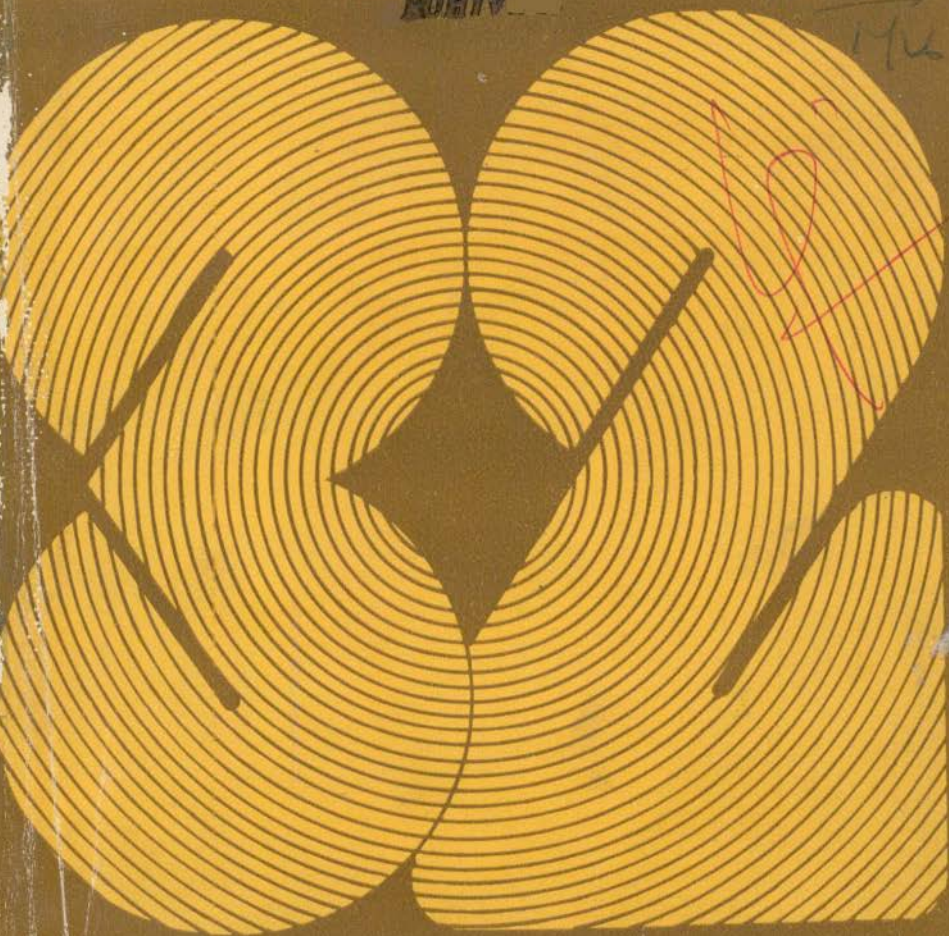


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THIRTYSECOND

# Annual Report

APRIL 1978 - MARCH 1979

Indian Standards Institution

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THIRTYSECOND

# Annual Report

APRIL 1978-MARCH 1979

Indian Standards Institution

Free to Members

Price Rs 6.00

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pesticides, domestic electrical appliances, diesel engines, conductors and power cables, and paraffin wax besides providing training in chemical testing of metals. Training programmes in statistical quality control were also organized during the year with a view to familiarizing representatives from different organizations with statistical quality control techniques.

A new Branch Office of the Institution was established at Bhopal to cater to the needs of the industry in Madhya Pradesh. While inaugurating the Branch Office on 9 September 1978, Shri V. K. Sakhlecha, Chief Minister of Madhya Pradesh, offered to give land to the Institution for the construction of its Office-cum-Laboratory Building in Bhopal.

An important prerequisite for realizing the benefits of national standardization is appreciation by engineers and technologists coming out of the universities of the techno-economic role of standards in various fields of development under conditions obtaining in India and their proper utilization in product development, plant installation and operation and projects design and execution. Since educational media have not been reflecting adequately the information about Indian Standards, the Institution has been organizing special programmes for the faculty members of various universities and technical institutions to apprise them of standards development in their respective areas of interest and help assimilate principles of standardization for suitably transmitting to students. During the year, three programmes on the utilization of Indian Standards in agriculture were held in Junagadh, Navasari and Patna in which 180 faculty members participated from the Agricultural Universities of the respective States. Besides, three programmes on the utilization of Indian Standards in engineering were held, one each in Trivandrum, Bangalore and Madras in which participants from a large number of engineering colleges, polytechnics and junior technical schools participated. Two programmes, one covering polytechnic education and the other vocational trades, were organized in Bombay and Howrah respectively.

The Institution actively participated in the work of organizations devoted to standardization at the

international level, including International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC). ISI attended thirtysecond meeting of the ISO Council in Geneva during September 1978 when Shri D. C. Kothari, Vice-President of ISI, was appointed a member of the ISO Planning Committee (PLACO) for the term 1979-81. The Institution also represented India at PLACO meeting held in February 1979.

The Director General, ISI, paid a visit to the British Standards Institution (BSI), London, and discussed with them matters of mutual interest. He also visited the Hungarian Standards Body (MSZH), Budapest, at the invitation of that organization.

The Indo-Soviet Panels for Coordination of Standards on Ferro Alloys and Refractories held their meetings in New Delhi during December 1978. The sixth meeting of the Indo-Soviet Working Group on Standardization and Metrology was held in New Delhi during 20-27 December 1978 which was attended by a four-member Soviet delegation. The meeting reviewed the progress achieved and chalked out the working programme for 1979.

Over the years, the Institution has been actively assisting the developing countries of Asia, Africa and Latin America in establishing and promoting their standardization and quality control programmes. During the year under report, complete sets of Indian Standards were presented, as gift, to Syria and Guyana under the Institution's scheme for sharing technical knowhow with developing countries.

As in previous years, a 15-week International Training Programme in Standardization was organized by the Institution for standards engineers from overseas countries for the study of principles of standardization and their application in industry. Fourteen participants from Ghana, Iran, Iraq, Panama, Syria, Tanzania, Thailand and Vietnam received training in methodology and techniques of standardization. So far, 112 participants from 31 countries have benefited from these programmes.

## PART I

# THE YEAR IN RETROSPECT

Part I of the Report gives in brief the work of the Institution in different fields during the year 1978-79.

**Standards Preparation** — During the year under review, 799 Indian Standards were issued as against 784 in the preceding year. The number of Indian Standards in force, including those under print but excluding those withdrawn, increased from 9 483 as on 31 March 1978 to 9 935 as on 31 March 1979. Full information regarding total number of Indian Standards published, standards in force, standards revised and standards withdrawn is given below:

New standards issued during the year	475
Standards revised during the year	324
Total number of standards (new and revised) issued during the year	799
Standards withdrawn during the year	23
Cumulative total of standards issued up to 31 March 1979	10 370
Cumulative total of standards withdrawn up to 31 March 1979	435
Standards in force as on 31 March 1979	9 935
Cumulative total of standards revised up to 31 March 1979	3 279
Cumulative total of standards (new and revised) published up to 31 March 1979	13 649

A detailed report on standards formulation activity during the year under report is given in Part II.

### Implementation of Indian Standards

*Adoption of Indian Standards* — Efforts were continued to ensure that the decisions regarding implementation of Indian Standards taken by the Central Government, various State Governments and public sector

undertakings were carried out. As a result, 95 percent of Indian Standards were adopted by various Government departments.

*Recommendations on Specific Items* — During the period under review, different organizations took steps to implement various Indian Standards as indicated below:

<i>Organization</i>	<i>Products/ Indian Standards</i>	<i>Directives</i>
a) Sponge Iron India Ltd, Paloncha (AP)	All standards	Have intimated that their contracts do provide for the execution of works in accordance with the various standards laid down by ISI including the National Building Code.
b) Housing, Municipal Administration & Urban Development Department, Government of Andhra Pradesh, Hyderabad	Electrical goods	Andhra Pradesh Government has directed that the municipalities should purchase electrical goods approved by ISI and bearing ISI Certification Mark and that quotations should be called for from manufacturers whose goods are approved by ISI.
c) Industries, Mines & Power Department, Government of Gujarat, Gandhinagar	Testing equipment	Have decided to enhance the quantum of subsidy from Rs 2 500 to Rs 10 000 to small scale units, subject to the condition that the testing equipment required for the purpose of securing recognition from ISI and under the quality Marking Scheme is installed.
d) Directorate of Plant Protection, Quarantine & Storage, Ministry of Agriculture & Irrigation, Faridabad	Packaging Material	Have adopted the packaging requirements in toto as given in Indian Standards. Have further directed all Directors of Agriculture and Licensing Officers of all



<i>Organization</i>	<i>Products/ Indian Standards</i>	<i>Directives</i>
		States to ensure conformity of packaging to the requirements of the relevant Indian Standards for all the products whether the material bears ISI Mark or not.
e) Department of Cooperation, Goa Medical College, Panaji — Goa	Indian Standards for orthopaedic surgical instruments	Have decided that whenever products with ISI Mark are available, they will prefer to consider them and in future, while issuing orders, they will specify the requirements under Indian Standards.
f) Oil India Ltd, PO Duliajan	Indian Standards for explosives	Have intimated that in future the clause relating to preference to goods with ISI Mark will be incorporated in all their tenders.
g) Praga Tools Ltd, Secunderabad	Indian Standards for crash helmets	Have agreed for the use of standard quality helmets and those with ISI Mark.
h) Medical College, Calicut	Indian Standards for dental equipment	Have decided that whenever items are purchased for the Dental Wing, preference would be given to equipment and material approved by ISI.

*Adoption by Manufacturers/Consumers* — To enable the Institution to provide information about manufacturers/consumers operating to Indian Standards, 42 enquiries were issued on various subjects covering 844 Indian Standards, codes of practice, and methods of test.

