vice-Presidents of ISI for a period of one year ending 31 March 1970. The Executive and Finance Committees held 5 and 4 meetings respectively during the year.

Standards Published — During the year under report, 583 new standards were sent to press, against the corresponding figure of 635 for the previous year. Besides, 23 existing standards were withdrawn. With the number of Indian Standards in force, including those under print but excluding those withdrawn on 31 March 1968 being 4 564, the total number of Indian Standards in force including those under print on 31 March 1969 was 5 124.

The Institution also issued, during the year under report, 147 revisions of existing standards in addition to 583 new standards, bringing the total number of Indian Standards issued during the year 1968-69 to 730 against the corresponding figure of 794 for the previous year.

For formulation of Indian Standards, 1 798 technical committees with a membership of 22 138 experts were at work during the year 1968-69.

ISI Certification Marks Scheme — The ISI Certification Marks Scheme has been making steady and significant progress for the protection of consumer interest and for ensuring the production of goods in conformity with relevant Indian Standards. More and more products have been brought under the purview of the Scheme for use both in the internal and export markets.

Progress of Work — Started in 1955-56, the ISI Certification Marks Scheme has registered considerable progress in 13 years of its operation, as seen from the details given below:

	<i>During Year Ended</i>	
	<i>31 March 1969</i>	<i>31 March 1968</i>
a) New licences granted during the year	285	242
b) Total number of licences issued since the inception of the Scheme	1 950	1 665
c) Applications received during the year for grant of licences	476	563
d) Total number of applications received since the inception of the Scheme	3 942	3 466
e) Annual value of goods covered under the Scheme	Rs 4 200 million (Approx)	Rs 3 800 million (Approx)

Thirty-seven new products were brought under the Scheme of which particular mention may be made of dinnerware, domestic gas stoves for use with liquefied petroleum gases, hexane (food grade), ice-cream, cricket bats, cricket and hockey balls, distempers, industrial safety helmets and steel plates for boilers.

The progress of the Scheme since 1955-56 is graphically represented in Fig. 1.

The gap between the applications received and the licences granted has increased through the years. This is owing to the fact that more and more applications are from the small-scale and medium-scale industries, many of which ultimately do not find it possible to procure the necessary testing equipment or provide for other in-process quality control measures without which no licence can be granted. Therefore, some applications are closed owing to the non-fulfilment of technical requirements. However, other applications considered hopeful are kept pending as efforts continue to be made to encourage the manufacturers to provide the necessary facilities to produce goods in conformity with the relevant Indian Standards.

Some of the products in organized industrial sector have been almost completely covered under the ISI Certification Marks Scheme. Such products include pesticides, biscuits, cables and conductors, steel and steel products, jute and jute products, tea-chest plywood, etc.

Amendments to ISI (Certification Marks) Regulations, 1955 — With the prior approval of the Government of India, the Institution notified amendments to Regulation 7 of the ISI (Certification Marks) Regulations, 1955,

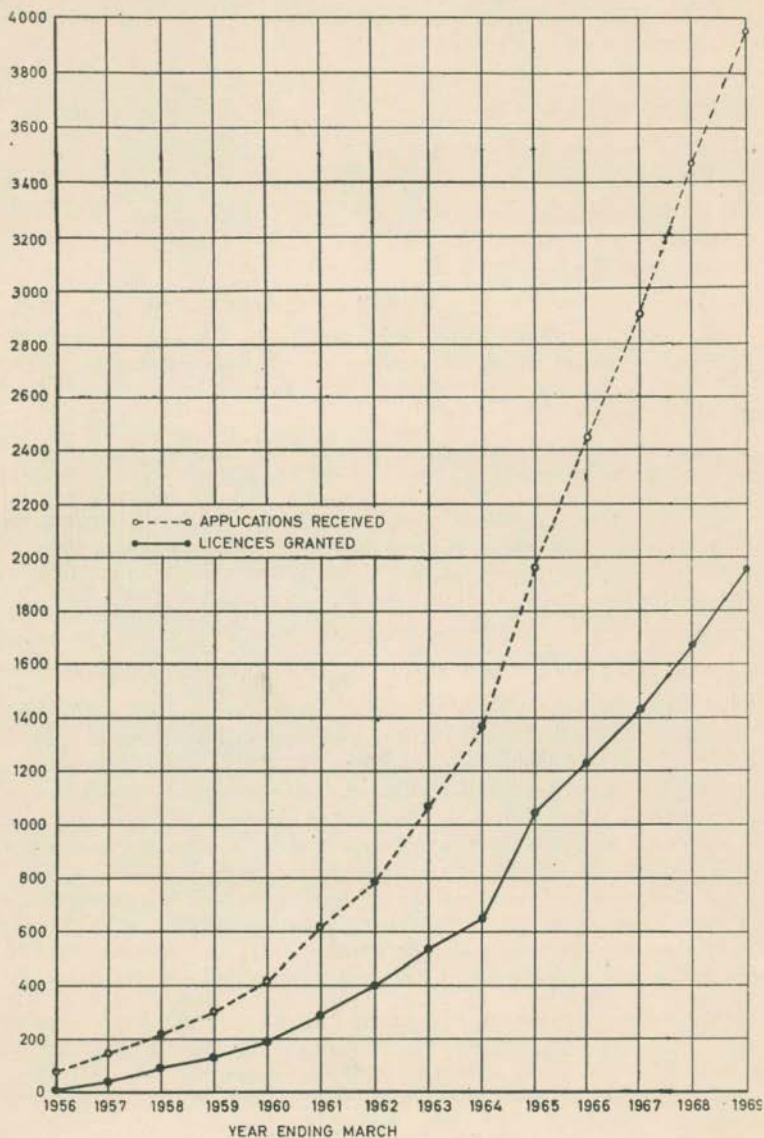


FIG. 1 PROGRESS OF ISI CERTIFICATION MARKS SCHEME

as amended in 1962, 1964 and 1966, resulting in the revision of application, licence and renewal application fees as follows:

	<i>Original Rates</i>	<i>Revised Rates</i>
Application Fee	Rs 50 ⁰⁰	Rs 100 ⁰⁰
Licence Fee	Rs 100 ⁰⁰	Rs 200 ⁰⁰
Renewal Application Fee	Rs 25 ⁰⁰	Rs 50 ⁰⁰

ISI Mark for Export — Use of ISI Mark on hessian bags, meant for export, has also been made obligatory by the Government of India, under the Export (Quality Control & Inspection) Act, 1963.

Cables and conductors valued at Rs 13 717 000.⁰⁰ approximately were certified as export-worthy by the Institution during the period under review.

Recognition to ISI Mark — In addition to the existing orders of the Central and a number of State Governments recommending to their purchase organizations to give preference to ISI marked products, wherever available, the following organizations recognized the ISI Mark:

- a) Madras Industrial Corporation Ltd have resolved that manufacturers requesting for financial assistance from the Corporation should follow Indian Standards and take up ISI Certification Mark for their products, wherever feasible.
- b) The Municipal Corporation of Madras has decided to give preference to ISI marked disinfectant fluid in its purchase programmes.
- c) Neyveli Lignite Corporation Ltd have decided to give preference to ISI marked goods, wherever available.
- d) The Public Works Department, West Bengal, have agreed to give preference to ISI marked goods, especially building material.

Modifications of Indian Standards — The Director General, ISI, in exercise of the powers conferred on him under Sub-regulation (4) of Regulation 3 of the ISI (Certification Marks) Regulations, 1955, tentatively modified some of the provisions of the following Indian Standards:

- a) IS : 10-1964 Plywood tea-chests
- b) IS : 277-1962 Galvanized steel sheets (plain and corrugated)
- c) IS : 779E-1968 Water meters (domestic type)
- d) IS : 1989-1967 Miners' safety leather boots
- e) IS : 2567-1963 Malathion emulsifiable concentrates
- f) IS : 3989-1967 Centrifugally cast (spun) iron spigot and socket soil, waste and ventilating pipes

Recognition to Another Standard as Indian Standard — The Director General, ISI, in exercise of the powers conferred on him under Sub-regulation (3)

of Regulation 3(a) of the ISI (Certification Marks) Regulations, 1955, tentatively recognized Japan Industrial Standard B 6157:1961 as IS : 4816-1968 Specification for permanent magnetic chucks.

Competent Authority — The Central Government, in consultation with the Institution, appointed the following organizations as competent authorities for inspection, testing and certification of various products on behalf of ISI:

<i>Sl No.</i>	<i>Name of Organization</i>	<i>Products</i>	<i>Area</i>
1.	The Director of Cottage and Small Scale Industries (West Bengal)	i) Locks ii) Cutlery iii) Sports goods iv) Leather (Foot-wear) v) Silk woven fabrics	State of West Bengal
	<i>Vice</i> The Additional Director of Industries (West Bengal)	vi) Printed textiles vii) Inks viii) Builder's hardware	
2.	The Director, Central Mining Research Station (CMRS), (Council of Scientific and Industrial Research)	Flameproof electrical equipment	India
3.	Director of Industries, Government of Haryana	i) Laboratory apparatus ii) Precision and electrical instruments	State of Haryana

Recognition to Testing Laboratory — The Central Machine Tool Institute, Tumkur Road, Bangalore, has been approved for testing samples of iron, steel and steel products under the ISI Certification Marks Scheme.

ISI Laboratory — The Laboratory completes seven years of its operation. It is at present equipped to carry out tests on a wide variety of products covering over 350 specifications and relating to electrical, mechanical, chemical and agricultural industries.

Expansion of Laboratory Facilities — During the year under review, following important equipment was installed in ISI Laboratory for testing products:

- a) Mico hardness tester
- b) Electronic moisture meter
- c) Rubber hardness tester

- d) Dead weight type pressure gauge tester
- e) Melt flow index apparatus
- f) Short-circuit making capacity test apparatus for normal air-break switches — This was designed and fabricated by staff of ISI Laboratory.

The testing capacity of Headquarters Laboratory has increased considerably and during the period 33 new specifications were covered including the following:

- a) IS : 739-1966 Wrought aluminium and aluminium alloys, wire (for general engineering purposes)
- b) IS : 934-1967 Portable fire extinguisher, soda acid type
- c) IS : 2187-1962 Worsted socks
- d) IS : 2509-1963 Rigid non-metallic conduits for electrical installations
- e) IS : 3131-1965 Musk ambrette
- f) IS : 3901-1966 Ziram water dispersible powder

Laboratories in Branch Offices — An important event worthy of report that took place during the year is that the laboratories set up at Madras and Calcutta Branch Offices started functioning. The Laboratory at Bombay is expected to start functioning soon. Most of the equipment for these laboratories has already been purchased. These laboratories will undertake testing work in the respective regions. The laboratory at Madras has started testing pesticide samples and will soon undertake testing of cables and other items while the laboratory at Calcutta is concerned with the major testing work in connection with jute products and hessian in addition to testing of conductors, tea-chest fittings, etc.

Progress of Work — Considerable work was done at Headquarters as well as Branch Office laboratories as per details given below:

	<i>During</i> 1968-69	<i>During</i> 1967-68	<i>Since Setting</i> <i>up of Lab.</i>
a) Samples received	5 494	3 853	19 903
b) Samples tested	4 988	3 907	18 856
c) Specifications covered	33	9	355
d) Value of testing work done	Rs 5 04 342·00	3 96 468·00	1 797 965·60

Progress of the work done in ISI Laboratory since its inception is graphically represented in Fig. 2.

Investigational Work — In addition to the testing work done, a number of investigational problems referred to the Laboratory by the technical

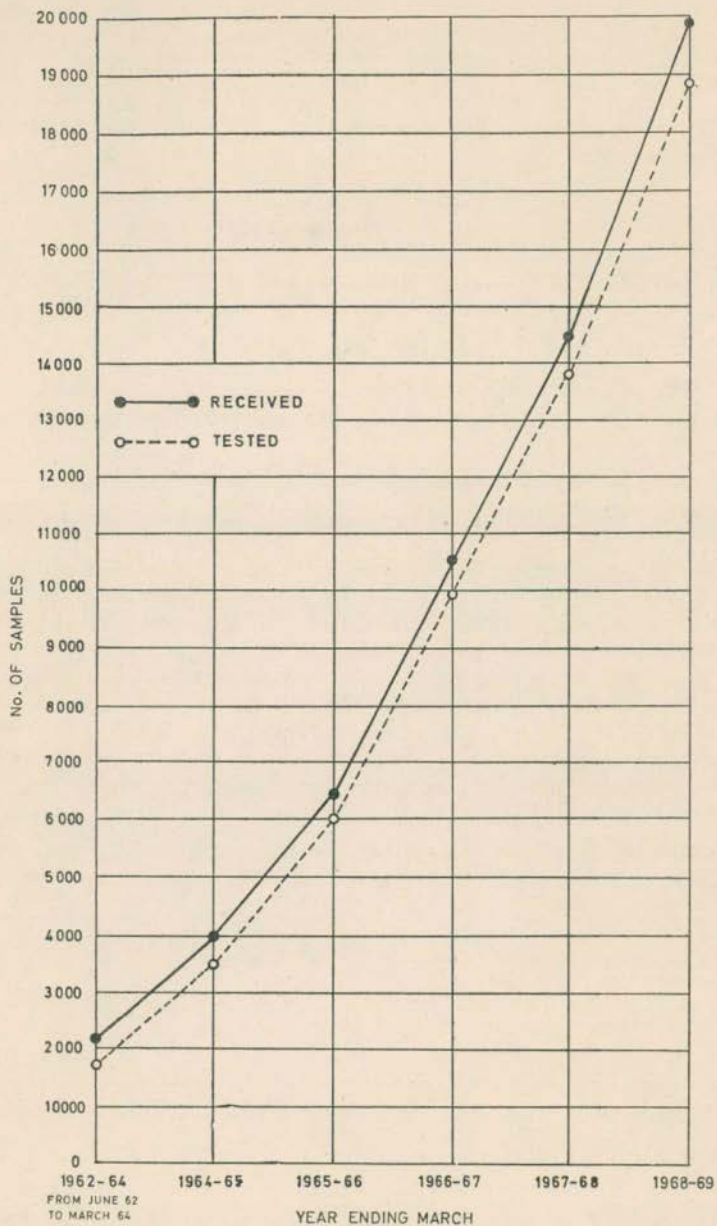


FIG. 2 PROGRESS OF TESTING IN ISI LABORATORY

divisions and those arising out of testing work in the Laboratory were taken up. During the period under review, the Laboratory took up 21 such problems of which 20 were completed. Special mention may be made of the following:

- a) Adulteration of pesticides,
- b) Comparative study for the determination of hydroquinone content in hydroquinone photographic grade,
- c) Effect of humidity and weight on PVC lined drawing board,
- d) Comparison of tensile strength and bend test performance of ordinary mild steel bars with mild steel deformed bars,
- e) Physical properties of glass-fibre based roofing felt,
- f) Insulation resistance of jars for cells, and
- g) Thermal endurance test under accelerated temperature on fluorescent ballasts.

Training of Personnel in ISI Laboratory — With the object of helping State Governments and licensees under the ISI Certification Marks Scheme in testing products in accordance with the Scheme, ten persons were trained (three from State Governments and seven from licensees) in the testing of pesticides and cables in ISI Laboratory during the period under review.

Implementation of Indian Standards

Adoption of Indian Standards — Implementation of Indian Standards in industrial and commercial practices of the country continued to receive attention during the period under review. To pursue systematically the various possible lines of approach and to assess the success of such approaches, a constant vigil was kept by the Implementation Department to ensure that decisions regarding implementation of Indian Standards taken by the Central and various State Governments were carried out. As a result, 79 per cent of Indian Standards were adopted by various departments of Government of India and industries.

Recommendations on Implementation of Indian Standards

- a) Committee on Public Undertakings in its thirteenth report (Third Lok Sabha) on Management and Administration of Public Undertakings, have observed that in order to develop manufacturing facilities for raw materials, spares and components, plant and machinery, etc, efforts should be made to rationalize the specifications, wherever possible, to bring them in line with the available Indian Standards. Further, the Committee have stressed in this connection that the Planning and Development units set up in various projects should take concerted steps to evolve standards whenever possible, and give them wide publicity.

Accordingly, the above-mentioned recommendations were brought to the notice of the chairmen, management directors, and chief managers of all Public Sector Undertakings, by the Ministry of Industrial Development and Company Affairs, for their implementation.

- b) The actions taken by different organizations on implementation of certain important Indian Standards are summarized below:

<i>Indian Standards</i>	<i>Organization(s)</i>	<i>Action</i>
i) Fire Fighting Equipment	The Chief Officer (Fire), Municipal Corporation, Ahmedabad; Fire Adviser to the Ministry of Defence, Govt. of India; Chief Fire Officer, UP, Lucknow; Chief Fire Officer, Mysore, Bangalore; and Controller of Aerodromes, Calcutta Region	Intimated ISI that Indian Standards on fire fighting equipment are already being used by them for their requirements.
ii) Laboratory Glassware	Directorate of Education, Delhi Administration, Delhi and Director of Public Instruction, Orissa	Directorate of Education, Delhi Administration, Delhi and Director of Public Instruction, Orissa have brought to the notice of all concerned the desirability of purchasing laboratory glassware according to Indian Standards.
iii) Clay Products for Buildings	Chief Engineer, PWD, Haryana Government	The Chief Engineer, PWD, Haryana Government has issued instructions to various Superintending Engineers, for adoption of these standards.
iv) Marine Engineering and Ship Building	Commissioners for the Port of Calcutta	The Chief Mechanical Engineer of the Commissioners for the Port of Calcutta has informed that some of the Indian Standards on the subject are already being followed in testing anchors. Further, their construction department has been advised about the availability of various standards so that in future they may be used in drafting their departmental specifications.
v) IS: 1064-1961 Paper Sizes	Chief Controller of Printing and Stationery	Chief Controller of Printing and Stationery has decided that in future, all D.O. letter-heads to be used by the Central Government offices shall be printed in three standard metric sizes, namely, A-4, A-5 and A-6.

List of Manufacturers Operating to Indian Standards — As an aid to implementation, 18 enquiries covering 421 Indian Standards on various items were issued, with a view to preparing a list of manufacturers claiming to produce goods according to Indian Standards. The claimants, some of whom responded favourably, were also asked to join ISI Certification Marks Scheme. Information collected as a result of such enquiries is made available to all those who approach ISI for assistance in procuring standard quality goods.

Adoption by Purchasers and Consumers — For ensuring the adoption of Indian Standards, 12 enquiries relating to various items covering 184 Indian Standards, Codes of Practice, methods of tests, etc, were sent to different purchasers and consumers.

Review of Tender Enquiries — Tender enquiries issued by various organizations and departments were scrutinized and their attention was drawn to relevant Indian Standards for adoption. The response has usually been favourable.

Company Standardization

ISI Company Standardization Programmes — For providing training in standardization methods and techniques to promote and develop organized in-plant standardization practices in Indian industries, the following programmes were organized during the period under review:

Function	Venue & Period	Organized by/ Sponsored by	Attended by	
			Participants	Organizations
a) Training Programme	Madras 9 & 10 August 1968	Sponsored jointly by Institute of Standards Engineers (SEI) Madras Section, ISI and Madras Productivity Council	35	24
b) Survey-cum-Training Programme	Calcutta 27 March to 13 June 1969	Engineering Association of India, Calcutta in Collaboration with ISI	16	11

The Briefing Session of the Calcutta Programme concluded on 29 March 1969, and the participants went back to their respective organizations for conducting in-plant survey for a period of 11 weeks. They would assemble again at Calcutta for the Review Session to be held on 12 and 13 June 1969.

Since the start of the company standardization promotional efforts six years ago, 25 programmes have been conducted in which 638 technical personnel from 479 organizations both from public and private sectors have participated.

Company Standardization Seminar — The Engineering Association of India (EAI) organized on the occasion of the Silver Jubilee Celebrations, the third All-India Engineering Conference at Calcutta in November 1968,

which included a Seminar on 'The Role of Company Standardization in Engineering Industry'.

Papers received from different authors including the one from ISI on 'Growth of Company Standardization in Indian Industry' were contributed to the Seminar. The Seminar discussed many points relating to economic benefits of Company Standardization, role of the activity in fighting industrial recession, the need for management's support, and the mechanism of organizing the Company Standardization in an industrial unit.

The Seminar recommended the establishment of a Standards Subcommittee of the Engineering Association of India to (a) initiate formulation of Association standards, wherever possible, (b) formulate the views of the Association on draft Indian Standards and other matters pertaining to standardization, and (c) undertake study/survey for wider adoption of company standardization practice. It was also recommended that the facilities of the Indian Standards Institution for training and providing consultation service in company standardization should be freely utilized.

Training of Standards Engineers for Developing Countries

The Institution has been organizing for a number of years intensive and extensive training, to overcome the shortage of experienced standards engineers for service at different levels in the country. To help the developing countries in Asia and Africa facing similar problem, the training facilities were extended to them and a number of countries have been able to depute nominees to these courses. From 1968, ISI has offered the following types of training to the developing countries on a regular basis:

- a) Centralized training in ISI; and
- b) Assistance in organizing training in developing countries.

The centralized training in ISI is for a duration of 15 weeks and is so designed that the participants acquire knowledge of principles and methodology of standardization through actually working in the Headquarters of the Institution. Visits to industrial units are also organized to acquaint the participants with company standardization and certification marking. In the other type of training programme, ISI has offered to depute some of its senior officers for a period of three months to assist the developing countries in training the personnel of their national standards bodies and of industries according to their requirements.

The 1968 centralized training programme was held from 1 April to 13 July 1968 and was attended by two participants from Philippines and one from Thailand. For 1969, the centralized training programme commenced on 20 January 1969 and will conclude on 2 May 1969. Nine participants from UAR, Burma, Philippines, Aden and Ceylon are attending the programme.

Library and Information Services—The Libraries of the Institution at the Headquarters and in the Branch Offices continued to provide services for scientific and technical information on standardization and related subjects. Arrangements have been made to keep a complete set of British Standards and English translation of DIN Standards in Hyderabad Branch Office. The US Department of Transportation, Federal Aviation Administration has agreed to supply their publications as *gratis*. The Library at the Headquarters now contains over 188 735 standards and specifications, technical publications, pamphlets, and reports. New publications accessioned and processed during the year were 12 818; nearly 504 current periodicals are being received in the Library; and ninety-four bibliographies were prepared. Information services provided by the Library were widely used by the industry and trade. More than 1 500 readers visited the Library besides ISI technical personnel. Over 44 000 publications were loaned out or consulted in the Library.

The following monthly lists were brought out regularly as part of documentation service: Additions to ISI Library—Part I—Overseas standards; Part II—Books and pamphlets; Part III—Selective list of current published information; and list of Commonwealth Standards and draft standards received in the Library. (Appeared in *ISI Bulletin*)

A special 3-day Training Programme for Procurement, Storage and Retrieval of Standards and Specifications was organized from 14 to 16 October, 1968 in ISI Library. The programme was attended by 48 Librarians, Documentalists and Information Scientists from all over India representing Government departments, public undertakings and industrial organizations. The objectives of the programme were to promote understanding of national and international standardization activities and to provide guidance in organizing the collection of standards and specifications in technical libraries and retrieval of information contained therein.

Membership—The subscribing membership of the Institution increased from 3 740 as on 31 March 1968 to 3 773 as on 31 March 1969. Detailed information on the categories of membership is given in Table 1.

The revenue obtained from Subscribing Members during the year 1968-69 amounted to Rs 1.73 million as against the corresponding figure of Rs 1.61 million during the year 1967-68.

Graphic representation of the position of Subscribing Membership since 1951 is given in Fig. 3.

Public Relations—Being a large co-operative organization in the country, the Institution works through committee system for the formulation of Indian Standards and brings about their implementation through persuasive methods. Since its inception, the Institution has, therefore, been well conscious of the importance of public relations and publicity activities for furtherance of standards movement among different sectors of economy

TABLE 1 MEMBERSHIP ANALYSIS (1968-69)

(As on 31 March 1969)

CLASS OF MEMBER-SHIP	NUMBER OF MEMBERS ON		LOSSES DUE TO			ADDITIONS BY			NET GAIN/LOSS
	1 Apr 1968	31 Mar 1969	Resignation	Lapsing	Total	Admission	Reinstatement	Total	
Patrons	2	3	—	—	—	1	—	1	+1
Donor Members	24	30	—	15	15	7	14	21	+6
Sustaining Members	1 992	1 967	116	259	375	145	205	350	-25
Associate Members	1 335	1 453	108	291	399	336	181	517	+118
Individual Members	387	320	25	136	161	49	45	94	-67
Total	3 740	3 773	249	701	950	538	445	983	+33

throughout the country. During the year under review, different media of publicity were utilized for publicising ISI activities, propagation of ISI Certification Marks Scheme and creation of standards and quality consciousness.

Publicity

- a) *Press Notes* — Press Notes were issued both to technical and daily press on Indian Standards published and draft Indian Standards put into wide circulation as well as on other important activities of ISI. During the year under review, 1 245 press notes were issued.
- b) *Press Advertising* — To focus the attention of the public on the importance of ISI Certification Marks Scheme in its relation to consumers and manufacturers and to inform them about the advantages of ISI certified products, an advertising campaign was carried out in English press.
- c) *Press Conferences and Press Interviews* — Press Conferences and press interviews were held to highlight important activities of ISI on different occasions including Indian Standards Conventions and other important conferences.

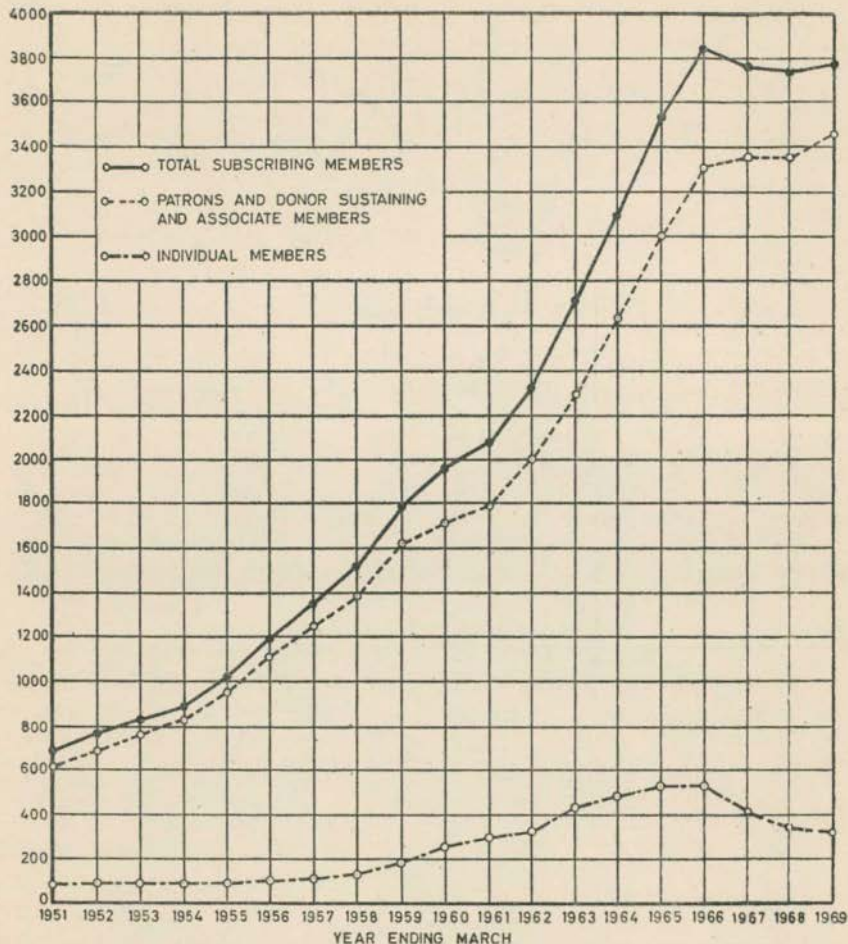


FIG. 3 ISI SUBSCRIBING MEMBERSHIP THROUGH THE YEAR

- d) *Talks and Lectures* — Talks and lectures on the importance of standardization and the activities of ISI were delivered by ISI officers at important gatherings at several places.
- e) *Articles, Reviews, Write-ups, etc* — A number of articles, features, reviews and write-ups were contributed to newspapers, journals, souvenirs, reference publications, etc, on different aspects of standardization and activities of ISI.

f) *Exhibitions* — ISI participated in a number of exhibitions held in various parts of the country as per details given below :

<i>Sl No.</i>	<i>Name of the Exhibition</i>	<i>Organized by</i>	<i>Place</i>	<i>Period</i>
1.	Panorama of Progress	Union Ministry of Commerce	New Delhi	1 Feb-14 Apr 1968
2.	Veterinary Exhibition	XVIII Veterinary Conference	Hyderabad	3-8 June 1968
3.	Small-Scale Automobile Ancillary Products	Development Commissioner, Small-Scale Industries	New Delhi	30 Aug-3 Sep 1968
4.	Indian Roads Congress Exhibition	Indian Roads Congress	Bombay	2-17 Nov 1968
5.	All-India Industrial Exhibition	Exhibition Society	Hyderabad	1 Jan-10 Feb 1969
6.	Indian Leather Fair, 1969	Central Leather Research Institute	Madras	31 Jan-6 Feb 1969
7.	Home Science Exhibition	Punjab Agricultural University	Ludhiana	14-22 Mar 1969
8.	Science & Technology Fair	Delhi College of Engineering	Delhi	21-25 Feb 1969
9.	Congress Exhibition, 1969	—	Bangalore	12 Mar 1969

g) *Literature* — The following publicity literature was brought out in English and distributed on important occasions :

- 1) Indian Standards Institution — the National Standards Organization of India
- 2) Subscribing Membership
- 3) Indian Standards for Leather Industry
- 4) Are You Looking For? (for small-scale sector)

h) *Radio Broadcasts, Features and Interviews* — With the object of informing the public at large about the importance of the work done by ISI, the Institution has been broadcasting programmes from different stations of All-India Radio in English and regional languages. During the year under review, programmes as per details given below were broadcast :

<i>Sl No.</i>	<i>Date</i>	<i>Subject</i>	<i>Broadcast by</i>	<i>Station</i>	<i>Language</i>
1.	29.5.68	Indian Standards Institution	Feature in Urdu Majlis	New Delhi	English with Urdu rendering
2.	12.9.68	Mankikaran Aur Nir-yat	Dr R. B. Mathur, Assistant Director, ISI Branch Office, Kanpur	Lucknow	Hindi

<i>Sl No</i>	<i>Date</i>	<i>Subject</i>	<i>Broadcast by</i>	<i>Station</i>	<i>Language</i>
3.	13.12.68	Twelfth Indian Standards Convention	Interview with Dr A. N. Ghosh, Director General, ISI	Cuttack	English
4.	14.12.68	Indian Standards Institution — History & functions	Feature	Cuttack	Oriya
5.	15.12.68	Indian Standards	Shri Anant Mahapatra	Cuttack	Oriya
6.	16.12.68	Inaugural Function of the Twelfth Indian Standards Convention	Regional Newsreel (Samachar Darpan)	Cuttack	Oriya
7.	17.12.68	Role of ISI in relation to consumers and manufacturers	Group Discussion	Cuttack	Oriya
8.	19.12.68	Twelfth Indian Standards Convention	Feature	Cuttack	Oriya
9.	21.12.68	Twelfth Indian Standards Convention	Resumé	Cuttack	Oriya
10.	28.3.69	Standardization and quality control of industrial products	Feature / Interview with Shri S. R. Kuppanna, Head, ISI Branch Office, Hyderabad	Hyderabad	English

Presentation of Indian Standards to National Standards

Bodies — As a part of its programme to help the developing countries in their standardization activities, ISI presented, as gift, during the year under review, a complete set of Indian Standards to the National Standards Body of Jordan at a special ceremony held in ISI Headquarters on 12 February 1969. Such complete sets of Indian Standards have already been presented to 7 countries, namely, Iran, Malaysia, Thailand, Iraq, Philippines, Syria, and South Vietnam.

Visitors to ISI — With a view to acquainting the people about its activities, the Institution has been inviting various dignitaries, important persons as well as students of different technical, scientific and engineering institutions to visit ISI Headquarters. The visitors are taken round the Standards Exposition Hall and ISI Laboratories and explained the importance of standardization in the context of industrial development *vis-a-vis* ISI activities. Subjects of mutual interest and progress made by the country in standardization and quality control are also discussed with important visitors.

During the year under review, student parties from a number of technical institutions of different universities, IAS Probationary Officers

visited ISI. In addition, a number of persons from India and abroad paid visits to the Institution, including the following distinguished visitors :

- 1) Mr G. B. R. Feilden,
Group Technical Director,
Devy-Ashmore Limited,
London.
- 2) Shri S. Sundra Lingam,
Special Adviser to the Executive Secretary,
E.C.A.,
Addis Ababa.
- 3) Dr M. G. Jackson,
Sr. Research Officer,
Animal Nutrition,
UP Agricultural University,
Pantnagar.
- 4) Shri M. Rajasekharamurthy,
Minister of Industries,
Government of Mysore,
Bangalore.
- 5) Mrs Magdalena Alde Templa,
Executive Secretary & Director,
Philippines Standards Asson, Inc,
Manila.
- 6) Mr J. D. McIntosh,
Head of Technical Secretariat,
Cement and Concrete Association of UK.
- 7) Mr J. Clark Spooner,
US Agency of International
Development Missions to India,
New Delhi.
- 8) Prof Harry F. Meiners,
National Science Foundation,
Washington.
- 9) Mr Mir Hassan Mussavi,
Chief of Laboratories,
Institute of Standards & Industrial Research of Iran,
Tehran.
- 10) Prof P. Grosberg,
University of Leeds,
UK.
- 11) Dr Khaled Rsheidat,
Charge d' Affairs a.i., Royal Jordan Embassy,
New Delhi.

- 12) Mr P. V. Sukhatme,
Food and Agricultural Organization,
Rome.
- 13) Mr J. Van Ettinger,
Director of Quality Control and
Operational Research Consultants,
Rotterdam (Holland).
- 14) Prof A. W. Pratt,
Department of Building,
University of Aston,
Birmingham (UK).
- 15) Major General Sardjan Bruzic,
Chief Controller for Quality Materials (CCQM),
Belgrade,
Yugoslavia.
- 16) Lt-Col Milos Milosavlzevic,
Belgrade,
Yugoslavia.

Twelfth Indian Standards Convention — As a part of its programme to promote standardization and quality control through different media, the Institution has been organizing, since 1954, national Conventions on standardization. These conventions afford opportunities to scientists, technologists and industrialists working in industrial, government and research organizations to share their knowledge and experience in the selected fields of standardization; create standards consciousness among different sectors of economy; promote implementation of standards; focus public attention on problems discussed by the convention; and provide opportunities to delegates for establishing contacts with industrial and commercial activities in the country.

The Twelfth Indian Standards Convention was held at Bhubaneswar from 14 to 20 December 1968. The Convention which met with great success, had been sponsored with the active support of the Government of Orissa which took keen interest in the organization of the Convention.

Delegates — In all, 550 delegates including 33 accompanying ladies and 38 lady delegates attended the convention. These delegates represented industry, trade and commerce; research, scientific and technical institutions; purchase and consumer organizations; Central and State Governments; and local bodies.