The information so far received from the manufacturers, consumers, etc, is as under:

<i>Nature of Adoption</i>	<i>No. of Organizations</i>	<i>No. of Standards Adopted</i>
For manufacture	23	42
For purchase	24	63
For testing & inspection	40	82
General adoption	29	96

*Identifying Sources of Supply of Products According to Indian Standards*

— A sizable number of industries and consuming organizations approached ISI for information on manufacturers who can supply products conforming to the relevant Indian Standards. Such information pertaining to products covered under the ISI Certification Marks Scheme is available in "Buyers' Guide" being published by ISI periodically; for products not yet covered under the Scheme, the available information on manufacturers claiming conformity to Indian Standards is being furnished on request. During 1 April 1978-31 March 1979, such information was furnished to 22 parties on products covering 52 Indian Standards.

*Second Tamil Nadu State Conference on Implementation of Indian Standards* — The Conference was organized in collaboration with the Directorate of Industries and Commerce, Tamil Nadu, during 8-9 March 1979 at Madras in which 200 delegates from the purchasing agencies, industry and research organizations participated.

The recommendations of the Conference covered the following points:

- a) Creation of a State-level committee to monitor the process in the implementation of Indian Standards;
- b) Review of the existing testing facilities in Tamil Nadu and establishment of a mechanism to give recognition to testing facilities for use by different industries;
- c) Exploration of the possibility of setting up a mechanism at ISI level to bring about closer coordination between ISI, Central Electricity Authority and Electricity Boards;
- d) Reference to product quality in terms of corresponding Indian Standards on the legislation enacted by the State Government for the purpose of ensuring safety of users; and State Policy by the Government of Tamil Nadu to promote standardization and quality control in line with the recommendations of the two Implementation Conferences held in Tamil Nadu; and
- e) Formulation of State Policy by the Government of Tamil Nadu to promote standardization and quality control in line with the recommendations of the two Implementation Conferences held in Tamil Nadu.

### **Company Standardization**

*Survey-cum-Training Programme on Company Standardization* — The Programme was organized at Hyderabad during 11 September-27 October 1978. A total of 21 engineers/executives from 18 organizations participated in the Programme.

*Seminar on Company Standardization* — A three-day Seminar on Company Standardization was organized at Allahabad for M/s Bharat Pumps &

Compressors Ltd, Naini, Allahabad, during 30 November-2 December 1978. In this programme, 21 executives/engineers from different departments of the above organization participated.

*Interplant Standardization in Steel Industry* — The activity concerning standardization of consumable stores and general equipment used in steel plants continued to make progress during the year under report. The highlights are as under:

- a) Sixteen Interplant Standards pertaining to pumps, motors, limit switches, portable pneumatic tools, pulley blocks and lubricants were printed bringing the total number of printed standards to 38;
- b) Thirteen new subjects were added to the programme of work, bringing the total number of subjects under standardization to 93; and
- c) Thirteen general documents covering various aspects of formulation of Interplant Standards and their implementation were printed for guidance.

#### ISI Certification Marks Scheme

During the year, 718 licences were granted under the ISI Certification Marks Scheme, bringing the total number of licences issued since the inception of the Scheme to 7 683. The certification revenue reached the figure of Rs 17.43 million, registering a growth of 20.21 percent. The value of goods certified is estimated to be of the order of Rs 18 000 million.

Information regarding the applications received and licences granted since the inception of the Scheme is as under:

Applications received	14 476
Applications processed	12 048
Licences granted	7 683
Licences in operation (including deferred licences)	4 910

*ISI Laboratories* — During the period under review, the Central Laboratory at Headquarters and three Regional Laboratories at Bombay, Calcutta and Madras tested 18 484 samples in different disciplines, namely, chemical, electrical and mechanical. Details of the testing work are as under:

Samples received	19 917
Samples tested	18 484
Testing charges estimated for the work done	Rs 2 614 874

A detailed report on the operation of the ISI Certification Marks Scheme is given in Part III.

**Meetings of General Council and Executive and Finance Committees** — The thirtyfourth meeting of the General Council of the Institution was held on 18 December 1978 under the chairmanship of Shri Mohan Dharia, Union Minister of Commerce, Civil Supplies and Cooperation and President, ISI. Shri D. C. Kothari and Shri Harish Mahindra were re-elected Vice-Presidents of ISI for a period of one year ending 31 December 1979. The Executive and Finance Committees held five and four meetings respectively during the year.

**Finances** — The total income of the Institution from various sources, such as Government of India grants, membership subscription, sale of Indian Standards and certification marking fees during the year 1978-79 amounted to Rs 33 326 416 as against an expenditure of Rs 32 816 457. A statement of accounts for the year 1978-79 is given in Appendix A. The report from the Accountant General will be tabled at the meeting of the General Council.

**Invisible Contributions** — Besides income and expenditure during the year under review, the Institution received some invisible contributions. Expenses were incurred by members of ISI committees on TA/DA 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 is estimated at Rs 3.54 million.

### **Training Programmes**

*International Training Programme in Standardization* — The Eleventh International Training Programme in Standardization for developing countries commenced on 15 November 1978 and concluded on 28 February 1979. Fourteen participants from Ghana, Iran, Iraq, Kenya, Panama, Syria, Tanzania, Thailand and Vietnam attended the Programme.

Started in 1964, training has so far been imparted to 112 technical personnel from 31 countries, namely, Afghanistan, Barbados, Bangladesh, Brazil, Burma, Cyprus, Egypt, Ethiopia, Ghana, Guyana, Iran, Iraq, Jordan, Kenya, Kuwait, Malawi, Malaysia, Mexico, Nigeria, Panama, Philippines, Singapore, South Yemen (Aden), Sri Lanka, Sudan, Syria, Tanzania, Thailand, Trinidad and Tobago, Vietnam and Zambia.

*Training Course for Newly-Recruited Officer of ISI* — During the period under review training of the Seventh Batch of Assistant Directors (Trainees) consisting of 16 newly-recruited officers concluded and they were posted in different departments at the Headquarters and Regional, Branch and Inspection Offices. Training of Eighth Batch of Assistant Directors (Trainees) was also taken up during the period under report.

*Training Programmes in Testing of Products* — A number of group training programmes in various fields of testing were organized in the Central Laboratory at Headquarters for the benefit of testing personnel of the licensees operating under the ISI Certification Marks Scheme as also of the applicants for licences besides personnel from the departments of Industries of various State Governments and concerned departments of the Central Government. The details of the training programmes organized during the year are as under:

<i>Programme</i>	<i>Period</i>	<i>No. of Participants</i>
Pesticides	1-5 May 1978	16
Domestic Electrical Appliances	15-19 May 1978	19
Diesel Engines	10-14 July 1978	12
Conductors and Power Cables	7-11 Aug 1978	14
Paraffin Wax	11-15 Sep 1978	8
Domestic Electrical Appliances	25-29 Sep 1978	8
Electric Motors	6-10 Nov 1978	12
Conductors and Power Cables	20-24 Nov 1978	10
Pesticides	4-8 Dec 1978	13
Paraffin Wax	15-19 Jan 1979	8
Paraffin Wax	5-9 Mar 1979	12
Chemical Testing of Metals	19-23 Mar 1979	16

*Training Programmes in Statistical Quality Control* — Five training programmes in Statistical Quality Control were organized during the year. Two of these programmes were conducted exclusively for M/s Kamani Engineering Ltd at Bombay and Jaipur in which 97 participants took part. Two programmes were organized for the benefit of ISI licensees and applicants from plywood industry at Tinsukia and Calcutta, which were attended by 80 participants from 63 organizations. In the fifth programme conducted at Jammu in collaboration with the Small Industries Service Institute, Srinagar, for small entrepreneurs, 24 entrepreneurs participated.

### **Progress of Plan Schemes**

*Science and Technology Project Under the Sixth Five-Year Plan* — On the recommendation of the National Committee on Science and Technology, the then Ministry of Industries and Civil Supplies allotted two projects to the Indian Standards Institution for the Fifth and Sixth Five-Year Plans, namely, Development Programme on Code Implementation for Building and Civil Engineering Construction, and Typification Organization for Industrial Structures.

A brief review of progress of these projects during the period under report is given below:

*Preparation of National Building Code of India 1980 (revision)* — Considerable progress has been made in the preparation of the first draft revision of different parts and sections of the National Building Code of India 1970 based on the feedback data received during the revision of building bye-laws of different cities and towns and PWD specifications of States and Central Departments; deliberations of implementation conferences, seminars, training programmes on building bye-laws and other meetings; and the latest technological data obtained from different countries the world over.

*Revision of Building Bye-laws* — The work relating to revision of building bye-laws in line with the National Building Code was carried forward during the period under report. The *Tamil Nadu Development Control Rules* and *Building Rules* for Grade I, II and III municipalities, townships and town panchayats were finalized; drafts of bye-laws of Madras and Madurai corporations were prepared and further processed; first draft of Hyderabad Corporation bye-laws was prepared; building bye-laws as applicable to higher order cities for Madhya Pradesh were finalized; and first draft for bye-laws for the municipalities of Sikkim State were prepared.

*Revision of PWD Specifications* — The work relating to revision of PWD specifications in line with the provisions of the National Building Code for the seven States in the North Eastern region was taken up during the year.

*Typification of Industrial Structures* — The first stage of work of identifying structures for typification to lay down the parameters for such structures has been completed. On this basis, IIT, Madras, would be taking up evaluation and analysis of these structures.

### Technical Information Services

*ISI Library* — The Library at the Headquarters processed 21 215 publications including standard specifications. Seventynine bibliographies and 341 documentation lists were prepared on the specific request of the technical staff and members. Close liaison was maintained with ISO information services at the Central Secretariat at Geneva and copies of all the bibliographies compiled by the Library were sent to them.

The Library also continued to prepare and circulate the following documentation and information lists for the benefit of its users:

- a) List of overseas standards received in ISI Library;
- b) List of books and pamphlets received in ISI Library; and
- c) List of current published information on standardization.