Inaugural Session — The Convention was inaugurated by Dr S. S. Ansari, Governor of Orissa at Rabindra Mandap, Bhubaneswar, on 14 December 1968. Shri Jehangir J. Ghandy, Vice-President, ISI, presided over the inaugural function. Messages wishing the Convention a success were received from Prime Minister Shrimati Indira Gandhi; Vice-President

Shri V. V. Giri; Governor of Bihar Shri Nityanand Kanungo; Union Minister for Works, Housing and Supply Shri Jagannath Rao and Union Deputy Minister for Information and Broadcasting Shrimati Nandini Satpathy. Over 800 persons representing different interests attended the Inaugural Session. In his inaugural address, Dr S. S. Ansari, commended the efforts of ISI to introduce standards for regulated industrial production and consumption in different sectors. The Governor called upon the public and manufacturers to make the best use of the facilities offered by the Indian Standards Institution to achieve the highest possible standards in various units of production.

General Session — A General Session on the subject 'Importance of Industrial Standards in Technical Education' was held under the chairmanship of Shri Harihar Patel, Industries Minister, Government of Orissa. While no technical papers were contributed to the General Session, it was addressed by a number of eminent authorities followed by detailed discussions on the various points raised. The General Session laid emphasis on the need to inject information on standards and standardization in technical curricula to align technical education with the industrial needs of the country.

Technical Sessions — Six Technical Sessions were held during the Convention. Details of the sessions held, Chairman who presided and the papers contributed to different technical sessions are given below:

	<i>Subject</i>	<i>Chairman</i>	<i>No. of Technical Papers</i>
S-1	Standardization & Quality Control in Jute Industry	Shri S. K. Ghosh, Chairman, Indian Jute Mills Assn, Calcutta.	15
S-2	Standardization of Instruments & Equipment for Science Education	Dr P. S. Gill, Director, Central Scientific Instruments Organization, Chandigarh.	8
S-3	Standardization in a Developing Economy	Dr M. B. Ichaporia, Chief Technical Executive, Tata Oil Mills Co Ltd, Bombay.	20
S-4	Standardization — A Tool for Control and Abatement of Water Pollution	Dr T. R. Bhaskaran, Chief Technologist, Geo Miller & Co Ltd, New Delhi.	18

<i>Subject</i>	<i>Chairman</i>	<i>No. of Technical Papers</i>
S-5 Work Study and Standardization	Brig V. Dhruva, Director, Defence Institute of Work Study, Mussoorie.	17
S-6 Standardization for Industrial Safety	Shri R. G. Deo, Director General of Mines Safety, Dhanbad.	16

Detailed proceedings of the Convention were published in the February 1969 issue of ISI Bulletin.

Reception Committee — To make local arrangements for the delegates, a Reception Committee consisting of leading citizens and organizations of Orissa and other States was set up under the chairmanship of Shri V. H. Dalmia with Shri M. H. Dalmia as Co-Chairman. The Reception Committee looked after accommodation, transport and other facilities for the delegates.

A few social functions and cultural programmes as well as a post-convention excursion to Konarak and Puri were also organized on the occasion.

Intensive Publicity — Twenty-nine newspapers and journals throughout the country brought out special supplements and carried special features on ISI activities. In addition, a Souvenir was published by the Reception Committee of the Convention.

The deliberations of the Convention received wide coverage. Editorials and special features emphasizing the importance of standardization, protection of consumer interest and implementation of Indian Standards were carried in many newspapers and journals.

K. L. Moudgill Prize — The eleventh K. L. Moudgill Prize for the year 1968 was awarded to Shri O. S. Murthy, previously General Manager, Southern Railway and at present Chairman, Bharat Heavy Electricals Ltd, New Delhi, in recognition of the meritorious services rendered by him in the cause of standardization. Shri Murthy made valuable contribution in the field of redesign and dimensional standardization of steel sections, both at national and international levels, and helped in the development of new economic and efficient series of structural steel sections in metric sizes which, when fully implemented, would lead to substantial savings in steel consumption.

The prize of the cash value of Rs 1 000·00 was awarded to Shri Murthy by Dr S. S. Ansari, Governor of Orissa, at the Inaugural Function of the Twelfth Indian Standards Convention at Bhubaneswar on 14 December 1968.

Fellowship of ISI — During the year under review, Fellowship of the Indian Standards Institution was conferred on 48 Chairmen and Vice-Chairmen of Division Councils and Chairmen of Sectional Committees and Advisory Committees of technical character, who had retired from those positions after a distinguished service in the cause of standardization or were continuing as such for the last ten years or more. The Certificates conferring the ISI Fellowship were awarded during the Inaugural Session of the Twelfth Indian Standards Convention at Bhubaneswar on 14 December 1968.

Started in 1966, the ISI Fellowship has so far been conferred on 293 experts who have rendered valuable services in the field of standardization and quality control for industrial and economic development.

Finances — The total income of the Institution from various sources, such as Government of India grant, membership subscription, sale of Indian Standards and certification marking fees during the year 1968-69 amounted to Rs 9 535 039·77 as against an expenditure of Rs 9 620 216·77. A statement of accounts for the year 1968-69, duly audited, is given in Appendix B (*see* P 128).

Invisible Contribution — Besides the income and expenditure during the year under review mentioned above, the Institution also received some invisible contributions. Expenses were incurred by committee members from government and private organizations for attending the meetings of ISI committees within the country and abroad. In addition, many organizations both in public and private sectors undertook testing work and supplied samples free of cost. The total value of such invisible contributions during the year under report is estimated at Rs 10 lakhs.

Second ISI Building — During the period under review, work on construction of garages and staff quarters was taken up.

The position of the building fund as on 31 March 1969 was as follows:

	<i>Rs (in lakhs)</i>
a) Government Grant	17·37
b) Interest-Free-Deposits	2·47
c) Donations	3·33
d) Advance Rent	13·15
	<u>36·32</u>

Consequent on the expiry of the period of five years for which the interest-free-deposits were taken, action was taken for the refund of these deposits. The Government had paid a grant of Rs 6.52 lakhs during the year 1968-69 and refunds for the like amount were made.

ISI Staff — The following important staff activities took place during the period under review :

- a) Shri C. B. Chandorkar, Deputy Director, was awarded the Netherlands Government Fellowship for 1968, for the course of Industrial Quality Instructors for a period of about five months commencing from August 1968.
- b) At the invitation of the United Nations Industrial Development Organization, Shri B. S. Krishnamachar, Deputy Director General, acted as a lecturer at the Second United Nations Inter-Regional Symposium on Iron and Steel Industry held at Moscow from 19 September to 9 October 1968.
- c) On completion of his assignment as Adviser on Weights and Measures and Certification Marking in the Institute of Standards and Industrial Research of Iran, Shri S. K. Sen, Deputy Director General, reverted to ISI service with effect from 10 January 1969, and was on earned leave up to 29 January 1969. He has again been deputed to the Institute of Standards and Industrial Research of Iran as Standards Engineer (Elaboration of Standardization Programme) under the United Nations Development Programme, for a period of one year, with possibility of extension, with effect from 30 January 1969.

The total strength of the Institution as on 31 March 1969 was 1019 consisting of 193 officers and 826 staff members.

Standardization for Consumer Welfare — The Institution has been taking particular care to look after the interests of the consumer in the work of standardization. The ISI Constitution provides for overwhelming representation being given to consumer interest in the technical committees responsible for formulating Indian Standards. This provision is being faithfully followed as far as possible, and organized consumer interest is given representation.

Activities of the Women's Advisory Committee (WAC) have a direct bearing on the consumer welfare. Constituted of housewives, the Committee has since its inception been advising the Institution on the ways and means to be followed for promotion of standardization and quality control and assurance of quality products to the consumer.

As reported under different headings, efforts have been made from time to time to create consumer consciousness for which different forums are made use of like conferences, meetings, contacts, literature, press publicity, exhibitions and films. The Institution has also been welcoming the setting up of

consumer organizations with the object of creating strong public opinion in favour of consumer interest.

The Institution has been laying special emphasis on the safety aspect of consumer protection, and its vital link with standards and ISI Certification Marks Scheme have been given increasing publicity. A number of Indian Standards have been published on items involving safety and health of the people like domestic electrical appliances, domestic gas burning appliances for use with liquefied petroleum gases, etc.

Revised Fourth Five-Year Plan of ISI — As reported in Nineteenth Annual Report of ISI for the year 1965-66, the Fourth Five-Year Plan Frame of ISI for the year 1966-67 to 1970-71 had been drawn up and forwarded to the Union Ministry of Industrial Development for onward transmission to the Planning Commission. However, this Plan could not be implemented as envisaged and since then the Institution has been working on an annual Plan basis in line with the policy of the Government of India in the matter.

The revised Fourth Five-Year Plan of the Institution for the year 1969-70 to 1973-74 was prepared and submitted to the Government of India for onward transmission to the Planning Commission for incorporation in the National Fourth Five-Year Plan.

The present document is essentially an expansion of the earlier Five-Year Plan and is based largely on the quantitative data and premises contained therein, together with additional experience gained during the three years which have elapsed since the last Plan was finalized. The revised Plan also seeks to be in line with the main aims of the country's Fourth Five-Year Plan, namely, 'Growth with Stability'. For achieving stability, it is proposed, during the next Plan period, to concentrate on consolidating the progress already achieved during the earlier Plan periods in the preparation of Indian Standards, and an extensive drive for implementation of standards already published. The Plan for expansion will, therefore, have to be particularly in the fields of Certification Marks, Laboratory, company standardization, training programmes for standards engineers and, to the extent possible, organizing industry-wise conferences for drawing wider public attention to the multilateral advantages of standardization.

Of the important activities, the Plan frame envisages a total production of 4 210 additional standards (including revisions) during the Fourth Plan period, thereby reaching a grand total of 10 570 Indian Standards (including revisions). The total number of applications received and licences issued under the ISI Certification Marks Scheme at the end of the Plan are expected to reach 6 650 and 3 300, respectively, as against 3 950 and 1 950, respectively at the end of 1968-69.

The revenue and capital expenditure during the Fourth Plan is expected to be Rs 669.7 lakhs and 94.19 lakhs, respectively, making a grand total of Rs 763.89 lakhs of which Rs 435.89 lakhs is expected to come from

Government grant and the balance will be raised from non-Government sources. The income from non-Government sources like membership subscription, sale of publications and certification marking fees is to be developed and stepped up.

BRANCH OFFICES

The Branch Offices of the Institution located at Bombay, Calcutta, Hyderabad, Kanpur and Madras continued to render useful service to industry, trade and commerce by promoting standardization and quality control in their respective regions, creating standards-consciousness among different sectors of economy, promoting ISI Certification Marks Scheme and assisting in implementation of Indian Standards. The Branch Offices also helped in general promotional activities through different publicity media.

With increase in the activities of the Institution, its work has been progressively decentralized, particularly, in fields like promotion and implementation of Indian Standards, ISI Certification Marks Scheme, sale of Indian Standards and enrolment of subscribing members. The activities of the Branch Offices having a significant bearing in these spheres are listed below.

Bombay Branch Office — An *Ad Hoc* Committee for implementation of Indian Standards on textile machinery and accessories met in Bombay and the meeting was attended by the Director General of ISI, Textile Commissioner, representatives of the Indian Cotton Mills Federation (ICMF) and other interests. Resulting from the recommendations of the Committee, the ICMF persuaded the textile mills in and around Bombay to insist, as far as possible, on accessories conforming to Indian Standards. The matter was subsequently pursued and it resulted in a few applications for certification of textile accessories. Meetings of the Textiles Committee, Ministry of Foreign Trade and Supply, Government of India, and the sub-committees of the Cotton Textiles Export Promotion Council were attended by ISI representatives to ensure implementation of Indian Standards on textile materials. Several seminars held in Bombay by various organizations were attended by the Institution's representatives to put forward the views of ISI and to ensure progressive implementation of Indian Standards. The following seminars were particularly noteworthy:

- 1) Seminar organized by Small-Scale Industries Development Corporation at Ahmedabad.
- 2) Seminar on packaging machinery organized by the Indian Institute of Packaging, Bombay.
- 3) Seminar on export promotion of non-traditional goods to advanced countries organized by the Engineering Export Promotion Council in collaboration with the German Chamber of Commerce.

Arising out of the deliberations in the seminar on small-scale industry held at Ahmedabad, discussions were continued with the Industries Commissioner of Gujarat on the manner in which ISI could assist the small-scale industries in that State to implement Indian Standards and to qualify for getting licences under the ISI Certification Marks Scheme.

The total number of operative licences under the ISI Certification Marks Scheme in the Bombay region was 298—distributed among a variety of items, such as pesticides and chemicals, mechanical engineering products, electric cables, motors, etc. A new ground was broken by issuing the first licence in the field of hospital equipment for a manufacturer in Bombay in respect of steam sterilizers and pyrogen-free water stills. Other licences worthy of mention issued during the period under review relate to hexane, food grade, which is used as a solvent extractor in the production of vegetable oils. Special inspections were carried out in the case of supply of ISI certified products to various government agencies and those meant for exports.

During the year under report, 172 new members were enrolled. A sizeable increase of membership was recorded in Gujarat region owing to increase of industrial activity in that State; furthermore, consequent on the adoption of a resolution of the Government of Gujarat, a large number of technical institutions in the State became Associate Members of ISI. Steps were taken to bring out a Directory of Subscribing Members in Bombay region.

Sale of Indian and overseas standards amounted to Rs 2.37 lakhs.

Calcutta Branch Office — An on-the-spot survey of one and half months' duration covering 100 industrial units was undertaken in the State of Bihar in three phases, in collaboration with the Directorate of Industries, Government of Bihar. The survey revealed the receptivity of the units covered for implementation of Indian Standards. Similar spot survey programmes for the State of Orissa has also been finalized in consultation with the Director of State Purchasing Organization, Bhubaneswar and is expected to be undertaken shortly.

Bihar Advisory Board for Implementation of Indian Standards decided that the articles bearing ISI Mark should be preferred in the purchase of the Government Departments/Corporations. Similarly, the Chief Engineer of Public Works Department, Government of West Bengal, issued directives to purchase ISI certified iron and steel products as well as building hardwares, for the use of his Department.

For reorientation of technical education, a series of seminars were held in Patna, Ranchi and Calcutta to emphasize the importance of standards to industry, trade and commerce.

Quality control movement for adoption of (Mark Scheme as well as) the Certification Marks Scheme by small and medium scale industries

in the States of Assam, Bihar and Orissa was intensified in close liaison with the Directorates of Industries of the respective States. Besides, technical assistance to the Techno-Commercial Association of Trade and Industries was rendered.

The ISI Certification Marks Scheme continued to register steady progress in this region, exceeding the target of 84 new licences by about 7 per cent. Among the new items covered, mention may be made of dinnerware, LPG cylinders, domestic gas stoves for use with cylinder, base paper for carbon paper, thiram WDP & seed dressing formulation, rectifier type arc welder, etc.

The ISI Laboratory set up in Calcutta continued to expand. This laboratory was equipped to test the samples of jute, tea chest metal fittings, all aluminium conductors, bitumen felt, etc. Some more equipment are being procured to provide the complete testing facilities for testing of ACSR Conductor, BHC DP and EC, endrin, biscuits, hacksaw blades, etc. The number of samples tested at the laboratory during the year under review was 657.

Sale of Indian Standards amounted to Rs 2.22 lakhs (over the past year's figure of Rs 1.85 lakhs).

One hundred and twenty-three new members, comprising 2 donors, 36 sustaining members, 79 associate members and 6 individual members were enrolled during the year.

Hyderabad Branch Office — The Branch Office worked in close liaison with the Directorate of Industries of Andhra Pradesh, and follow-up action was taken on the recommendations of the Implementation of Indian Standards Conference, held in Hyderabad in November 1968. The Department of Industries set up a Standards Cell for providing information on standards to various government departments in the State.

The Government of Andhra Pradesh agreed to include basic information on ISI and its activities in the departmental manual on information for entrepreneurs, being prepared for the use of its officers in the Industries Department.

During the year, eight new sustaining members were enrolled and the sale of Indian Standards amounted to Rs 0.18 lakh.

Kanpur Branch Office — Concerted efforts were made to popularize the aims, objects and activities of ISI in different areas of Madhya Pradesh and Uttar Pradesh. The Directorate of Industries, Madhya Pradesh, issued instructions that the manufacturers should be enlightened about the advantages of ISI subscribing membership, ISI Certification Marks Scheme and about introduction of standardization and quality control in their industrial products. This was followed by personal contacts which had a salutary effect on growth of ISI activities.

Thirty-three applications for grant of licences to use ISI Certification Mark were received during the year; these included five items of agricultural implements for which applications were received for the first time. Five new licences were granted during this period.

The sale of Indian Standards amounted to Rs 38 760.85 during the year 1968-69.

The number of new subscribing members enrolled during the year also increased as compared to the preceding year. As against three sustaining members and 28 associate members enrolled during the year 1967-68, five sustaining members and 39 associate members were enrolled during the year.

Madras Branch Office — An intensive programme for introduction of quality control and standardization in small scale industries was launched in Tamil Nadu. Extension service facilities were provided to about 30 units manufacturing electric motors, power driven pumps and tin containers, in the vicinity of Madras City and Coimbatore and certain technical improvements suggested to them. Furthermore, these units were classified into different groups according to the technical know-how and testing facilities available with them and it is encouraging to note that out of these, three units qualified for grant of ISI licence.

The Madras Branch Office continued to make special efforts for implementation of Indian Standards by various agencies. State Governments, corporate bodies and other authorities concerned with purchase of products and materials on a large scale were approached to adopt Indian Standards in their purchase programmes. As a result of these efforts, the Excise Commissioner, Mysore Government, issued instructions to all the breweries in the State to get their products covered under ISI Certification Marks Scheme within a year; the Corporation of Madras decided to buy only ISI-marked disinfectant-fluid; and, the Agro-Industrial Corporation, Tamil Nadu decided to purchase only ISI-certified pumps, but in view of certain difficulties in procuring such pumps, relaxation for one year was granted to some of the concerns.

The number of operative licences rose to 243 from 218 as on 31 March 1968. The products included disinfectant-fluid, steel windows, ice-cream and trichloroethylene. Again, during the year 96 applications were received, forty-five new licences granted and twenty licences became inoperative. Sixty-seven preliminary inspections and 751 periodic inspections were carried out and 813 samples were drawn for testing.

The Laboratory set up in Madras Branch Office started functioning from 29 January 1969 with accent on testing pesticides and allied chemicals, and during the period of two months 116 samples were received out of which 56 samples were tested and reports given.

The subscribing membership registered a total of 879 members as on 31 March 1969 as against 869 on 31 March 1968. During the year, the Andhra Pradesh Government joined as a Donor Member and some of the sustaining members enhanced their annual subscription. The total contribution received amounted to about Rs 3.48 lakhs.

The sale of standards reached Rs 123 116.00 as against Rs 98 732.00 as on 31 March 1968, thereby registering an increase of about Rs 25 000.00.

Standardization Abroad and at International Level — In keeping with its policy to promote standardization activity at international level and to develop foreign trade, the Institution has been taking active interest in the work of international organizations devoted to standardization including International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Commonwealth Standards Conference (CSC). The Institution has also been making efforts to develop cordial and cooperative relations with the standards bodies of other countries, particularly, of the developing countries. These relations were further strengthened and this helped in many ways the progress of standards programme at international level.

During the year under report, the Institution participated actively in the work of 93 committees of ISO and almost all committees of IEC. Besides providing chairmanship for IEC/TC 43 Electric Fans, ISI held the Secretariats of the following 17 Technical Committees, Subcommittees and Working Groups dealing with subjects of interest to India :

- a) ISO/TC 50 Lac
- b) ISO/TC 56 Mica
- c) ISO/TC 88 Pictorial Markings for Handling of Goods
- d) ISO/TC 113 Measurement of Liquid Flow in Open Channels
- e) ISO/TC 12/SC 1 Inter-conversion of Values
- f) ISO/TC 34/SC 7 Spices and condiments
- g) ISO/TC 34/SC 8 Stimulant Foods
- h) ISO/TC 17/WG 2 Classification and Designation of Steel
- j) ISO/TC 17/WG 8 Dimensions of Hot-Rolled Steel Sections
- k) ISO/TC 54/WG 7 Vetiver Oil
- m) ISO/TC 113/WG 1 Measurement of Liquid Flow in Open Channels by Velocity Area Methods
- n) ISO/TC 113/WG 2 Measurement of Liquid Flow in Open Channels by Notches, Weirs and Flumes
- p) ISO/TC 113/WG 3 Glossary of Terms Relating to Measurement of Liquid Flow in Open Channels

- q) ISO/TC 113/WG 4 Measurement of Liquid Flow in Open Channels — by Dilution Methods
- r) ISO/TC 113/WG 5 Measurement of Liquid Flow in Open Channels — Flow Measuring Instruments and Equipment
- s) ISO/TC 113/WG 6 Measurement of Liquid Flow in Open Channels — Sediment Flow
- t) IEC/TC 43 Electric Fans

Shri Jehangir J. Ghandy, Vice-President of ISI, Dr. A. N. Ghosh, Director General of ISI and Shri K. N. P. Rao, attended the meetings of ISO Council, Executive Committee and Planning Committee in Geneva in June 1968; Dr Ghosh attended the meetings of ISO Standing Committee for the Study of Scientific Principles of Standardization (STACO) and ISO/IEC Standing Coordinating Committee in London in September 1968; and Shri B. S. Krishnamachar, Deputy Director General participated in the meetings of ISO Development Committee (DEVCO) and STACO in Geneva in March 1969.

While in London to attend ISO and IEC meetings, Dr Ghosh availed of the opportunity and visited the Hemel Hempstead Centre of the British Standards Institution.

Shri B. S. Krishnamachar attended the Second United Nations Inter-Regional Symposium on Iron and Steel Industry held at Moscow in September-October 1968.

Dr A. K. Gupta, Deputy Director General, ISI and Shri V. R. Subramaniam of Indian Oxygen Ltd represented India in the Seminar on 'Norms as Instruments of Industrialization' held at Berlin during November 1968 by German Foundation for Developing Countries in cooperation with the German Standards Association (DNA).

Dr. Ghosh participated in the first meeting of the Consultative Group of the Asian Standards Advisory Committee (ASAC) held at Bangkok in December 1968.

DIVISIONAL REPORTS

0. INTRODUCTION

0.1 This part of the report gives a record of the technical work done by different divisions and sections of the Institutions during the year 1968-69.

It does not attempt to cover in detail all the work done and that under consideration, but gives only the more significant developments in each field. Complete lists of standards published and in press during the year are given in Appendix A (see P 98).

0.2 Formulation of Standards — During the period under report, 583 new Indian Standards were adopted and sent to press; 147 standards were revised (see Appendix A); 294 new proposals for formulation of Indian Standards were received and 154 proposals (including some made during the previous year) were accepted and referred to various committees for further processing.

The growth of Indian Standards since 1951 is graphically represented in Fig. 4 (see P 36).

0.3 Technical Committees of ISI and Their Membership — As on 31 March 1969, 1798 committees of the Institution, with a membership of 22 138 experts representing various interests — manufacturers, consumers, research and technical organizations, purchasers and Government departments—were at work for the formulation of Indian Standards.

During the year 1968-69, 896 committee meetings were held for standards work.

The growth of ISI Committees, their membership and their activities since 1951 are shown in Fig. 5 and 6 (see P 37 and 38).

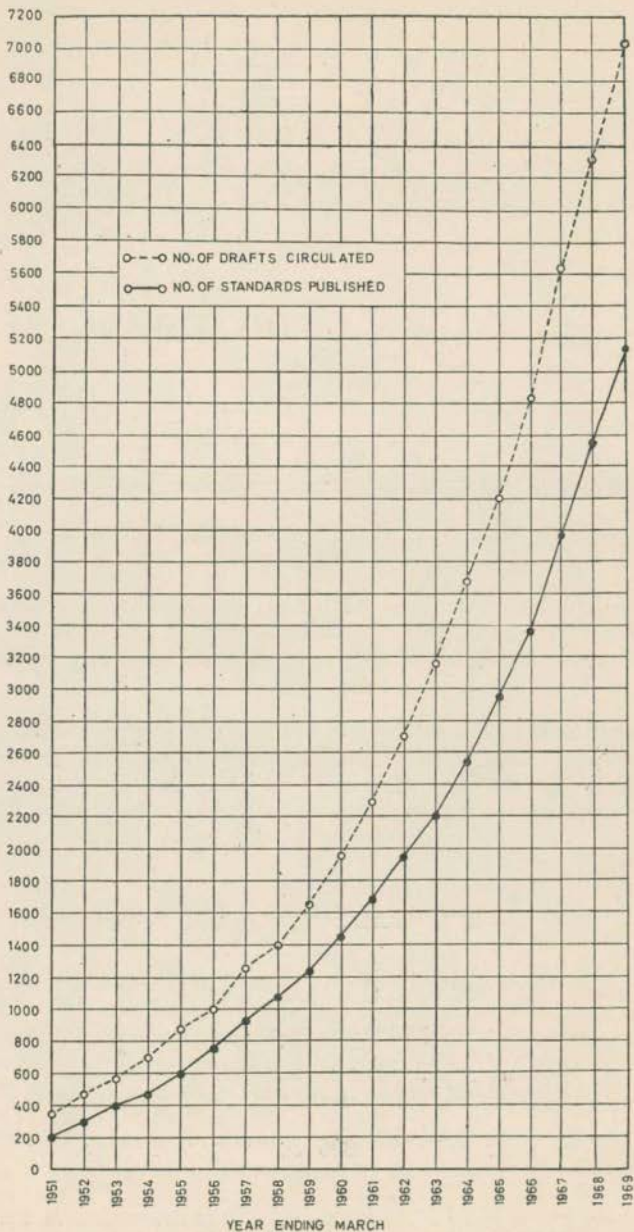


FIG. 4 GROWTH OF INDIAN STANDARDS

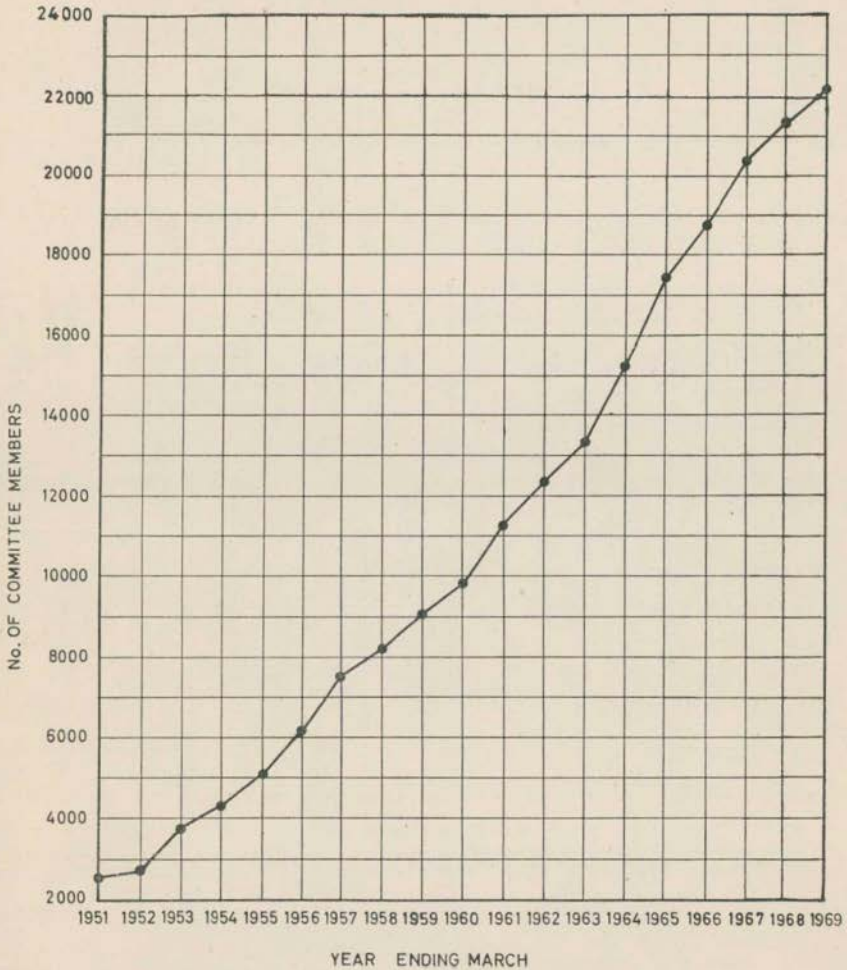


FIG. 5 GROWTH OF COMMITTEE MEMBERSHIP

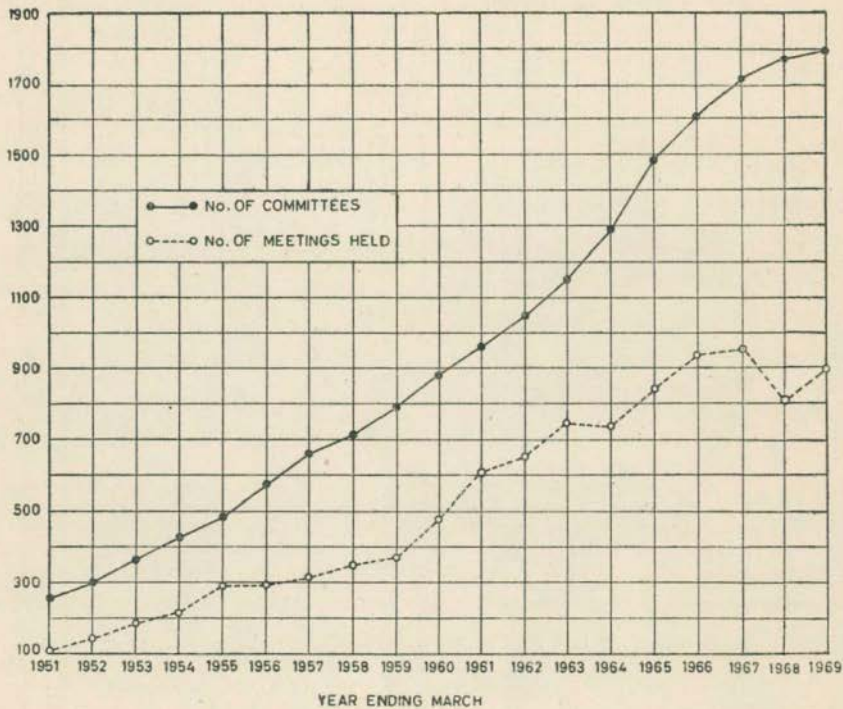


FIG. 6 GROWTH OF COMMITTEES AND THEIR ACTIVITIES

0.4 Record of Work — Cumulative information about the work pertaining to different divisions/sections of the Institution is given in Table 1.

**TABLE 1 RECORD OF ISI TECHNICAL DIVISIONS AND SECTIONS
(FOR THE YEAR 1968-69)**

(For details of standards published and those under print during 1968-69, see Appendix A)

DIVISION OR SECTION	NO. OF COMMITTEES	NO. OF MEETINGS	NEW AND REVISED STANDARDS PUBLISHED AND UNDER PRINT	AMENDMENTS TO STANDARDS	DRAFT STANDARDS CIRCULATED	NEW SUBJECTS TAKEN UP
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Agricultural & Food Products	137	100	71	21	90	18
Chemical	389	182	136	32	89	35
Civil Engineering	277	141	123	36	118	4
Consumer Products	93	77	69	8	72	—
Electrotechnical	154	78	70	54	62	20
Mechanical Engineering	281	131	109	25	140	3
Structural & Metals	341	71	94	30	65	62
Textile	97	90	57	35	56	10
Miscellaneous	29	26	1	—	13	2
Total	1 798	896	730*	241	705	154

*This includes one Japanese Standard recognized as an Indian Standard.

1. AGRICULTURAL AND FOOD PRODUCTS DIVISION

1.1 During the year under review, the Agricultural and Food Products Division formulated Indian Standards on important subjects in the fields of food products, agricultural and dairying.

1.2 In the field of food products, the work done include the specifications for honey, which is the result of a decade-long investigation and deliberations dehydrated vegetables, such as peas, potatoes, cabbages and carrots; methods of tests for products derived from fruits and vegetables; and specifications for fruit squashes and synthetic syrups.

In the field of meat and meat products, an important Indian Standard has been prepared for dressed chicken which is expected to be of great help in

regulating the quality of the product, as lately the demand for it has increased and the product is likely to be exported to other countries in large quantities. Another important Indian Standard in this field is for egg powder which would be of considerable help to the Defence department in adjudging the quality of the product. Specifications for bacon rashers and ham; fish and fishery products like frozen thread fin; fresh and frozen silver and brown promfret have also been prepared.

Indian Standards for edible groundnut flour and cottonseed flour (solvent extracted and expeller pressed) have also been prepared. These products are rich in protein and comparatively cheap and these standards are considered timely as the Government of India has a programme of fighting protein malnutrition among poorer section of population.

Indian Standard for white bread has been revised and specifications for food additives like potassium metabisulphite and sodium metabisulphite have been laid down.

1.3 On the side of agriculture, efforts were continued to be made for formulation of specifications for important items like seeds, farm implements and pesticides. The work on farm implements include specification for power take-off shafts of agricultural tractors and guide for axle assembly for animal-drawn carts, and revised specifications for light duty chaff cutter blades. A beginning has already been made to lay down standards for tractor components as the use of tractors has become increasingly popular.

In the field of pesticides, Indian Standards have been prepared for pyrethrum emulsifiable concentrates, thiram water dispersible powder, thiram seed dressing formulations; dichlovos, technical; and phosphamidon, technical. Work was also initiated on grafts for propagation purposes.

1.4 As regards the work in the field of dairying, specifications formulated during the year under review, include those for sterilized cream and *KHOYA*, which marks the beginning of standards on indigenous dairy products. Formulation of Indian Standards for *KHOYA* was considered necessary as its products like *BURFI* are being exported.

Indian Standards for important dairy equipment, such as aluminium settling tanks for ghee and aluminium milk cans were prepared.

1.5 The existing standards on important items like compounded feeds for cattle, light duty chaff cutter blades, prawns, biscuits, *MAIDA*, *SUJI*, *ATTA*, infant foods, etc, were revised to bring them up-to-date.

1.6 During the period under report, work was initiated on method of test for estimating the pesticidal residues. Preparation of an Indian Standard on the subject has been felt necessary as lately owing to increased use of pesticides the toxic residues left in the various agricultural commodities and different foodstuffs have created health problems for the people. The

standard would prove useful in establishing a uniform method of test for use by analysis throughout the country.

Progress was also made in the preparation of Indian Standards in the field of food hygiene, sampling and analysis.

1.7 The fourteenth meeting of the Agricultural and Food Products Division Council was held in New Delhi on 2 April 1969 under the chairmanship of Dr B. P. Pal, Vice-President of Indian Council for Agricultural Research. At this meeting, compositions of seven Sectional Committees were revised and 26 subjects were approved for formulation of Indian Standards.

The Division Council appointed the following as Chairman for the Sectional Committees indicated against each:

<i>Name & Address of the Chairman</i>	<i>Name of the Committee</i>
1. Dr M. S. Patel, Personnel Manager, State Trading Corporation of India, New Delhi	Tobacco Products Sectional Committee, AFDC 13
2. Dr K. Bagchi, Secretary, Central Committee for Food Standards, Ministry of Health, New Delhi	Food Additives Sectional Com- mittee, AFDC 19
3. Shri John P. John Zachariah, Joint Commissioner, Machinery, Ministry of Food, Agriculture, Community Development & Co-operation, New Delhi	Farm Implements & Machinery Sectional Committee, AFDC 20
4. Dr A. B. Joshi, Deputy Director General, Indian Council of Agricultural Research, New Delhi	Spices & Condiments Sectional Committee, AFDC 12

1.8 A list of 71 Indian Standards formulated by the Agricultural and Food Products Division Council and sent to press during the year under review is given in Appendix A.