Salient features of the progress of work in the Library are as under :

a) Standards and specifications, and technical publications available in the Library as on 31 March 1979	369 487
b) New publications accessioned and processed	21 215
c) Technical journals received	549
d) Bibliographies prepared	79
e) Technical enquiries received and documentation lists prepared	341
f) Publications loaned out and consulted in the Library by subscribing members and visitors	68 000
g) Translations made of overseas standards	70

*Technical Information* — Three programmes on the utilization of Indian Standards in agriculture were held in Junagadh and Navasari (Gujarat) and Patna (Bihar) in which 180 faculty members participated from the Agricultural Universities of the respective States. Three programmes on the utilization of Indian Standards in engineering were held, one each in Trivandrum, Bangalore and Madras in which participants from a large number of institutions covering engineering colleges, polytechnics and junior technical schools participated.

Two programmes, one covering polytechnic education and the other vocational trades were organized in Bombay and Howrah respectively.

Besides, the following documents were compiled and circulated:

- Information relating to public utility services;
- A list of Indian Standards on instruments; and
- A list of Indian Standards on products reserved by the Government of India for production by the small scale sector.

### Public Relations

*Membership* — The number of subscribing members of the Institution increased from 5371 on 31 March 1978 to 5646 on 31 March 1979, an increase of 275 members representing 5 percent. The revenue obtained from subscribing members during the year amounted to Rs 4.17 million as against the corresponding figure of Rs 4.03 million during 1977-78, an increase of 3 percent.

The detailed information about different categories of membership as on 31 March 1978 and 31 March 1979 is given in Table 1.

The position of Subscribing Membership since 1974-75 is graphically represented in Fig. 1.

TABLE 1 DISTRIBUTION OF SUBSCRIBING MEMBERSHIP

CLASS OF MEMBERSHIP	NUMBER OF MEMBERS ON		NET GAIN/ LOSS
	31 March 1978	31 March 1979	
Patrons	17	18	+1
Donor Members	56	59	+3
Sustaining Members	1 764	1 758	-6
Associate Members	1 954	2 047	+93
Ordinary Members	1 307	1 480	+173
Individual Members	273	284	+11
<b>TOTAL</b>	<b>5 371</b>	<b>5 646</b>	<b>+275</b>

*Distribution Service* — The Institution continued to distribute Indian Standards and other publications to its members extensively. Besides, publications were supplied to ISO member-bodies. Details are given below:

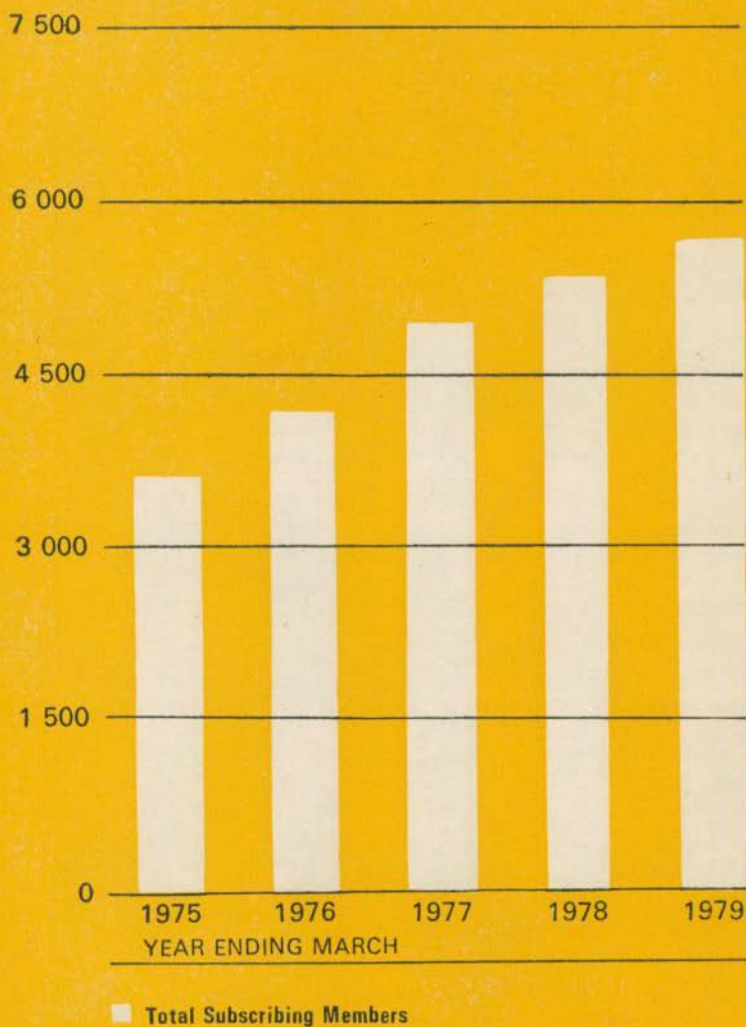
<i>Nature of Publications</i>	<i>No. of Copies</i>
Indian Standards and Amendment Slips	675 000
ISI Bulletin	163 000
Standards: Monthly Additions	93 500
Miscellaneous Publications, such as Annual Report, Buyers' Guide, etc	8 500
Sectional Lists	3 700

*Sales Service* — A comparative statement of the sale of Indian and overseas standards as also the commission earned by ISI on the sale of overseas standards for the last three years is given below:

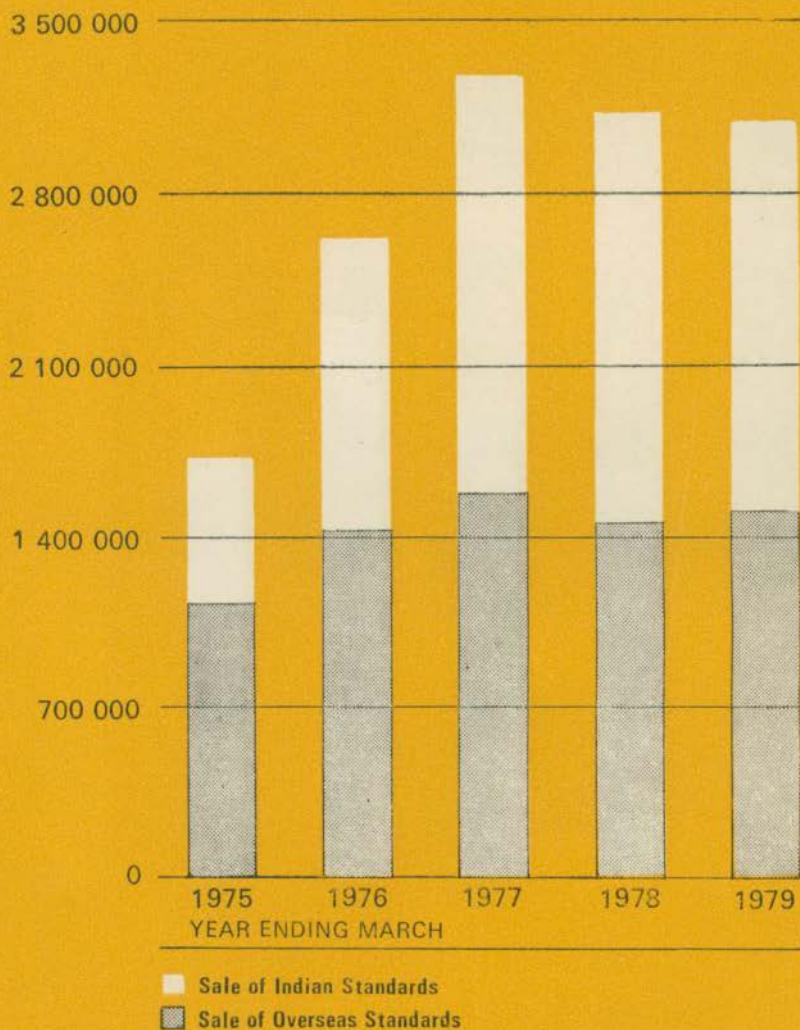
<i>Number of Publications Sold</i>	<i>1976-77</i>	<i>1977-78</i>	<i>1978-79</i>
	Rs	Rs	Rs
Indian Standards	3 288 169	3 108 150	3 073 463
Overseas Standards	1 601 050	1 428 732	1 489 745
Commission earned on the sale of overseas standards	560 000	476 000	497 000

A graphical representation of the sale of Indian and overseas standards is given in Fig. 2.



**Fig. 1 ISI Subscribing Membership Through the Years**

**Fig. 2 Sale of Indian and Overseas Standards**



During the year under report, Indian Standards were sold to a number of overseas standards organizations, including the following:

- a) British Standards Institution, London
- b) Standards Association of Australia, Sydney
- c) DIN Deutsches Institut für Normung, Berlin
- d) Iraqi Organization of Standards, Baghdad
- e) Bureau of Ceylon Standards, Colombo
- f) Japanese Standards Association, Tokyo
- g) American National Standards Institute, New York

### Publicity and Conferences

Various media of publicity and public relations were utilized to project different activities of the Institution. A brief resumé is given below:

*Exhibitions* — During the year, the Institution participated in the following exhibitions:

<i>Sl No.</i>	<i>Name of Exhibition</i>	<i>Organized by</i>	<i>Place</i>	<i>Period</i>
1.	Exhibition on 'Consumer Education'	Consumer Guidance Society of India (Delhi Branch)	New Delhi	3-5 Apr 1978
2.	All India Electrical Contractors' Exhibition	All India Electrical Contractors' Association	Madras	26 June-1 July 1978
3.	Exhibition	Government of Tamil Nadu	Salem	6 Aug-19 Sep 1978
4.	Industrial Exhibition	Rajkot Nagrik Sahakari Bank Ltd, Rajkot	Ahmadabad	24 Sep-5 Oct 1978
5.	All India Tourist Trade Fair 1979	Tamil Nadu Tourist Development Corporation Ltd	Madras	22 Dec-18 Feb 1979
6.	Professional Grade Electronic Components Exhibition	Institution of Electronics and Telecommunication Engineers	New Delhi	11-12 Jan 1979
7.	Third Indian Engineering Trade Fair, 1979	Association of Indian Engineering Industry	New Delhi	2-16 Feb 1979

## ANNUAL REPORT 1978-79

SI No.	Name of Exhibition	Organized by	Place	Period
8.	Exhibition of ISI Marked Products	ISI in collaboration with the Institution of Engineers, Nagpur Centre	Nagpur	25-27 Mar 1979
9.	National Agricultural Fair 1979	—	Bhopal	3-25 Mar 1979
10.	Exhibition of Indian Books	High Commissioner of India in Hong Kong in collaboration with Urban Council of Hong Kong	Hong Kong	Mar 1979

### Advertising Campaign

*Radio Spot* — A 15-second Radio Spot highlighting the ISI Certification Mark was broadcast in different languages from various stations of All India Radio.

*TV Spot* — A 20-second Commercial Spot on ISI Mark was telecast from different Television Centres.

*Exhibition of One-Minute Publicity Film in Cinema Halls* — A one-minute publicity film on ISI Certification Marks Scheme was exhibited in various cinema halls in New Delhi and at places where Regional/Branch Offices are located.

*ISI Foundation Day* — ISI Foundation Day, marking completion of thirtytwo years of the Institution's service to the nation through formulation of national standards, promotion of quality control and certification marking, was celebrated on 6 January 1979. A special advertisement highlighting achievements of the Institution since its inception was released in prominent newspapers in the country.

*Presentation of Indian Standards* — Complete sets of Indian Standards were presented, as gift, to Syria and Guyana on 29 and 30 June 1978 respectively. The Institution has been presenting complete sets of Indian Standards to developing countries under its scheme of sharing technical knowhow with them.

*World Standards Day* — The Institution celebrated the World Standards Day on 12 October 1978 at ISI Headquarters and Regional and Branch Offices, by observing 'Open Day', franking of out-going dak with the slogan on World Standards Day, exhibition of ISI-marked products and display of important Indian Standards. At a special function in New Delhi were presented Lal C. Verma Award for 1977 to Monsieur R. Frontard, former Director General, French National Standards Body; K. L. Moudgill Prize for 1977 and some other Standards Awards.

*K. L. Moudgill Prize* — The K. L. Moudgill prize for 1977 was awarded to Dr M. S. Swaminathan, Director General, Indian Council of Agricultural Research (ICAR), New Delhi, for his outstanding contribution in the field of standardization at the national level at a function held in Vigyan Bhavan on the occasion of World Standards Day on 12 October 1978.

### Use of Hindi in ISI Work

During the year under report, various steps were taken for promoting progressive use of Hindi in ISI work and imparting training in Hindi and Hindi typing and stenography to ISI employees under the Hindi Teaching Scheme. A number of documents were issued in bilingual form of which special mention may be made of the following:

<i>Nature of Job</i>	<i>No.</i>
CMD gazette notifications	146
Licences	142
Press communiques	11
Circular letters covering draft Indian Standards and amendments for wide circulation	558
General orders	263
Letters, advertisements, notices, etc	170

The ISI Official Languages Implementation Committee continued to function actively to promote implementation of the provisions of the *Official Languages Act* in day-to-day working of the Institution. The Committee held three meetings at which it reviewed the work done and provided guidance on a number of important issues.

Besides, ISI participated in the meetings of Hindi Advisory Committee and Official Languages Implementation Committee of the Ministry of Commerce, Civil Supplies & Cooperation.

### Representation of Scheduled Castes/Scheduled Tribes (SC/ST) in ISI

The position regarding staff strength and representation of SC/ST in ISI as on 31 March 1979 was as under:

<i>Grade</i>	<i>Total No. of Employees in ISI Including SC/ST</i>	<i>No. of SC/ST</i>
I	419	7
II	384	4
III	544	20
IV (Excluding Sweepers)	240	50
IV (Sweepers)	35	33

Regarding SC/ST representation the position is constantly reviewed and efforts are continuously made to fill the reserved posts. The following concessions/relaxations are being given by the Institution to candidates belonging to SC/ST communities:

- a) Advertisements exclusively for recruitment of SC/ST candidates are issued,
- b) Relaxation of 5 years in the upper age limit is given in recruitment,
- c) One-fourth of the prescribed fee is charged as application fee,
- d) Travelling allowance is given for appearing in test and/or interview,
- e) Relaxation is given in marks in the written examinations and in regard to mistakes in the shorthand and typing test,
- f) Sometimes candidates failing in the typing test are given a second chance,
- g) Separate interviews are held for SC/ST candidates,
- h) Officers belonging to SC/ST communities are given due representation on the selection Committees for Class IV posts, and
- j) Relaxation is given in qualifications and experience.

## REGIONAL AND BRANCH OFFICES

To meet the growing demand on the services of the Institution, Regional Offices have been established in Calcutta, Bombay and Madras. Besides, Branch Offices have been set up in most of the State capitals and Inspection Offices at other important industrial centres. A brief resumé of the important activities of the various regions is given in the following paragraphs:

### Eastern Region

The Eastern Region consists of the Regional Office at Calcutta; Branch Offices at Bhubaneshwar and Patna; and Inspection Offices at Asansol, Bhilai, Bokaro, Durgapur, Jamshedpur, Rourkela and Tinsukia.

For propagating the concept of standardization and for promoting adoption of Indian Standards by the purchasing organizations of Government and semi-Government Departments as well as public and private sector undertakings, the offices in the Eastern Region continued their efforts to involve as many industries as possible in the activities of the Institution. A number of seminars were organized in collaboration with commercial and techno-commercial bodies besides participation in seminars/conferences/group discussions and training programmes arranged by other organizations.

A Workshop on Standardization of Raw Materials for Surface Coating Industry was organized by the Institution in collaboration with the Indian Chemical Manufacturers' Association and Indian Paint Association in Calcutta on 15 January 1979. The object of the Workshop was to review the Indian Standards for various raw materials for surface coating industry, so that they are implemented by the manufacturers as well as consumers of raw materials. The Workshop was attended by about 100 delegates.

To review the performance of ISI licensees and to suggest measures for improving the operation of the Certification Marks Scheme, review meetings were held on sluice valves, plywood panels, tea-chest metal fittings, diesel engines and paraffin wax. At these meetings, measures for implementation of the decisions taken at the earlier meetings and the steps to be taken in the light of the problems thrown up at these meetings were decided upon.

Construction of the Eastern Regional Office-cum-Laboratory Building was taken up. The building was expected to be completed by the end of 1979 or the beginning of 1980. By 31 March 1979, a sum of Rs 291 109 had been collected from the industries in the Eastern Region as donation towards building fund. In addition, a sum of Rs 0.275 million (approximately) has been contributed by the West Bengal Government by waiving services charges @ 12.5 percent of the construction cost payable to the State Public Works Department.

The first meeting of the reconstituted Calcutta Advisory Committee (CAC) under the chairmanship of Shri B. K. Jhavar, Managing Director of Usha Martin Black (Wire Ropes) Ltd, was held during the year. A number of important decisions were taken including those concerning collection of building fund and enrolment of new subscribing members.

### Western Region

The Western Region consists of the Regional Office at Bombay; Branch Office at Ahmadabad; and Inspection Offices at Nagpur, Pune and Rajkot. The Inspection Office at Rajkot was opened on 12 June 1978 to cater to the needs of ISI Licensees of diesel engines in the area.

With a view to furthering the cause of standardization and quality control, the Western Regional Office participated in a number of seminars, conferences, exhibitions, meetings, etc, organized by ISI and other organizations, and arranged lectures and presentation of papers by its officers on different aspects of standardization.

The Office-cum-Laboratory Building for the Western Regional Office is proposed to be constructed at Marol (Andheri-Bombay) at a cost of Rs 3.1 million. While the Government of India would be providing the necessary funds, donations from industries and others in the region to the

extent of Rs 0.6 million are to be raised. In response to the appeal made to all subscribing members and certification marks licensees in the region, contribution to the tune of Rs 0.36 million were received up to 31 March 1979.

During the year under report, earth filling work of the building was completed and the plot was levelled. Contract for construction work of the compound wall was also awarded. Architects were appointed and the plans for the building, as prepared by them, were submitted to the Municipal Corporation of Greater Bombay for approval.

The fourth meeting of the Action Committee for Implementation of National Building Code in Gujarat was held in Ahmadabad on 27 July 1978. Shri M. D. Patel, Secretary, Public Works Department, Government of Gujarat, presided over the meeting.

The Government of Gujarat set up a Standards Room at Rajkot for the benefit of small scale units who apply for ISI Mark and are unable to set up the Standards Room on their own in their premises.

### **Southern Region**

The Southern Region consists of a Regional Office at Madras; and Branch Offices at Bangalore, Hyderabad and Trivandrum.

With a view to encouraging small and tiny sector industries, a drive was launched in Tamil Nadu for certification of products produced by industrial units in this sector. In this, the Institution also collaborated with the National Small Industries Corporation Ltd (NSIC) which helped the small industrial units in manufacturing and marketing their products. Knitted cotton vests manufactured in Tripur, the hosiery town of Tamil Nadu, are already under ISI certification marking with some 35 units licensed to use the Mark. The units of a smaller size, which could not operate the Scheme directly with ISI on account of financial constraints and difficulties in setting up independent laboratories, were assisted by NSIC to form themselves into a consortium with a common testing laboratory. This consortium, which is functioning under a common brand name of 'NIC' with a common laboratory approved by ISI is operating the ISI Certification Marks Scheme successfully. Fifteen units of the tiny sector have already been covered under the Scheme.

The Bangalore Branch Office actively participated in the work of the Subcommittee constituted by the Government of Karnataka for standardization of hand pumps for deepwell application. The Subcommittee made useful suggestions in respect of draft Indian Standard specification for deepwell hand pumps. The Government of Karnataka assured that they would go in for ISI-marked hand pumps for installation in rural areas all over the State.



The Administrator, Bangalore City Corporation, allotted 416 square metres (492 square yards) of land within the city limits on lease for 50 years on a yearly rent of Rs 2.39 per square metre (Rs 2.00 per square yard) for putting up ISI Branch Office building at Bangalore.

The Bangalore Branch Office, in collaboration with the National Safety Council and Bangalore Chapter of the Institute of Standards Engineers, organized a Workshop on 'Safety and Personal Protective Appliances in Industries'. Ninety delegates representing various industries in Karnataka attended the Workshop.

The Government of Andhra Pradesh instructed all their departments to reserve 50 percent of their purchases of paints from among ISI-marked paints produced by local manufacturers.