2. CHEMICAL DIVISION

2.1 The Chemical Division continued to pursue its activity for establishing Indian Standards in the fields of chemical and allied industries. During the

period under review, a number of Indian Standards were established on various important subjects of which the following deserve special mention:

IS : 4501-1967 Specification for aprons, rubberized acid and alkali resistant

This is an important safety item used by workers in chemical laboratories and in industrial establishments for protection against contact of the wearing apparel and skin with acids and alkalis.

IS : 4512-1967 Specification for footwear lasts, wooden

This specification represents an original and pioneering work in the field. The data made available through the rich experience of one of the leading manufacturers and the research findings of Forest Research Institute, Dehra Dun had to be checked and re-checked before requirements could be prescribed in the standard. Besides various organizations in the country, this specification has been appreciated by countries like Germany, Italy and the United States of America.

IS : 4576-1968 Liquefied petroleum gases

The specification prescribes the requirements and methods of sampling and test for all types of liquefied petroleum gases commercially marketed for household, commercial and industrial application excluding automotive use. In the light of rapid increase in the use of liquefied petroleum gases in domestic, commercial, hotel and hospital establishments, the specification will be found useful both by manufacturers and consumers.

IS : 4578-1968 Specification for lubricating oils for refrigeration machinery

Unavoidably, the lubricating oil comes in contact with the refrigerant and is thus exposed to cold as well as relatively hot discharge temperature in the refrigeration system. There are various kinds of refrigerants used in the present-day refrigerating machinery. This standard will help the users in choosing a lubricant which is not only suitable for compressor mechanism but also does not react with the refrigerant in any way.

IS : 4588-1968 Specification for raw natural rubber

The specification prescribes the limits for impurities in natural rubber based on general end use quality requirements for manufactured rubber products which are not taken into consideration in the present practice of visual grading.

IS : 1407-1968 Specification for round paint tins (first revision)

The standard was first published in 1959 with a view to reducing variety of sizes of tins used for packing paints. It was found that for 2- and 4-litre capacity tins, there was a considerable demand for cushion ring and

bung (flush top) type of tins in the export trade. The standard has been revised in order to cover these types of tins.

IS: 2316-1968 Methods of preparation of standard solution for colorimetric and volumetric analysis

The standard originally published in 1963 has been revised with a view to ensuring uniformity in the methods for preparation of standard solutions required for the common colorimetric and volumetric determinations.

IS: 4955-1968 Specification for synthetic detergents for household use

Need to guide the production of soapless detergents of well-defined quality and desirability to safeguard consumer interest necessitated publication of this standard which prescribes the requirements and methods of sampling and test for synthetic anionic detergents based predominantly on the use of alkyl aryl sulphonate for household use. Methods for qualitative identification of soapless detergents and alkyl aryl sulphonates have also been spelled out.

IS: 4956-1968 Specification for synthetic detergents for industrial purposes

The standard prescribes the requirements and methods of sampling and test for synthetic anionic detergents based predominantly on the use of alkyl aryl sulphonate for industrial purposes and has been published in order to guide the production of soapless detergents of well defined quality and also to safeguard consumer interests.

IS: 918-1968 Specification for calcium carbonate, precipitated for cosmetic industry (first revision)

This standard, first published in 1958, has been reviewed in the light of development of the cosmetic industry in the country and revised in order to bring it up to the requirements of the industry. Modifications have been made in the sieve analysis of the material and in the requirements for moisture, bulk density, calcium carbonate content, matter insoluble in hydrochloric acid, iron, arsenic, flow point and free alkali. The requirement for magnesium carbonate has been deleted and one for magnesium and alkali salts has been introduced. It has further been specified that the requirements for flow point and magnesium and alkali salts shall apply only when the material is used for manufacture of both pastes. Information on the two crystalline phases of calcium carbonate, namely, calcite and aragonite, has been introduced for the information of the user of this standard.

IS: 4836-1968 Specification for foundry coke

While preparing this standard, an attempt has been made to strike balance between the quality of coke ideally suited for foundries and the

resources of Indian coals used for cooking. Recent technological developments, which have considerably improved the coke quality, have been taken into account.

IS : 2396-1968 Specification for rubber hose for petrol and diesel fuels with braided textiles reinforcement (first revision)

The standard, originally published in 1963, has been revised to bring the tolerances on nominal bore sizes in line with the corresponding recommendations of Technical Committee 45 Rubber of International Organization for Standardization (ISO) and also in view of the difficulties experienced by manufacturers of hoses for petrol and diesel fuels in complying with the requirement for fuel soluble matter.

IS : 3506-1967 Table for alcoholometry (by Pyknometer method)

This standard was found necessary in view of the fact that contesimal hydrometers cannot be employed for determining ethanol content when the quantity of the alcoholic preparation, such as perfumes, pharmaceutical or toilet preparation available for testing is small. In such cases, it is necessary to determine specific gravity by the Pyknometer method at 15°C and use Pyknometer specific gravity conversion table. The publication of this standard, therefore, completes the full complement (along with IS : 2302-1962 Tables for alcoholometry) of conversion tables necessary in alcoholometry for determining the ethanol content.

2.2 Thirty-seven new proposals were approved for formulating Indian Standards. These relate to important subjects including corrugated fibre boards and floating media craft liner.

2.3 Twentieth meeting of the Chemical Division Council was held at New Delhi on 19 April 1968.

2.4 During the year under review, 136 Indian Standards were formulated and sent to press by the Chemical Division Council. These standards are given in Appendix A.

3. CIVIL ENGINEERING DIVISION

3.1 Indian Standards on a number of important subjects relating to civil engineering were published during the year 1968-69, while considerable progress was achieved on work in connection with many other important draft standards and subjects.

3.2 As regards Indian Standards published during the period, special mention may be made of the recommendations for selection of industrial floor finishes, key for identification of commercial timber, criteria for design of reinforced cement concrete chimneys, criteria for design of reinforced

concrete bins for bulk foodgrain storage, method of chemical and physical analysis of hydraulic cement, code of practice for design and installation of joints in building, byelaws for construction of cinema buildings, safety code for tunnelling work, code for earthwork on canals, guide for preparation of estimate of river valley projects, recommendations for grouting of pervious soils, recommendations for establishing network of rain gauge stations and criteria for design of hydraulic jump type stilling basins with horizontal and sloping aprons.

3.3 The subjects taken up for preparation of draft Indian Standards during the year included many important items. Of these, particular mention may be made to the specification for marble stones (slabs, blocks and tiles), fire safety of saw mills and wood product factories, and criteria for selection of type of lining for canals.

3.4 A satisfactory pace of progress was maintained in the work of formulation of standards for multi-purpose river valley projects. So far, 39 Indian Standards on various items in this field have been published or are under print. The Standing Working Committee on Multi-purpose River Valley Projects of the Civil Engineering Division Council (SWCP) held its second meeting on 18 February 1969. The Committee discussed the question of wider implementation of standards on multi-purpose river valley projects. It was decided to give wide publicity to the work done on the subject through suitable literature, etc.

3.5 Development of the National Building Code was continuing at a fast pace. In the process, certain concepts have emerged clearly with a direct bearing on economy in construction costs. Among them, the following are highlighted:

- a) Correlation has been attempted in specifying floor areas (FAR's) and heights of building in terms of nature of occupancy, such as residential, commercial, industrial, etc, and type of constructions, such as masonry, steel, concrete, etc, which rationally liberalizes existing practices in the country.
- b) Safety of personnel from fire hazards has been catered to through constructional means and exist requirements.
- c) Structural safety has been codified in terms of existing design codes and, in particular, the masonry design code has been modified to permit higher number of stories than in vogue with higher strength bricks available.
- d) Recommendations have been made for development of prefabrication of structures in the country.
- e) Emphasis has been laid on the need for co-ordination among architect, engineer and contractor from the early planning stages of buildings for installation of plumbing services to avoid unnecessary structural changes at a later stage. A single stack system for domestic drainage is being recommended.

The National Building Code is likely to be available early in 1970.

3.6 The Civil Engineering Division Council held its sixteenth meeting on 19 February 1969. Compositions of 8 Sectional Committees were reviewed and reconstituted for another term of three years.

3.7 One hundred and twenty-three Indian Standards formulated by the Civil Engineering Division Council during the year under review and sent to press are listed in Appendix A.

4. CONSUMER PRODUCTS DIVISION

4.1 During the year under review, the Consumer Products Division maintained steady progress in its work of formulation of Indian Standards. This work falls into two broad categories, namely, (a) medical and surgical equipment, and (b) general consumer items. The work in the first category is fast gaining ground inasmuch as out of a total of 72 Indian Standards published or sent to press during the period, 53 relate to medical and surgical equipment; while 19 Indian Standards pertain to general consumer items.

4.2 The work on medical and surgical equipment achieved considerable progress having earned due recognition from medical as well as other interests concerned throughout the country. The Committees are well represented by doctors and surgeons, and the meetings well attended. The important work accomplished under this category and worthy of mention is enumerated in the following paragraphs.

4.2.1 The Surgical Instruments Sectional Committee published 12 standards on important precision ophthalmic instruments like knives, forceps and scissors. In addition, 18 draft standards were approved for wide circulation.

4.2.2 The Hospital Equipment Sectional Committee completed the work on castors for hospital equipment, examination table, dressing trolley and general purposes hospital bedsteads; besides taking up work on dropside baby cots, back rest and bed side tables.

4.2.3 The Dental Equipment and Dental Instruments Sectional Committees, which collaborate closely in each other's work, made steady progress. Thirteen standards were finalized for publication and 13 draft standards were approved for wide circulation. The items on which standards were published include cutting, filling, extraction and prosthetic dental instruments. The standards on dental instruments are expected to go a long way in introducing a uniform acceptable quality in the manufacture and use of these instruments.

4.2.4 The work of Artificial Limbs Sectional Committee made great strides having finalized 14 standards for publication and having approved 4 draft standards for wide circulation. Important specifications finalized

during the period relate to terminal devices used with artificial upper extremity limbs. Besides, drafts on items of rehabilitation equipment like crutches, walking sticks and rubber tips for crutches and walking sticks were approved and sent into wide circulation.

4.3 The work on consumer group of items also maintained a satisfactory pace of progress during the period. Nineteen standards were finalized for publication and 13 draft standards were approved for wide circulation. Of the standards finalized for publication, special mention may be made of oil pressure stoves (which is a revision and combines into one different existing standards in the field); barbell set, javeline; hurdles; table tennis table; nylon slide fastener; safety pins; shoe, boot and stationery eyelets; domestic cooking ranges; etc.

4.4 The Standing Working Committee of the Consumer Products Division Council (SWCCP) met on 20 December 1968 and bifurcated the Surgical Instruments Sectional Committee (CPDC 11) into two new Committees which would now handle the work as follows:

- a) Orthopaedic Instruments and Accessories Sectional Committee, CPDC 24; and
- b) Obstetric and Gynaecological Instruments and Appliances Sectional Committee, CPDC 25.

4.4.1 The inaugural meeting of CPDC 24 was held on 20 February 1969. The Committee has made good progress in its work.

4.5 The Consumer Products Division Council held its fifth meeting on 5 April 1968. Besides reviewing the progress of work and the activities of various committees, the Council examined the possibility of having a full-time surgeon to assist the ISI Secretariat in the work of medical group of items.

4.6 The ISI Directorate General was represented on the Advisory Committee for Surgical Instruments, Medical Equipment and Appliances of the Government of India.

4.7 Sixty-nine Indian Standards formulated by Consumer Products Division Council (CPDC) and sent to press during the period under review are given in Appendix A.

5. ELECTROTECHNICAL DIVISION

5.1 The Electrotechnical Division Council continued to make satisfactory progress in its activities. During the year under review, 71 Indian Standards were either published or were under print; 5 existing Indian Standards were revised; 85 draft standards were finalized for publication; 60 draft standards were issued in wide circulation for eliciting comments to all interests concerned; while preliminary draft standards on a number of new subjects were

prepared. Eighty-six meetings of Sectional Committees, Sub-committees and Panels were held during the year.

5.2 During the period under review, Indian Standards on a number of important subjects were formulated and revised. Of these, special mention may be made of the following standards: Measurement and evaluation of vibration of rotating electrical machines; Recommended current ratings for cables; Rubber insulated cables; Polyethylene insulated cables; PVC insulated light duty cables; Thermoplastic insulated weatherproof cables, Part III: Polyethylene insulated and polyethylene sheathed; Rubber insulated cables for mines; Lift cables; Resistance welding equipment, Part I: Single phase transformer, Part II: Single phase rocket arm spot welding machines; 16-mm portable sound-and-picture cinematograph projectors; Code of practice for installation and maintenance of escalators; and General requirements for electric lifts; Cable glands and cable sealing boxes for use in mines. Direct acting electrical indicating instrument was revised to bring it in line with the prevailing needs of the instrument industry as well as the international practices; the concept of accuracy classes as given in the corresponding IEC Publication has been included in the revised version. The series of Indian Standards on enamelled round winding wires was revised to rationalize and unify the common aspects and have separate specifications for winding wires on the basis of properties of the enamel employed. Specification for flameproof enclosures of electrical apparatus was also revised to bring it in line with the latest IEC Recommendations.

5.3 In the field of electronic and telecommunication, Standards on method of measurement on television picture tubes; receivers for monochrome TV broadcast transmission; noise emitted by machines and reference zero for the calibration of pure-tone audiometers were brought out.

5.4 A number of standards on electrotechnical vocabulary and graphical symbols were published during the year.

5.5 The Standing Working Committee of the Electrotechnical Division Council (SWCET) held its meeting on 25 November 1968. In this meeting, besides reviewing the composition of various Sectional Committees, the Committee approved 22 new subjects for formulation of Indian Standards.

5.6 The Electrotechnical Division Council which is the Indian National Committee of the International Electrotechnical Commission (IEC) continued to take active part in the deliberations of the various committees of that Organization. A detailed account of the activities of the IEC of interest to India is given in Part III of this report.

5.7 A list of 70 Indian Standards formulated by the Electrotechnical Division Council which were sent to press during the year under review is given in Appendix A.

6. MECHANICAL ENGINEERING DIVISION

6.1 During the year under report, the Mechanical Engineering Division made satisfactory progress in its work. It mainly concentrated on consolidating the work in the existing fields of activities. Through the concerted efforts of its 43 Sectional Committees, the Division was able to provide standards for almost every branch of engineering under its purview, namely, basic engineering, chemical engineering, marine engineering and shipbuilding, automobiles, machine tools, small tools and hand tools, mining, light engineering, instruments, material handling, etc.

6.2 Towards the close of the year, 123 Indian Standards, including revisions of 18 existing Indian Standards, had either been printed or were under publication. Besides, 113 draft standards were finalized for publication, while another 146 draft Indian Standards were issued into wide circulation for eliciting technical comments. In addition, 169 draft Indian Standards were also prepared during the year.

6.3 The standards sent for printing during the year included many important subjects of which special mention may be made of the code for unfired pressure vessels. In the absence of any statutory regulations governing the manufacture and use of pressure vessels in the country, it was felt necessary to prepare a national code with a view to ensuring proper development of pressure vessels and also to ensure safety in their use. The present code takes into account the latest international developments in the pressure vessel technology and lays down the minimum requirements of design, fabrication and inspection. Other notable standards related to gears and metal working machines.

6.4 Among the draft standards processed during the year, particular attention may be drawn to the codes of practice for construction of various kinds of ropeways for transportation of passengers, specification for automotive fan belts and pulleys, and a series of standards on elements of jigs and fixtures for machine tools. Work on the formulation of a guide for the use of international system (SI) units reached the penultimate stage of publication.

6.5 At the request of the Union Public Service Commission, work on the preparation of a Metric Supplement to the Handbook of Mathematical, Physical and Engineering Tables for use in UPSC Examinations, was taken up on priority basis, during the year.

6.6 Meetings of 26 Sectional Committees and 104 Subcommittees and Panels were held during the year under review, while 4 new Subcommittees and Panels were set up by various Sectional Committees to deal with the specific subjects.

6.7 The Mechanical Engineering Division Council held its 18th meeting on 2 August 1968 at New Delhi.

Shri Abhijit Sen of Sen-Releigh Ltd, was elected the new Vice-Chairman of Mechanical Engineering Division Council and of its Standing Working Committee (SWCE) for the next term of three years.

The Council reviewed the compositions of 7 Sectional Committees due for revision, and re-constituted them for another term of three years subject to a few changes in the membership of some of them in order to make them more representative of the concerned interests. Of the nine subjects approved by the Council for inclusion in the programme of work of the respective Sectional Committees, one related to the formulation of a packing code of machine tools.

The Council noted that the Government of India had accepted the recommendations of the Motor Car Quality Enquiry Committee headed by Shri Pandey and that the ISI had been requested to initiate action for drawing up of standards, on priority basis, for various items of raw-materials and components with the assistance of car makers and ancillary producers and their suppliers. As a first step towards follow-up action, steps have already been taken to organize a team of technical experts to visit the various manufacturing plants with a view to ascertaining the existing internal inspection arrangements. The Government of India have also been requested to make available necessary finances for setting up the Secretariat for the Technical Committees and for handling the additional work expeditiously.

6.8 A list of 109 Indian Standards, formulated by the Mechanical Engineering Division and sent for publication during the year under review, is given in Appendix A.

7. STRUCTURAL AND METALS DIVISION COUNCIL

7.1 During the period under report, the Structural and Metals Division Council maintained a steady pace of progress, through the concerted efforts of its various Sectional Committees, Subcommittees and Panels. During the year, this Division processed for publication 94 Indian Standards, including revisions of 24 existing Indian Standards. Another 19 Indian Standards were finalized and are under publication, while work on several other important items was in progress.

7.2 Of the new standards published, particular mention may be made of 'Code of practice for design of portal and semi-portal wharf cranes', which is of particular significance to India in the context of the vast programmes of expansion of dockyard and construction of a number of new ports. The Indian Standard performance tests for protective schemes used for protection of light gauge steel against corrosion (IS : 4777-1968) was published; the standard covers the salt droplet test and the IP test for testing the performance of a protective scheme under corrosive conditions. Both the tests are intended to apply mainly to protective schemes for light gauge fabricated steel

parts used for permanent building construction and other purposes. Another important standard brought out related to deviations for untoleranced dimensions and weight of steel castings (IS : 4897-1968) which, it is hoped, will satisfy a long-felt need by simplifying the application of agreed limits to drawings. The specification for refined secondary zinc (IS : 4699-1968) would help conserve zinc for which India has to depend much on imports. The code of practice for packaging of steel tubes (IS : 4740-1968) was published with a view to bringing uniformity in practice and ensuring proper packaging of steel tubes.

7.2.1 Some other important standards published during the year related to specification for bead wire for tyres; bright bars for machining; fluorspar for use in metallurgical industries; manganese ore for the production of ferro manganese; foundry abrasives; basic refractories; steel castings for case carburizing; methods of chemical analysis of silver manganese brazing alloys; recommended practice for radiographic examination of fusion welded circumferential joints in steel pipes; reference blocks for calibration of ultrasonic flaw detectors; methods of tests relating to powder metallurgical materials and products; codes of practice for designation of ferrous castings; magnetic particle flaw detection of steel crank shaft forgings; design of mobile cranes (all types); assessment of butt and fillet fusion welds in steel, sheet, plate and pipe; and recommended sizes of cupola furnace for foundry.

7.3 Of the standards revised during the year, mention may be made of IS : 1079-1968 'Specification for hot rolled carbon steel sheet and strip (*second revision*)', in which some more grades of hot-rolled carbon steel sheet and strip, such as drawing, deep drawing and extra deep drawing have now been included. Revised version of the specification for cast iron rain-water pipes and fittings (IS : 1230-1968) now includes the requirements for half-round gutters, fittings and accessories.

7.3.1 Some other important standards revised during the year related to iron castings with spheroidal or nodular graphite; free cutting brass rods and sections; steel tubes for structural purposes; mild steel tubes, tubulars and other wrought steel fittings, Part I Mild steel tubes; hard chromium electroplated coatings on iron and steel; methods for Brinell, Vickers and Rockwell hardness test for steel; and code of practice for manufacture of zinc alloy pressure die castings.

7.4 Draft standards finalized included those for corrosion-resisting chromium and chromium-nickel steel covered electrodes for manual metal arc welding recommended procedure for repair of grey iron castings by oxy-acetylene and manual metal arc welding; inspection and testing procedure for aluminium and aluminium alloys, sheet, strip and coil (for aircraft purposes); and handbooks for cold formed light gauge steel structure; high tensile friction grip bolts; and application of plastic theory for design of steel structures.

7.5 The draft standards issued into wide circulation included those for galvanized steel sheets (plain and corrugated); structural steel (standard

quality); cast iron fittings for pressure pipes for water gas and sewage; solders for jointing aluminium and aluminium alloys; classification of haematite iron ores; blast furnace refractories for steel plants; steel for springs; plain and austenitic manganese steel castings; mild steel tubulars and other wrought steel fittings; and code of procedure for conducting field studies on atmospheric corrosion of metals.

7.6 Some of the important draft standards prepared during the year related to methods of chemical analysis of aluminium in silico-chromium, Part II; specification for aluminium I-beam; aluminium welded tube for irrigation purposes; copper alloy hardeners (master alloys); white gold alloys; carburizing grade of bearing steels for the manufacture of balls, rollers and races; and steels for hardening and tempering.

7.7 The inaugural meeting of the Co-ordinating Committee on Materials for Automobiles (SMDC 31) was held on 9 September 1968 at New Delhi. The Co-ordinating Committee discussed the scope of work and set up a few panels to deal with various subjects allotted to it.

7.8 The Standing Working Committee of the Structural and Metals Division Council held its sixth meeting on 29 November 1968 at New Delhi. At this meeting the Committee reviewed and revised the composition of 16 sectional committees and approved 62 new subjects for inclusion in the programme of work of the relevant committees.

7.9 A list of 94 Indian Standards formulated by the Structural and Metals Division Council and sent to press during the period under report is given in Appendix A.

8. TEXTILE DIVISION

8.1 The Textile Division Council made satisfactory progress during the period under review. Fifty-five Indian Standards on various subjects were processed for publication, including revisions of 13 existing standards, while 64 standards were in the process of formulation of Indian Standards.

8.2 Of the standards published, special mention may be made of the following:

- a) In jute industry, the quality control and pre-shipment inspection scheme has been in operation since 1965, and important export items are covered by Indian Standards from time to time. In this connection, mention may be made of the three standards published during the period under review on new jute woolpack, jute carpet backing fabric and packaging of jute products in rolls.

With the object of competing with synthetic woolpacks, the new jute woolpack was developed by the jute industry and with

the publication of the standard, it would be possible to expand the export trade on woolpacks.

Jute carpet backing fabric is an important export item which earns foreign exchange to the tune of Rs 500 millions. The standard on this item will soon come under the fold of quality control and pre-shipment inspection for export.

- b) In the field of cordages, a specification on polyamide (nylon) filament ropes and a code for packaging of fibre ropes have been published.
- c) To give fillip to the small-scale hosiery industry where production of hosiery goods is concentrated, specifications for hosiery items, such as ladies' cardigans, cotton knitted string vests and plain-knitted cotton vests, inter-lock-knitted cotton vests were published.
- d) Among the jute mill accessories, card and gill pins are important expandable store items used in jute industry. The quality requirements of these pins are now laid down in the Indian Standard on card and gill pins which has been published.
- e) Standards on textile mill accessories, such as paper cones for winding yarn, perforated stainless steel cones for wet processing, picking sticks for underpick cotton looms, synthetic rubber aprons (reinforced) for drafting systems, wooden warp bobbins for rabeth spindles (*first revision* of IS : 1724), cotton healds for use in cotton looms (*first revision* of IS : 1739), pitch-bound wire reeds for use in jute looms (*first revision* of IS : 1552) were published.
- f) Specifications for aeronautical textile materials like nylon fabric used in the manufacture of man-dropping parachutes, nylon webbing, wire woven fabric for radar responsive target sleeves, were formulated with a view to encouraging indigenous production of the materials which were hitherto being imported.
- g) Code for packaging of ready-made garments intended for export Part II Airworthy packaging, gives the details of packaging of ready-made garments intended for export by air, which would ensure adequate protection to garments packed in corrugated fibreboard boxes. Proper packaging of the goods done with appropriate quality of packing materials as recommended in the code would protect the goods from the hazard of transit and preserve them from infestation and other deterioration.

8.3 The Textile Division Council held its eighteenth meeting on 7 January 1969 in New Delhi. The Council:

- a) re-elected Shri Harshavadan Mangaldas as its Chairman;
- b) reviewed and reconstituted the composition of the Standing Working Committee and 8 Sectional Committees; and

- c) approved 10 new subjects, namely, cotton waste, textiles for ammunition, postal bags, Indian hessian at 14 percent contract regain (305, 229 and 317 g/m²), new jute woolpack, braided nylon rope for mountaineering purposes, wooden cones for winding yarn, nylon fabric for sea-mine parachutes and woven glass fibre-fabric for aeronautical purposes, for formulation of Indian Standards.

8.3.1 While reviewing the progress of work of the Advisory Committee on Indian Standards for Accessories Used by the Textile Industry, it was pointed out that a thorough study was called for to find out the priority items of accessories and also to find ways and means for making the standards implementable. For this purpose, an *ad hoc* committee was set up consisting of Shri Harshavadan Mangaldas, Chairman TDC, Textile Commissioner, representatives of Indian Cotton Mills Federation and Accessory Manufacturers, Shri B. R. Ramaswamy, Chairman of TDC 19; and Director General of ISI, to prepare a basic paper for discussion and recommend proposals on the basis of the findings (*see* 8.4).

8.3.2 The Council also welcomed a suggestion made by Dr T. S. Subramanian 'Vice-Chairman of TDC' to make commodity specifications omnibus, stipulating the basic requirements, as for example, in hessian giving only the yarn count and ends and picks and then stipulate the other properties like breaking strength, etc, in relation to the basic requirements laid down. Dr Subramanian stated that a draft of such an omnibus specification for hessian would be placed for consideration of the Jute and Jute Products Sectional Committee (TDC 3) in 1969.

8.4 The *ad hoc* Committee for Implementation of Indian Standards on Cotton Mill Accessories held its first meeting on 21 February 1969 in Bombay to discuss the various aspects and to suggest measures for proposed implementation of Indian Standards pertaining to cotton mill accessories. Among others, the Committee took the following decisions :

- a) To create awareness about the role of Indian Standards in cotton mill accessories and the work done by this Institution, an illustrative pamphlet should be brought out.
- b) Write-ups and features should be contributed and information supplied regarding standards published and the future programme of work.
- c) Factories of textile stores manufacturers should be inspected and manufacturers contacted for bringing them within the fold of ISI Certification Marks Scheme.
- d) Textile and Allied Industries Research Organization (TAIRO) should be invited to develop instruments on ' life test '.
- e) Small technical committees/cells at the various association levels be formed through the good offices of Indian Cotton Mills Federation to review the Indian Standards on textile accessories and components and to promote ISI certified products in textile mills.

8.5 A list of 57 Indian Standards formulated by the Textile Division Council and sent to press during the period under review is given in Appendix A.

9. SECTIONAL COMMITTEES UNDER THE EXECUTIVE COMMITTEE

9.1 Documentation (EC 2)—The Twenty-third meeting of the Documentation Sectional Committee (EC 2) was held on 2 July 1968, when the co-option of some organizations to its two Subcommittees was approved; formation of a new transliteration subcommittee to study the problem connected with transliteration from Indian languages was recommended; and two Subcommittees and a Panel were dissolved.

During the year under report, one standard, namely, 'Indian Standard guide for preparation of manuscript of an article in a learned periodical' (IS: 4731-1968) was published; two draft Indian Standards, namely, 'Code of practice for handling and storage of microfilms' (*first revision of IS: 3130-1965*) and 'Abbreviations for titles of periodical publications' (*first revision of IS: 18-1949*), were approved for wide circulation; and a new subject, namely, storage and use of photographic prints, was approved for preparation of an Indian Standard.

The scope of work of the Production of Textbooks Subcommittee, was defined. The Subcommittee at its first meeting held on 2 July 1968 decided that the production of textbooks for use at primary, middle, higher and university stages of education should be considered. The following new subjects were taken up and three panels were appointed to prepare preliminary drafts on these subjects:

- a) Guide for the preparation of manuscript of a textbook;
- b) Design and reproduction of illustrations from originals photographs transparencies, etc, and for selection of paper;
- c) Recommendations for selection of types with respect to readability and presentation;
- d) Structural elements of a textbook; and
- e) Specification for sizes of books including trimming and binding.

9.2 Quality Control and Industrial Statistical Sectional Committee (EC 3)—The Committee held its sixth meeting and finalized for publication the draft Indian Standard on precision of test methods, Part I principles and applications. The draft Indian Standard on methods for statistical quality control during production, Part I control charts for variables, was approved for issuing into wide circulation for eliciting technical comments. The Committee also compiled draft Indian Standard regarding presentation of statistical data. These draft standards, when published as Indian Standards, would considerably promote the knowledge and application of statistical techniques in industries,

9.3 Work Study Sectional Committee (EC 9) — The first meeting of the Work Study Sectional Committee (EC 9) was held on 24 and 25 March 1969. At this meeting, the Committee approved the draft on glossary of terms in work study for putting into wide circulation for eliciting technical comments.

10. STATISTICS DEPARTMENT

10.1 An important feature of the year was the activation of the Work Study Sectional Committee (EC 9) which had been appointed towards the end of 1968 to formulate the necessary standards in the field of work study, so vital for ensuring the best possible utilization of human and material resources. Besides, the Department was also actively engaged in the formulation of a number of Indian Standards on methods for sampling of different types of materials as well as basic standards on control charts and other statistical techniques.

10.2 The Department continued to scrutinize the draft Indian Standards with the object of introducing, wherever possible, statistical quality control concepts in them. During the year under review, 594 draft Indian Standards were scrutinized and in 295 cases statistically sound sampling inspection plans were recommended. In almost all the cases these recommendations were accepted by the concerned Sectional Committees. In this connection, mention may be made of Indian Standard specifications for :

- a) IS : 1858-1964 Door mats, creel, bit and fibre (*revised*)
- b) IS : 4327-1967 Electric fans and regulators for use on board ships
- c) IS : 4673-1968 Wick feed lubricators
- d) IS : 4686-1968 Typewriter ribbon fabrics
- e) IS : 4783-1968 Thiram seed dressing formulations
- f) IS : 4824-1968 Bead wire for tyres
- g) IS : 4846-1968 Sodium potassium tartrate (Rochelle salt)

10.3 The Department scrutinized 44 routine sampling inspection schemes referred to it for the issue of licences under the ISI Certification Marks Scheme. The routine inspection data collected from different licensees in accordance with the recommended schemes were also statistically analyzed to find out whether or not the certified products conformed to the relevant Indian Standards.

The Department carried out extensive investigations and statistical analysis of the data for assisting the various aspects of standardization work. Among other things, these included:

- a) recommending of specification limits for a number of products like maize *ATTA*, guar seeds, myrobolan nuts, etc;

- b) reviewing the existing specification limits on the basis of the additional data collected on a routine basis as in the case of the neem fruits;
- c) estimating the precision of the test methods such as the computation of repeatability and reproducibility figures associated with the determination of smoke point of kerosine; and
- d) utilizing the data collected during the operation of the Certification Marks Scheme or otherwise to judge the adequacy of the sampling schemes recommended for different products like biscuits, condensed milk, starch, refractories, etc.

10.4 Comments and suggestions for improvement were also sent on a number of draft proposals from ISO and other overseas standards bodies pertaining to sampling of diverse products like tea, cereals and pulses, green coffee, cocoa, condensed milk, milk powder borers, acid and rennet caseins, etc.

11. RESEARCH AND INVESTIGATIONS

Agricultural and Food Products Division — Research and investigation undertaken by this Division related to analysis of *Dorsata* Honey for the chemical and physical characteristics; determination of fat and free-fat in pork products; total dye content in food colour preparations; permissible limit of copper in canned fish products; chemical composition of gin and vodka; alcoholic acidity in processed cereal infant foods in relation to keeping quality; capacity of the pipettes used for the determination of fat by Gerber method; acidity on storage in malathion, technical; wettability requirement for water dispersible powder concentrates used as pesticides; total pyrethrin content in pyrethrum emulsifiable concentrates; estimation of active ingredient content in thiram technical and its formulations by CS_2 evolution method and dimethylamine method; detection of the two impurities, namely, benzolacetone alkali insolubles and Alice's ketone in varrfarin technical and its formulations and coumafuryl, technical; botanical and chromatographic distinctions between cinnamon and cassia; and standardization of mouldboard plough shares on the basis of existing indigenous designs.

Chemical Division — The research and investigations conducted during the period under report related to testing of glass jars for chilling, solubility and thermal endurance; mosquito larvicidal oil for toxicity; peppermint oil for ester value, alcohol, ketones, refractive index and optical rotation; nickel chloride, nickel sulphate and xylene for pH value; Himalayan cedarwood oil for specific gravity, optical rotation, refractive index, solubility in alcohol, acid value and saponification value; stable bleaching powder for moisture content and loss of available chlorine.

Investigations were also carried out to determine the reproducibility of the methods of test for the R10, S10—S18 and S18 contents in cotton linters

in order to establish the relationship between these constituents on the one hand and the *alpha*, *beta* and *gamma* cellulose on the other. In order to arrive at comparative figures, samples of cylinder oil were tested for flash point by Cleveland and open cup method and Penskey Martens (closed) method. Work relating to collection of data was under progress for determination of foaming power of tooth paste; physico - chemical requirements of *henna* leaves and *henna* powder.

Civil Engineering Division — Research and investigations were in progress on revision of permissible limit of magnesia content in building limes, development of simple field tests for determining the abrasion resistance of cement concrete flooring tiles; effect of sediment on velocity distribution and hence on discharge; effect of sediment on the rating of current meters; minimum number of verticals for discharge measurement in canals; position of current meters with reference to the boat; investigations on the use of bubble gauge; effect of sediment on discharge coefficients of notches, weirs and flumes; instructions for collection of data for the determination of errors in the measurement of flow by velocity area methods; effect of bed formation by sediment motion (from drag) on flow in open channels; cupping and twisting of fibreboards; preservative treatment for cores for blockboards; and use of thinner metal fittings for plywood tea chests.

Structurals and Metals Division — The new research problem undertaken during the year related to the determination of pH value and viscosity of dextrin for use in foundries. The results of this investigation will be utilized in IS : 4269-1967 'Dextrin for use in foundries'. Work on the following research problem was in progress :

- a) Determination of physical and chemical characteristics of highly polished copper plates for photo engraving purposes,
- b) Standard sand for foundry sand control,
- c) Determination of baked properties requirements (baked tensile and transverse strength and scratch hardness values) of the standard core-oil-water mixture developed after using linseed oil,
- d) Exploration of sources of high silica sands,
- e) Investigations regarding suitability of indigenous high duty fireclay refractories for use in oil fired boiler furnaces of naval ships,
- f) Study of properties of indigenous fireclay stoppers and nozzles for steel plants, and
- g) Production of reference radiographs for steel welds and castings.