The Kerala Government decided to subsidize, to the extent of 50 percent, the expenditure incurred by small scale industrial units in the State on laboratory equipment, membership fee, licence fee, etc.

### Northern Region

In the Northern Region, there are four Branch Offices located at Chandigarh, Jaipur, Kanpur and Bhopal functioning directly under the Headquarters in New Delhi.

The Bhopal Branch Office was opened in June 1978 to make available the Institution's services in standardization and quality control to industrial units in Madhya Pradesh. The Branch Office was formally inaugurated on 9 September 1978 by Shri V. K. Sakhlecha, Chief Minister of Madhya Pradesh. At the inaugural function, the Chief Minister offered to give land to the Institution for the construction of its Office-cum-Laboratory Building in Bhopal. The offer is being pursued with the State Government. The Madhya Pradesh Government also sanctioned an annual grant of Rs 18 000 towards payment of rent for the premises of ISI Branch Office in Bhopal.

The Chandigarh Branch Office maintained close liaison with the Industries Department in the States of Haryana, Himachal Pradesh, Punjab and Jammu & Kashmir. Tender enquiries floated by various purchase agencies in these States were examined and availability of Indian Standards as also products covered under the ISI Certification Marks Scheme were duly brought to the notice of the indenting organizations.

ISI was represented through officers of Chandigarh Branch Office on the Panel of Experts of the Export Inspection Council for visits to various manufacturing units for assessing their capability and export-worthiness for the purpose of the proposed self-certification scheme.

The Branch Offices under the region continued their efforts to maintain close liaison with the Government departments, industrial units, associations,

etc, for promoting wider implementation of Indian Standards and greater acceptance of certified goods bearing ISI Mark. For this purpose, they participated in a number of seminars, meetings and exhibitions organized by different organizations in the region. Besides, ISI officers delivered lectures/talks on various aspects of standardization and quality control at different forums.

An *ad hoc* Subcommittee comprising representatives of the Directorate of Industries, UP Government, Central Controller (Quality Marking Scheme) and ISI was constituted to study various aspects pertaining to grant of 5 percent price preference for ISI-marked goods by different indenting departments of Uttar Pradesh Government and made recommendations to the Directorate of Industries, UP, for follow up with the State Government.

A course on 'Continuing Education on Standardization and Quality Control' was organized by the Kanpur Branch Office in collaboration with the Institution of Engineers (India) during 10-20 July 1978. The programme was attended by 20 persons from top and middle management levels drawn from public and private sectors as well as Government departments of the State.

## COORDINATION AT INTERNATIONAL LEVEL

The Institution participated actively in the work of organizations devoted to standardization at the international level including the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). Concerted efforts were also made to maintain close liaison with standards bodies of other countries particularly those of the developing nations.

Shri D. C. Kothari, Vice-President of ISI, attended the thirtysecond meeting of the ISO Council held in Geneva during 20-22 September 1978. At this meeting, Shri Kothari was appointed a Member of ISO Planning Committee (PLACO) for the term 1979-81.

In February 1979, India attended a meeting of PLACO which is responsible for all matters concerning organization, coordination and planning of the technical work of ISO.

The Director General, ISI, paid a visit to the British Standards Institution (BSI), London, in June 1978 and discussed with them matters of mutual interest, including assistance for the various training programmes for ISI personnel, ISO Technical Committees, work of interest to ISI and the progress and problems of metrication.

At the invitation of the Hungarian Standards Body (MSZH), Director General, ISI, visited MSZH, Budapest, in June 1978 and discussed matters of mutual interest.

Indo-Soviet cooperation in the field of standardization and metrology made considerable progress during the year. The Indo-Soviet Panels for Coordination of Standards on Ferro Alloys and Refractories held their first and third meetings respectively in New Delhi during 6-11 December 1978. Both sides affirmed their interest in coming to a common agreement in the field of ferro alloys and refractories to pave the way for the formulation of common unified standards.

The sixth meeting of the Indo-Soviet Working Group on Standardization and Metrology was held in New Delhi during 20-27 December 1978. A four-member Soviet delegation attended the meeting. At this meeting, progress achieved was reviewed, programme of work for 1979 chalked out and new areas identified for inclusion in the working programme.

During the year under report, five Soviet experts visited India and one Indian expert went to USSR.

ISI was one of the co-sponsors of the International Congress on Oil-seeds and Oils held in New Delhi during 9-13 February 1979. The Congress, which was inaugurated by Shri Morarji Desai, Prime Minister of India, was attended by more than 80 foreign delegates from 20 countries apart from 550 Indian delegates.

Detailed report on the international activities of the Institution is given in Part IV.

## PART II

# FORMULATION OF INDIAN STANDARDS

### INTRODUCTION

Given below, in brief, is the record of technical work done during 1978-79 by different divisions and departments of the Institution in respect of the formulation of Indian Standards.

**Formulation of Standards** — During the year 1978-79, 475 new standards were adopted and sent to press, 324 standards were revised, 436 new proposals for formulation of Indian Standards were received and 361 proposals (including some made during the previous year) were accepted and referred to various committees for further processing.

A graphical representation of the cumulative growth of Indian Standards since 1974-75 is given in Fig. 3.

**Technical Committees of ISI** — As on 31 March 1979, some 2 124 technical committees with a total membership of 34 231 experts representing various interests, namely, manufacturers, consumers, scientists, technical and research organizations, Government departments and purchasers were engaged in the task of formulation of Indian Standards. During the year, 914 committee meetings were held.

Growth in the membership and activities of the technical committees since 1974-75 is shown in Fig. 4 and 5.

**Progress of Work** — Detailed information about the progress of work in different fields is given in Table 2.

**Fig. 5 Growth of Committees and their Activities**

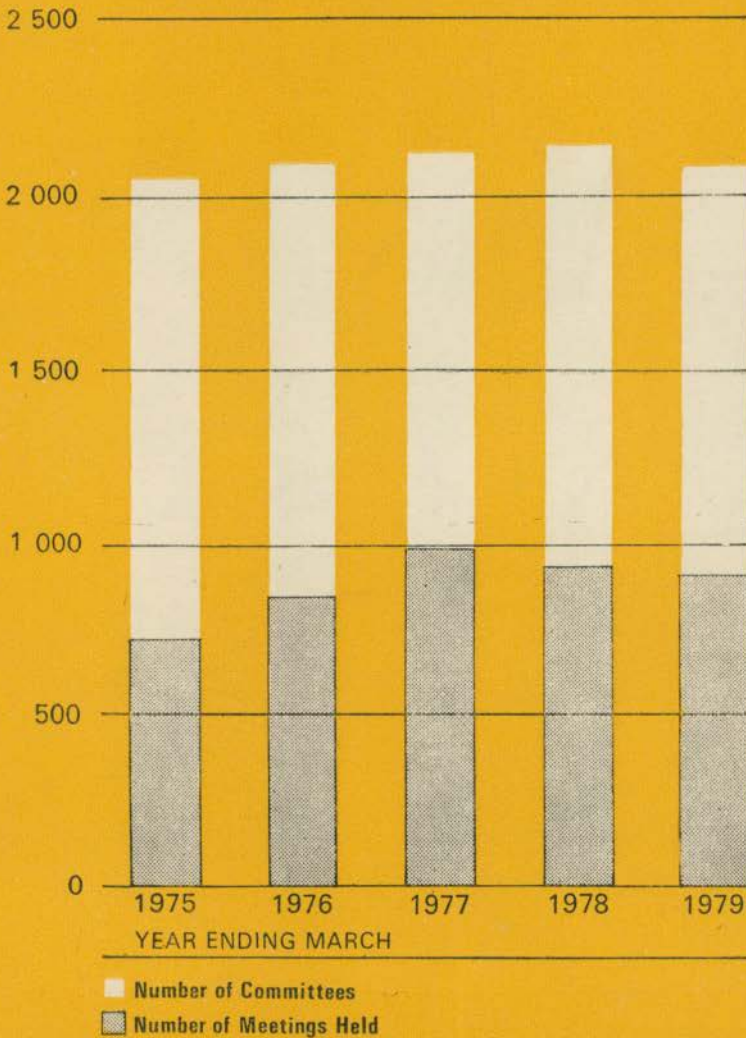


TABLE 2 PROGRESS OF WORK DURING 1978-79

FIELD OF ACTIVITY	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 and Food Products	137	51	75	51	70	62
Chemicals	253	142	76	42	76	5
Civil Engineering	329	109	106	52	71	25
Consumer Products and Medical Instruments	109	54	61	28	65	—
Electronics and Telecommunication	64	40	56	7	70	23
Electrotechnology	195	60	70	57	75	83
Marine, Cargo Movement and Packaging	91	46	35	5	32	16
Mechanical Engineering	298	155	135	131	141	56
Petroleum, Coal and Related Products	163	103	50	20	70	51
Structural and Metals	305	66	84	32	118	35
Textiles	110	42	48	24	46	—
Miscellaneous	70	46	3	1	10	5
TOTAL	2 124	914	799	450	853	361

## AGRICULTURAL AND FOOD PRODUCTS

The Agricultural and Food Products Division Council (AFDC) met on 17 November 1978 in New Delhi under the chairmanship of Dr M. S. Swaminathan, Secretary to the Government of India, Department of Agriculture and Rural Development. The Council set up three new Sectional Committees dealing with:

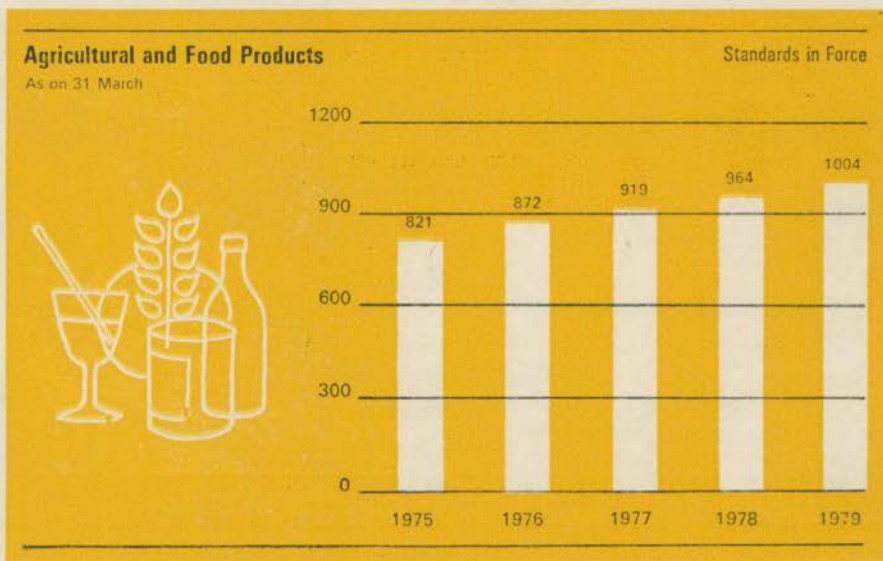
- a) entomological materials,
- b) slaughter house and equipment, and
- c) disinfectants.