Textile Division — Samples of washed and unwashed wool were tested at the Wool Analysis Laboratory (Government of Rajasthan) Bikaner for the purpose of examining the deterioration in their physical and chemical properties on prolonged storing. The test report would be utilized to consider the question of stipulating in IS : 697-1963 'Woollen druggets for export

(revised)' a provision to use only washed wool in the manufacture of druggets.

Testing and practical trials on the samples of braided nylon ropes were conducted by the Chief Inspectorate of Textiles & Clothing, Kanpur and further trials are in progress in the Himalayan Mountaineering Institute, Darjeeling. The test report will be used in the preparation of standard on braided nylon ropes. Tests were carried out on card and gill pins by the National Test House, Calcutta and the Shalimar Industries Pvt Ltd, Calcutta. The results were helpful in finalizing the standard on the subject.

Investigations were carried out on indigenous species of timber suggested by the Forest Research Institute & Colleges, Dehra Dun for substituting the imported species prescribed in IS : 3496-1966 Specification for doobby lags and pegs. On the basis of this, a draft amendment to the standard has been issued under wide circulation to replace the specified imported species by (a) oak, gardenia, maple, white cedar, rose wood, sandan for lags and (b) box wood, oak, rose wood for pegs which are indigenous species of timber. It has also been found during the investigation that the species mentioned above for lags are suitable for use in conjunction with metal pegs as well.

INTERNATIONAL ACTIVITIES

1. INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

1.1 Out of 122 technical committees of the International Organization for Standardization (ISO), as on 31 March 1969, ISI was a Participating Member of 93 technical committees and an Observer Member of 29 others. Of these, the Institution held the Secretariat of 4 technical committees, 3 subcommittees and 9 working groups.

1.2 ISO Council and Executive Committee— The Council met on 12-15 June 1968 at Geneva under the chairmanship of Shri F. A. Sunter. India was represented by Shri Jehangir J. Ghandy, Vice-President of ISI, Dr A. N. Ghosh, Director General of ISI, and Shri K. N. P. Rao. The highlight of the meeting was that India, along with Netherlands and Poland, was elected as a member of the newly-constituted Executive Committee of ISO with UK, France, USSR, USA and Germany as other members. The Council also supported the formation of the International Standards Steering Committee for Consumer Affairs, in conjunction with the International Electrotechnical Commission (IEC) and approved its scope. Considerable dissatisfaction had been expressed about the working of the Central Secretariat and, in order to improve the working, the Council accepted the recommendation of the Executive Committee to replace the General Secretary. At its adjourned meeting held in London on 11 September 1968, which was attended by Dr A. N. Ghosh, the Council appointed Shri Olle Sturen, Director of the Sweden Standards Body, as the new Secretary General of ISO.

1.3 ISO Planning Committee (PLACO)— The Planning Committee, which is responsible for planning and coordinating the technical work of ISO met at Geneva on 11 June 1968 under the chairmanship of its new Chairman, Shri N. Ludwig. The meeting was attended by Shri Jehangir J. Ghandy,

Dr A. N. Ghosh and Shri K. N. P. Rao. The Committee discussed various technical points raised about the overlapping of work of different technical committees and revised their titles and scopes. Two new technical committees were recommended to be set up, namely, on tobacco and tobacco products, and construction and industrial machinery.

1.4 ISO Development Committee (DEVCO) — The seventh meeting of the DEVCO was held in Geneva from 13 to 15 March 1969 under the chairmanship of Shri R. Frontard. India was represented by Shri B. S. Krishnamachar, Deputy Director General. In addition to committee members from different countries representatives from United Nations Educational, Scientific and Cultural Organizations (UNESCO), United Nations International Development Organizations (UNIDO) and International Electrotechnical Commission (IEC) also participated in the meeting. Among the documents discussed at the meeting, was a paper contributed by India on curriculum for Training in Standardization, which was very much appreciated. Another paper presented by the Chairman, which among other things, suggested the setting up of an Executive Bureau (DEVPRO) to carry out the day-to-day functions of DEVCO, was approved with some modifications. Other important points discussed at the meeting included membership of DEVCO, job description for experts in standardization and drawing up their qualifications and United Nations assistance to developing countries for training courses in standardization.

1.5 ISO Standing Committee for the Study of Scientific Principles of Standardization (STACO) — A meeting of STACO was held on 9 September 1968 in London and was presided over by its Chairman, Shri T. R. B. Sanders. India was represented by Dr A. N. Ghosh. There was a general exchange of ideas with a view to simplifying the procedure of work so that implementation of STACO work could be expedited. A memorandum submitted by the Netherlands Member Body was also discussed and certain recommendations made.

Another meeting of STACO was held in Amsterdam from 17 to 21 March 1969 under the chairmanship of Shri T. R. B. Sanders, and was attended from India by Shri B. S. Krishnamachar, Deputy Director General. The important questions discussed at the meeting included the revised constitution of STACO, study of economic effects of international standardization on which subject a paper had been submitted by Dr A. N. Ghosh in 1967, implementation of the work done by STACO, and vocabulary and definitions related to the field of standardization.

1.6 ISO/IEC Standing Coordinating Committee — The meeting was held on 12 September 1968 in London under the Chairman of ISO President, Shri F. A. Sunter. Dr A. N. Ghosh attended the meeting which discussed important questions including overlapping in the work of technical committees of ISO and IEC, programme of assistance to developing countries, mechanization of data processing methods for handling technical documents and

formation of Standards Information Centre, reference to patented items in ISO and IEC publications, and relations with the Economic Commission for Europe.

1.7 ISO Technical Committees — A brief report on the work of ISO technical committees, subcommittees and working groups of interest to India is given in the following paragraphs.

ISO/TC 5 Pipes and Fittings — (Sectt : Switzerland)—Two draft ISO Recommendations relating to cast iron sanitary fittings for waste water and ventilation; and pipe connections for industrial application for plain end steel and other metal tubes were received and approved on behalf of India.

ISO/TC 6/SC 2 Test Methods and Quality Specifications for Paper and Board — (Sectt : UK)—Sixth meeting, 25-27 November 1968, London. Documents on measurement of printing properties and water vapour transmission rate; roughness and smoothness of papers; determination of ash content; stiffness and folding endurance were discussed at the meeting.

ISO/TC 12 Quantities, Units, Symbols, Conversion Factors and Conversion Tables — (Sectt : Denmark)—The following documents were circulated to all member-bodies by ISO Central Secretariat:

- a) Draft ISO Recommendation No. 1777 Quantities and units of physical chemistry and molecular physics
- b) Draft ISO Recommendation No. 1778 Quantities and units of light and related electromagnetic radiations

ISO/TC 12/SC 1 Procedures for Inter-Conversion of Values from One System of Units to Another — (Sectt : India)—The third draft proposal (Doc : 12/1 N 27) was modified in the light of the comments received from members of ISO/TC 12/SC 1 and ISO/TC 12, and the fourth draft proposal (Doc : 12/1 N 31) along with a letter ballot was circulated by the ISO/TC 12 Secretariat to members of ISO/TC 12 for approval.

ISO/TC 12/SC 2 General Rules for the Use of SI Units, Their Multiples and Sub-Multiples in the Various Industries — (Sectt : Denmark)—Draft ISO Recommendation No. 1557 ' Rules for the use of the international system of units and a selection of the decimal multiples and sub-multiples of the SI units ' has been adopted by a majority of ISO Member Bodies. The document has, at the same time, been adopted by ISO Council for issue as an ISO Recommendation.

The ISO Central Secretariat has undertaken the publication of a new ISO Recommendation registered under the following reference:

ISO/R 1000-1969 Rules for the use of units of the international system of units and a selection of the decimal multiples and sub-multiples of the SI units.

ISO/TC 17 Steel — (Sectt: UK) — Six Draft ISO Recommendations relating to rotating bar bending fatigue testing; axial load fatigue testing; torsional stress fatigue testing; Rockwell superficial hardness test (N & T scales) for steel; verification of Rockwell superficial N & T scales hardness testing machines; and calibration of standardized blocks to be used for Rockwell superficial N & T scale hardness testing machines were received and approved on behalf of India.

ISO/TC 17/WG 1 Methods for Mechanical Testing of Steel — (Sectt: UK) — Twenty-fourth meeting, 3-6 December 1968, London. Secretariat draft proposals on revisions of the following ISO Recommendations were considered:

ISO/R 86 Tensile testing of steel sheet and strip

ISO/R 89 Tensile testing of steel wire

ISO/R 136 Simple torsion testing of steel wire

ISO/R 144 Reverse bend testing of steel

ISO/R 375 Tensile testing of steel tubes

ISO/TC 17/WG 2 Classification and Designation of Steel — (Sectt: India) — Secretariat of this Working Group which was relinquished by UK has been taken over by India.

ISO/TC 17/WG 8 Dimensions of Hot Rolled Steel Sections — (Sectt: India) — Seventh meeting, 3-7 March 1969, Brussels. Forty-five delegats from 17 countries participated in this meeting.

India was represented by a delegation consisting of Shri O. S. Murthy, Chairman, Bharat Heavy Electricals Ltd; Shri S. Goswamy of Indian Iron and Steel Co Ltd, Burnpur; and Shri B. S. Krishnamachar, Deputy Director General, ISI, New Delhi. Shri O. S. Murthy was elected as Chairman for the meeting and Shri B. S. Krishnamachar acted as the Secretary.

Draft proposal for parallel flange column sections (metric series) was approved for submission to ISO/TC 17 Steel; draft proposal for parallel flange beam sections (metric series) except in the depth range of 200 to 300 mm was agreed upon; and proposals for beam series in the depth range of 200 to 300 mm were decided to be formulated and finalized by correspondence and forwarded to the Secretariat of ISO/TC 17.

USSR proposal for hot rolled channel sections (metric series) was discussed and it was agreed that USSR should also formulate draft proposals for sloping flange I-beam sections (metric series). Draft proposals for channel sections and sloping flange I-beam sections (metric series) would be discussed concurrently at the Working Group next meeting. Criteria for efficiency of I-beam series were also discussed.

ISO/TC 17/WG 9 Tinplate — (Sectt: UK) — Sixth meeting, 1-3 Oct 1968, Brussels. Present position of Draft ISO Recommendation No. 1374

'Cold reduced tinplate and black plate, Part I—Sheet', was reported and draft ISO proposals for cold reduced tinplate and cold reduced black plate, Part 2—Coils, and packaging of tinplate and black plate and colour coding of packages, were considered.

ISO/TC 18 Zinc and Zinc Alloys — (Sectt: Belgium) — Draft ISO Recommendation No. 1570 'Chemical analysis of zinc and zinc alloys photometric determination of tin' was approved on behalf of India.

ISO/TC 18/SC 1 Chemical Analysis of Zinc — (Sectt: Belgium) — Meeting, 25-27 September 1968, Berlin. India was not represented. ISO draft proposals for polarographic determination of lead and cadmium containing copper, complexometric determination of magnesium, electrolytic determination of copper in zinc alloys, were considered.

ISO/TC 20 Aircraft — (Sectt: UK) — The following documents were circulated to all the Member-Bodies by ISO Central Secretariat:

- a) Draft ISO Recommendation No. 1339 Aircraft electrical symbols
- b) Draft ISO Recommendation No. 1490 Performance requirements for heat-resisting (260°C) electrical cables with copper conductors for aircraft
- c) Draft ISO Recommendation No. 1491 Methods of test for heat-resisting (260°C) electrical cables with copper conductors for aircraft

ISO/TC 24 Sieves, Sieving and Other Sizing Methods — (Sectt: Germany) — The following documents became ISO Recommendations:

- a) Draft ISO proposal on test sieving by hand (Doc: 24/2 No. 55)
- b) Draft ISO proposal on terms and definitions relating to test sieves and test sieving (Doc: 24 No. 73)

ISO/TC 25 Cast Iron — (Sectt: UK) — Draft ISO Recommendation No. 1510 'Spheroidal graphite or nodular graphite cast iron' was received and approved on behalf of India.

ISO/TC 25/DPA Drafting Panel for Austenitic Cast Iron — (Sectt: UK) — First meeting, 10-11 February 1969, Paris. Draft proposal for austenitic cast iron was considered.

ISO/TC 26 Copper and Copper Alloys — (Sectt: Germany) — Thirteen draft ISO recommendations relating to chemical analysis of copper and copper alloys, electrolytic determination of copper in unalloyed copper containing not less than 99.90 percent of copper; determination of copper in wrought and cast copper alloys; tensile test for copper and copper alloy rolled flat products (less than 2.5 mm and not less than 0.5 mm thick); flattening test for copper and copper alloy tubes of circular section; fire refined high conductivity tough pitch copper refinery shapes; fire refined tough pitch copper refinery shapes; and mechanical properties of wrought copper and

copper alloys, such as rolled flat products, round tubes; condenser and heat exchanger tubes, solid products supplied in straight length and solid products supplied in coils or on reels: extruded sections of wrought copper alloys and forgings of wrought copper alloys, were received for comments and approved on behalf of India.

ISO/TC 26/WG 2 Wrought Copper and Copper Alloys — (Sectt: Germany) **ISO/TC 26/WG 4 Copper Refinery Shapes** — (Sectt: USA) — Meeting, May 1968, Berlin. India did not participate. The problem of dividing line between 'copper' and 'copper alloys' was discussed.

ISO/TC 34 Agricultural Food Products (Sectt: Hungary) — Seventh plenary meeting, 1 Nov 1968, London, under the chairmanship of Prof L. Telegdy-Kovats of the Technical University, Budapest, Hungary. India was represented by Dr J. S. Pruthi, Director, Central Agmark Laboratory, Nagpur and Dr Hari Bhagwan (ISI). The Committee considered the reports of its 6 Subcommittees which had met earlier.

ISO/TC 34/SC 2/WG 1 — Sampling (of Oleaginous Seeds and Fruits) — (Sectt: United Kingdom) — The second Working Group Draft, Oilseed Residues — Sampling. [Doc: ISO/TC 34/SC 2/WG 1 (Sectt-21) 35] was circulated by the Secretariat to all Working Group members for comments.

ISO/TC 34/SC 3 Fruits, Vegetables and Their Derived Products — (Sectt: Poland) — Eighth meeting, 9 October 1968, Warsaw (Poland). No delegate from India could attend the meeting. The following draft proposals were considered and approved for sending to the Secretariat of ISO/TC 34, for vote of all the Member-Bodies of ISO, as Draft ISO Recommendations:

- a) Nomenclature of fruits and vegetables, 1st list;
- b) Nomenclature of fruits and vegetables, 2nd list;
- c) Nomenclature of structural parts, 1st list;
- d) Sampling (or plan type for sampling) for products derived from fruits and vegetables;
- e) Cold storage of grapes;
- f) Storage and transport of avocados;
- g) Storage of potatoes in open (in clamps);
- h) Cold storage of apricots;
- j) Control of physical conditions in cold storage rooms; and
- k) Ripening of fruits and vegetables after cold storage.

ISO/TC 34/SC 4/WG 2 Storage of Cereals and Pulses — (Sectt: UK) — Second meeting, 18-20 March 1969, Paris. This meeting was held in joint session with the meeting of ICC Working Group 'Suitability

of Cereals for Storage'. India was represented by Dr S. V. Pingale, Director (Storage and Inspection), Ministry of Food, Agriculture, Community Development and Co-operation, New Delhi. The most important discussion related to various criteria that are at present considered indicative of the extent of deterioration. These criteria were based on viability, acidity, composition of protein, development of odours and development of off colours. The Working Group finally agreed to intensify investigations between various countries on 11 items; of these, India would collaborate on 2 items.

ISO/TC 34/SC 5 Milk and Milk Products — (Sectt : Netherlands) — Fourth meeting, 28 and 31 October 1968, London, under the chairmanship of Dr G. F. Wilmink (Netherlands). The following decisions were taken:

- a) DNA should finalize Draft Recommendations No. 811 'Butter triers' and No. 812 'Cheese triers' to combine them into one document which should be sent to the Secretariat for transmission to ISO Central Secretariat to be circulated as second Draft ISO Recommendation to member bodies.
- b) The Secretariat should send the final version of the document on determination of chloride in cheese, after consultation with IDF, to ISO/TC 34 Secretariat for circulation as Draft Recommendation to member bodies.
- c) ISO/TC 34/SC 5 Secretariat should set up in collaboration with IDF and AOAC a Tripartite Group for the study of the determination of water in cheese by the Karl Fischer Method.

ISO/TC 34/SC 5/WG 1 Fat Content of Milk and Milk Products (Except Butter and Cheese) — (Sectt : UK) — Fourth meeting, 29 October 1968, London, under the chairmanship of Dr J. C. D. White (UK). The Working Group decided as follows:

- a) The Secretariat should prepare a revised version of the draft proposal on the determination of fat content of milk (Gerber method).
- b) The members be requested to submit their written comments on the draft reference method for the determination of fat in cream.
- c) The Working Group shall proceed with the preparation of the Gerber method for the determination of fat in milk and the reference method for the determination of fat in cream.

ISO/TC 34/SC 5/WG 2 Analysis of Cheese — (Sectt : Germany) — Third meeting, London, 29-30 October 1968, under the chairmanship of Dr H. W. Kay (Germany). The main decisions reached were as follows:

- a) The van Gulik method for fat in cheese be included in the programme of work.
- b) The document on determination of chloride in cheese be sent to SC 5 Secretariat for onward transmission.

- c) Work on the determination of dry matter in cheese by the oven-drying method be postponed until SC 5 Secretariat has consulted IDF.
- d) The Secretariat should set up a Tripartite Group for study of Karl Fischer method for the determination of water in cheese.

ISO/TC 34/SC 5/WG 3 Sampling — (Sectt: Hungary) — 30 October 1968. The following documents were considered at the meeting:

- a) First Draft Proposal for selection and number of samples of milk and milk products
- b) Introductory and explanatory notes to ISO Recommendation/IDF Standards
- c) Examples for selection and number of samples of milk and milk products.

ISO/TC 34/SC 6 Meat and Meat Products — (Sectt: Germany) — Sixth meeting, 25 October 1968, London. No delegate from India could attend the meeting. Meetings of Working Groups 1, 2 and 3 also held from 21 to 24 October 1968 in London. It was decided that SC 6 Secretariat be authorized to forward to the ISO/TC 34 Secretariat, with a view to circulation as Draft ISO Recommendation for letter ballot by all the ISO Member Bodies, the following draft proposals when completed by the SC 6 Working Groups:

- a) Vocabulary of living animals for slaughter: Horses meat and meat products
- b) Counting of coliform bacteria and *E. coli*
- c) Basic materials for microbiological determination (second series)
- d) Determination of starch
- e) Determination of nitrite
- f) Determination of nitrate
- g) Animal fats
 - 1) Determination of Bomer value
 - 2) Determination of acidity
 - 3) Preparation of total water-insoluble fatty acids
 - 4) Determination of alkalinity
 - 5) Detection of antioxidants

ISO/TC 34/SC 7 Spices and Condiments — (Sectt: India) — Sixth meeting, 29-31 October 1968, London, under the chairmanship of Prof L. Telegdy-Kovats of the Technical University, Budapest, Hungary. The Indian delegation comprised Dr J. S. Pruthi, Director, Central Agmark Laboratory, Nagpur; Shri P. M. Dowlathram of P. Mittulaul Lalah and Sons, Madras, and Dr Hari Bhagwan, who also acted as the Secretary for the

meeting. The following business was transacted:

- a) The Subcommittee finalized for further processing as Draft ISO Recommendations, five draft proposals on (1) Curry powder, (2) Cloves, (3) Coriander, (4) Cinnamon, and (5) Dehydrated mint. Specially, the ISO Recommendation on curry powder would place our exports on a better footing.
- b) The Subcommittee also discussed the following documents/subjects:
 - 1) Nomenclature — Second list,
 - 2) Preparation of test sample,
 - 3) Determination of piperine in black pepper,
 - 4) Methods of sampling and test for ground red paprika,
 - 5) Determination of degree of fineness of grinding,
 - 6) Dehydrated onion, and
 - 7) Dehydrated garlic.
- c) Turmeric and caraway were included in the future programme of work.

ISO/TC 34/SC 7/WG 1 Determination of Moisture — (Sectt: UK) — First meeting, 28 October 1968, London, under the chairmanship of Mr G. R. A. Short of United Kingdom. The Working Group sorted out various controversial issues with a view to expediting the finalization of the method.

ISO/TC 34/SC 7/WG 4 Determination of Volatile Oil — (Sectt: UK) — First meeting, 28 October 1968, London, under the chairmanship of Mr G. R. A. Short of United Kingdom. The Working Group sorted out various controversial issues with a view to expediting finalization of the method for determination of volatile oil.

ISO/TC 34/SC 7/WG 5 Sensory Evaluation — (Sectt: Germany) — First meeting, 29 October 1968, London, under the chairmanship of Mr G. R. A. Short of United Kingdom. The Working Group decided to (a) modify the title as 'Sensory Evaluation' and (b) define the scope as:

'To deal with the assessment of organoleptic properties, terminology and sensory methods, especially applicable to spices and condiments and possible correlations of results with those arrived at by objective methods of analysis.'

ISO/TC 34/SC 8 Stimulant Foods — (Sectt: India) — Fourth meeting, 25 October 1968, London, under the chairmanship of Dr D. S. Bhatia of Coca Cola Export Corporation (India); Dr Hari Bhagwan of ISI acted as Secretary. Shri A. K. Roy, Chairman, Tea Board, also attended the meeting. Reports of three Working Groups on tea, coffee and cocoa

were considered. Some of the important decisions are given below:

- a) The trend of discussions on specification for black tea was changed to favour our exports.
- b) Agreement was reached on the definitions of 20 terms related to coffee. These definitions would significantly influence the grading and pricing of coffee beans.
- c) Agreement was reached on routine method of estimation of moisture content in cocoa beans and sampling of cocoa beans.
- d) SC 8 Secretariat was assigned the task of preparing a document on sampling of tea, coffee and cocoa.

ISO/TC 34/SC 8/WG 1 Tea — (Sectt: UK) — Third meeting, 21-23 October 1968, London, under the chairmanship of Mr G. W. U. Liddle (UK); Shri A. K. Roy, Dr D. S. Bhatia, Mr G. Ammesley-Cooke, Vice-President, South India Association, London and Dr Hari Bhagwan of ISI, attended the meeting on behalf of India. The subjects considered at the meeting related to sampling and specifications for tea, glossary of terms relating to tea trade, preparation of infusion for taste test, etc.

ISO/TC 34/SC 8/WG 2 Coffee — (Sectt: Argentina) — Third meeting, 14-16 October 1968, London, under the chairmanship of Prof Telegdy-Kovats (Hungary). Dr D. S. Bhatia and Dr Hari Bhagwan attended the meeting on behalf of India. The subjects considered at the meeting covered terminology related to coffee trade and sampling of green coffee beans.

ISO/TC 34/SC 8/WG 3 Cocoa — (Sectt: France) — Second meeting, 24 October 1968, London, under the chairmanship of Shri M. Coste (France). Dr D. S. Bhatia and Dr Hari Bhagwan attended the meeting on behalf of India. The subjects considered at the meeting related to routine method of estimation of moisture content in cocoa beans, sampling of cocoa beans and specifications for cocoa beans.

ISO/TC 36 Cinematography — (Sectt: USA) — Sixth meeting, 14-19 June 1967, Moscow. No delegate from India could attend the meeting. The following Draft ISO Recommendations were considered:

- a) *Draft ISO Recommendations Finalized for Publication*
 - 1) Cutting and perforating dimensions for double 8 mm motion-picture raw stock
 - 2) Cutting and perforating dimensions for 35 mm motion-picture raw stock
- b) *Draft ISO Recommendations Issued/or in Final Stages of Processing*
 - 1) Location and area of image produced by camera aperture (non-anamorphic and anamorphic pictures) on 35 mm motion-picture film

- 2) Location and area of projected image (non-anamorphic and anamorphic pictures) on 35 mm motion-picture film
- 3) 35 mm Film, single-track magnetic optional sound for release prints
- 4) Recorded characteristic for magnetic sound records on 16 mm perforated film
- 5) Recorded characteristic for magnetic sound records on 35 mm perforated film
- 6) Dimensions for all types of 16 mm film
- 7) Edge track recording on 16 mm film
- 8) Centre track recording on 16 mm film
- 9) 8 mm Camera spools
- 10) 16 mm Camera spools for 15 m (50 ft), 30 m (100 ft) and 60 m (200 ft) capacities
- 11) Film cores for all sizes of perforated motion-picture and magnetic film
- 12) Projection reels for 8 mm film
- 13) Sprockets for 35 mm projectors
- 14) Picture areas of motion-picture films and slides for transmission by television
- 15) Magnetic striping for 8 mm motion-picture film

ISO/TC 38 Textiles — (Sect: UK) — The following Draft ISO Recommendations were received from the Central Secretariat of ISO for comments:

- a) No. 1214 Amendment to ISO Recommendation R 105/I Tests for colour fastness of textiles (fifth series)
- b) No. 1412 Textiles: universal yarn numbering system (tex)
- c) No. 1610 Methods of fibre sampling for testing
- d) No. 1343 Three strand polyamide multifilament ropes
- e) No. 1344 Three strand polyester multifilament ropes
- f) No. 1345 Three or four strand manila and sisal ropes
- g) No. 1346 Three strand (hawser-laid) and eight strand (plaited) polypropylene monofilament or film ropes
- h) No. 1347 Sampling and conditioning of ropes for testing
- j) No. 1763 Method of test for determination of number of tufts per unit length of a carpet
- k) No. 1764 Method of test for determination of mass per unit area of machine-made textile floor coverings
- m) No. 1765 Method of test for determination of thickness of machine-made textile floor coverings

ISO/R 833 1968 Abbreviations of generic names in titles of periodicals

ISO/R 843 1968 International system for the transliteration of Greek into Latin characters

ISO/R 999 1969 Index of a publication

Although draft ISO Recommendation No. 1278 (ISO/R 4) 'International code for the abbreviation of titles of periodicals' has been accepted as an ISO Recommendation by the ISO Council, a small *ad hoc* group has been established to re-examine the text.

ISO/TC 46 SC 1 Documentary Reproduction — (Sectt: France) — Two recommendations, namely (a) ISO/R 689 1968 Microcopies. Legibility tests. Description and use of the ISO micromire (ISO micro test object) for checking a reading apparatus; and (b) Microcopy. Measurement of the screen luminance of microfilm readers were published.

ISO/TC 46 SC 2 Conversion of Written Languages — (Sectt: USA) — Work is in progress on items, such as Conversion of Yiddish and Conversion of Non-Slavic Cyrillic letters, Romanization of Chinese and Romanization of Japanese. The revision of ISO/R 259 Hebrew is to be included in the next year's programme.

ISO/TC 48 Laboratory Glassware and Related Apparatus — (Sectt: UK) — 12th meeting, 28 June 1968, London. The meeting was preceded by the meetings of its Working Groups held during 24 to 27 June 1968. India could not participate. Thirteen draft proposals were approved. It was decided to revise ten ISO Recommendations, most of which related to thermometers, on the basis of the modifications proposed by their respective Working Groups.

ISO/TC 52 Hermetically Sealed Metal Food Containers — (Sectt: UK) — Seventh meeting, 9-11 July 1968, London, under the chairmanship of Mr G. Weston. A list of principal diameters in current use as well as a list which will form a target to be reached as a long term objective for open top cans were decided upon.

ISO/TC 55 Sawn Timber — (Sectt: USSR) — The following draft ISO Recommendations were submitted to ISO Council for approval:

- a) ISO/TC 55 (Secretariat—51) 133 revised—Draft ISO Recommendation No. 1258. Coniferous sawn timber. Defects. Terms and definitions.
- b) ISO/TC 55 (Secretariat—49) 131 revised—Draft ISO Recommendation No. 1256. Coniferous sawn timber. Defects. Classification.
- c) ISO/TC 55 (Secretariat—50) 132 revised—Draft ISO Recommendation No. 1257. Coniferous sawn timber. Defects. Measurement.

- d) ISO/TC 55 (Secretariat—54) 136 revised—Draft ISO Recommendation No. 1259. Coniferous sawn timber. Sizes. Terms and definitions.

The following ISO Recommendations were published:

- e) ISO Recommendation No. 737-68. Coniferous sawn timber. Sizes. Methods of measurement.
f) ISO Recommendation No. 738-68. Coniferous sawn timber. Sizes. Tolerances and Shrinkage.

ISO/TC 56 Mica — (Sectt: India) — No meeting was held during the year 1968. Draft ISO proposal for electrical classification of mica was referred to IEC/TC 15 Insulating Materials. IEC/TC 15 has opined that on the basis of the information available no new test method can be developed and the electrical behaviour of mica can be evaluated on the basis of already available IEC Publications, and that any further work such as classification and selection should belong to the Committees dealing with equipment using mica. These opinions have been conveyed to the members of ISO/TC 56 for their comments.

ISO/TC 59 Building Construction — (Sectt: France) — Fifth meeting, 1-5 October 1968, Milan.

The following draft recommendations were submitted to Council Members for acceptance as ISO Recommendations:

- a) ISO/DR-1410 (revised text) Modular coordination basic module
b) ISO/DR-1411 (revised text) Modular coordination, horizontal multi-module
c) ISO/DR-1426 (revised text) Architectural and building drawings, definitions and nomenclatures
d) ISO/DR-1427 (revised text) Architectural and building drawings, representation of drawings, scales.

It was decided to set up three new subcommittees whose provisional titles are as mentioned below:

- a) ISO/TC 59/SC 6 Structures, external covering and internal division
b) ISO/TC 59/SC 7 Equipment, services and drainage
c) ISO/TC 59/SC 8 External works

Subsequent to the formation of above three Subcommittees the titles of ISO/TC 59/SC 2 was changed to ' General Terminology and Symbols '.

ISO/TC 69 Application of Statistical Methods — (Sectt: France) — First meeting of Working Group ISO/TC 69/WG 2 Presentation of Data 8-9 October 1968, Brussels. The following two documents were discussed:

- a) ISO/TC 69 (Belgium—2) 86 Presentation of results.

- b) ISO/TC 69 (France—7) 99 Presentation of results—French counter proposal

Draft ISO Recommendation No. 1786 ' Statistical vocabulary and symbols, Second series of terms and symbols ' was received from ISO Central Secretariat for technical comments.

ISO/TC 71 Concrete and Reinforced Concrete — (Sectt : Austria) — Second meeting, 16-18 October 1968, Vienna. The following working documents were considered :

- a) ISO/TC 71 (Sectt-32) 37 Tolerances for test specimens (second draft ISO proposal)
 b) ISO/TC 71 (Sectt-36) 41 Dimensions for test specimens (third draft ISO proposal)

ISO/TC 72 Textile Machinery and Accessories — (Sectt : Switzerland) — Following draft ISO Recommendations were received from the ISO Central Secretariat for comments :

- a) No. 1586 Terms for shuttles
 b) No. 1665 Closed-end drop wires (electrical and mechanical) for automatic drawing in machines
 c) No. 1808 Packages for yarns and intermediate products, basic terms
 d) No. 1809 Formers types, supports types

ISO/TC 72/SC 1 Spinning Preparatory, Spinning and Doubling (Twisting) Machinery — (Sectt : Switzerland) — Seventh meeting, 15-16 October 1968, Zurich (Switzerland). India was not represented. The decisions given below were taken :

- a) Draft Recommendation on condenser bobbins be circulated.
 b) New document for tubes for draw winders for man-made fibres be prepared.
 c) The following documents be circulated to all members of the Subcommittee :
- 1) Metal travellers for spinning and doubling,
 - 2) Drafting arrangements—Terminology,
 - 3) Spinning machinery—Terminology,
 - 4) Warp tubes, 1 : 38, lengths over 400 mm,
 - 5) Rings for ring-spinning and ring-doubling frames—Reversible for 'C' travellers (revision of ISO/R 95-1959),
 - 6) Rings for ring-spinning and ring-doubling frames—non-reversible for 'C' travellers (revision of ISO/R 96-1959),
 - 7) Rings for ring-spinning and ring-doubling frames for ear-shaped travellers (revision of ISO/R 97-1959),

- 8) Rings for ring spinning and ring doubling frames—non-reversible, and
- 9) Spindle gauges (revision of ISO/R 94-1959).
- d) New document for basic symbols for indicator plates on textile machines be submitted to TC 72.
- e) The following work be taken up in order of priority given below :
 - 1) Warp tubes tapes other than 1:38, 1:40,
 - 2) Working widths of woollen and worsted cards (revision of ISO/R 342),
 - 3) Cots for top rollers (revision of ISO/R 98), and
 - 4) Metric Card Gauges.

ISO/TC 72/SC 2 Winding and Weaving Preparatory Machinery — (Sectt: Germany) — Sixth meeting, 17-18 October 1968, Zurich (Switzerland). India was not represented. The following documents were considered in the meeting:

- a) Warping creels, horizontal and vertical pitch between packages
- b) Cone warping machines, useful width
- c) Weaving preparatory machinery; preparation for weaving; terms and definitions
- d) Cross wound yarn, basic terms
- e) Cones for yarn winding (cross wound), half angle of the cone $3^{\circ} 30'$
- f) Cones for cross winding, half angle of the cone $5^{\circ} 57'$ (Amendment of ISO/R 326)

ISO/TC 72/WG C Weaving Machinery — (Sectt: UK) — Tenth meeting, 22-23 May 1968, Manchester. India was not represented. It was decided that:

- a) The following documents be circulated as Draft ISO Recommendations:
 - 1) Lingo for healds for jacquard weaving,
 - 2) Twin wire healds with flat-oval inset mail, and
 - 3) Pirns with rings for winding at the loom.
- b) 'Handling of shuttles' be added to Document on Terminology for Shuttles.
- c) 'Shuttles for high speed looms' be added in the programme of work.
- d) Revised documents in respect of: serrated bars for warp stop motion, and ringless pirns for winding at the looms be circulated to the Working Group for comments.

ISO/TC 72/WG E Sectional Beams for Warp Knitting Machines — (Sectt: Germany) — Fifth meeting, 14-15 November 1968, Freiburg (Germany). India was not represented.

It was decided that:

- a) the following documents as amended be consolidated into one single new document entitled 'Variations of form and position of sectional beams for warp knitting machines' and be circulated to Working Group for comments.
 - 1) Variations of Foam and Position of Sectional Beams for Warp Knitting Machines; Terms and Definitions; Method of Test;
 - 2) Variations of Form and Position of Sectional Beams for Warp Knitting Machines; Proposed Numerical Values.
- b) revised text of the Draft ISO Recommendation No. 1476 'Sectional beams, terminology, dimensions', be prepared.

ISO/TC 74 Hydraulic Binders — (Sectt: Belgium) — The following draft ISO Recommendations received from ISO Central Secretariat were approved for submission to ISO Council with a view to their acceptance for publication:

- a) ISO/TC 74 (Sectt—117) 202 Gypsum rock for the manufacture of binders
- b) ISO/TC 74 (Sectt—119) 204 Definitions, classifications and nomenclature of binders based on calcium sulphate
- c) ISO/TC 74 (Sectt—122) 207 Pozzolanicity test for pozzolanic cements.

The document was received for our views for acceptance for publication and the same has been approved.

ISO/TC 77 Products in Asbestos Cement — (Sectt: Switzerland) — The following ISO Draft Recommendations were received for acceptance by Member-Bodies and are now under print:

- a) ISO/R 880-1968 Asbestos cement siding shingles
- b) ISO/R 881-1968 Asbestos cement pipes, joints and fittings for sewerage and drainage.

ISO/TC 79 Light Metals and Their Alloys — (Sectt: France) — Twenty draft ISO Recommendations relating to chemical analysis of aluminium and its alloys, photometric determination of iron, copper, silicon and manganese; electrolytic determination of copper in aluminium alloys; gravimetric determination of silicon and zinc; determination of titanium; chemical analysis of magnesium and its alloys, gravimetric determination of aluminium in magnesium alloys; polarographic determination of zinc; photometric determination of manganese, iron, and copper: mechanical properties of rolled products of aluminium and aluminium alloys, extruded

products, rivet stock, and aluminium alloy forgings, were received and approved on behalf of India.

ISO/TC 79/SC 1 Chemical and Spectro-graphic Analysis of Light Metals — (Sectt: Italy) — Meeting, 5-7 June 1968, Venice (Italy). India was not represented at the meeting. At this meeting, draft ISO proposals for volumetric determination of magnesium, photometric method of chromium and spectrophotometric method of nickel in aluminium alloys, spectro-photometric method for determination of iron, silicon and copper in high purity aluminium, atomic absorption procedure for copper, iron, magnesium and zinc in high purity aluminium, photometric method for silicon in magnesium and aluminium alloys; spectrophotometric method of nickel and rare earths in magnesium alloys and manganese in special alloys of magnesium were considered.

ISO/TC 79/SC 2 Anodized Aluminium — (Sectt: France) — First meeting, 19-21 February 1969, Paris. India was not represented. At this meeting, Draft ISO proposals for surface treatment of metals anodization (anodic oxidation); measurement of thickness; non-destructive measurement by optical split beam microscope; insulation check-measurement of breakdown potential; measurement of the mass of the oxide coatings—gravimetric method; qualitative test of sealing—estimation of the loss of absorptive power by colourant drop test with prior acid action; check of continuity of this coating—copper sulphate test; and determination of strength to light of oxide coloured coating of aluminium and its alloys were considered.

ISO/TC 79/WG 3 Magnesium and Its Alloys Cast and Wrought — (Sectt: France) — Meeting, 5 December 1968, Paris. India was not represented. At this meeting, Draft ISO proposal for mechanical properties of magnesium-aluminium-zinc casting alloys was considered.

ISO/TC 79/WG 4 Wrought Aluminium and Aluminium Alloys — (Sectt: France) — Meeting, 2-4 December 1968, Paris. India was not represented. Draft ISO proposals for mechanical characteristics of rolled products, selection of test samples, general technical delivery requirements; and determination of strained hardened of cold worked wrought products of aluminium and aluminium alloys were considered.

ISO/TC 79/WG 5 Mechanical Properties of Cast Pieces in Aluminium and Magnesium Alloys — (Sectt: France) — Meeting, 5 December 1968, Paris. India was not represented. Draft ISO proposals for mechanical properties on sand cast aluminium test bars, and mechanical properties of chill cast aluminium alloys were considered.

ISO/TC 81 Common Names for Pesticides — (Sectt: UK) — Draft ISO Recommendation for principals for the selection of common names for pesticides and plant growth regulants (revision of ISO Recommendation R 257) and common names for pesticides (fifteenth list) were received for comments and approved on behalf of India.

ISO/TC 89 Boards Made From Wood or Other Lingo-cellulosic Fibrous Materials — (Sectt : Germany) — Draft ISO Recommendations No. 1581, 1582 and 1583 dealing with plywood: classification, measurement of dimensions of panels and veneered plywood for general use—general requirements—were submitted to all ISO Member-Bodies for approval for submission to the Council. In addition, Draft ISO Recommendations No. 956 to 961 on fibre building boards—definition classification; determination of density, and particle boards—definition, classification; determination of dimensions of test pieces; determination of density and determination of moisture contents; were accepted as ISO Recommendation for publication as ISO/R 878-1968 to ISO/R 883-1968.

ISO/TC 92 Fire Tests on Building Materials and Structures — (Sectt : UK) — ISO Recommendation No. R 834 ' Fire resistance test of structures ' was published. Following two documents received from ISO Secretariat for casting India's vote were duly approved :

- a) DR 1715 Recommendation for non-combustibility test
- b) DR 1716 Recommendation for calorimetric bomb test

ISO/TC 96/WG 1 Basic Information on Cranes and Excavators — (Sectt : UK) — Meeting, 27-29 November 1968, Berlin. India was not represented. Draft proposal for stability of mobile cranes was considered.

ISO/TC 96/WG 3 Selection of Steel Wire Ropes for Cranes — (Sectt : UK) — Meeting, 25-26 November 1968, Berlin. The Working Group felt the urgent need for establishing a classification system for all measurements associated with the wire rope systems of lifting appliances irrespective of any other classification, as are necessary at preliminary stage in reaching agreement on the methods of selecting wire ropes and associated equipment.

ISO/TC 99 Semi-Manufacturers of Timber — (Sectt : Romania) — Draft ISO Recommendation No. 885 (revised test) ' General manufacturing characteristics of solid wood parquet strips with rectangular face ' was submitted to ISO Council for acceptance as ISO Recommendation.

A working group to deal with classification of tropical wood parquet strips was set up with Italy as its Secretariat.

ISO/TC 102 Iron Ores — (Sectt : Japan) — Six draft proposals for ISO Recommendations on sampling and preparation of samples of iron ores were circulated to member countries for approval. These draft proposals were not approved by India.

ISO/TC 102/SC 1 Sampling — (Sectt : Japan) — Draft proposals for ISO Recommendations on methods for evaluation of quality variation of iron ores, experimental methods for checking the precision of sampling of iron ore, moisture determination of iron ores and experimental methods

for checking the basis of sampling of iron ores were received and circulated to the national committee for comments.

ISO/TC 102/WG 1 Physical Testing of Iron — (Sectt : USA) — Fourth meeting, 30 September — 4 October 1968, Dusseldorf. India was not represented. The following items were discussed at the meeting: (a) Tumbler test, (b) Bulk density, (c) Absolute specific gravity, (d) Reducibility, and (e) Apparent specific gravity.

In addition, it was decided to set up an *ad hoc* Working Party (ISO/TC 102/WG 1 Sub Group A), consisting of one nominated representative of each member country, with a view to maintaining liaison between the Working Group ISO/TC 102/WG 1 and ISO/TC 102/WG 2 Size Determination of Iron Ores.

ISO/TC 102/WG 2 Size Determination — (Sectt : UK) — Second meeting, 23-27 September 1968, London. India was not represented. Besides consideration of second draft ISO proposal for method of size analysis by sieving of iron ore and related materials in natural and processed form, the future work concerning—4 mm material, wet sieving and other subjects was considered. An *ad hoc* panel with eight member countries as its members was constituted to undertake various items of work listed in the resolutions, establish values and other data and report the results to the Secretariat.

ISO/TC 104 Freight Containers — (Sectt : USA) — Draft ISO Recommendations No. 1055 'Terminology relating to freight containers' was accepted for publication as ISO/R 830-1968.

Draft ISO Recommendation No. 1497 'Specification for testing of series 2 freight containers' was submitted to all ISO Member-Bodies for their approval for submission to the Council.

Draft ISO/Recommendation No. 1019 'Specification for corner fittings for series 1 freight containers, 1A, 1B, 1C and 1D' were submitted to ISO Member-Bodies for approval.

ISO/TC 106 Dentistry — (Sectt : UK) — Fourth meeting, 6-7 September 1968, Munich. Two documents were approved as draft proposals while two draft proposals were approved as draft ISO Recommendations. Two *ad hoc* study groups were set up to examine further development of the proposals for classification of dental equipment and working position of the dentist.

ISO/TC 107 Metallic and Other Non-Organic Coatings — (Sectt : Italy) — Nine draft ISO Recommendations relating to electroplated coatings of nickel plus chromium; copper plus nickel plus chromium on steel; nickel; guiding principles for protection against corrosion by hot dip galvanizing; determination of weight per unit area of hot dip galvanized coatings on ferrous materials by chemical dissolution of coating-gravimetric method; requirements for hot dip galvanized coatings on fabricated ferrous products; method for evaluation of results of accelerated corrosion tests on coatings other than those anodic to basis metal; and measurement of metal and oxide

coating thicknesses by microscopic examination of cross-section, were received and approved on behalf of India.

ISO/TC 107/WG 6 Vitreous or Porcelain Enamels — (Sectt : Germany) — First meeting, 6-7 June 1968, Wurzburg (Germany). Eight draft proposals pertaining to production of specimens, apparatus and methods of testing vitreous and porcelain enamel were considered and were approved for being sent to ISO/TC 107 for consideration.

ISO/TC 113 Measurement of Liquid Flow in Open Channels — (Sectt : India) — Second meeting, 12-13 July 1968, Paris. Meetings of Working Groups 1, 2, 3, 4, 5 and 6 (all Sectts : India) were also held on 1-11 July 1968. At these meetings, India was represented by Shri K. K. Framji, Secretary General of International Commission on Irrigation and Drainage (ICID) (Leader), who also acted as Chairman of ISO/TC 113/WG 6; Prof. Govinda Rao, Adviser Central Board of Irrigation and Power (CBIP); Shri C. V. Gole, Director Central Water and Power Research Station (CWPRS), Poona; and Shri R. Nagarajan, Director, Civil Engineering (ISI), New Delhi.

ISO Recommendation No. 772 on glossary of terms and symbols was published and ISO Recommendation No. 748 on velocity area method is under print. Draft ISO Recommendation No. 1140, 1071 and 995 on slope area method, stage discharge relation and collection of data for analysis errors respectively, were under consideration of ISO Council. Draft ISO Recommendation No. 1438 on weirs and flumes completed its circulation to members.

The Technical Committee approved the following drafts for further processing as Draft ISO Recommendations:

- a) Triangular Profile Weirs,
- b) Movable Broad Crested Weirs,
- c) Brink Depth Method, and
- d) Weirs of Finite Crest Width.

ISO/TC 117 Methods of Testing Industrial Fans — (Sectt : UK) — The following Working Groups of ISO/TC 117 held their meetings on the dates mentioned against each:

	<i>Date</i>	<i>Place</i>
ISO/TC 117/SC 1/WG 1 Rules for Fan Performance Testing	30 Sep and 1 Oct 1968	London
ISO/TC 117/SC 1/WG 2 Methods for Fan Performance Testing with Standardized Airways	2 & 3 Oct 1968	London
ISO/TC 117/SC 1/WG 3 Site Testing of Fans	16 & 17 Jan 1968, 5 & 6 Nov 1968	Bruxells -do-

India did not attend these meetings.

ISO/TC 122/SC 1 Packaging Dimensions — (Sectt: Israel) — First meeting, 3-5 July 1968, Stockholm. The Subcommittee recommended that the work on classification of packages should be discussed by ISO/TC 122 and a new Subcommittee dealing with terminology packaging should be set up by ISO/TC 122. Further, Working Group for institutional packages with the Secretariat as Sweden was set up.

The priorities of programme of work of the Subcommittee was decided as follows:

Unit load modules, and dimensions of transport packages including modules for institutional packages — first priority, and

Dimensions of consumer packages — second priority.

ISO/TC 122/SC 3 Performance Requirements and Tests for Transport Packages — (Sectt: UK) — Second meeting, 23-25 April 1968, London. It was decided to set up two Working Groups, namely, WG 1 Hazards and WG 2 Standardized Test Schedules. WG 1 would assess the validity of existing information on transport hazards and identify gaps in the present knowledge, and would report to Subcommittee in one year's time. WG 2 would consider initially, in qualitative terms, the compilation of test schedules appropriate to the various systems of distribution.

The Subcommittee also gave preliminary consideration to six draft methods of tests for field transport packages.

ISO/TC 126 Tobacco and Tobacco Products — (Sectt: Germany) — First plenary meeting, 7-9 October 1968, Berlin, under the chairmanship of Dr Weber, Chairman of the Scientific Commission of CORESTA. India was represented by Shri K. C. Chetty, former Director, Regional Office for Tobacco Development and Chairman of Tobacco Products Sectional Committee, AFDC 13 of ISI. The Committee decided that ISO Recommendations on specifications for raw tobacco would not be prepared; instead this work would be confined to data recording standards for crop statistics and standards for the expression of analytical test results of unmanufactured leaf tobacco.

2. INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

2.1 As on 31 March 1969, there were 64 technical committees, 83 subcommittees, 4 expert committees and 272 working groups of the International Electrotechnical Commission (IEC). India participated in the work of almost all technical committees and subcommittees and a few working groups. In addition, India held the Secretariat of and provided chairmanship for the technical committee on electric fans.

2.2 A brief report of the working of various IEC Committees, which met during the period under review, is given in the following paragraphs.

ANNUAL GROUP MEETINGS AT LONDON

About 40 Technical Committees, Subcommittees, the Council and the Committee of Action met at London from 3-14 September 1968. As a result of these meetings 128 drafts were accepted for circulation under the six-months' rule.

Dr A. N. Ghosh, Director General, ISI, Shri S. Swayambu, Chairman, Electrotechnical Division Council, ISI, and Shri Y. S. Venkateswaran, Director (Electrotechnical), ISI represented India at these meetings.

A brief account of the meetings of Council, Committee of Action, Technical Committees and Subcommittees of interest to India is given below.

Council (10 September 1968) — Routine matters, such as, approval of Treasurer's Report, General Secretary's Report, etc, were attended to. In place of Japan, Romania, and UK, who retired in 1968 from the Committee of Action, India, Switzerland and USA were elected members of Committee of Action for a term of six years.

An important subject discussed at the meeting related to the duration of term of office of Chairman of technical committees and subcommittees. Some countries were not in favour of extending their term beyond one term of 5 years. After a detailed discussion it was decided that the first term of office for a Chairman should, in the first instance, be 7 years with a possibility of extension by 3 years. This proposal has been circulated under the six-months' rule for modification to the Rules of Procedure.

The formal announcement about retirement of Mr Ruppert from the General Secretaryship of the IEC from January 1969 was made. After paying him tributes for his work and qualities, the Council appointed Mr C. J. Stanford as General Secretary to succeed Mr Ruppert.

Committee of Action (5 and 14 September 1968) — The Committee of Action considered the reports received from a large number of technical committees. The scope of IEC/TC 62 X-Ray Medical Equipment, was decided to be expanded to cover all electrotechnical appliances and it was left to the technical committee to have subcommittees, if necessary, to handle various aspects of electrotechnical appliances expeditiously. The question of formation of a new technical committee to deal with methods of test and specification for all types of magnetic steel used in power frequency application was referred to a small subcommittee for advice. Another working group was set up to examine the British proposal regarding formation of a new technical committee to deal with educational and training equipment. The method of ensuring safety in all electrical and electronic

equipment was also discussed at length and a high level working group was constituted to examine this aspect and advise the Committee of Action. Another important decision taken at this meeting was for having a uniform recommendation for degrees of safety for all types of electrical equipment. The work of IEC/TC 19 Internal Combustion Engines was decided to be transferred to ISO/TC 70.

SC 2D Losses and Efficiency — (Sectt: UK) — The Committee recommended the document on determination of efficiency of rotating electrical machines (revision of IEC Pub 34.2) for circulation under the six-months' rule. The Committee considered the document on loss measurement by the calorimetric method and decided that a revised secretariat draft should be prepared by the working group and recommended this draft for circulation under the six-months' rule if in the opinion of the Chairman and the Secretariat the comments of the National Committees indicated that it was likely to be acceptable.

Lack of time prevented a discussion on the document on measurement of losses on site. The Secretariat was asked to prepare a revised draft on the basis of the comments received from National Committees on this document and the proposals on steam driven synchronous generators to be sent by the German National Committee. The Committee also recommended this draft to be issued in circulation under the six-months' rule without waiting for a meeting of the Subcommittee, if the Chairman and the Secretariat considered that the comments on draft received from National Committees indicated that it was generally acceptable.

SC 2F Dimensions of Carbon Brushes, Brush-Holders, Commutators and Slip Rings — (Sectt: Germany) — On Mr Ch. Ehrensperger's (Switzerland) expressing his desire to resign from the chairmanship, the Subcommittee nominated Mr A. W. Pelerin (UK) as its new Chairman.

The Committee recommended the document on IEC technical questionnaire for users of carbon brushes for circulation under the six-months' rule. The Committee also decided to include the requirements of gauging of chamfers and internal dimensions of brush boxes in the Central Office document on details of brush-holders and recommended its circulation again under the six-months' rule.

It was decided to prepare revised Secretariat documents on dimensions of terminals and test procedure for determining physical properties for brushes for electrical machines. The Committee was of the opinion that the latter document should be prepared as a Report and not as a Recommendation.

TC 4 Hydraulic Turbines — (Sectt: USA) — The Committee recommended the document on international test code for cavitation acceptance tests for model hydraulic turbines (Chapter XI of Publication 193) for circulation under the six-months' rule.

TC 5 Steam Turbine — (Sectt: UK) — The Committee recommended the revision of IEC Publication 45 'Recommendation for steam turbine: Part I Specification for circulation' under the six-months' rule. As a result of proposals received from USA to revise IEC Publication 46, the Committee decided that National Committees should be approached to find out whether they considered IEC Publication 46 satisfactory, if not, to send comments for its improvement. It also agreed to enquire whether a separate test document was required for turbines working in the wet steam region such as occurred in nuclear installations.

TC 10 Liquid and Gaseous Dielectrics — (Sectt: Belgium) — The Committee appointed Mrs B. Fellou as Chairman of SC 10A and Mr Paul G. Benignus as Chairman of SC 10B. Reports from the three subcommittees were also received.

SC 10A Insulating Hydrocarbon Oils — (Sectt: Belgium) — Apart from noting the results of the six-months' circulation of the specification for new insulating oils for transformer and switchgear, the Subcommittee generally examined the future programme of work.

SC 10B Insulating Liquids Other Than Hydrocarbons — (Sectt: USA) — Besides deciding about the programme of work, the Subcommittee also discussed the drafts on properties of askarels.

TC 13 Measuring Instruments — (Sectt: Hungary) — The Committee considered the reports received from its Subcommittees and Working Groups. It was reported that the French National Committee would circulate, in the near future, a proposal about harmonization of vocabularies and the proposed amendments to the IEC. The types of instruments and the dimensions to be standardized, as recommended by the working group for standardized dimensions of switchboard and panel instruments, were decided to be circulated to the national committees for their consideration and adoption of the principles. Considering the re-organization of SC 13C, it was proposed that the title for TC 66 should be 'Electronic Laboratory Equipment'. The Committee also discussed the document for a common series of accuracy classes for instruments and was generally of the view that there should be decision for a series for use in recommendations to be prepared (possibly applicable to TC 66, too in future) and this decision should appear only in the minutes of TC 13 and not published as a recommendation. It was further clarified that the series would be only for accuracy classes unified in TC 13 for use in new recommendations, if possible, with a few exceptions in the case of Publication 51 and document for indirect acting instruments.

SC 13 A Integrating Meters — (Sectt: Hungary) — Reports from various Working Groups were received. The consolidated document for ac watt-hour meters was discussed and a revised draft was decided to be prepared for discussion at the next meeting. Discussing the second draft for symbols for electricity meters and the interim report on statistical method of

acceptance testing of watt-hour meters, it was decided that the respective working groups would prepare revised drafts for discussion at the next meeting. Consideration of the problem of Class 2.0 reactive energy meters was postponed till next meeting.

SC 13B Indicating Instruments — (Sectt: Hungary) — The Subcommittee received reports from various Working Groups. The draft for direct acting recording electrical measuring instruments was recommended for publication. The third draft revision of IEC Publication 51 was discussed and it was decided to circulate it under the six-months' rule. The Subcommittee also decided to set up working groups for precision resistors and standard cells to prepare the revised drafts. The safety document was postponed for discussion in 1969. The Subcommittee was informed of the decision of TC 16 for the preparation of two-months' procedure document for the draft on terminal markings of measuring instruments.

SC 13C Electronic Measuring Instruments (Sectt: Hungary) — In addition to reviewing the reports from the various Working Groups, the Subcommittee recommended the revision of Publication 217 for circulation under the six-months' rule. Consequent to the creation of a new technical committee to deal with Electronic Equipment for Measurements (TC 66), the scope of this Subcommittee was re-examined and modified as follows:

'To prepare international recommendations for electronic measuring instruments, for the measurement of electrical quantities, which are the electronic equivalent of those instruments covered by the scope of SC 13A and 13B.'

TC 15 Insulating Materials — (Sectt: Italy) — Reports from three subcommittees were considered. The question of setting up another subcommittee for preparing recommendations on thermal index of electrical insulating materials was discussed but after some discussion it was agreed that the work could be handled by SC 13B: Endurance Tests. At the instance of India, the Committee agreed to retain the standard atmosphere for tropical countries namely, 27°C and 65 percent R.H. as one of the standard atmospheres for carrying out tests; at its earlier meeting in Warsaw the Committee had decided to delete it. The necessity for maintaining better liaison with IEC/TC 1. Terminology with regard to definitions as well as newly set up Technical Committee 63 Insulation Systems was emphasized. Shri Y. S. Venkateswaran, Director (Electrotechnical), represented ISI at this meeting; he also acted as an observer on behalf of ISO/TC 50 Lac and ISO/TC 56 Mica.

SC 15A Short-Time Tests — (Sectt: Germany) — A draft revision of Tables I, II and III of Publication 212 was agreed to be issued under the six-months' rule. A new working group was set up to prepare a Secretariat document on the method of test for evaluation of electrical insulating materials under severe ambient conditions. Another document

was discussed to be prepared on the determination of tracking index on varnishes. Shri Y. S. Venkateswaran, Director (Electrotechnical) represented ISI at this meeting.

SC 15B Endurance Tests — (Sectt: USA) — Documents on the influence of radiation on insulating materials and test for radiation resistance of insulating materials were approved to be issued under the six-months' rule. In addition, it was agreed that revised secretariat documents on Guide for designation of temperature capability, terminology for test procedure of voltage endurance, thermal endurance of flexible insulating materials, should be prepared. To assist SC 15C, the Subcommittee SC 15B agreed to prepare procedures for evaluating the thermal endurance of pressure sensitive tape. Shri Y. S. Venkateswaran, Director (Electrotechnical) represented ISI at this meeting.

SC 15C Specifications — (Sectt: Netherlands) — Three documents on built-up mica were discussed and revised documents were recommended for circulation under the six-months' rule. Revised documents on pressure sensitive adhesive tapes for electrical purposes were decided to be prepared taking into account the discussions at the meeting and the comments received. Shri Y. S. Venkateswaran, Director (Electrotechnical) represented ISI at this meeting.

TC 16 Terminal Markings and Other Identifications — (Sectt: Netherlands) — While reviewing its scope the Committee decided that it would also prepare international recommendations on general rules for marking of all elements or components of electrical equipment. Detailed rules for marking shall be taken up when there is no special committee to do the work or upon agreement or on request from the relevant committee. Three Working Groups on: (a) colours of illuminated push buttons and lamps for signalling purpose, (b) co-ordination work on marking of conductors by colours inside the apparatus, and (c) general rules for uniform system of terminal marking, were formed.

The drafts on: (a) terminal marking or rotating machines, and (b) standard direction of motion of operating electrical appliances, were discussed and approved for circulation under the six-months' rule.

An amendment was prepared on the Central Office document on terminal marking for indicating and recording measuring instruments for circulation under the two-months' procedure.

SC 16A Terminal Markings for Rotating Machines — (Sectt: Netherlands) — The Committee recommended the document on terminal markings of rotating machines for circulation under the six-months' rule. Document on direction of rotation of rotating machines was considered and decided to be included as part of the above document. Work on terminal markings of single-phase and polyphase ac commutator machines was taken up.

TC 23 Electrical Accessories — (Sectt: Belgium) — Two documents relating to plugs and socket-outlets for domestic and similar general use (groups A and B) and plugs, socket-outlets and couplers for industrial purposes were recommended for circulation under the six-months' rule.

TC 34 Lamps and Related Equipment — (Sectt: UK) — Reports of four Subcommittees, namely, SC 34A, SC 34B, SC 34C and SC 34D were received, and a large number of documents recommended by them were approved for circulation under the six-months' rule.

SC 34A Lamps — (Sectt: UK) — Documents relating to: (a) IEC Publication 64 Fourth edition—Whole product testing, (b) additional amendments to Publication 64, (c) recommendations for sodium lamps, (d) recommendations for high pressure mercury vapour lamps, (e) amendment to Publication 64 consequence on the adoption of requirements for lamp cap temperatures rise, (f) light test for filament tungsten lamps for general lighting service, Amendment to Publication 64, (g) proposal for separating Publication 64 into two parts, (h) revision of Publication 155 'Glow starters for tubular fluorescent lamps', (j) tubular fluorescent lamps for general lighting service, third edition of Publication 81, and (k) automobile halogen lamps H3 were recommended for circulation under the six-months' rule. The Subcommittee also recommended to withdraw Publication 128 International code for the designation of photographic projector lamps.

SC 34B Lamps and Holder — (Sectt: UK) — Draft recommendation for lamp and starter holders for tubular fluorescent lamps and a number of documents concerning data sheets for different types of lamp holders were approved for circulation under the six-months' rule.

SC 34C Auxiliaries for Discharge Lamps — (Sectt: UK) — Documents relating to: (a) limitation of ballast heating, (b) third edition of Publication 82 'Ballasts for fluorescent lamps', and (c) ballasts for sodium vapour discharge lamps were recommended for circulation under the six-months' rule.

SC 34D Luminaires — (Sectt: UK) — Draft proposal for second edition of Publication 162 'Lighting fittings for tubular fluorescent lamps' was discussed and recommended for circulation under the six-months' rule; document on photometric performance requirements for the second edition of Publication 162 was discussed and CIE test requirements were agreed to be followed; consideration of document on requirements for screwless electrical connectors was referred back to Working Group Lumex; and withdrawal of Publication 140 'Screw threads for glassware' was recommended.

TC 35 Primary Cells and Batteries — (Sectt: France) — Documents relating to: (a) discharge test for R20, R40, R6, LR20, LR40 and LR6 batteries used for the supply of electrical clocks, (b) leakage test for batteries for electric clocks, (c) list of batteries used for the supply of electrical watches; discharge test, acceptance test, leakage test, (d) inclusion of 9V

battery, type 6F24, in specification sheet No. 3B (transistor radios) of Publication 86-2, (e) discharge tests for batteries used for electric fences, (f) inclusion of R48 battery in specification sheet No. 4B (transistorized hearing aid sets) and discharge tests for this battery, in Publication 86-2, and (g) ac methods of measurement of internal resistance of batteries were approved for circulation under the six-months' rule.

TC 39 Electronic Tubes and Valves — (Sectt : Netherlands)

TC 39A Microwave Tubes and Valves — (Sectt : UK) — Documents relating to methods of measurement for photoconductive cells, methods of measurement for the colour of the light emitted by a cathode-ray tube screen, method of measurement for camera tubes, measuring methods for multiplier photo tubes, methods of measurement of cathode-ray charge storage tubes, pulse terminology, methods of measurement of backward-wave oscillator 'O' type were recommended for circulation under the six-months' rule.

Guidance of the Committee of Action to undertake work on RF ultrasonic and X-radiation emanating from various categories of electronic tubes and valves was asked.

NOTE — Committee of Action at its meeting held during September 1968 suggested that TC 39 need not undertake work on this subject which was being looked after by TC 12.

TC 42 High Voltage Testing Techniques — (Sectt : Canada) —

Documents on (a) high voltage test techniques — general definitions and test requirements, and (b) high voltage test techniques — test procedure; relating to revision of Publication 60 'High voltage testing techniques' were approved for circulation under the six-months' rule.

TC 47 Semiconductor Devices — (Sectt : France) —

Meeting of the newly created Integrated Microcircuits Subcommittee (IEC/SC 47A) was also held at London. The documents recommended for circulation under the six-months' rule related to essential ratings and characteristics, methods of measurements, nomenclature and letter symbols and mechanical standardization of different types of semiconductor devices. Among other items, these covered integrated microcircuits, transistor parameters, thyristors parameters and revision of Publication 147-1 and 147-1A.

TC 51 Magnetic Materials and Components — (Sectt :

Netherlands) — India's request for standardization of performance specification for transformers was not accepted. Modifications and additions to Publication 223 'Dimensions of aerial rods and slabs of ferromagnetic oxides' were approved for circulation under the six-months' rule.

TC 58 Method of Measurement of Resistivity of High Conductivity Materials — (Sectt : USA) —

Document on the scope of this committee was discussed in detail and it was finally proposed to the Committee of Action to change the title and scope as follows:

Title — Methods of Measurement of Electrical Properties of Metallic Materials.

Scope — To prepare international recommendations for methods of measurement of electrical properties of metallic materials.

The draft for the method of measurement of resistivity of high conductivity materials was discussed and it was decided to prepare a revised draft for circulation to the national committees. Discussing the future activities of the Committee, it was agreed to proceed with the preparation of recommendations for the method of measurements of temperature coefficient of metallic materials and for the method of measurement of the thermal emf of metals and alloys.

TC 61 Safety of Household Electrical Appliances — (Sectt : USA) — As a result of discussion on the reports received from the Working Groups on Thermal and Electrical Aspects, a compromise had been arrived at on voltage values for thermal tests and clearances and creepage distances. Drafts on recommendations for general requirements for safety of household electrical appliances (Part I); Recommendations for (Part II) vacuum cleaners; and recommendations for (Part II) electric irons were discussed in detail, and it was decided to redraft these documents incorporating the decisions taken in the meeting.

In view of the revision of Part I document on general requirements, need was felt for all Part II documents circulated up-to-date to be revised to line up with the new Part I document. Phrase 'and office machines' was agreed to be added to the scope of TC 61.

TC 66 Electronic Equipment for Measurement — (Sectt : Hungary) — Carrying over the work done by SC 13C, documents on safety requirements for electronic measuring instruments, digital electronic measuring instruments and analogue-to-digital convertors were recommended for circulation under the six-months' rule. The Committee also recommended the following title and scope to the Committee of Action for approval:

Title — Electronic Measuring Equipment.

Scope — To prepare international recommendations for electronic measuring equipment used in generating, measuring and observing electrical quantities.

NOTE — Proposals on title and scope were approved by Committee of Action at its meeting held in September 1968.

A number of Subcommittees and Working Groups to deal with the various items were set up. It was confirmed that this Committee would be represented on the Advisory Committee on Electronic and Telecommunications (ACET).

MEETINGS AT OTHER PLACES

TC 3 Graphical Symbols — (Sectt: Switzerland) — 22-31 October 1968, London. A large number of documents were discussed and 5 documents concerning symbols for lasers and masers, piezo-electric crystals and delay lines, control devices and methods of operating contacts and switchgear and additional transformer symbols and revision of Publication 113 were recommended for issue under the six-months' rule. Document on symbols for contact units and for simple switches was referred back to the working group for further advice.

TC 12 Radio-Communication — (Sectt: Netherlands) — 18 May 1968, Baden-Baden. In addition to reviewing the progress of work of the various Subcommittees, a number of documents emanating from the various Subcommittees as well as the document on informative symbols on equipment were recommended to the Committee of Action for approval for circulation under the six-months' rule.

The Committee referred to the Committee of Action for advice whether SC 12B should deal with the safety of electronic photoflash equipment based on the request received from ISO.

NOTE — At the London meeting of Committee of Action held in September 1968, TC 12 was asked to deal with this question with a view to expeditiously covering this equipment through addition of a few clauses to Publication 65.

A preparatory Working Group was established to investigate the various means to start work on radio relays system.

SC 12A Radio Receiving Equipment — (Sectt: Netherlands) — 14-17 May 1968, Baden-Baden. Four documents on methods of measurement on radio receivers and one on measurement of immunity of television receiver to radiated interference were recommended for circulation under the six-months' rule.

SC 12B Safety — (Sectt: Netherlands) — 13-15 May 1968, Baden-Baden. Six documents relating to Publication 65 ' Safety requirements for mains-operated electronic and related equipment for domestic and similar general use ' were recommended for circulation under the six-months' rule.

SC 12C Radio Transmitting Equipment — (Sectt: Netherlands) — 10-14 May 1968, Baden-Baden. Eleven documents on methods of measurement for radio transmitters were proposed for circulation under the six-months' rule.

SC 17B Low Voltage Switchgear and Controlgear — (Sectt: France) — 22-25 October 1968, Brussels. Documents on specification for low voltage ac motor starters, star-delta starters, low voltage switching devices for control and auxiliary circuits (control switches) Part I: General requirements and draft revision of Publication 158-1 ' Low voltage controlgear for

industrial use Part I: Contactors' were recommended for issue under the six-months' rule.

Arising out of the decision of the Committee of Action meeting at London, the question of degrees of protection of enclosures was referred to an *ad hoc* working group for advise on bringing about uniformity on this subject between low voltage switchgear and rotating machinery.

TC 22 Static Power Convertors — (Sectt: Switzerland) — 18 and 30 March 1968, Paris. The Committee decided to set up new Preparatory Working Groups for preparing recommendations for (a) characteristic curves of rectifier equipment, (b) self-commutated inverters and frequency-changers, and (c) convertors for high voltage dc power transmission. The proposals to start work on static power controls will be circulated to the national committees. The Committee also received the reports of the meetings of its various subcommittees held earlier and approved them.

SC 22B Semiconductor Convertors — (Sectt: Sweden) — 18-30 March 1968, Paris. Documents relating to the revision and extension of Publication 146 ' Monocrystalline semiconductor rectifier cells, staks, assemblies and equipment ' were approved for circulation under the six-months' rule.

SC 22E Stabilized Power Supplies — (Sectt: USA) — 25-30 March 1968, Paris. It was decided that the title of this Subcommittee would be ' Stabilized Power Supplies ' and its scope would read : ' To prepare international recommendations for stabilized power supplies designed to supply dc power from an ac or dc source '. First draft recommendations for regulated electronic power supplies was discussed and the Secretariat was asked to prepare a new draft for discussion at the next meeting.

TC 29 Electro-Acoustics — (Sectt: Netherlands) — 29 April and 4 May 1968, Copenhagen. Document on absolute pressure calibration of microphones was approved for circulation under the six-months' rule. At the meeting of the Committee of Action the name of the ' Steering Committee ' was changed to ' Liaison Committee '.

SC 29B Audio Engineering — (Sectt: Netherlands) — 29-30 April 1968, Copenhagen. Seven documents relating to artificial reverberation equipment, overload restoring time, sound system microphones and loudspeakers, dimensions and rated impedances of loudspeakers and auxiliary passive elements were approved for circulation under the six-months' rule.

SC 29C Measuring Devices — (Sectt: France) — 29 April and 3 May 1968, Copenhagen. Document on audiometric artificial ear was approved for circulation under the six-months' rule. It was also decided to set up 5 Working Groups for expeditiously carrying out the work.

SC 29D Ultrasonics — (Sectt: USSR) — 29 April and 3 May 1968, Copenhagen. Two Working Groups were established, namely,

WG 1 Cleaning and WG 2 Hydrophones. Document on test procedure for ultrasonic system evaluation was agreed to be the basis for cleaning equipment test. Report of the round robin test on calibration of underwater electro-acoustic transducer would be published in 'Acoustica'.