Dr N. A. Ramiah, Director, National Sugar Institute, Kanpur was elected as the Vice-Chairman of the Division Council.

The Division formulated 75 standards (including revision of 22 existing standards) during the year. Among these special mention may be made to the standards in the following fields:

*Threshers* — The two standards brought out as follows will help eliminate accidents arising out of factors like human and machine failures:

- a) IS : 909-1979 Code of practice for installation, operation and preventive maintenance of power threshers, and
- b) IS : 9020-1979 General and safety requirements for power threshers.



*Code of practice for control of aflatoxin in groundnuts [IS : 9071 (Part I)-1979]* — The Code which is being issued in two parts will help producers, manufacturers and consumers to exercise proper check in the growth of aflatoxin in groundnut at various stages of harvesting, transport, storage and processing. Groundnut 'meals' and flours form the raw material for various animal feeds and proteinous foods for humans and control of aflatoxin helps in ensuring safety to health.

*Animal casing [IS : 1981-1978 (first revision)]* — The revised standard incorporates requirements for an additional type of the casings, namely, dry ready-to-wet type, apart from the three earlier types comprising sheep casings, dried and salted cattle casings and hog casings. The requirements are also aligned with those of *Animal Casings Grading and Marking (Amendment) Rules, 1975*.

*Saccharin, foodgrade* — The three specifications for foodgrade sodium saccharin (IS : 5345-1978), calcium saccharin (IS : 5709-1978) and saccharin (IS : 6385-1978) have been revised mainly to:

- a) specify limits for toluene sulfonamide (a harmful ingredient), and
- b) effect alignment with the latest FAO/WHO specifications.

## CHEMICALS

Increased emphasis was laid on updating of existing standards and on work which would ensure optimum utilization of natural resources and conservation of scarce raw materials. An examination of the 1 238 standards brought out by the Chemical Division Council so far showed that 308 were published more than 10 years ago and another 318 were published 5 to 10 years ago. Review of these standards by the respective Sectional Committees has led to revision of 135 standards and reaffirmation of another 512. Revision of additional 158 standards is also in hand while the rest are being investigated for being revised or reaffirmed as required.

The year under review saw finalization of 76 standards including revisions of 27. Of these, special mention may be made of the following:

*Footwear sizes in mondopoint system: Part I Fundamental characteristics; and Part II Length grading (IS : 8751-1978)* — This standard deals with the fundamental characteristics of an international system of footwear sizing known as Mondopoint System. This is expected to replace gradually the existing English system of footwear sizes and subsequently facilitate national and international trade.

*Guidelines for micrometeorological techniques in air pollution studies (IS : 8829-1978)* — Based on research work conducted in India and abroad the standard lays down guidelines for the instruments and



methods of measurement of micrometeorological variables, micro-meteorological parameters required in air pollution work, analysis of micrometeorological data and reliability of air quality estimates obtained from them.

*Synthetic detergents for household use [IS : 4955-1978 (first revision)]* — The revised standard includes requirements for an additional grade of material suitable for production in the small scale sector.

*Paper aluminium foil laminates for packaging of food and pharmaceuticals (IS : 8970-1978); and Paper aluminium foil laminates for general packaging (IS : 8971-1978)* — These laminates have several advantages over the conventional packaging materials like kraft paper and polythene. They are more hygienic, afford greater mechanical protection and are amenable to attractive printing.

*Control of Air Pollution* — Standards in this series derive importance in view of the proposed legislation on the subject by the Government of India. The new additions to the series include:

- IS : 5182 (Part XIV)-1979 Methods for measurement of air pollution: Part XIV Guidelines for planning the sampling of atmosphere;
- IS : 9005-1978 Limits for gaseous emissions from nitric acid and nitrogenous fertilizer industries;
- IS : 9057-1979 Emission limits for carbon monoxide from automobiles (gasoline driven); and

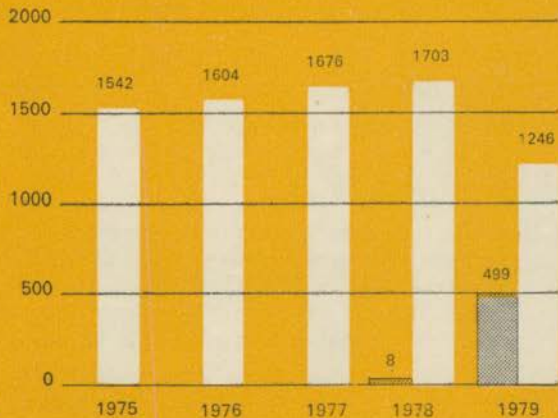
### Chemicals Petroleum, Coal and Related Products

As on 31 March



■ Chemicals  
■ Petroleum, Coal and Related Products

Standards in Force



- d) IS : 9078-1979 Code for use of Ringlemann and miniature smoke charts.

*Development and Use of Minor Oils* — The Division Council has been encouraging the development and usage of minor oils for edible and non-edible purposes to overcome the shortage of edible oils and fats in the country. This activity has led to the quality improvement of the oils and their acceptance by the users. New standards added to this series include:

- a) IS : 8879-1978 *Dhupa* fat,  
b) IS : 8896-1978 *Nahore* oil,  
c) IS : 8881-1978 *Khakan* fat, and  
d) IS : 8882-1978 Grading for *Khakan* seeds for oil milling.

## PETROLEUM, COAL AND RELATED PRODUCTS

The Petroleum, Coal and Related Products Division Council (PCDC) met on 4 October 1978 and elected Dr D. Banerjee as Chairman to fill the vacancy caused by the sad demise of Dr M. G. Krishna. Dr J. S. Ahluwalia was elected as Vice-Chairman to succeed Dr D. Banerjee.

Of the 696 standards printed so far by the Petroleum, Coal and Related Products Division Council, 243 were published more than 10 years ago and another 204 some 5 to 10 years ago. All these standards have been reviewed by the respective Sectional Committee; and as a result 195 standards have been taken up for revision and 172 reaffirmed. Other standards are being investigated for being revised or reaffirmed, as required.

During the period under report, a total of 50 standards were processed for publication. Of these, the following are considered of special importance:

*Classification and Codification of Indian coals and lignites (IS : 770-1977)* — This amalgamated revision of IS : 770-1964 'General classification of coal (*revised*)' and IS : 5018-1968 'Classification of hard coals by type' provides clear scientific and technological information about the identification and classification of Indian coals and lignites and would help consumers select the right quality of the material for the desired end-use. The standard has also been circulated by ISO/TC 27 Solid Mineral Fuels as a working document for the preparation of an international standard on the theme.

*Method of measurement of petroleum gases and town gas (IS : 8818-1977)* — Accurate measurement of bulk quantities of petroleum gases and town gas is essential for accounting of stock supplied or received, loss control, customs and excise purposes. The method of measurement

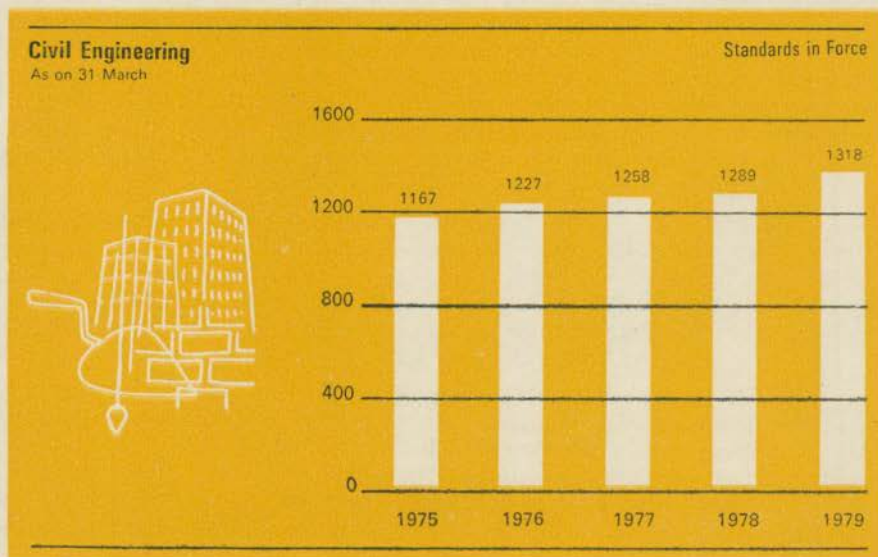
varies with the end-use of the gas supplied for fuel, feed stock or use in the extraction of a particular component. All these aspects have been dealt with in the standard to avoid anomalous accounting.

*Methods of test for petroleum and its products: Engine test method for the evaluation of detergency characteristics of internal combustion engine crankcase oils [IS : 1448 (P : 88)]*— For the performance evaluation of engine crankcase oils, important engines like Petter AV-1, Petter W1 and Caterpillar are being used. This test procedure, which has been evolved after carrying out correlation programme at 5 different engine test laboratories and after collecting considerable data on the repeatability, reproducibility and discriminating ability of the test method, is based on indigenously available Kirloskar engine. The application of this method will, therefore, lead to considerable saving of foreign exchange required for importing the engine and its spare parts.