SC 32C Miniature Fuses — (Sectt: Netherlands) — 15-16 May 1968, Baden-Baden. The Subcommittee discussed the results of voting on Central Office document on fuse links 6.3×32 mm, quick acting, low breaking capacity, and it was decided to recirculate this draft with a few amendments under the two-months' procedure. Use of high voltage miniature fuse links being limited and their replacement being in the hands of specialists, the work on these fuse links was deferred. The proposal from various national committees on the revision of Publication 127 'Cartridge fuse links for miniature fuses', was discussed and it was decided to prepare a Secretariat document on this.

TC 36 Insulators — (Sectt: Italy) — 31 May 1968, Brussels. The Committee received the reports of its Working Groups and Subcommittees which met earlier and approved them.

TC 36/WG 4 — (Sectt: Italy) — 14-15 May 1968, Milan. This Working Group discussed the possibility of issuing Publication on the subjects relating to (a) tests and dimensions for insulators intended to withstand switching surges, (b) tests and dimensions for high voltage dc insulators, (c) pollution tests, and (d) radio-interference tests.

As regards (a), it was agreed that the switching surges test should be introduced as type test for insulators designed for system voltages of 420 kV and above and a draft will be prepared to cover the general requirements for the test and test arrangement. As regards (c), a draft will be prepared on the possible requirements of pollution test covering salt-fog method and the method with uniform polluted layer and uniform wetting. As regards (d), a draft covering requirements for radio-interference test will be prepared by the Chairman.

SC 36A Insulated Bushings — (Sectt: Italy) — 27-29 May 1968, Brussels. A Working Group was set up to prepare a new document on the revision of Publication 137 'Bushings for alternating voltages above 1 000 V'.

SC 36B Insulators for Overhead Lines — (Sectt: France) — 30-31 May 1968, Brussels. Amendment to the draft for locking devices for ball and socket couplings of string insulator units was approved to be circulated under the two-months' procedure.

Two new Working Groups were set up to prepare new drafts on (a) clevis and tongue couplings of string insulator units, and (b) characteristics of string insulators of the long-rod type.

TC 45 Electrical Measuring Instruments Used in Connection with Ionizing Radiation — (Sectt: Germany), **SC 45A Reactor**

Instrumentation — (Sectt : France), and **SC 45B Health Physics Instrumentation** — (Sectt : Italy) — 25 March and 5 April 1968, Vienna. Documents relating to coaxial cable connectors used in connection with nuclear electronic instruments, measurement of semiconductor radiation detectors, measurement of amplifiers and preamplifiers for semiconductor radiation detectors, rules concerning analogue voltage ranges and logic levels, rules concerning digital control signals, radioisotope actuated relays, contamination meters, monitors or indicators were recommended for circulation under the six-months' rule.

TC 49 Piezo-Electric Crystals and Associated Devices — (Sectt : USSR) — 4-8 June 1968, Milan. Nine documents relating to guide to the use of piezo-electric filters, small crystal holders, article sheets for quartz crystal units, amendment to Publication 122-1, ' Two pin crystal holder outline ', recommendation for piezo-electric filters regarding general information, and standard and test conditions, etc, were approved for circulation under the six-months' rule. Thermal shock test of glass crystal holders was also approved.

TC 50 Environmental Testing — (Sectt : UK), **SC 50A Shock and Vibration Tests** — (Sectt : UK), and **SC 50B Climatic Tests** — (Sectt : Netherlands) — 27 March and 6 April 1968, Stockholm. Documents relating to drop and topple and free fall were recommended by SC 50A for approval for circulation under the six-months' rule. SC 50B had recommended the document on guidance on accelerated corrosion testing for circulation under the six-months' rule. Document emanating directly from TC 50 on resistance to soldering heat was also recommended for circulation under the six-months' rule. The Committee agreed that the words ' for electronic components and electronic equipment ' should be deleted from the title of the various parts of Publication 68 ' Recommended basic climatic and mechanical robustness testing procedure for components for electronic equipment ' when they were published or reprinted. This action was taken with a view to enabling other committees also to adopt the prescribed environmental testing procedures. Some new test procedures, such as solar radiation, random vibration and acoustic noise, were in active preparation and work was in progress on range of guidance documents to assist specification writers and others to choose appropriate test procedures.

SC 59C Small Heating Appliances — (Sectt : Netherlands) — 13-14 May 1968, Milan. The Subcommittee discussed the draft recommendations for measuring performance characteristics of electric storage water heaters in detail and it was decided to prepare a new draft on the basis of the discussion for circulation under the six-months' rule.

SC 59D Home Laundry Appliances — (Sectt : France) — 16-18 May 1968, Milan. The Subcommittee discussed draft methods of measuring the performance of household washing machines. Some of important aspects like tests with naturally soiled textiles, determination of chemical wear

and total wear suffered by textiles, determination of total rinsing effects and determination of drying effects were deferred for discussion at the next meeting.

The Subcommittee approved the report of Preparatory Working Group on 'Standard Artificial Dirt' provisionally. However, it was felt that tests are to be carried out with this new soiling in order to determine whether there is a good correlation between results obtained with artificial soiling and natural soiling.

TC 60 Recording — (Sectt : Netherlands) — 18 and 22 March 1968, Paris. Meeting of SC 60A Sound Recording was also held during this period. Documents on informative symbols on equipment, informative labelling, dictating machines and educational equipment were discussed and were referred back to the concerned committees. Document on magnetic tapes for video recorders was discussed and it was decided to recommend widths of 50·8, 25·4, 12·7 and 6·25 mm. One question of test tapes was also considered and it was agreed to defer the consideration for the time being.

The following additional scope for TC 60 was approved:

'To prepare international recommendations for standardization in the field of audio and video recording on disks and non-perforated magnetic tapes'.

SC 61A Safety of Electrical Office Machines — (Sectt : USA) — 27-31 May 1968, Stockholm. The following title was agreed to for this Subcommittee:

'Electrical safety requirements for office machines'.

It was decided that the Subcommittee would mainly deal with electrical safety but it would also assure that mechanical hazards resulting from the electrical functions or causes are considered. The draft recommendation on (Part II) safety requirements for office machines was discussed partly and the rest of the document was deferred for discussion at the next meeting.

SC 62 X-Ray Medical Equipment — (Sectt : Germany) — 13 and 15 May 1968, Baden-Baden. Document on measurement of dimensions of focal spots in X-ray tubes was approved for circulation under the six-months' rule. The proposal to enlarge the scope of TC 62 with the following additions to cover the electro-medical field as a whole was referred to the Committee of Action for consideration and approval:

'To prepare international recommendations covering the manufacture, the installation and the application of electrical equipment use in medical practice'.

NOTE.— At the London meeting of Committee of Action held in September 1968, it was decided to enlarge the field of activity of TC 62 to enable it to cover the whole field of electro-medical equipment.

3. SECOND UNITED NATIONS INTER-REGIONAL SYMPOSIUM ON IRON AND STEEL INDUSTRY

3.1 On an invitation received from the United Nations Industrial Development Organization, UNIDO, Shri B. S. Krishnamachar, Deputy Director General, ISI, attended the Second United Nations Inter-Regional Symposium on Iron and Steel Industry held in Moscow from 19 September to 9 October 1968. As a part of the Symposium, Shri Krishnamachar also went round some steel plants in Moscow as well as in Poland. Earlier, on an invitation from UNIDO, Shri Krishnamachar had submitted a technical paper entitled 'Standardization of Steel and Steel Products' for discussion at this Symposium.

One hundred and sixtyfive delegates from a number of countries participated at the Symposium. The paper submitted by Shri Krishnamachar attracted attention of both the developed and developing countries and won appreciation for the pioneering work done by India in the field. Participants of many developing countries expressed keen desire to obtain assistance from India in the field and also to send their technical personnel for training in standardization in ISI.

4. SEMINAR ON 'NORMS AS INSTRUMENTS OF INDUSTRIALIZATION'

4.1 With the aim of providing an opportunity to the participants to establish personal contacts with those engaged in standards activities in different fields in their respective countries, a 3-week seminar on 'Norms as Instruments of Industrialization', was held at Berlin during November 1968 by the German Foundation for Developing Countries in cooperation with the German Standards Association (DNA).

4.2 The Seminar was inaugurated by the Minister for Economic Cooperation of the Federal Republic of Germany, and was attended by participants from 17 countries, namely, Afghanistan, Ceylon, Taiwan, Hong Kong, India, Indonesia, Iran, Republic of Korea, Lebanon, Libya, Malaysia, Pakistan, Philippines, Thailand, Turkey, United Arab Republic and Syria. The Indian participants were Dr A. K. Gupta, Deputy Director General, ISI and Shri V. R. Subramanian of Indian Oxygen Ltd, Calcutta.

4.3 The programme of the Seminar consisted of three parts. The first part (6-12 November) was confined to lectures and discussion on various aspects of standardization. This was followed by a study tour (13-24 November) to various national institutions and industrial units at Brunswick, Koln, Bonn, Mannheim, Munich and Frankfurt. The third part (25-29 November) was for discussion for finalization of the report.

4.4 For discussing and studying common problems of standardization and

its impact on industrialization, six working groups were constituted to consolidate the views of the participants on the following:

- a) International and Regional Standardization;
- b) Organization and Functions of National Standards Bodies;
- c) Legal Significance of Standards;
- d) Safety Through Standards;
- e) Quality and Standardization; and
- f) Company Standardization.

4.5 The Seminar avoided making any recommendation but in its final observations it put down, in general terms, the type of assistance needed by the countries for development of standardization activities; these *inter alia* included expert service in developing countries, grant of travelling fellowship to technical staff of the national standards bodies, equipment for the laboratories of the national standards bodies in the developing countries.

4.6 ISO was represented at the Seminar by Mr O. Sturen, Secretary General, ISO and Mr Walter Artels of Development Section, ISO. Mr Manfred Darge, Chairman, Committee on Standardization Abroad of DNA; Mr Hadi Koesoemo of Economic Commission for Asia and the Far East (ECAFE); Ing. H. Fuhr of Association of German Electrical Manufacturers; and Dr Lothar Kotsch of German Foundation for Developing Countries were Seminar Directors.

PART IV
APPENDICES

APPENDIX A

(See page 35)

**INDIAN STANDARDS PUBLISHED AND IN PRESS
DURING 1968-69**

(This list gives the new Indian Standards published during 1968-69 and those which were under print on 31 March 1969. It does not include standards which were under print on 31 March 1968 and printed during the year under report. The latter were included in a similar list published as Appendix A in last year's Annual Report.)

SI No.		Rs
AGRICULTURAL AND FOOD PRODUCTS		
Animal Feeds		
1.	IS: 1374-1968 Poultry feeds (<i>second revision</i>)	8.50
2.	IS: 2052-1968 Compounded feeds for cattle (<i>first revision</i>)	8.50
3.	IS: 3591-1968 Solvent-extracted coconut oilcake (meal) as livestock feed (<i>first revision</i>)	2.50
4.	IS: 3592-1968 Solvent-extracted cottonseed oilcake (meal) as livestock feed (<i>first revision</i>)	2.50
5.	IS: 3593-1968 Solvent-extracted rice bran as livestock feed (<i>first revision</i>)	2.00
Animal Housing		
6.	IS: 4466 (Part III)-1968 Recommendations for farm cattle housing for plain areas with medium rainfall: Part III Farm cattle sheds for GAUSHALAS and other organised milk producers	5.50

Sl No.	Rs
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Bakery and Confectionery

7. IS: 1011-1968 Biscuits (<i>first revision</i>)	5.50
8. IS: 1483-1968 White bread (<i>first revision</i>)	5.50

Cereals and Pulses

9. IS: 1009-1968 MAIDA (<i>first revision</i>)	4.00
10. IS: 1010-1968 SUJI or RAVA (semolina) (<i>first revision</i>)	4.00
11. IS: 1155-1968 Wheat ATTA (<i>second revision</i>)	4.00
12. IS: 4333 (Part IV)-1968 Methods of analysis for foodgrains: Part IV Weight of 1 000 grains	2.00
13. IS: 4684-1968 Edible groundnut flour (expeller pressed)	9.50
14. IS: 4782-1968 Method for determination of sedimentation value of wheat (flour)	2.00
15. IS: 4874-1968 Edible cottonseed flour (expeller pressed)	4.00
16. IS: 4875-1968 Edible groundnut flour (solvent extracted)	2.00
17. IS: 4876-1968 Edible cottonseed flour (solvent extracted)	2.50
18. IS: 4940-1968 Sample divider	2.50

Dairy Equipment

19. IS: 4742-1968 Settling tanks for GHEE (aluminium)	4.00
20. IS: 4743-1968 Settling tanks for GHEE (stainless steel)	4.00
21. IS: 4767-1968 Steam-jacketed GHEE pans (aluminium)	3.50
22. IS: 4937-1968 Insulated aluminium milk cans	2.50
23. IS: 4938-1968 Insulated stainless steel milk storage tanks, vertical type	3.50

Dairy Products

24. IS: 4709-1968 Flavoured milk	2.50
25. IS: 4883-1968 KHOA	2.50
26. IS: 4884-1968 Sterilized cream	3.50

Edible Starch and Starchy Products

27. IS: 4662-1968 Methods for sampling of starch	2.50
28. IS: 4706-1968 Methods of test for edible starches	7.50

Farm Implements and Machinery

29. IS: 1511-1968 Light duty chaff cutter blades (<i>first revision</i>)	3.50
30. IS: 4930-1968 Guide for axle assembly for animal drawn vehicles	2.50
31. IS: 4931-1968 Power take-off shafts of agricultural tractors	3.50

Fish and Fishery Products

32. IS: 2236-1968 Prawns (shrimp) canned in brine (<i>first revision</i>)	5.00
33. IS: 4780-1968 Fresh silver pomfret and brown pomfret	2.50
34. IS: 4781-1968 Fresh threadfin	2.50
35. IS: 4793-1968 Frozen silver pomfret and brown pomfret	2.50
36. IS: 4796-1968 Frozen threadfin	2.50

Food Additives

37. IS: 4750-1968 Sorbitol food grade	4.00
38. IS: 4751-1968 Potassium metabisulphite, food grade	3.50

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Sl No.									Rs
39.	IS: 4752-1968	Sodium metabisulphite, food grade	2.50
40.	IS: 4753-1968	Potassium nitrate, food grade	3.50
41.	IS: 4818-1968	Sorbic acid, food grade	...	...	...	...	...	...	2.50
Fruits and Vegetables									
42.	IS: 4624-1968	Dehydrated peas	...	...	...	...	...	...	4.00
43.	IS: 4625-1968	Dehydrated carrots	...	...	...	...	...	...	4.00
44.	IS: 4626-1968	Dehydrated potatoes	...	...	...	...	...	...	4.00
45.	IS: 4627-1968	Dehydrated cabbage	...	...	...	...	...	...	4.00
46.	IS: 4628-1968	Dehydrated okra (<i>BHINDI</i>)	...	...	...	...	...	...	4.00
47.	IS: 4935-1968	Synthetic syrups	...	...	...	...	...	...	3.50
48.	IS: 4936-1968	Fruit squashes	...	...	...	...	...	...	3.50
49.	IS: 4939-1968	Methods of test for products derived from fruits and vegetables	...	...	...	...	...	...	3.50
Honey and By-Products									
50.	IS: 1504-1968	Commercial beeswax (<i>first revision</i>)	...	...	...	...	...	...	6.50
51.	IS: 4941-1968	Honey	...	...	...	...	...	...	6.00
Infant Foods									
52.	IS: 1547-1968	Infant milk foods (<i>first revision</i>)	...	...	...	...	...	...	8.50
Meat and Meat Products									
53.	IS: 4674-1968	Dressed chicken	...	...	...	...	...	...	2.50
54.	IS: 4723-1968	Egg powder	...	...	...	...	...	...	7.50
55.	IS: 4950-1968	Bacon rashers, canned	...	...	...	...	...	...	3.50
56.	IS: 4951-1968	Ham, canned	...	...	...	...	...	...	2.50
Pesticidal Formulations									
57.	IS: 1505-1968	<i>Gamma</i> BHC (lindane) smoke generators (<i>first revision</i>)	...	...	...	...	...	...	6.00
58.	IS: 4766-1968	Thiram water dispersible powder	...	...	...	...	...	...	5.50
59.	IS: 4783-1968	Thiram seed dressing formulations	...	...	...	...	...	...	5.00
60.	IS: 4808-1968	Pyrethrum emulsifiable concentrates	...	...	...	...	...	...	6.50
Pesticides, Technical Grade and General									
61.	IS: 4929-1968	Dichlorvos, technical	...	...	...	...	...	...	5.50
62.	IS: 4958-1968	Phosphamidon, technical	...	...	...	...	...	...	4.00
Propagation Materials									
63.	IS: 4932-1968	Mango grafts	...	...	...	...	...	...	1.50
64.	IS: 4933-1968	Cottonseed for propagation purposes	...	...	...	...	...	...	2.00
65.	IS: 4934-1968	Jute seed for propagation purposes	...	...	...	...	...	...	2.00
Spices and Condiments									
66.	IS: 4811-1968	Cinnamon, whole	...	...	...	...	...	...	2.00
Sugars and By-Products									
67.	IS: 4772-1968	Code of practice for construction of sugar godowns	6.00

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Tobacco Products		
68.	IS: 4698-1968 Code of practice for seaworthy packing of unmanufactured cigarette type tobacco	2-00
Transport of Live Animals		
69.	IS: 4157 (Part II)-1968 Code for transport of livestock: Part II Transport of cattle by rail and road	2-50
70.	IS: 4157 (Part III)-1968 Code for transport of livestock: Part III Transport of sheep and goats by rail and road	2-00
71.	IS: 4746-1968 Code for transport of dogs and cats by rail, road and air	2-50
CHEMICAL		
Acids		
72.	IS: 264-1968 Nitric acid (<i>first revision</i>)	6-00
73.	IS: 798-1968 Orthophosphoric acid (<i>first revision</i>)	7-00
Adhesives		
74.	IS: 4663-1968 Permanent rubber-based adhesives for footwear industry	5-50
75.	IS: 5025-1969 Gum karaya	4-00
Brushware		
76.	IS: 1104-1968 Brushes, lettering (<i>first revision</i>)	3-50
77.	IS: 4580-1968 Brushes, shaving	3-50
78.	IS: 4584-1968 Brushes, hair	3-50
Ceramicware, Enamelware and Laboratory Porcelain		
79.	IS: 3149-1968 Enamelware for home use (<i>first revision</i>)	2-50
80.	IS: 3972-1968 Methods of test for vitreous enamelware	11-50
81.	IS: 4589-1968 Ball clays for ceramic industry	8-00
82.	IS: 5009-1968 Buchner funnels	2-50
83.	IS: 5011-1968 Gooch crucibles	2-50
Chemical Hazards		
84.	IS: 4544-1968 Code of safety for ammonia	5-50
85.	IS: 4560-1968 Code of safety for nitric acid	7-00
86.	IS: 4607-1968 Classification of hazardous chemicals and chemical products	13-00
87.	IS: 4644-1968 Code of safety for benzene, toluene and xylene	6-50
*88.	IS: 4906-1968 Code of safety for radio-chemical laboratory	...
Chemicals, Inorganic (Miscellaneous)		
89.	IS: 249-1968 Sodium bichromate, technical (<i>first revision</i>)	5-00
90.	IS: 262-1968 Ferrous sulphate, heptahydrate (<i>first revision</i>)	5-50
91.	IS: 505-1968 Light kaolin (<i>first revision</i>)	6-50
92.	IS: 4581-1967 Phosphorus trichloride, pure and analytical reagent	5-00
93.	IS: 4611-1967 Metallic zinc powder (zinc dust)	5-50
94.	IS: 4737-1968 Chromite for chemical industries	4-00

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Chemicals, Organic (Miscellaneous)		
95.	IS: 4566-1968 Methylene chloride (dichloromethane), technical ...	5-50
Coal and Coke		
96.	IS: 4836-1968 Foundry coke	2-00
97.	IS: 5018-1968 Classification of hard coals by type	3-50
Coal Carbonization Products		
98.	IS: 213-1968 Naphtha (<i>first revision</i>)	5-50
99.	IS: 536-1968 Toluole, industrial (<i>first revision</i>)	8-00
100.	IS: 538-1968 Phenol (carbolic acid) (<i>first revision</i>)	5-50
101.	IS: 540-1968 Refined cresylic acid (<i>first revision</i>)	6-00
102.	IS: 4749-1968 Method for calculation of bulk quantities of industrial aromatic hydrocarbons	6-00
Cosmetic and Toilet Goods		
103.	IS: 918-1968 Calcium carbonate, precipitated, for cosmetic industry (<i>first revision</i>)	7-50
104.	IS: 4652-1968 Ethyl <i>p</i> -hydroxybenzoate for cosmetic industry	4-00
105.	IS: 4653-1968 Methyl <i>p</i> -hydroxybenzoate for cosmetic industry	4-00
106.	IS: 4707 (Part I)-1968 Classification of cosmetic raw materials and adjuncts: Part I	4-00
107.	IS: 4887-1968 Petroleum jelly for cosmetic industry	6-00
Drying Oils		
108.	IS: 77-1968 Linseed oil, boiled, for paints (<i>first revision</i>)	2-50
Electroplating Chemicals		
109.	IS: 330-1968 Chromium trioxide (<i>first revision</i>)	5-00
110.	IS: 1809-1969 Nickel salts for electroplating (<i>first revision</i>)	6-50
111.	IS: 3026-1968 Tin salts for electroplating (<i>first revision</i>)	7-00
112.	IS: 4846-1968 Sodium potassium tartrate (Rochelle salt)	5-50
113.	IS: 4847-1968 Copper cyanide for electroplating	5-50
114.	IS: 5003-1968 Cadmium oxide for electroplating	5-00
Explosive and Pyrotechnic Materials		
115.	IS: 4668-1968 Ammonium nitrate for explosives	5-50
Fertilizers		
116.	IS: 4830-1968 Ammonium phosphate sulphate (16-20-0)	5-50
Footwear		
*117.	IS: 2050-1967 Glossary of footwear terms	—
118.	IS: 4585-1968 Football boots	4-00

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Glass and Glassware					
119.	IS: 1961-1968	Glass tableware (<i>first revision</i>)	2:50
Inks and Allied Products					
120.	IS: 393-1968	Ink, stamp-pad (<i>first revision</i> )	...	...	3:50
121.	IS: 4747-1968	Pads for rubber stamps ...	...	...	2:50
Laboratory Glassware, Thermometers and Related Apparatus					
122.	IS: 4610-1968	Glass tubes for general purpose and reference thermometers	...	...	3:50
123.	IS: 4825-1968	Laboratory and reference thermometers	...	...	3:50
124.	IS: 4849-1968	Rain measures	...	...	3:50
Lac and Lac Products					
125.	IS: 4908-1968	Glossary of terms used in lac industry	...	...	4:00
Leather, Leather Goods and Leather Dressings					
126.	IS: 4553-1967	Leather for cricket ball	...	...	5:00
127.	IS: 4779-1968	Leather sole and edge wax polishes	...	...	5:00
128.	IS: 5024-1968	Buffalo-butt leather for knee bushings	...	...	3:50
129.	IS: 5034-1968	Chromed goatskin in wet-blue conditions	...	...	5:00
Lubricants					
130.	IS: 4543-1967	Marquenching oils	...	...	2:00
131.	IS: 4578-1968	Lubricating oils for refrigeration machinery	...	...	2:50
Metal Containers and Closures					
132.	IS: 1407-1968	Round paint tins (<i>first revision</i> )	...	...	2:50
133.	IS: 2474-1968	Closures for drums	...	...	4:00
134.	IS: 4638-1967	Seamless rectangular fish tins	...	...	2:50
Oils and Fats, Oleaginous Seeds and Fruits					
135.	IS: 542-1968	Coconut oil (<i>second revision</i> )	...	...	2:50
136.	IS: 543-1968	Cottonseed oil (<i>second revision</i> )	...	...	5:00
137.	IS: 544-1968	Groundnut oil (<i>second revision</i> )	...	...	3:50
138.	IS: 545-1968	MAHUA oil (<i>second revision</i> )	...	...	2:50
139.	IS: 547-1968	Sesame oil (<i>second revision</i> )	...	...	2:50
140.	IS: 887-1968	Mutton tallow (<i>first revision</i> )	...	...	2:00
141.	IS: 3448-1968	Rice bran oil (<i>first revision</i> )	...	...	3:50
142.	IS: 4617-1968	Grading for linseed for oil milling	...	...	2:00
143.	IS: 4618-1968	Grading for castor seeds for oil milling	...	...	2:00
144.	IS: 4619-1968	Grading for MAHUA kernels for oil milling	...	...	2:00
145.	IS: 4620-1968	Grading for cottonseeds for oil milling	...	...	2:00
146.	IS: 4765-1968	NEEM kernel oil	...	...	2:50
Paper and Allied Products					
147.	IS: 1398-1968	Packing paper, waterproof bitumen-laminated (<i>first revision</i>)	2:00
148.	IS: 4645-1968	Code of practice for storage of paper and board	2:00

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152.	IS: 5012-1968 Cellulose film ...	2·50
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153.	IS: 326-1968 Methods of sampling and test for natural and synthetic perfumery materials (<i>first revision</i>) ...	12·50
154.	IS: 526-1968 Oil of palmarosa (<i>first revision</i>) ...	3·50
155.	IS: 4603-1968 Phenyl ethyl alcohol ...	2·50
Petroleum and Petroleum Products		
156.	IS: 1448 [P: 4]-1968 Ash, sulphated ash and water soluble ash [P: 4] (<i>first revision</i>) ...	2·00
157.	IS: 1448 [P: 31]-1968 Smoke point [P: 31] (<i>first revision</i>) ...	2·00
158.	IS: 1448 [P: 44]-1968 Bromine number by electrometric titrations method [P: 44] (<i>first revision</i>) ...	2·50
159.	IS: 1448 [P: 70]-1968 Residue in liquefied petroleum gases [P: 70] ...	2·00
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164.	IS: 1448 [P: 75]-1968 Odour of liquefied petroleum gases [P: 75] ...	1·50
165.	IS: 1448 [P: 76]-1968 Density of liquefied petroleum gases [P: 76] ...	2·00
166.	IS: 1459-1968 Kerosines (<i>first revision</i>) ...	2·00
167.	IS: 1460-1968 Diesel fuels (<i>first revision</i>) ...	2·00
168.	IS: 4576-1968 Liquefied petroleum gases ...	2·00
169.	IS: 4639-1968 Glossary of petroleum terms ...	11·50
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Photographic Chemicals		
171.	IS: 557-1968 Sodium acetate, technical and photographic (<i>first revision</i>) ...	5·00
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172.	IS: 411-1968 Titanium dioxide for paints (<i>first revision</i>) ...	6·00
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173.	IS: 4669-1968 Methods of test for polyvinyl chloride resins ...	5·50
174.	IS: 4761-1968 Unsupported PVC rainwear ...	6·00
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175.	IS: 4724-1968 Glossary of terms relating to printing inks and allied industries	5·00
Ready Mixed Paints and Enamels		
176.	IS: 109-1968 Ready mixed paint, brushing, priming, plaster, to Indian Standards colour No. 361 Light stone and No. 631 Light grey (<i>first revision</i>) ...	2·50

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177.	IS: 110-1968 Ready mixed paint, brushing, grey filler, for enamels, for use over primers (<i>first revision</i>)	2.50
178.	IS: 158-1968 Ready mixed paint, brushing, bituminous, black, lead-free, acid, alkali, water and heat resisting, for general purposes (<i>second revision</i>)	4.00
Rubber and Rubber Products		
179.	IS: 444-1968 Water hose of rubber with woven textile reinforcement (<i>second revision</i>)	3.50
180.	IS: 446-1968 Air hose of rubber with woven textile reinforcement (<i>second revision</i>)	3.50
181.	IS: 447-1968 Welding hose of rubber with woven textile reinforcement (<i>second revision</i>)	2.50
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186.	IS: 2396-1968 Rubber hose for petrol and diesel fuels with braided textile reinforcement (<i>first revision</i>)	2.50
187.	IS: 3418-1968 Oil and solvent resistant hose of rubber with braided textile reinforcement (<i>first revision</i>)	2.50
188.	IS: 3572-1968 Welding hose of rubber with braided textile reinforcement (<i>first revision</i>)	2.50
189.	IS: 3660 (Part II)-1968 Methods of test for natural rubber: Part II Determination of solvent extract and nitrogen content	3.50
190.	IS: 3708 (Part II)-1968 Methods of test for natural rubber latex: Part II	2.50
191.	IS: 4588-1968 Raw natural rubber	2.00
192.	IS: 4770-1968 Rubber gloves for electrical purposes	6.00
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193.	IS: 4955-1968 Synthetic detergents for household use	7.00
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195.	IS: 4671-1968 Expanded polystyrene for thermal insulation purposes	5.50
Treated Fabrics		
196.	IS: 4810-1968 Fumigation sheets and covers, rubberized	5.00
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197.	IS: 350-1968 Organic, baking, impregnating, insulating varnishes for electrical purposes (<i>first revision</i>)	8.00
Water and Water Treatment		
198.	IS: 1680-1968 Code of practice for treatment of water for land boilers (<i>first revision</i>)	8.00

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199.	IS : 2488 (Part II)-1968 Methods of sampling and test for industrial effluents: Part II	12 50
200.	IS : 2488 (Part III)-1968 Methods of sampling and test for industrial effluents: Part III	6 00
201.	IS : 4700-1968 Quality tolerances for water for fermentation industry	2 00
202.	IS : 4733-1968 Methods of sampling and test for sewage effluents	7 50
203.	IS : 4764-1968 Tolerance limits for sewage effluents discharged into inland surface waters	2 00
204.	IS : 4903-1968 Guide for treatment of effluents of cane sugar industry	5 50

Unclassified

205.	IS : 2316-1968 Methods of preparation of standard solutions for colorimetric and volumetric analysis (<i>first revision</i>)	5 00
206.	IS : 4542-1968 Colorimetric methods for determination of iron	2 50
207.	IS : 4730-1968 Method for the determination of density of liquids	1 50

CIVIL ENGINEERING**Asbestos Fibre**

208.	IS : 4844-1968 Method of sampling and preparation of asbestos fibre for laboratory test purposes	2 00
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Boards and Sheets

209.	IS : 4859-1968 High strength aircraft plywood	6 50
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Bricks and Blocks

210.	IS : 4860-1968 Acid-resistant bricks	5 00
211.	IS : 4885-1968 Sewer bricks	2 00

Builder's Hardware

212.	IS : 1823-1968 Floor door stoppers (<i>first revision</i>)	2 50
213.	IS : 4621-1968 Indicating bolts for use in public baths and lavatories	2 50
214.	IS : 4992-1968 Door handles for mortice locks (vertical type)	2 50

Cement

*215.	IS : 4031-1968 Methods of physical tests for hydraulic cement	...
216.	IS : 4032-1968 Method of chemical analysis of hydraulic cement	9 00
217.	IS : 4845-1968 Definitions and terminology relating to hydraulic cement	2 50

Concrete Design and Construction

218.	IS : 4926-1968 Ready mixed concrete	3 50
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Construction Equipment

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220.	IS : 2505-1968 Concrete vibrators, immersion type (<i>first revision</i>)	4 00
221.	IS : 4616-1968 Sheeps foot roller	3 50

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222.	IS: 4634-1968 Method for testing performance of batch-type concrete mixers	2.50
223.	IS: 4656-1968 Form vibrators for concrete	3.50
224.	IS: 4925-1968 Concrete batching and mixing plant	5.00
*225.	IS: 4988 (Part II)-1968 Glossary of terms and classification of earth moving machinery: Part II Dozers	
*226.	IS: 4988 (Part III)-1968 Glossary of terms and classification of earth moving machinery: Part III Motor and towed scrapers	
*227.	IS: 4988 (Part IV)-1968 Glossary of terms and classification of earth moving machinery: Part IV Excavators	
*228.	IS: 4988 (Part V)-1968 Glossary of terms and classification of earth moving machinery: Part V Motor graders	
Doors and Windows		
229.	IS: 1038-1968 Steel doors, windows and ventilators (<i>first revision</i>)	9.50
230.	IS: 4913-1968 Code of practice for selection, installation and maintenance of timber doors and windows	4.00
231.	IS: 4962-1968 Wooden side sliding doors	3.50
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232.	IS: 1200 (Part II)-1968 Method of measurement of building and civil engineering work: Part II Cement concrete works (<i>second revision</i>)	5.50
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233.	IS: 2898-1968 Single-barrel stirrup pump for fire fighting purposes (<i>first revision</i>)	4.00
234.	IS: 2299-1968 Steel helmets for civil defence (<i>first revision</i>)	5.00
235.	IS: 2300-1968 Non-metal helmets for civil defence (<i>first revision</i>)	5.50
236.	IS: 4571-1968 Aluminium extension ladders for fire brigade use	2.50
237.	IS: 4643-1968 Suction wrenches for fire brigade use	2.50
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240.	IS: 4927-1968 Unlined flax canvas hose for fire fighting	4.00
241.	IS: 4928-1968 Quick closing clack-valve for centrifugal pump outlet	3.50
242.	IS: 4947-1968 Carbon dioxide cartridge for fire extinguishers	3.50
Fire Safety		
243.	IS: 4886-1968 Code of practice for fire safety of industrial buildings: Tea factories	5.50
Floor Finish		
244.	IS: 1196-1968 Code of practice for laying bitumen mastic flooring (<i>first revision</i>)	3.50
245.	IS: 4631-1968 Code of practice for laying of epoxy resin floor toppings	3.50
246.	IS: 4971-1968 Recommendations for selection of industrial floor finishes	6.00
Flow Measurement		
*247.	IS: 4890-1968 Methods for measurement of suspended sediment in open channels	

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Flow Measuring Instruments		
248.	IS: 4858-1968 Velocity rods	3-50
Foundation		
249.	IS: 2974 (Part IV)-1968 Code of practice for design and construction of machine foundations: Part IV Foundations rotary type machines of low frequency	6-00
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Functional Design		
251.	IS: 2440-1968 Code of practice for daylighting of buildings (<i>first revision</i>) ...	9-00
252.	IS: 4912-1968 Safety requirements for floor and wall openings, railings and toe boards	3-50
253.	IS: 4963-1968 Recommendations for buildings and facilities for the physically handicapped	6-00
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255.	IS: 4838 (Part II)-1968 Anthropometric dimensions for school children: Part II Age group 12-16 years	2-50
General Structural Design and Construction		
256.	IS: 3414-1968 Code of practice for design and installation of joints in buildings	8-00
*257.	IS: 4991-1968 Criteria for blast resistant design of structures for explosions above ground	6-00
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260.	IS: 4805-1968 Guide design and construction of brick kiln	2-50
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*261.	IS: 4247 (Part II)-1968 Code of practice for structural design of surface hydel power stations: Part II Design of superstructures	6-00
*262.	IS: 4410 (Part V)-1968 Glossary of terms relating to river valley projects: Part V Canals	5-50
263.	IS: 4410 (Part VI)-1968 Glossary of terms relating to river valley projects: Part VI Reservoirs	6-00
264.	IS: 4410 (Part VII)-1968 Glossary of terms relating to river valley projects: Part VII Engineering geology	5-50
*265.	IS: 4410 (Part VIII)-1968 Glossary of terms relating to river valley projects: Part VIII Dam and dam sections	6-00
266.	IS: 4410 (Part IX)-1968 Glossary of terms relating to river valley projects: Part IX Spillways and siphons	6-00

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268.	IS : 4622-1968 Recommendations for structural design of fixed-wheel gates ...	8·00
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276.	IS : 4851-1968 <i>Pro forma</i> for analysis of unit rate of concrete used in mechanized construction of river valley projects ...	2·00
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285.	IS : 4997-1968 Criteria for design of hydraulic jump type stilling basins with horizontal and sloping apron ...	6·50
286.	IS : 4999-1968 Recommendations for grouting of pervious soils ...	8·00

Packing

287.	IS : 4834-1968 Veneered-wood boards for packing cases ...	3·50
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Pipes

*288.	IS : 3076-1968 Low density polyethylene pipes for portable water supplies (<i>first revision</i>)
*289.	IS : 4984-1968 High density polyethylene pipes for potable water supplies ...	...
*290.	IS : 4985-1968 Unplaticized PVC pipes for potable water supplies ...	...

Planning, Regulation and Control

291.	IS : 4878-1968 Byelaws for constructing of cinema buildings ...	12·50
292.	IS : 4954-1968 Recommendations for noise abatement in town planning ...	5·50

Plaster, Paint and Allied Finishes

293.	IS : 2524 (Part I)-1968 Code of practice for painting of non-ferrous metals in buildings: Part I Pretreatment ...	5·00
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294.	IS: 2524 (Part II)-1968 Code of practice for painting of non-ferrous metals in buildings: Part II Painting	2:50
295.	IS: 4597-1968 Code of practice for finishing of wood and wood based products with nitrocellulose and cold catalysed materials	2:50
Pozzolanas		
296.	IS: 1344-1968 Burnt clay pozzolana (<i>first revision</i>)	2:50
Soil Engineering		
297.	IS: 2720 (Part XIV)-1968 Methods of test for soils: Part XIV Determination of density index (relative density of cohesionless soils)	6:00
298.	IS: 2720 (Part XXVII)-1968 Methods of test for soils: Part XXVII Determination of total soluble sulphates	2:50
299.	IS: 2720 (Part XXX)-1968 Methods of test for soils: Part XXX Laboratory vane shear test	3:50
300.	IS: 4332 (Part IV)-1968 Methods of test for stabilized soils: Part IV Wetting and drying, and freezing and thawing tests for compacted soil-cement mixtures	3:50
301.	IS: 4968 (Part I)-1968 Method for subsurface sounding for soils: Part I Dynamic method using 50 mm cone without bentonite slurry	2:00
302.	IS: 4968 (Part II)-1968 Method for subsurface sounding for soils: Part II Dynamic method using cone and bentonite slurry	2:50
Tar and Bitumen		
303.	IS: 1195-1968 Bitumen mastic for flooring (<i>first revision</i>)	5:50
Timber		
304.	IS: 707-1968 Glossary of terms applicable to timber, plywood and joinery (<i>first revision</i>)	9:00
305.	IS: 2753 (Part II)-1968 Methods for estimation of preservatives in treated timbers and in treating solutions: Part II Determination of copper (in copper naphthenate) and pentachlorophenol	2:50
306.	IS: 4833-1968 Method for field testing of preservatives in wood species	2:00
307.	IS: 4873-1968 Method for laboratory testing of wood preservatives against fungi	2:50
308.	IS: 4891-1968 Preferred cut sizes of structural timbers	2:00
309.	IS: 4895-1968 Grading rules for teak logs	3:50
310.	IS: 4907-1968 Method of testing timber connectors	4:00
311.	IS: 4970-1968 Key for identification of commercial timbers	5:00
Timber Design and Construction		
312.	IS: 4924 (Part I)-1968 Methods of test for nail-jointed timber trusses: Part I Destructive test	4:00
313.	IS: 4924 (Part II)-1968 Method of test for nail-jointed timber trusses: Part II Proof test	2:50
314.	IS: 4983-1968 Code of practice for design and construction of nailed laminated timber beams	5:00
Timber Stores		
315.	IS: 4650-1968 Wooden anvil blocks	3:50
316.	IS: 4953-1968 Wooden handles for hand hammers... ..	1:50

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Waterproofing and Damp-Proofing

317.	IS: 4911-1968 Glossary of terms relating to bituminous waterproofing and damp-proofing of buildings	4-00
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Water Supply, Drainage and Sanitation

318.	IS: 2470 (Part I)-1968 Code of practice for design and construction of septic tanks: Part I Small installations (<i>first revision</i>)	7-50
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319.	IS: 4111 (Part IV)-1968 Code of practice for ancillary structures in sewerage system: Part IV Pumping Stations and pumping mains (rising mains)	6-00
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Water Supply, Sanitation and Drainage Fittings

320.	IS: 779-1968 Water meters (domestic type) (<i>fourth revision</i>)	7-00
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321.	IS: 1703-1968 Ball valves (horizontal plunger type) including floats for water supply purposes (<i>first revision</i>)	6-00
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322.	IS: 2373-1968 Water meters (bulk type) (<i>first revision</i>)	5-50
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Unclassified

323.	IS: 4832 (Part III)-1968 Chemical resistant mortars: Part III Sulphur type	2-50
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324.	IS: 4835-1968 Polyvinyl acetate dispersion-based adhesives for wood	3-50
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325.	IS: 4879-1968 Method of sub-division of gross sample of powder used for determination of particle size	5-50
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326.	IS: 4919-1968 Glossary of terms applicable to land-scape and horticultural work	4-00
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327.	IS: 4920-1968 Glossary of terms applicable to roof coverings	7-00
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328.	IS: 4948-1968 Welded steel wire fabric for general use	3-50
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329.	IS: 4961-1968 Determination of particle size of powders by air elutriation methods	7-50
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330.	IS: 4996-1968 Reinforced concrete fence posts	7-00
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CONSUMER PRODUCTS**Artificial Limbs**

331.	IS: 4554-1968 Hammers terminal devices, ball pen and claw, for artificial limbs	2-00
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332.	IS: 4555-1968 Biprong terminal device, draughtsman, for artificial limbs	2-00
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333.	IS: 4556-1968 Typing finger terminal device for artificial limbs	2-00
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334.	IS: 4557-1968 Appliance, office, flat adjustable, for artificial limbs	2-00
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335.	IS: 4567-1968 Pliers terminal device, quick-grip, for artificial limbs	2-00
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336.	IS: 4577-1968 Spade-grip terminal device for artificial limbs	2-00
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337.	IS: 4608-1968 Brush-holding device for artificial limbs	2-00
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338.	IS: 4609-1968 Pencil-holding device for artificial limbs	2-00
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339.	IS: 4612-1968 C-hook terminal device, spring-loaded, for artificial limbs	2-00
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340.	IS: 4657-1968 Ring device for artificial limbs	2-00
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341.	IS: 4675-1968 Light split-hook device for artificial limbs	2-00
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342.	IS: 4676-1968 Workshop-tool-holding device for artificial limbs	2-00
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343.	IS: 4677-1968 Steering appliance for artificial limbs	2-00
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344.	IS: 4678-1968 Universal device for artificial limbs	2-00
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345.	IS: 5013-1969 Toothbrush-holding terminal device for artificial limbs	2-00
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Sl No.				Rs
346.	IS: 5014-1969	Telephone-receiver-holding device for artificial limbs	...	2-00
347.	IS: 5015-1969	Knife-terminal device for artificial limbs	...	2-00
348.	IS: 5016-1969	Safety-razor-holding device for artificial limbs	...	2-00
Coir				
349.	IS: 1858-1968	Door mats, creel, bit and fibre (<i>second revision</i>)	...	5-00
350.	IS: 2331-1968	Handloom coir mattings, mourzouks and carpets (<i>first revision</i>)	...	5-00
351.	IS: 4797-1968	Loop mats	...	2-00
Dental Equipment and Instruments				
352.	IS: 4679-1968	Spatula, plaster, dental, curved and straight	...	2-00
353.	IS: 4680-1968	Spatula, wax, dental, No. 2	...	2-00
354.	IS: 4689-1968	Enamel hatchet, dental, No. EH 1/2	...	2-00
355.	IS: 4714-1968	Scalers, dental, No. SC 1/2, 3/4 and 5/6	...	2-50
356.	IS: 4715-1968	Excavators, dental, No. EX 1/2, 3/4, 5/6, 7/8, 9/10, 11/12 and 13/14	...	4-00
357.	IS: 4716-1968	Probes, dental, No. PR 1, 2, 3, 4, 5, 6/7 and 8/9	...	4-00
358.	IS: 4975-1968	Elevators, dental, No. 1, 2 and 3	...	2-00
359.	IS: 4976-1968	Forceps, extraction, dental upper anteriors, No. 1 and 2	...	2-00
360.	IS: 4977-1968	Forceps, extraction, dental, lower molar, Hawk's bill, No. 1	...	2-00
361.	IS: 5004-1968	Spoons, cutting, dental, No. 1/2, 3/4, and 5/6	...	2-00
362.	IS: 5005-1968	Burnishers, dental, No. BRN 1/2	...	2-00
363.	IS: 5017-1968	Carvers dental, No. CAR 1/2, 3/4 and 5/6	...	2-50
364.	IS: 5023-1969	Dental unit	...	2-00
Fasteners for Consumer Goods				
365.	IS: 4741-1968	Snap fasteners (four pieces)	...	2-50
366.	IS: 4798-1968	Safety pins	...	2-00
367.	IS: 4829-1968	Nylon slide fasteners	...	6-50
Gas Burning Appliances				
368.	IS: 4760-1968	Domestic cooking ranges including grillers, for use with liquefied petroleum gases	...	10-00
Hospital Equipment				
369.	IS: 4033-1968	General requirements for hospital furniture	...	2-00
370.	IS: 4034-1968	Castors for hospital equipment	...	6-00
371.	IS: 4769-1968	Trolley, dressing	...	2-00
372.	IS: 4787-1968	Table, examination	...	2-00
373.	IS: 5022-1969	Sterilizer, instruments (table model)	...	2-50
374.	IS: 5029-1969	Bedsteads, hospital, general purposes	...	5-00
Medical Glass Instruments				
375.	IS: 4708-1968	Urine glass, conical	...	2-00
376.	IS: 4754-1968	Staining troughs and jar	...	2-50
Oil Burning Appliances				
377.	IS: 1342-1968	Oil pressure stoves (<i>second revision</i>)	...	7-50
378.	IS: 4957-1968	Mantle holders, nozzle type	...	2-50

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Sports Goods							
379.	IS: 4613-1968	Javelins	2.50
380.	IS: 4614-1968	Hurdles	2.50
381.	IS: 4630-1968	Barbell set	2.00
382.	IS: 4973-1968	Badminton woollen balls	...	...	...	...	2.00
383.	IS: 4979-1968	Table-tennis table	...	...	...	...	2.50
384.	IS: 4980-1968	Clubs, Indian	...	...	...	...	2.00
Surgical Instruments							
385.	IS: 4569-1968	Scissors, eye	...	...	...	...	5.00
386.	IS: 4587-1968	Raspatories, cleft palate, for plastic surgery	...	...	...	...	4.00
387.	IS: 4788-1968	Knife, eye, capsulotomy (Ziegler's pattern )	...	...	...	...	2.00
388.	IS: 4789-1968	Knife, eye, cataract (Graefe's pattern )	...	...	...	...	2.00
389.	IS: 4790-1968	Knife, eye, corneal, splitting (Lang's and Tooke's patterns )	...	...	...	...	2.50
390.	IS: 4959-1968	Raspatory, nasal, Howarth's	...	...	...	...	2.00
391.	IS: 4978-1968	Forceps, eye, fixation (toothed )	...	...	...	...	3.50
392.	IS: 4994-1968	Forceps, redressing, Walsham's, right, left and straightening...	...	...	...	...	2.50
Surgical Dressings							
393.	IS: 4605-1968	Crepe bandage	...	...	...	...	2.50
394.	IS: 4717-1968	Zincoxide self-adhesive plaster	...	...	...	...	4.00
395.	IS: 4738-1968	Plaster of paris bandage...	...	...	...	...	2.50
396.	IS: 4739-1968	Zinc oxide elastic self-adhesive bandage	...	...	...	...	5.00
Utensils							
397.	IS: 4768-1968	Stainless steel buckets	...	...	...	...	2.00
398.	IS: 4822-1968	Brass cooking utensils	...	...	...	...	3.50
399.	IS: 4823-1968	Brass table utensils	...	...	...	...	2.00
ELECTROTECHNICAL							
Acoustics							
400.	IS: 4755-1968	Reference zero for the calibration of pure-tone audiometers...	...	...	...	...	2.00
401.	IS: 4758-1968	Methods of measurement of noise emitted by machines	...	...	...	...	5.00
Automobile Electrical Equipment							
402.	IS: 4815-1968	Self-cancelling direction indicator switches for automobiles...	...	...	...	...	3.50
Code of Practice							
403.	IS: 4648-1968	Guide for electrical layout in residential buildings	...	...	...	...	5.50
Conductors and Cables							
404.	IS: 3861 (Part III)-1968	Recommended current ratings for cables: Part III Rubber insulated cables	...	...	...	...	3.50
405.	IS: 3961 (Part IV)-1968	Recommended current ratings for cables: Part IV Polyethylene insulated cables	...	...	...	...	2.50
406.	IS: 3961 (Part V)-1968	Recommended current ratings for cables: Part V PVC insulated light duty cables	5.00
407.	IS: 4817-1968	Rubber-insulated cables for mines	8.00

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Electrical Instruments	
408. IS: 1248-1968 Direct acting electrical indicating instruments (<i>first revision</i>)	12:50
Electric Welding Equipment	
409. IS: 4559-1968 Single operator rectifier type dc arc welder	5:50
410. IS: 4804 (Part I)-1968 Resistance welding equipment: Part I Single-phase transformers	5:50
411. IS: 4804 (Part II)-1968 Resistance welding equipment: Part II Single-phase rocker-arm spot welding machines	2:50
Electronic Components	
412. IS: 2001-1968 Fixed silvered mica capacitors (<i>first revision</i>)	8:00
413. IS: 4570-1968 Crystal holders	8:50
414. IS: 4586-1968 Dimensions of spindles and details of mechanical fixing devices used in electronic equipment	2:50
415. IS: 4633-1968 Fixed metallized paper dielectric capacitor for direct current	8:50
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Electronic Equipment	
420. IS: 4545-1968 Methods of measurement on receivers for monochrome television broadcast transmissions	15:00
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422. IS: 4547-1968 Performance requirements of receivers for monochrome television broadcast transmissions	3:50
Electron Tubes and Valves	
423. IS: 4579-1968 Methods of measurements on television picture tubes ...	6:00
424. IS: 4697-1968 Methods of measurements on Geiger-Muller counter tubes	6:00
Fans	
425. IS: 4894-1968 Centrifugal fans	8:00
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Illuminating Engineering	
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431. IS: 4819-1968 Thin vulcanized fibre sheet (including leatheroid) for electrical purposes	6.00
432. IS: 4820-1968 Vulcanized fibre sheets for electrical purposes	8.00
Lamps and Lamp Accessories	
433. IS: 2215-1968 Starters for fluorescent lamps (<i>second revision</i>)	6.00
Lifts and Escalators	
434. IS: 1860-1968 Code of practice for installation, operation and maintenance of electric passenger and goods lifts (<i>first revision</i>)... ..	12.00
435. IS: 4591-1968 Code of practice for installation and maintenance of escalators	5.00
436. IS: 4666-1968 Electric passenger and goods lifts	8.00
Lightning Arresters	
437. IS: 4850-1968 Application guide for expulsion-type lightning arresters	5.00
Motors and Generators	
438. IS: 4665 (Part I)-1968 Portable motor-operated tools: Part I General requirements and tests	9.00
439. IS: 4691-1968 Degrees of protection provided by enclosures for rotating electrical machinery	7.00
440. IS: 4722-1968 Rotating electrical machines	12.50
441. IS: 4728-1968 Terminal marking for rotating electrical machinery	7.00
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Nomenclature and Symbols	
444. IS: 1885 (Part XXVI)-1968 Electrotechnical vocabulary: Part XXVI Telecommunication relays	5.50
Radio Frequency Cables	
445. IS: 5026 (Part I)-1969 Radio frequency cables: Part I General require- ments and tests	8.00
Semiconductor Devices	
446. IS: 3700 (Part IV)-1968 Essential ratings and characteristics of semi- conductor devices: Part IV Low power small signal transistors	3.50
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449. IS: 4400 (Part III)-1968 Methods of measurement on semiconductor devices: Part III Rectifier diodes	5.00

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- *450. IS: 5000 (OB1)-1969 Dimensions of semiconductor devices: Base outline
OB1
- *451. IS: 5000 (OB2)-1969 Dimensions of semiconductor devices: Base outline
OB2
- *452. IS: 5000 (OC1)-1969 Dimensions of semiconductor devices: Case outline
OC1
- *453. IS: 5000 (OC2)-1969 Dimensions of semiconductor devices: Case outline
OC2
- *454. IS: 5000 (OD1)-1969 Dimensions of semiconductor devices: Device outline
OD1
- *455. IS: 5000 (OD2)-1969 Dimensions of semiconductor devices: Device outline
OD2
- *456. IS: 5001-1969 Guide for preparation of drawings for semiconductor devices

Switchgear and Controlgear

457. IS: 4710-1968 Switches and switch-isolators above 1 000 V but not exceeding 11 000 V 10-50

Winding Wires

458. IS: 482-1968 Reels for covered, round electrical winding wires (*second revision*) 4-00
459. IS: 4685 (Part I)-1968 Varnish bonded glass-fibre covered copper conductors: Part I Round wires 3-50
460. IS: 4718-1968 Multiple paper-covered round copper conductors 6-50
461. IS: 4800 (Part I)-1968 Enamelled round winding wires: Part I Conductor data 5-00
462. IS: 4800 (Part II)-1968 Enamelled round winding wires: Part II Maximum overall diameters 2-00
463. IS: 4800 (Part III)-1968 Enamelled round winding wires: Part III Methods of tests 8-50
464. IS: 4800 (Part IV)-1968 Enamelled round winding wires: Part IV Wires with high mechanical properties 4-00
465. IS: 4800 (Part V)-1968 Enamelled round winding wires: Part V Wires for elevated temperatures 4-00
466. IS: 4800 (Part VI)-1968 Enamelled round winding wires: Part VI Wires with self-fluxing properties 3-50

Wiring Accessories

467. IS: 4615-1968 Switch socket-outlets (non-interlocking type) 7-50
468. IS: 4649-1968 Adaptors for flexible steel conduits 3-50

MECHANICAL ENGINEERING**Bearings**

469. IS: 4757-1968 Dimensions for wrapped bushes and thrust washers 5-50
470. IS: 4773-1968 Plummer blocks for rolling bearings 2-50
471. IS: 4774-1968 Thin-walled bearings and thrust half-washers 11-00

Bicycle Components

472. IS: 960-1969 Bicycle rim tapes and buckles (*first revision*) 2-50

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473.	IS: 1131-1968 } Bicycle bottom bracket assembly components (axle, to adjustable ball cup, fixed ball cup, and lock ring) (first revision) ...	6-00
476.	IS: 1134-1968 } ...	...
477.	IS: 1281-1968 } Bicycle cranks and chain wheels (first revision) ...	3-50
478.	IS: 1282-1968 } Bicycle cotter pins, washers and nuts (first revision) ...	2-00
479.	IS: 1283-1968 } Bicycle free-wheels and chains (first revision) ...	2-50
480.	IS: 4916-1968 } Methods of test for bicycle saddles ...	2-00
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481.	IS: 4049-1968 } Formed ends for tanks and pressure vessels ...	3-50
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483.	IS: 4682 (Part I)-1968 } Code of practice for lining of vessels and equipment for chemical processes: Part I Rubber lining ...	7-50
484.	IS: 4854 (Part II)-1968 } Glossary of terms for valves and their parts: Part II Plug valves and cocks and their parts ...	7-00
*485.	IS: 4864-1968 } Shell flanges for vessels and equipment ...	...
491.	IS: 4870-1968 } ...	...
Engineering Metrology		
492.	IS: 4290-1968 } Roughness comparison specimens ...	4-00
493.	IS: 4563-1968 } Block squares ...	3-50
494.	IS: 4583-1968 } Plate snap gauges ...	3-50
495.	IS: 4960-1968 } Universal and elongated type V-blocks ...	3-50
Gas Cylinders and Fittings		
496.	IS: 3196-1968 } Welded low carbon steel gas cylinders for the storage and transportation of low pressure liquefiable gases (first revision) ...	5-50
497.	IS: 4784-1968 } Low pressure regulators for use with butane gas ...	3-50
498.	IS: 4785-1968 } Low pressure regulators for use with propane gas ...	3-50
499.	IS: 4786-1968 } Variable high pressure regulators for use with liquefied petroleum gases ...	4-00
Gaskets and Packings		
500.	IS: 4253 (Part II)-1968 } Cork composition sheet: Part II Cork and rubber ...	4-00
501.	IS: 4687-1968 } Gland packing asbestos ...	2-50
502.	IS: 4688-1968 } Proofed cotton duck gland packing ...	2-00
Gears		
503.	IS: 4702-1968 } Accuracy requirements for high precision gears ...	2-00
504.	IS: 4725-1968 } Accuracy requirements for precision gears ...	2-00
Hand Tools		
505.	IS: 843-1968 } Smith's tongs (first revision) ...	5-00
506.	IS: 4595-1968 } General requirements for non-parking tools ...	2-50
507.	IS: 4806-1968 } Heat coil pliers ...	2-00
500.	IS: 4915-1968 } Welders' chipping hammer ...	2-00
509.	IS: 5006-1968 } Battery terminal pliers ...	1-50

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IC Engines and Automotive Vehicles	
510. IS: 3351-1968 Methods of test for diesel engine fuel filters	5·50
511. IS: 4552-1968 Portable jacks for automobiles, mechanical and hydraulic ...	3·50
Instruments (Drawing, Optical and Surveying)	
512. IS: 3218-1968 Parallel rulers, 150 mm (link type)	2·00
513. IS: 4590-1967 Engineers' level	2·50
Lubricating Equipment	
514. IS: 4561 (Part I)-1968 Oil cans : Part I Light duty oil cans	2·50
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516. IS: 4561 (Part III)-1968 Oil cans : Part III Feeding oil cans	2·00
517. IS: 4561 (Part IV)-1968 Oil cans : Part IV Detachable spout oil cans ...	2·50
518. IS: 4561 (Part V)-1968 Oil cans : Part V Lever type oil cans	5·00
519. IS: 4672-1968 Grease cups	3·50
520. IS: 4673-1968 Wick feed lubricators	2·00
521. IS: 4974-1968 Grease nipples, small	3·50
522. IS: 5019-1968 Lubricating plugs	2·50
Machine Tools and Small Tools	
523. IS: 4592-1968 Test chart for gap-frame presses	2·50
524. IS: 4593-1968 Test chart for straight-sided presses	2·50
*525. IS: 4816-1968 Permanent magnetic chucks	2·00
526. IS: 4872-1968 Sizes for planing machines	2·00
†527. IS: 4914-1968 Tap wrenches, adjustable	2·00
†528. IS: 4917-1968 Tap wrenches, fixed	2·00
†529. IS: 4918-1968 Hard metal wire drawing dies	2·00
†530. IS: 4921-1968 Extension bars	2·00
†531. IS: 5030-1969 Flexible-back metal cutting bandsaw blades	2·00
†532. IS: 5031-1969 Metal slitting saws	2·00
Marine Engineering and Shipbuilding	
533. IS: 4549-1968 Lifeboat compass—liquid type	3·50
534. IS: 4550-1968 Recommendation for positioning of magnetic compasses in ships	2·50
535. IS: 4551-1968 Lifeboat crutches	2·00
536. IS: 4562-1968 Portable chemical fire extinguisher, foam type for marine use	3·50
537. IS: 4568-1968 Lifeboat oars (wood)	3·50
538. IS: 4601 (Part I)-1968 Navigation lights for large sea-going power-driven vessels : Part I Positioning and screening of lights	4·00
539. IS: 4601 (Part II)-1968 Navigation lights for large sea-going power-driven vessels : Part II Oil lanterns	3·50
540. IS: 4602-1968 General requirements and testing of lifeboats for less than one hundred persons	5·50
541. IS: 4647-1968 Detachable steel ladder for inland vessels	2·00
542. IS: 4659-1968 Wire reel for inland vessels	2·00
543. IS: 4690-1968 Mooring buoy shackles	4·00

*Japanese standard JISB-6157 : 1961 recognized as Indian Standard.

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544.	IS : 4692-1968 Electrically welded studless link anchor chains and attachments... ..	5 00
545.	IS : 4693-1968 Steel accessories for marine piping systems	3 50
*546.	IS : 4881-1968 Code of practice for design of shipboard mechanical ventilation trunking	

Material Handling, Lifting Gear

547.	IS : 2758-1969 Mild steel point hooks for use with wire rope thimbles	4 00
548.	IS : 2759-1969 Higher tensile steel point hooks for use with wire rope thimbles	4 00
549.	IS : 4660-1968 Glossary of terms on powered and non-powered trucks	8 50
550.	IS : 4776 (Part I)-1968 Troughed belt conveyors: Part I Troughed belt conveyors for surface installations	6 50
551.	IS : 5007-1969 Dimensions for pallet trucks	2 00
552.	IS : 5008-1969 Data sheet for industrial tractors	1 50

Mining

553.	IS : 4791-1968 Glossary of mining terms (drainage)	2 50
554.	IS : 4792-1968 Glossary of mining terms (ventilation)	5 50
555.	IS : 4863-1968 Glossary of mining terms (drilling and blasting)	6 00
556.	IS : 5028-1969 Glossary of mining terms (planning and surveying)	3 50

Refrigeration and Air-Conditioning

557.	IS : 4831-1968 Recommendation on units and symbols for refrigeration	5 50
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Sewing Machines

558.	IS : 3291-1968 Thread take up cams for sewing machines for household purposes (first revision)	4 00
559.	IS : 4632-1968 Square sliders for stitch regulators for sewing machines for household purposes	2 50
560.	IS : 4734-1968 Short needle bars for sewing machines for household purposes	3 50
561.	IS : 4735-1968 Arm shaft cams for sewing machines for household purposes... ..	2 50

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562.	IS : 1365-1968 Slotted countersunk head and slotted raised countersunk head screws (diameter range 1.6 to 20 mm) (second revision)	3 50
563.	IS : 1366-1968 Slotted cheese head screws (diameter range 1.6 to 20 mm) (first revision)	3 50
564.	IS : 2389-1968 Precision hexagonal bolts, screws, nuts and lock nuts (diameter range 1.6 to 5 mm) (first revision)	3 50
565.	IS : 2585-1968 Black square bolts and nuts (diameter range 6 to 39 mm) and black square screws (diameter range 6 to 24 mm) (first revision)	3 50
566.	IS : 4694-1968 Basic dimensions for square threads	5 00
567.	IS : 4695-1968 Basic dimensions for knuckle threads	2 00
568.	IS : 4696-1968 Basic dimensions for saw tooth threads	4 00
569.	IS : 4732-1968 Rivets for shipbuilding	2 50
570.	IS : 4762-1968 Worm drive hose clips for general purposes	4 00

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Transmission Devices, Pulleys and Belts		
571.	IS: 1691-1968 Cast iron and mild steel flat pulleys (<i>first revision</i>) ...	5·00
572.	IS: 1891 (Part I)-1968 Rubber conveyor and elevator belting: Part I General purpose belting (<i>first revision</i>)	8·50
573.	IS: 4600-1968 Flexible shafts	2·50
574.	IS: 4966 (Part I)-1968 Gauges for serrations: Part I For gauging external serrations	4·00
575.	IS: 4966 (Part II)-1968 Gauges for serrations: Part II For gauging internal serrations	3·50
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576.	IS: 4670-1968 Liquor measures	2·00
Unclassified		
577.	IS: 4596-1968 Glossary of terms relating to oil expellers	3·50
STRUCTURAL AND METALS		
Alloy Steels and Special Steels		
578.	IS: 4882-1968 Low-carbon steel wire for rivets for use in bearing industry ...	2·00
Cast Iron and Malleable Cast Iron		
579.	IS: 1230-1968 Cast iron rain water pipes and fittings (<i>first revision</i>) ...	8·00
580.	IS: 1865-1968 Iron castings with spheroidal or nodular graphite (<i>first revision</i>)	5·00
581.	IS: 4771-1968 Abrasion-resistant iron castings	2·50
Copper and Copper Alloys		
582.	IS: 319-1968 Free-cutting brass rods and sections (<i>second revision</i>) ...	3·50
Corrosion Protection		
583.	IS: 4777-1968 Performance tests for protective schemes used in protection of light gauge steel against corrosion	7·50
Cranes and Allied Appliances		
584.	IS: 4573-1968 Code of practice for design of mobile cranes (all types) ...	8·50
585.	IS: 4594-1968 Code of practice for design of portal and semi-portal wharf cranes (electrical)	9·50
Ferro-Alloys		
586.	IS: 1468-1968 Ferrotitanium (<i>first revision</i>)	1·50
Foundry		
587.	IS: 4604-1968 Pattern plates for machine moulding boxes	2·50
588.	IS: 4606-1968 Steel shots for use in foundries	2·50
589.	IS: 4683-1968 Chilled iron shot and grit for use in foundries	2·50
590.	IS: 4981-1968 Guide pins for foundry pattern plates	2·00
591.	IS: 4982-1968 Closing pins for foundry moulding boxes	2·00
592.	IS: 5032-1969 Recommended sizes of cupola furnace for foundry	2·00

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Hot-Dip Metallic Coatings		
593.	IS : 4736-1968 Hot-dip zinc coatings on steel tubes	2-00
594.	IS : 4759-1968 Hot-dip zinc coatings on structural steel and other allied products	2-00
595.	IS : 4826-1968 Galvanized coatings on round steel wires	2-50
Lead, Zinc, Tin, Antimony and Their Alloys		
596.	IS : 1655-1968 Code of practice for manufacture of zinc alloy pressure die castings (<i>first revision</i>)	5-50
597.	IS : 4699-1968 Refined secondary zinc	2-00
Light Metals and Their Alloys		
598.	IS : 1285-1968 Wrought aluminium and aluminium alloys, extruded round tube and hollow sections for general engineering purposes (<i>first revision</i>)	8-00
599.	IS : 3435-1968 99-Percent secondary aluminium notched bars and ingots for remelting for aircraft purposes	2-00
600.	IS : 3965-1969 Dimensions for wrought aluminium and aluminium alloys, bar, rod and section	2-50
601.	SP : 1-1967 Comparison of Indian and overseas standards on aluminium alloy castings	8-00
Metallic Finishes		
602.	IS : 1067-1968 Electroplated coatings of silver for decorative and protective purposes (<i>first revision</i>)	2-00
603.	IS : 1068-1968 Electroplated coatings of nickel and chromium on iron and steel (<i>first revision</i>)	4-00
604.	IS : 1337-1968 Hard chromium electroplated coatings on iron and steel (<i>first revision</i>)	2-00
605.	IS : 1572-1968 Electroplated coatings of cadmium on iron and steel (<i>first revision</i>)	3-50
606.	IS : 1868-1968 Anodic coatings on aluminium (<i>first revision</i>)	3-50
607.	IS : 3656-1968 Code of recommended practice for mechanical polishing of metals for electroplating	5-00
608.	IS : 4827-1968 Electroplated coatings of nickel and chromium on copper and copper alloys	4-00
609.	IS : 4828-1968 Electroplated coatings of nickel and chromium on zinc and zinc alloys	4-00
610.	IS : 4942-1969 Electroplated coatings of nickel and chromium on aluminium and aluminium alloys	4-00
Metallography and Heat Treatment		
611.	IS : 4748-1968 Method for estimating average grain size of metals	12-00
Metal Standards		
612.	IS : 4843-1968 Code for designation of ferrous castings	2-50
613.	SP : 2-1968 Comparison of Indian and overseas basic sizes for sheet and wire	2-00
Methods of Chemical Analysis		
614.	IS : 2020 (Part I)-1968 Methods of chemical analysis of silico-chromium: Part I Analysis of silicon and chromium	2-50

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Sl No.		Rs
615.	IS: 4646 (Part I)-1968 Methods of chemical analysis of copper-phosphorus brazing alloys: Part I Analysis for silver and copper ...	2.50
616.	IS: 4667 (Part I)-1968 Methods of chemical analysis of silver-copper brazing alloys: Part I Analysis of silver and copper ...	2.50
617.	IS: 4703-1968 Methods of chemical analysis of silver-manganese brazing alloys	2.00
Methods of Physical Tests		
618.	IS: 1500-1968 Method for Brinell hardness test for steel (<i>first revision</i>) ...	5.00
619.	IS: 1501-1968 Method for Vickers hardness test for steel (<i>first revision</i>) ...	8.50
620.	IS: 1586-1968 Method for Rockwell hardness test (B and C scales) for steel (<i>first revision</i>)	3.50
621.	IS: 1754-1968 Method for verification of Vickers hardness testing machines (<i>first revision</i>)	2.50
622.	IS: 2281-1968 Method for verification of Brinell hardness testing machines (<i>first revision</i>)	2.50
623.	IS: 4598-1968 Method for simple bend test for aluminium and aluminium alloy sheet and strip of thickness between 0.2 mm and 7 mm ...	2.00
624.	IS: 4599-1968 Method for drift expanding test on aluminium and aluminium alloy tubes	2.00
625.	IS: 4713-1968 Method for determination of lower yield stress, proof stress and proving test for steel at elevated temperatures	4.00
Methods of Sampling		
626.	IS: 3191-1968 Methods for sampling of cryolite and aluminium trifluoride...	4.00
627.	IS: 4711-1968 Methods for sampling of steel pipes, tubes and fittings ...	2.50
628.	IS: 4905-1968 Methods for random sampling	9.00
Non-Destructive Testing		
629.	IS: 4853-1968 Recommended practice for radiographic examination of fusion welded circumferential joints in steel pipes	6.00
630.	IS: 4901-1968 Code of practice for magnetic particle flaw detection of steel crankshaft forgings	2.50
631.	IS: 4904-1968 Reference block for calibration of ultrasonic flaw detectors ...	5.00
Ores and Raw Materials		
632.	IS: 4574-1968 Flourspar for use in metallurgical industries	1.50
633.	IS: 4763-1968 Manganese ore for the production of ferromanganese ...	1.50
Pig Iron		
634.	IS: 225-1969 Pig iron (charcoal) (<i>second revision</i>)	3.50
635.	IS: 5020-1969 Hematite pig iron	2.50
636.	IS: 5021-1969 Acid-resisting high-silicon pig iron	2.50
Powder Metallurgical Materials and Products		
637.	IS: 4840-1968 Method for determination of flow rate of powders for powder metallurgical purposes	1.50
638.	IS: 4841 (Part I)-1968 Method for determination of density of sintered metallic materials: Part I	2.00
639.	IS: 4842-1968 Method for transverse testing of hard metals	1.50

Sl No.		Rs
640.	IS: 4848-1968 Method for determination of apparent density of powders for powder metallurgical purposes	1.50
641.	IS: 4857-1968 Method for determination of compressibility of ductile metal powders	2.00
Precious Metals		
642.	IS: 4704-1968 Silver-tin dental amalgam alloy	2.50
643.	IS: 4705-1968 Dental mercury	2.00
644.	IS: 4799-1968 Dental coating gold alloys	2.00
Refractories		
645.	IS: 1524-1968 Refractory sleeves (<i>first revision</i>)	2.00
646.	IS: 1525-1968 Ladle refractories for steel plants (<i>first revision</i>)	2.00
647.	IS: 1751-1968 Fireclay cupola refractories (<i>first revision</i>)	2.00
648.	IS: 4564-1968 Fireclay nozzles	2.00
649.	IS: 4565-1968 Fireclay stoppers	2.00
650.	IS: 4801-1968 Chemically-bonded magnesian-chrome refractories for roof lining	1.50
651.	IS: 4812-1968 Silica refractories for coke oven	2.50
652.	IS: 4813-1968 Chemically-bonded chrome-magnesite refractories for general purposes	1.50
653.	IS: 4814-1968 Chemically-bonded magnesite-chrome refractories for general purposes	1.50
Steel Castings		
654.	IS: 4896-1968 One percent chromium steel castings for resistance to abrasion	3.50
655.	IS: 4897-1968 Deviations for untoleranced dimensions and weight of steel castings	2.50
656.	IS: 4898-1968 Steel castings for case carburizing	3.50
657.	IS: 4899-1968 Ferritic steel castings for use at low temperatures	3.50
Steel Tubes, Pipes and Fittings		
658.	IS: 1161-1968 Steel tubes for structural purposes (<i>second revision</i>)	4.00
659.	IS: 1239 (Part I)-1968 Mild steel tubes, tubulars and other wrought steel fittings: Part I Mild steel tubes (<i>second revision</i>)	5.00
660.	IS: 4712-1968 Dimensions for forged steel socket-welding fittings	2.00
661.	IS: 4740-1968 Code of practice for packaging of steel tubes	2.00
662.	IS: 4922-1968 Seamless steel tubes (suitable for welding) for aircraft purposes	2.50
663.	IS: 4923-1968 Hollow mild steel sections for structural use	4.00
Structural Engineering		
664.	IS: 805-1968 Code of practice for use of steel in gravity water tanks	6.00
Welding General		
665.	IS: 1024-1968 Code of practice for use of welding in bridges and structures subject to dynamic loading	6.50
666.	IS: 4943-1968 Assessment of butt and fillet fusion welds in steel sheets, plate and pipe	5.00

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SI No.		Rs
667.	IS: 4944-1968 Code of procedure for welding at low ambient temperatures	2:50
*668.	IS: 4972-1968 Resistance spot-welding electrodes	
Wrought Steel Products		
669.	IS: 1079-1968 Hot rolled carbon steel sheet and strip (<i>second revision</i>) ...	3:50
670.	IS: 4824-1968 Bead wire for tyres	2:50
671.	IS: 4855-1968 Bright steel bars for machining	2:00
TEXTILES		
Aeronautical Textiles		
672.	IS: 1376-1968 Cotton sewing threads for aeronautical purposes (<i>first revision</i>)	2:50
673.	IS: 4719-1968 Wire-woven rayon fabric for radar-responsive target sleeves...	2:00
674.	IS: 4726-1968 Light-weight nylon fabric for personnel parachutes ...	4:00
675.	IS: 4727-1968 Nylon webbing for aeronautical purposes	4:00
676.	IS: 5010-1969 Nylon fabric for heavy supply-dropping parachutes ...	2:50
Carpets and Druggets		
677.	IS: 2231-1968 Method of grading hand-made wool carpets (<i>first revision</i>) ...	5:50
Chemical Test Methods		
678.	IS: 1582-1968 Method for determination of scouring loss in silk textile materials	2:00
679.	IS: 4655-1968 Method for determination of iron and chromium in textiles	2:50
Colour Fastness of Textile Materials, Determination of		
680.	IS: 4635 (Part I)-1968 Method for determination of colour fastness of textile materials to vulcanizing: Part I With hot air	2:00
681.	IS: 4635 (Part II)-1968 Method for determination of colour fastness of textile materials to vulcanizing: Part II With sulphur monochloride ...	2:00
682.	IS: 4635 (Part III)-1968 Method for determination of colour fastness of textile materials to vulcanizing: Part III With open steam ...	2:00
683.	IS: 4636-1968 Method for determination of colour fastness of textile materials to dry-heat treatments	2:00
684.	IS: 4637-1968 Method for determination of colour fastness of textile materials to steam under pressure	2:50
685.	IS: 4802-1968 Method for determination of colour fastness of textile materials to dry-cleaning	2:00
686.	IS: 4803-1968 Method for determination of colour fastness of textile materials to chlorinated water	2:00
Cotton Fabrics, Handloom		
687.	IS: 1102-1968 Handloom buckram cloth (<i>first revision</i>)	2:50
Cotton Fabrics, Mill-Made		
688.	IS: 4686-1968 Typewriter ribbon fabrics	2:00

*Under print.