## CIVIL ENGINEERING

A total of 106 standards including 72 revisions of existing standards were sent for printing of which mention may be made of the following:

*Safety code for tunnelling work [IS : 4756-1978 (first revision)]*—



Tunnelling work is hazardous in character in view of factors like cramped working space, lack of headroom, wet and slippery flooring, inadequate lighting and ventilation, presence of obnoxious gases, unexpected weaknesses in the rock, handling of explosives, loading and hauling muck, etc. The code makes available the needed safety rules for use of machinery, electrical installations and labour in tunnelling work in rocks and soft strata and underground excavations in rocks.

*Recommendations for fire precautionary measures in the construction of temporary structures and pandals (IS : 8758-1978)* — The code provides the much needed guidance in regard to fire protection measures to be adopted in the erection of temporary structures including large pandals normally erected at fairs, festivals and such other outdoor assemblies.

*Recommendations for basic requirements of school buildings (IS : 8827-1978)* — The standard lays down optimum spatial, functional and environmental requirements for school buildings with a view to reducing variations in the educational facilities from institution to institution.

*Guide for requirements of low income housing (IS : 8882-1978)* — This standard provides guidelines for the planning and general building requirements of low income housing developed as clusters which will be found useful both by the public agencies/government bodies and the private builders.

*Recommended practice for shotcreting (IS : 9012-1978)* — Shotcrete is mortar or concrete conveyed through a hose and pneumatically projected at high velocity on to a surface. Generally, a relatively dry mixture is used, so that the material is capable of supporting itself without sagging or sloughing, even for vertical and overhead applications. The standard covers recommended practice for general shotcreting using two shotcreting processes, namely, dry-mix process and wet-mix process.

*Guidelines for planning layout and design of cavities in underground hydroelectric power stations: Requirements of cavities* — This standard covers the guidelines for planning, layout and design of cavities which may be provided in underground hydroelectric power stations for use as valve chamber, machine hall, transformer hall, control room, cable gallery, access gallery, collection gallery, ventilation tunnel, etc.

*Dilution methods for measurement of steady flow: Part I Constant rate injection methods* — Dilution methods offer a good solution for gauging mountainous streams with high turbulent flow wherein current metre measurements are impracticable for various reasons. Such measurements have been tried over a decade at a few places. This standard covers the materials and lays down procedures for obtaining reproducible results.

## CONSUMER PRODUCTS AND MEDICAL INSTRUMENTS

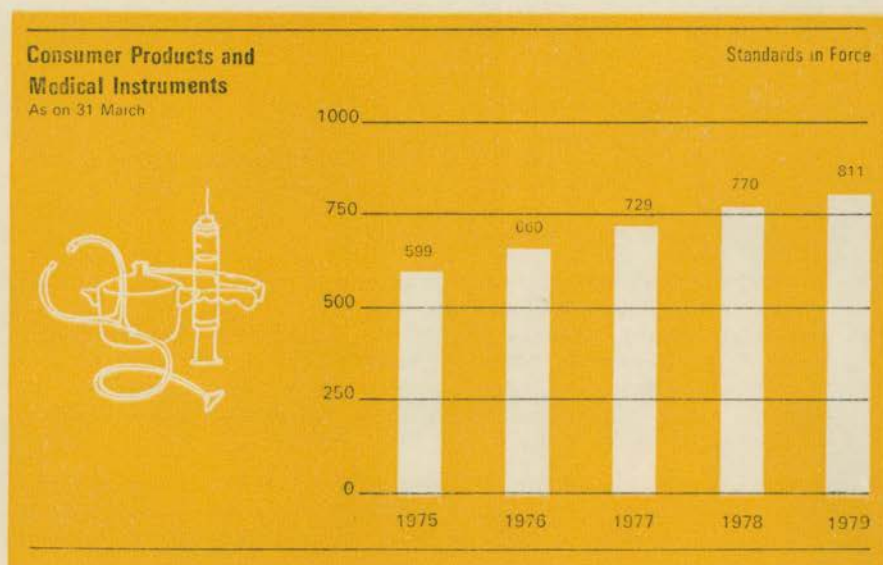
The Division finalized 61 new and revised standards among which special mention may be made of the following:

*Non-pressure stove [IS : 2980-1978 (first revision)]* — An important modification affected in the revision is to increase the value of thermal efficiency from 45 to 60 percent which can now be realized in view of the improvement in the design of stoves. Other important changes in this revision relate to modification in the method for the determination of thermal efficiency to achieve repeatability and reproducibility of test results and incorporation of a number of tests to ensure safety and efficient performance of non-pressure stoves. Instructions about safe and efficient use of multi-wick type stoves have also been included.

*Latex bladders, seamless, valve type (IS : 8694-1978)* — This specification is expected to help sports goods industry produce good quality footballs, volleyballs, basketballs, etc, of which valve type latex bladders are an integral part.

*Gobar gas stove (IS : 8749-1978)* — The standard is expected to help manufacturers produce *gobar* gas stoves which are safe, economical and efficient.

*Methods for sampling of utensils (IS : 9040-1979)* — Currently a variety



of procedures is being followed for sampling and inspection of utensils by different manufacturing and consumer organizations. This standard which is based on statistical principles and practical considerations will help promote a unified sampling practice for objective evaluation of the quality of utensils.

## ELECTRONICS AND TELECOMMUNICATION

The Electronics and Telecommunication Division Council (LTDC) held its third meeting in New Delhi on 5 March 1979 under the chairmanship of Maj-Gen K. K. Mehta, Adviser, Standardization, Testing and Quality Control, Department of Electronics. An important outcome of the meeting was the creation of a new Sectional Committee for Nuclear Instrumentation. The Council noted with appreciation the grant of the first ISI Certification Marks licence in the field of electronics and recommended that India should join the IEC Quality Assessment System for Electronics Components.

During the period under report, 56 standards were sent for printing out of which the following are considered to be of special importance:

*Electrotechnical vocabulary: Part VI Printed circuits [IS : 1885 (Part VI)-1978 (first revision)]*— The use of printed circuit technology is increasing which has underlined the need for a comprehensive vocabulary to lay down definitions for a common and uniform interpretation of various terms used in the field.

*Polystyrene film dielectric capacitors: Part I General requirements and methods of tests [IS : 5475 (Part I)-1978 (first revision)]*— The revised standard takes into account the latest IEC recommendations and other technological developments and effects suitable modifications in climatic categories and performance requirements to assist in the quality improvement of the indigenous production.

*Magnetic sound tape recording and reproducing equipment (cassette type): Part I Methods of measurement [IS : 7594 (Part I)-1978]; and Magnetic sound tape recording and reproducing equipment reel-to-reel: Part I Methods of measurement [IS : 8655 (Part I)-1977]*— The standard prescribes uniform and reproducible methods of measurement of the characteristics of magnetic sound tape recording and reproducing equipment both of domestic and professional types.

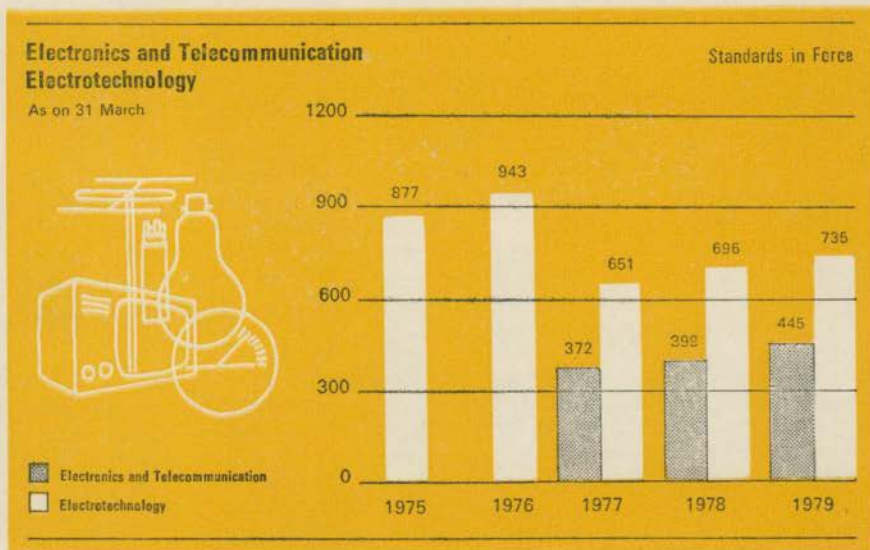
*Line traps (IS : 8792-1978); and Methods of test for line traps (IS : 8793-1978)*— It is hoped that these standards will go a long way in assisting the manufacture and use of quality line traps required by the growing power line carrier communication industry.

*Key top printed or displayed symbols for electronic calculating machines (IS : 8817-1978)* — The use of the unified set of symbols for various functions and operations for arithmetic, algebraic, trigonometric and statistical computations will facilitate rapid and efficient use of calculators as achieved in the case of typewriters.

*Filter units for electromagnetic interference suppression (IS : 8880-1978)* — Safety and performance requirements and test methods for filter units for electromagnetic interference suppression for use in electrical machines, appliances and apparatus as laid down in this standard will provide useful guidance in the selection of proper type of interference suppression devices for various applications.

*Fixed resistors, general purposes, power: Part I General requirements and methods of tests [IS : 8909 (Part I)-1978]* — First in the series of standards on fixed power resistors for general purpose applications, this standard includes guidance for evaluating electrical, mechanical and climatic properties of fixed power resistors with rated dissipation from 2.5 to 250 W and provided with a cover or coating for environmental protection.

*Basic environmental testing procedures for electronic and electrical items: Part XIV Change of temperature [IS : 9000 (Part XIV)-1978]* — Latest in the series of standards on environmental testing procedures for electronic and electrical items, the standard covers procedures for



determining the effect of temperature and capacity of the items to withstand change or a succession of changes of temperatures such as may occur during storage, transportation and use. It includes both rapid change and normal or gradual change of temperature and will serve as a useful guide for laboratories equipping themselves for environmental testing.