Sl No.	Rs
Dyestuffs	
689. IS: 4472 (Part II)-1968 Methods for identification of the application classes of dyes on textile materials: Part II Wool, silk and other protein fibres	2.50
*690. IS: 4946-1968 Method for evaluation of strength and shade of naphthol ...	
Grading of Fibres and Yarns	
691. IS: 2427-1968 Grading of continuous filament viscose rayon yarn and acetate yarn, bright and dull (<i>first revision</i>)	8.50
Hosiery	
692. IS: 4582-1968 Ladies' cardigans	2.50
*693. IS: 4809-1968 Cotton-knitted string vests	
694. IS: 4964-1968 Plain-knitted cotton vests	5.00
695. IS: 4965-1968 Interlock-knitted cotton vests	5.00
Jute Bags	
696. IS: 4856-1968 New jute woolpack	4.00
Jute Fabrics	
697. IS: 4900-1969 Jute carpet backing fabric (271, 305, 339 and 407 g/m ²) ...	7.00
Jute Mill Accessories	
698. IS: 1552-1968 Pitch-bound wire reeds for use in jute looms (<i>first revision</i>) ...	2.50
*699. IS: 4909-1968 Card and gill pins for use in jute industry	
Narrow Fabrics	
700. IS: 4778-1968 Cotton laces for footwear	3.50
National Flag of India	
701. IS: 1-1968 The national flag of India (cotton khadi) (<i>second revision</i>) ...	5.00
702. IS: 300-1968 The national flag of India (silk khadi) (<i>second revision</i>) ...	5.00
703. IS: 400-1968 The national flag of India (wool khadi) (<i>second revision</i>) ...	5.00
Packaging	
704. IS: 4039 (Part II)-1968 Code for packaging of ready-made garments intended for export: Part II Airworthy packaging	1.50
705. IS: 4744-1968 Packaging of jute products in rolls	2.00
Physical Test Methods	
706. IS: 256-1968 Methods for determination of cotton fibre maturity (by sodium hydroxide swelling method) (<i>first revision</i>)	2.50
707. IS: 1969-1968 Method for determination of breaking load and elongation at break of woven textile fabrics (<i>first revision</i>)	4.00
708. IS: 4681-1968 Method for determination of wrinkle recovery of fabrics (by measuring crease recovery angle)	2.50

*Under print.

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SI No.		Rs
709.	IS : 4807-1968 Methods of testing viscose rayon staple fibres	4-00
710.	IS : 4871-1968 Method for determination of lint and trash content of cotton by means of mechanical-pneumatic machines	3-50
711.	IS : 4902-1968 Method for determination of correct invoice weight and moisture content of woollen and worsted yarns	2-00
712.	IS : 4910 (Part I)-1968 Methods of test for tyre yarns, cords and tyre cord fabrics made from man-made fibres: Part I Linear density	2-00
713.	IS : 4910 (Part II)-1968 Methods of test for tyre yarns, cords and tyre cord fabrics made from man-made fibres: Part II Breaking load, elongation at break and tenacity	2-50
Ropes and Cordages		
714.	IS : 4572-1968 Polyamide (nylon) filament ropes (Hawser-laid)	4-00
715.	IS : 4375-1968 Code of handling of fibre ropes	2-50
Sampling of Textiles, Methods for		
716.	IS : 4952-1968 Methods for sampling of cotton bales, slivers and rovings	2-50
Sizing and Finishing Materials		
717.	IS : 1184-1968 Maize starch for use in the cotton textile industry (<i>first revision</i>)	6-00
Textile Materials for Fishing		
718.	IS : 4640-1968 Method for designating netting yarns in the tex system	1-50
719.	IS : 4641-1968 Method for describing and designating knotted netting for fishing nets	2-00
720.	IS : 4945 (Part I)-1968 Cotton twines for fish nets: Part I Twines for gill nets	3-50
721.	IS : 4945 (Part II)-1968 Cotton twines for fish nets: Part II Twines for trawl nets	3-50
Textile Mill Accessories (Other than Jute Mills)		
722.	IS : 1724-1968 Wooden warp bobbins for rabbeth spindles (<i>first revision</i>)	5-50
723.	IS : 1739-1968 Cotton healds for use in cotton looms (<i>first revision</i>)	3-50
724.	IS : 4775-1968 Picking sticks for underpick cotton looms	2-00
725.	IS : 4888-1968 Paper cones for winding yarn	2-00
726.	IS : 4892-1968 Synthetic rubber aprons (reinforced) for drafting systems	2-50
727.	IS : 4893-1968 Perforated stainless steel cones for wet processing	2-00
Wool Fabrics, Khadi		
728.	IS : 4629-1968 Blankets, plain or check, wool khadi	2-50
Miscellaneous		
729.	IS : 4731-1968 Guide for preparation of manuscript of an article in a learned periodical	5-00

INDIAN STANDARDS WITHDRAWN DURING 1968-69

1. IS: 78-1950 Linseed oil, pale boiled, for paints
2. IS: 214-1956 Coal tar solvent naphtha, heavy
3. IS: 295-1951 Bleaching powder, unstabilized
4. IS: 351-1952 Insulating varnish, baking, bitumen type
5. IS: 445-1964 Water hose of rubber, high pressure, with woven reinforcement (*revised*)
6. IS: 502-1953 Solid bobbins for dry jute spinning frames
7. IS: 700-1955 Solid flange bobbins for jute roving frames
8. IS: 727-1964 Hard drawn carbon steel wire for springs for general engineering purposes (*revised*)
9. IS: 760-1956 Blanks for jute spinning roller discs
10. IS: 879-1956 Sodium nitrite, technical
11. IS: 912-1963 Braided air hose of rubber, light duty (*revised*)
12. IS: 914-1963 Braided water hose of rubber, low pressure (*revised*)
13. IS: 1025-1957 Glossary of terms for primary cells and batteries
14. IS: 1048-1957 Built bobbins for old-type dry jute spinning frames
15. IS: 1092-1957 China clay for textile and paper industries
16. IS: 1272-1958 Coal tar solvent naphtha, light Grade 2
17. IS: 1325-1958 Glossary of textile terms for man-made fibres or filament
18. IS: 1330-1958 General plan for metric screw threads with ISO profile (diameter range 0.25 to 300 mm)
19. IS: 1334-1958 Calcium chloride, technical
20. IS: 1362-1962 Dimensions for screw threads for general purposes (diameter range 1.6 to 39 mm) (*revised*)
21. IS: 1620-1961 Methods of test (chemical) for industrial water
22. IS: 1621-1963 Methods of sampling of industrial water for physical and chemical tests
23. IS: 1631-1960 Methods of tests (physical) for industrial water

INCOME AND EXPENDITURE ACCOUNT FOR

EXPENDITURE

PREVIOUS YEAR	SL No.	HEADS OF EXPENDITURE	AMOUNT
Rs			Rs
		<i>1. Pay</i>	
1 656 053.44	1.1	Officers	1 662 830.32
1 662 106.72	1.2	Staff	1 788 073.02
		<i>2. Allowances</i>	
626 922.96	2.1	Officers	688 119.45
1 326 455.43	2.2	Staff	1 527 429.02
126 946.32	3.	CHS and Other Medical Charges	124 658.14
		<i>4. Provident Fund</i>	
171 671.00	4.1	Contribution to CPF	193 159.00
127 393.00	4.2	Interest to CPF	152 915.00
14 027.00	4.3	Interest to GPF	19 824.00
143 782.40	5.	Pension Fund	148 906.80
20 454.00	6.	Staff Welfare	23 186.29
		<i>7. TA</i>	
93 717.50	7.1	Overseas	71 010.60
193 340.21	7.2	Officers and Staff	217 839.31
42 216.21	7.3	Committee Members	21 524.00
		<i>8. Subscription to International Organizations</i>	
129 982.70	8.1	ISO	159 292.05
69 830.00	8.2	IEC	66 238.10
		<i>9. Production</i>	
455 317.87	9.1	Standards	441 642.30
269 900.29	9.2	Bulletin	236 581.50
43 949.07	9.3	Calculation Aids	12 165.33
58 397.15	9.4	Other Publications	63 660.98
1 728.67	10.	Research and Consultation	5 334.75
94 915.38	11.	Testing Fees	79 475.18
72 228.78	12.	Laboratory Apparatus & Stores	82 432.24
7 401 336.10		CARRIED OVER	7 786 297.38

DIX B

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THE YEAR ENDED 31 MARCH 1969

I N C O M E			
PREVIOUS YEAR	SL No.	HEADS OF INCOME	AMOUNT
Rs			Rs
1 589 651·98	1.	Membership Subscription (1968)	1 735 272·16
	2.	<i>Sales</i>	
799 567·50	2.1	Standards	852 544·56
77 631·50	2.2	Calculation Aids	55 316·00
3 300·00	2.3	Bulletin Subscription	3 300·00
166 741·46	2.4	Bulletin Advertisements	168 481·47
204 605·32	3.	Sales Commission	195 832·18
1 594 589·55	4.	Certification	1 874 276·84
17 810·25	5.	CHS Contributions	18 296·25
12 458·00	6.	Conferences	11 354·00
41 000·00	7.	Training Programme	377·58
58 605·51	8.	Miscellaneous	52 335·98
	9.	<i>Government Grant</i>	
	9.1	From Ministry of Industrial Development, Internal Trade and Company Affairs	4 377 000·00
4 377 000·00	9.2	From Ministry of Foreign Trade & Supply (MDF)	
	i)	For Quality Control for Export of Jute Goods	
	a)	Balance for 1967-68	40 652·75
	b)	For 1968-69	150 000·00
121 000·00			190 652·75
9 492·00	ii)	Exhibition	
9 073 453·07		CARRIED OVER	9 535 039·77

(Continued)

INCOME AND EXPENDITURE ACCOUNT FOR

EXPENDITURE			
PREVIOUS YEAR	SL NO.	HEADS OF EXPENDITURE	AMOUNT
Rs			Rs
7 401 336·10		BROUGHT FORWARD	7 786 297·38
	13.	<i>Publicity</i>	
15 442·45	13.1	Exhibitions	603·13
61 938·40	13.2	Advertising	43 877·64
3 836·15	13.3	Miscellaneous	3 725·92
12 906·00	14.	Conferences	17 728·04
30 985·50	15.	Training Programmes	2 207·22
71 756·32	16.	Library	43 039·42
	17.	<i>Office Expenses</i>	
206 491·02	17.1	Stationery	226 359·68
168 464·16	17.2	Postage and Telegrams	260 669·13
145 533·22	17.3	Telephones	117 126·73
6 210·93	17.4	Recruitment	7 284·64
14 940·56	17.5	Refreshments	15 444·19
90 816·95	17.6	Miscellaneous	92 180·40
	18.	<i>Furniture and Equipment</i>	
72 265·12	18.1	Furniture	32 699·36
58 710·24	18.2	Equipment	31 911·36
	19.	<i>Buildings</i>	
212 295·75	19.1	Rent and Taxes	259 880·89
123 221·70	19.2	Electricity and Water	149 111·47
56 066·07	19.3	Maintenance	66 087·54
	20.	<i>Local Transport</i>	
—	20.1	Vehicles	—
33 340·83	20.2	Maintenance	43 225·53
2 000·00	21.	Audit Fees	3 115·00
215 537·02	22.	Quality Control for Export of Jute Goods	229 474·08
200 163·50	23.	Depreciation	188 167·61
9 204 257·99		TOTAL	9 620 216·36

DIX B — Contd

THE YEAR ENDED 31 MARCH 1968

I N C O M E			
PREVIOUS YEAR	SL No.	HEADS OF INCOME	AMOUNT Rs
Rs			Rs
9 073 453·07		BROUGHT FORWARD	9 535 039·77

9 073 453·07			9 535 039·77
130 804·92		DEFICIT	85 176·59
9 204 257·99		TOTAL	9 620 216·36

APPEN

BALANCE SHEET AS

LIABILITIES		
PREVIOUS YEAR	SL No.	AMOUNT
Rs		Rs Rs
	1. <i>Capital Account</i>	
	a) As per last Balance Sheet	2 393 160·55
	b) Less: Excess of Expenditure over Income	85 176·59
		2 307 983·96
2 393 160·55	c) Less: Unspent balance of previous year's grant adjusted	1 575·88
		2 306 408·08
	2. <i>Reserve and Funds</i>	
	2.1 K. L. Moudgill Prize Fund	
	a) As per last Balance Sheet	14 194·38
	b) Add: Receipt during the year	1 300·06
		15 494·44
14 194·38	c) Less: Expenditure during the year	1 060·00
		14 434·44
	2.2 Gratuity Fund	
	a) As per last Balance Sheet	124 953·33
	b) Add: Receipt during the year	39 644·35
		164 597·68
124 953·33	c) Less: Expenditure during the year	17 400·00
		147 197·68
	2.3 ISI Second Building & Laboratory Fund	
	a) Government Grant	
	i) As per last Balance Sheet	1 084 520·49
1 084 520·49	ii) Add: Receipt during the year	652 000·00
		1 736 520·49
	b) Interest-Free Deposits/Overdraft (Repayable within five years)	
	i) As per last Balance Sheet	898 989·12
898 989·12	ii) Less: Refunds during the year	651 989·12
		247 000·00
4 515 817·87	CARRIED OVER	4 451 560·65

DIX B—Contd
AT 31 MARCH 1969

ASSETS			
PREVIOUS YEAR	SL No.	AMOUNT	
Rs		Rs	Rs
	1. <i>Fixed Assets</i>		
	1.1 ISI Building (Manak Bhavan)		
	a) As per cost value	2 081 849·54	
	b) Depreciation w/o up to 31-3-68	(—) 716 511·59	
1 365 337·95	c) Depreciation w/o during the year	(—) 62 086·45	1 303 251·50
	1.2 ISI Second Building (Manakalaya)		
	a) Work in progress up to 31-3-68	2 424 776·53	
2 424 776·53	b) Additions during the year	41 352·26	2 466 128·79
	1.3 Laboratory Equipment		
	a) As per cost value up to 31-3-68	614 428·46	
	b) Additions during the year	110 781·58	
		725 210·04	
	c) Depreciation w/o up to 31-3-68	(—) 167 211·20	
447 217·26	d) Depreciation w/o during the year	(—) 55 800·46	502 198·38
	1.4 Furniture and Equipment		
	a) As per cost value up to 31-3-68	739 404·87	
	b) Additions during the year	20 149·25	
		759 554·12	
	c) Depreciation w/o up to 31-3-68	(—) 379 611·15	
359 793·72	d) Depreciation w/o during the year	(—) 52 281·63	327 661·34
	1.5 Vehicles		
	a) As per cost value up to 31-3-68	164 631·04	
	b) Difference in actual cost & book value of the vehicle since disposed of	(—) 10 632·01	
4 597 125·46	CARRIED OVER		4 599 240·01

(Continued)

APPEN

BALANCE SHEET AS

LIABILITIES

PREVIOUS YEAR	SL No.		AMOUNT
Rs			Rs
4 515 817·87		BROUGHT FORWARD	4 451 560·69
	c)	Donations, etc	
	i)	As per last Balance Sheet	305 005·80
305 005·80	ii)	Add: Receipt during the year	28 429·16
	d)	Rent of Second Building	1 315 843·97
3 321 949·60	2.4	Contributory Provident Fund	3 833 835·60
433 144·00	2.5	General Provident Fund	525 928·00
408 658·99	2.6	Pension Fund	567 894·89
	<i>3. Current Liabilities</i>		
1 052 890·46	3.1	Advance Subscription (1969)	933 174·60
	3.2	Sundry Creditors	
	a)	Inland	223 763·63
	b)	Abroad	284 704·95
381 473·00	c)	Earnest Money	12 250·51
—	3.3	Land (Suspense)	18 000·00
	<i>4. Loans</i>		
—		From Government of India for Conveyance Advances	200 000·00
11 734 783·69		CARRIED OVER	12 700 391·80

DIX B—Contd

AT 31 MARCH 1969

ASSETS			
PREVIOUS YEAR	SL No.		AMOUNT
Rs			Rs
4 597 125·46		BROUGHT FORWARD	4 599 240·01
	c)	Refunds on account of vehicles since capitalized (—) 1 979·95	
	d)	Depreciation w/o up to 31-3-68 (—) 71 055·74	
	e)	Depreciation w/o during the year (—) 17 999·07	
93 575·30	f)	Depreciation adjusted (as per item b above) (+) 10 632·01	73 596·28
	1.6	Library Books	
	a)	As per cost value up to 31-3-68 28 526·08	
28 526·08	b)	Additions during the year 4 212·00	32 738·08
	2.	<i>Investments at Cost</i>	
552 648·90	2.1	Deposits with Banks	402 808·96
5 000·00	2.2	Shares of ISI Employees' Consumer Co-operative Store	5 000·00
11 400·00	2.3	Shares of Jay Engineering Works (A/c K. L. Moudgill Prize Fund)	11 400·00
	2.4	Contributory Provident Fund	
	a)	Investments in National Defence Certificates 3 202 000·00	
	b)	Advances to Members 239 558·00	
3 321 949·60	c)	Bank Balance 392 277·60	3 833 835·60
	2.5	General Provident Fund	
	a)	Investments in National Defence Certificates 425 000·00	
	b)	Advances to Members 54 252·00	
433 144·00	c)	Bank Balance 46 676·00	525 928·00
408 658·99	2.6	Pension Fund	567 894·89
9 452 028·33		CARRIED OVER	10 052 441·82

(Continued)
135

APPEN
BALANCE SHEET AS

LIABILITIES

PREVIOUS YEAR	SL NO.		AMOUNT
Rs		Rs	Rs
11 734 783-69		BROUGHT FORWARD	12 700 391-80

11 734 783-69

TOTAL

12 700 391-80

I have examined the foregoing accounts and balance sheet of Indian Standards Institution and have obtained all the information and explanations that I have required, and I certify, as a result of my audit, that in my opinion these accounts and balance sheet are properly drawn up so as to exhibit a true and fair view of the state of affairs of the Institution according to the best of my information and explanations given to me and as shown by the books of the Institution.

Sd/
(P. P. Gangadharan)
Accountant General
Commerce, Works & Miscellaneous, New Delhi

DIX B—Contd

AT 31 MARCH 1969

ASSETS

PREVIOUS YEAR	SL NO.		AMOUNT
Rs		Rs	Rs
9 452 028·33		BROUGHT FORWARD	10 052 441·82
	3. <i>Current Assets</i>		
156 110·18	3.1	Stock of Printing Paper (valued at cost)	196 344·13
	3.2 Sundry Debtors		
	a)	Sale of Publications	329 143·77
448 736·92	b)	Bulletin Advertisements	125 049·40
	4. <i>Loans and Advances</i>		
	4.1 a) Conveyance Advances to Staff		
	b) Advances for purchases, etc		
262 497·87	c)	Festival Advance	340 160·65
44 850·11	4.2	Security Deposits	48 967·50
82 163·43	4.3	Pre-paid Expenses	76 075·73
—	4.4	Due from Ministry of Finance (A/c Colombo Plan Trainees)	16 966·60
—	4.5	Due from Ministry of External Affairs (A/c ITEC Trainees)	11 205·35
121 492·00	4.6	Due from Marketing Development Fund (Ministry of Foreign Trade and Supply)	—
	5. <i>Cash and Bank Balance</i>		
1 155 539·79	5.1	With Bankers	1 476 805·06
5 944·28	5.2	In hand (including Imprest)	18 656·06
5 420·78	5.3	Postage Stamps in hand	8 575·73
<u>11 734 783·69</u>		TOTAL	<u>12 700 391·80</u>

Sd/-
(A. N. Ghosh)
Director General
Indian Standards Institution,
New Delhi

Sd/-
(B. L. Bhatia)
Director (Accounts)
Indian Standards Institution,
New Delhi

APPENDIX C

Principal Officers of INDIAN STANDARDS INSTITUTION (As on 31 March 1969)

<i>General Council (GC)</i>	
President	SHRI FAKHRUDDIN ALI AHMED Union Minister of Industrial Development, Internal Trade and Company Affairs, Government of India
Vice-Presidents	SHRI JEHANGIR J. GHANDY SHRI PRABHU V. MEHTA
<i>Executive Committee (EC)</i>	
Chairman	SHRI JEHANGIR J. GHANDY
<i>Finance Committee (FC)</i>	
Chairman	SHRI PRABHU V. MEHTA
<i>Agricultural & Food Products Division Council (AFDC)</i>	
Chairman	DR B. P. PAL
Vice-Chairman	SHRI A. C. KHANNA
<i>Chemical Division Council (CDC)</i>	
Chairman	DR G. P. KANE
Vice-Chairman	DR J. S. BADAMI
<i>Civil Engineering Division Council (CEDC)</i>	
Chairman	PROF M. S. THACKER
Vice-Chairman	SHRI C. B. PATEL
<i>Consumer Products Division Council (CPDC)</i>	
Chairman	COL R. D. AYYAR
Vice-Chairman	BRIG M. N. PATEL
<i>Electrotechnical Division Council (ETDC)</i>	
Chairman	SHRI S. SWAYAMBU
Vice-Chairman	SHRI H. V. NARAYANA RAO
<i>Mechanical Engineering Division Council (EDC)</i>	
Chairman	DR B. D. KALELKAR
Vice-Chairman	SHRI NANUBHAI AMIN
<i>Structural & Metals Division Council (SMDC)</i>	
Chairman	SHRI JEHANGIR J. GHANDY
Vice-Chairman	SHRI O. S. MURTHY
<i>Textile Division Council (TDC)</i>	
Chairman	SHRI HARSHAVARDHAN MANGALDAS
Vice-Chairman	DR T. S. SUBRAMANIAN

<i>Certification Marks Advisory Committee (C M A C)</i>	
Chairman	SHRI PRABHU V. MEHTA
<i>Advisory Committee on Implementation of Indian Standards (A C I)</i>	
Chairman	SHRI J. S. LALL
<i>Industrial Safety Advisory Committee (I S A C)</i>	
Chairman	SHRI N. S. MANKIKAR
<i>Women's Advisory Committee (W A C)</i>	
Chairman	SHRIMATI LILAVATI MUNSHI
<i>Bombay Branch Office Advisory Committee</i>	
Chairman	SHRI PRABHU V. MEHTA
<i>Calcutta Branch Office Advisory Committee</i>	
Chairman	SHRI K. K. BIRLA
<i>Kanpur Branch Office Advisory Committee</i>	
Chairman	SHRI SITA RAM JAIPURIA
<i>Madras Branch Office Advisory Committee</i>	
Chairman	SHRI D. C. KOTHARI

S T A F F

Director General : DR A. N. GHOSH

Deputy Directors General : SHRI B. S. KRISHNAMACHAR
DR A. K. GUPTA

Agricultural & Food Products Department

Deputy Director/Head DR HARI BHAGWAN

Chemical Department

Director SHRI D. DAS GUPTA

Civil Engineering Department

Director SHRI R. NAGARAJAN

Consumer Products Department

Director SHRI A. B. RAO

Electrotechnical Department

Director SHRI Y. S. VENKATESWARAN

Mechanical Engineering Department

Director SHRI M. V. PATANKAR

Structural & Metals Department	
Deputy Director/Head	SHRI R. K. SRIVASTAVA
Textile Department	
Director	SHRI S. M. CHAKRABORTY
Accounts Department	
Director	SHRI B. L. BHATIA
Administrative Department	
Secretary	SHRI HARBANS LAL
Certification Marks Department	
Director	SHRI A. S. CHEEMA
Implementation Department	
Deputy Director General	DR A. K. GUPTA
Laboratory	
Deputy Director/Head	DR S. GHOSH
Publications Department	
Director	SHRI R. D. TANEJA
Public Relations Department	
Director	SHRI KAVALJIT SINGH
Publicity Department	
Deputy Director	SHRI MANOHAR LAL
Statistics Department	
Director	DR B. N. SINGH
Bombay Branch Office	
Director	SHRI S. SRINIVASAN
Calcutta Branch Office	
Director	SHRI A. P. BANERJI
Hyderabad Branch Office	
Deputy Director/Head	SHRI S. R. KUPPANA
Kanpur Branch Office	
Deputy Director/Head	SHRI K. K. TRIPATHI
Madras Branch Office	
Director	SHRI G. L. GULATI

draft is circulated to all interests concerned both in India and abroad for eliciting technical comments which are considered before it is finalized as an Indian Standard.

IMPLEMENTATION OF INDIAN STANDARDS

Indian Standards, formulated with the agreement and concurrence of different interests concerned, constitute ideal solutions for various recurring problems, such as technical basis for contracts, manufacture, purchase, supply and testing.

Different departments of Central and State Governments and many local bodies have taken policy decisions to adopt Indian Standards. In addition, important industrial undertakings and purchase organizations, both in public and private sectors, have adopted Indian Standards in their manufacturing and purchase programmes.

ISI CERTIFICATION MARKS SCHEME

With the object of providing practical utility of standards to the ordinary consumer, the Institution is operating, under the authority of the ISI Certification Marks Act, 1952 (as amended in 1961) passed by the Parliament, the ISI Certification Marks Scheme. Under the Scheme, licences are issued to manufacturers, who produce goods according to the provisions laid down in the relevant Indian Standard specification, whereby they are permitted to apply on their products ISI Certification Mark which provides a third-party guarantee to the consumer that the goods are of standard quality. The Scheme not only gives the guarantee of quality to the consumer who neither possesses the technical know-how nor the necessary equipment for testing, but also helps the manufacturer in producing goods of quality and in reaping the advantages accruing from standardization.

For ensuring the conformity of such products to the relevant Indian Standards, a scheme, under which strict quality control and vigilance are exercised at different levels of production, forms a necessary adjunct to every licence. Regular and surprise inspections of the licensees' factories are carried out by qualified inspectors of the Institution, and samples of their products are drawn from factories as well as open market and subjected to tests in independent laboratories.

STANDARDS-CONSCIOUSNESS

In order to encourage wider implementation of Indian Standards to publicize ISI Certification Marks Scheme and to create standards consciousness among different sectors of economy, conferences at State level are held from time to time. Such conferences have already taken place in Orissa, Kerala, Punjab, West Bengal, Mysore, Uttar Pradesh, Bihar, Gujarat, Maharashtra, Himachal Pradesh, Madhya Pradesh, Madras

and Andhra Pradesh. For focussing public attention on the importance of standardization in industrial development and for creating standards-consciousness among different interests, Indian Standards Conventions are held annually at different important industrial centres in the country. Such Standards Conventions have already taken place at Calcutta (twice), Bombay, Madras, Delhi, Hyderabad, Kanpur, Ahmedabad, Bangalore, Ernakulam and Chandigarh. Besides, different public relations and publicity media are availed of for publicising the vital importance of standardization to the various sectors of economy.

As a result of concerted efforts, awareness about the utility of standardization is on the increase with the growing industrialization of the country.

ISI LABORATORY

ISI has set up its own Laboratory with the primary object of testing certified products manufactured in accordance with the Indian Standard Specifications, as well as those offered by applicants for the grant of licences under the ISI Certification Marks Scheme. This has helped the Institution in avoiding untoward delay in testing and also in exercising proper quality control on certified goods.

Besides testing, the ISI Laboratory carries out investigational work relating to Indian Standard Specifications and amendments to those specifications. In the light of its investigations the Laboratory suggests to the various technical committees of ISI new, simpler, economical and less time-consuming analytical techniques. In addition, it extends facilities for training in testing products according to Indian Standard Specifications.

Laboratories on smaller scales have also been set up in the Institution's Branch Offices at Bombay, Calcutta and Madras for doing testing work in connection with ISI Certification Marks Scheme.

COMPANY STANDARDIZATION

With the object of assisting Indian industries in organizing their in-plant standards activity, ISI has, since 1963, been organizing:

- Training programmes, which provide detailed training in standardization methods and techniques with a thorough indoctrination in basic principles and practices;
- Survey programmes, which arouse great interest among the participants to organize in-plant standards activity in their respective organizations;
- Conferences on management and company standardization, which are aimed at promoting company standardization activity through top management support; and
- Factory visits.

These programmes have covered a substantial number of industrial units all over the country and have led to the initiation of in-plant standards activity in many of them.

STANDARDS LIBRARY

The Institution has a well-equipped library of standards and specifications issued by different authorities in various countries. Besides, the library contains technical, scientific, research and other publications. Important scientific and technical journals published in different countries are also received. In addition, the library helps in preparing bibliographies for the use of technical personnel and experts of the Institution.

SUBSCRIBING MEMBERS

All organizations and individuals, who are interested in the aims and objects of the Institution and who want to avail themselves of the benefits accruing from standardization, can join the Institution as subscribing members in any one of the different categories, namely, Patrons, Donor Members, Sustaining Members, Associate Members and Individual Members.

Depending upon the class of membership, the subscribing members of the Institution enjoy a number of privileges, such as receipt, free of charge, of one copy each of ISI publications in which they may have registered their interest; purchase of ISI publications at a discount; access to technical library of the Institution; facility of getting information on standardization both in India and abroad and the privilege to propose new subjects for standardization.

INTERNATIONAL COLLABORATION

For furthering India's interest at international level, so far as standardization is concerned, the Institution collaborates closely with International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) — the two international organizations devoted to standardization work. Besides having representation on important administrative bodies of these organizations, the secretariats of a number of international technical committees, subcommittees, and working groups dealing with subjects of importance to India are held by ISI. The Institution is also an active member of the Commonwealth Standards Conference (CSC) which is held periodically to review the progress made by different Commonwealth countries in respect of standardization and to discuss mutual problems. In addition, active liaison is maintained with other international organizations like Economic Commission for Asia and Far East (ECAFE) as well as with National Standards Organizations of other countries.

BRANCH OFFICES

For keeping close liaison with and for rendering efficient service to industry, trade and commerce in different regions of the country, the Institution has opened its Branch Offices in Bombay, Calcutta, Hyderabad, Kanpur and Madras.

PUBLICATIONS

The publications of the Institution include:

- Indian Standards — on different products, commodities, materials, processes, methods of tests, etc.
- Handbooks and Reports — covering special subjects.
- Handbook of ISI Publications — giving information about Indian Standards and other publications of ISI, recommendations of International Organization for Standardization (ISO) and publications of International Electrotechnical Commission (IEC).
- Sectional (Classified) Lists of Indian Standards — relating to different industries.
- ISI Bulletin — monthly journal devoted to standardization activities.
- Standards: Monthly Additions — containing details of Indian Standards published and draft Indian Standards circulated in a month.
- Annual Report of ISI — giving information about ISI activities in a year.