## ELECTROTECHNOLOGY

The Electrotechnical Division Council (ETDC) met in New Delhi on 12 March 1979. The Council re-elected Shri J. S. Zaveri, Adviser, Bharat Bijlee Ltd, Bombay, as Chairman of the Council for another term of three years. The Council also elected Shri P. C. Mankodi, Chief Engineer (RE), Gujarat Electricity Board, Vadodara, as Vice-Chairman of the Division Council. The Council accepted the proposal to reorganize the work currently being handled by the Electrical Insulation Sectional Committee (ETDC 18) and decided to replace it by the following new Sectional Committees:

- a) Solid Electrical Insulating Materials Sectional Committee (ETDC 63),
- b) Liquid and Gaseous Dielectric Sectional Committee (ETDC 64), and
- c) Electrical Insulation Systems Sectional Committee (ETDC 65).

Among the 70 standards printed/prepared during the period under report, the following are considered to be of special importance:

*Aluminium conductors for overhead transmission purposes: Part IV Aluminium alloy stranded conductors (aluminium-magnesium-silicone type) [IS : 398 (Part IV)-1978]* — The standard specifies the electrical and mechanical properties of the aluminium alloy wires and lays down standard sizes of aluminium alloy conductors to promote the use of such conductors for overhead power transmission. Aluminium alloy conductors have better anti-corrosive properties and are particularly suitable for use in coastal areas.

*Code of practice for maintenance and supervision of insulating oil in service [IS : 1866-1978 (first revision)]* — This is one of the widely used codes and provides guidance on the causes of oil deterioration and recommends various tests for ascertaining the condition of the oil and for deciding about continuation of its use in service. The revision has been effected to align the code with the latest Indian Standard specification on insulating oils for transformers and switchgears (IS : 335-1972) as also with the IEC Pub 422 (1973) 'Maintenance and



supervision guide for insulating oils in service'.

*Miners cap lamp batteries (lead-acid type) [IS : 2512-1978 (first revision)]* — This revision brings the standard in line with IS : 8320-1976 'General requirements and methods of test for lead-acid storage batteries', and also includes maximum overall dimensions of the battery container.

*Electrical moisture meters: Part I For foodgrains [IS : 8824 (Part I)-1978]* — This standard has been prepared on a request from the Food Corporation of India to assist in the quality control of indigenously manufactured moisture meters and to ensure that the results of field tests on moisture content of foodgrains are reliable.

*Electrical instruments for hazardous atmospheres (IS : 8945-1978)* — The standard lays down necessary guidelines for the manufacture of instruments which could be used in an explosive environment, such as mines and places where flammable gases or vapours may exist or originate inside the instrument.

*Electric instantaneous water heaters (IS : 8978-1978)* — The standard aims at ensuring personal safety against electric shock and safety against the effects of excessive temperature and fire from electrical instantaneous water heaters. Electrode type instantaneous water heaters in which water forms a conducting medium are considered unsafe and are not covered by the above standard.

*Arc lamp carbons for use in cinemas (IS : 9125-1979)* — Standardization of arc lamp carbon was undertaken with a view to establishing an acceptable level of performance and a certain degree of interchangeability.

*Electromyograph (IS : 8885-1978)* — Used for neuromuscular investigations, standardization of electromyograph is intended to ensure safety to the patient and the personnel handling such equipment as also to ensure adequate performance requirements of both single and multi-channel equipment.

## Special Projects

*Accelerated life test for dry batteries* — An accelerated life test for dry batteries on the basis of continuous discharge has been developed for introduction in different specifications. The test which has been evolved after experimentation on a large number of batteries in the laboratories of ISI and industry takes only 3-4 days for completion as against over a month in the case of the traditional method based on intermittent discharge of the batteries for short duration in each day.

*Indian Standard on classification of muscovite mica based on electrical properties* — At present, grading and selection of mica is done on

visual inspection where technical suitability is assessed on the basis of appearance. To overcome the element of subjectivity in such grading action has been initiated to formulate an 'Indian Standard classification of muscovite mica based on electrical properties'. The draft is likely to be finalized shortly.

*Indian Standard guide for selection and use of carbon brushes for different applications* — Selecting suitable grades of brushes for a particular application is vital from the point of view of reliability and troublefree service as the damage caused by the wrong choice of a brush may ultimately prove very costly. The recommendations from machine manufacturers or brush manufacturers are normally restrictive as they refer to particular grades which in most cases may not be available indigenously. The proposed guide which is coming up for finalization shortly would provide the needed guidance for selection and use of carbon brushes for different applications.

## MARINE, CARGO MOVEMENT AND PACKAGING

*National packaging code* — The Division has undertaken preparation of a National Packaging Code which will provide complete guidelines to the package designer on the parameters and interfaces to be considered for designing a suitable package, keeping foremost in mind the availability of packaging materials and accessories indigenously. It would also help in making appropriate choice — from amongst the alternatives available — both economically and technically. This is a long term project as the process envisages collection of considerable data regarding the materials available and the various methods tried for arriving at the best alternative for incorporation in the Code. The Code would be supplemented by specifications on various aspects of packaging for complete assistance to the package designer.

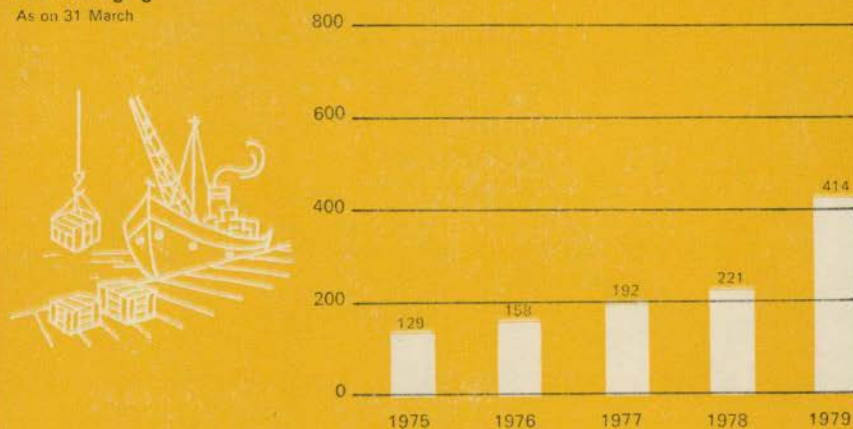
The Division formulated 35 new and revised Indian Standards among which special mention may be made of the following:

*Guidelines for coordination of dimensions in shipbuilding: Part I Principles of dimensional coordination; Part II Glossary of terms; Part III Coordinating sizes for components and assemblies; and Part IV Controlling dimensions (IS : 8712-1978)* — The aim of publishing recommendations for dimensional coordination is to establish standardized ranges of sizes for components. To achieve the maximum utilization of these components, it is necessary to establish a comprehensive system which will form a framework for sizing, positioning and assembling coordinated components. This standard, therefore, becomes very useful in planning, design and production in shipyards.

### Marine, Cargo Movement and Packaging

As on 31 March

Standards in Force



*Code of practice for the packaging of household electrical appliances (IS : 8716-1978)* — Irrespective of the area of their use, household electrical appliances are sensitive items which require protection of their functional characteristics. This standard caters to these requirements by providing packaging requirements of these items taking into consideration the transportation hazards.

*Hold loading steel dumb barges: Part I Capacity and dimensions [IS : 8819 (Part I)-1978]* — Considerable man-hours spent by different shipyards in developing various types of designs for dumb barges can be saved if owners could rationalize their requirements. The formulation of design specifications of these barges has been undertaken to help owners and shipbuilders to coordinate their requirements.

*General requirements for harbour tugs (IS : 8950-1978)* — This standard would facilitate the requirements of individual ports by rationalizing bollard pull and free running speed besides other general requirements of harbour tugs.

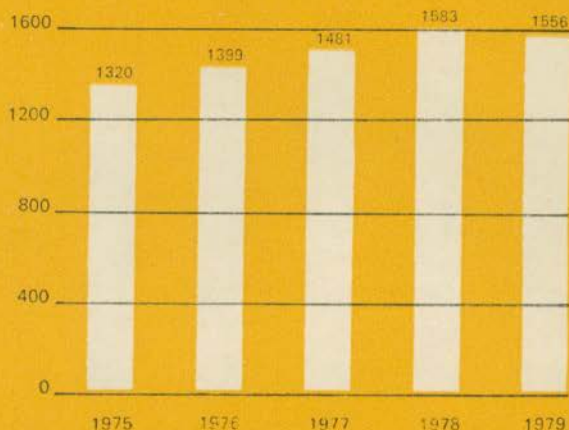
## MECHANICAL ENGINEERING

The Mechanical Engineering Division Council held its 27th meeting in New Delhi on 28 June 1978 where it unanimously re-elected Maj-Gen R. Janardhanam and Shri Abhijit Sen as its Chairman and Vice-Chairman

**Mechanical Engineering**

As on 31. March

Standards in Force



for another term of three years. On a recommendation of its Standing Working Committee, the Council agreed to reorganize its work through the following groups:

- a) Basic and light engineering,
- b) Tool engineering,
- c) Transport engineering,
- d) Instrument engineering, and
- e) General engineering.

The inaugural meeting of the Tyres, Tubes and Rims Sectional Committee (EDC 83) was held on 1 February 1979.

During the period under review, 135 standards were processed for printing among which special mention may be made of the following:

*Self-contained drinking water coolers [IS : 1475-1978 (second revision)]* — In its second revision, this standard which prescribes general constructional requirements, standard sizes, methods of testing and rating, and installation of water coolers operated by an electrically driven vapour compression type refrigerating machine with an air-cooled condenser, incorporates a number of important modifications. These include freedom of choice of materials for storage tank, specification

of 35°C as ambient temperature for capacity rating and alignment of the classification system with other countries.

*Requirements for telescopic type hydraulic shock absorbers for automotive suspension* [IS : 5423-1978 (first revision)] — This revised standard which includes many modifications, covers the terminology applicable to shock absorbers, dimensions and tolerances, recommended types of end mountings, fitment dimensions required for mounting the shock absorber on the vehicle, method of specifying the shock absorber and general requirements covering strength of weld assembly. Besides, the standard specifies the tests to be carried out on the shock absorbers comprising damping force test and endurance test as also tests for finish and visual inspection.

*Valve fittings for use with liquefied petroleum gas (LPG) cylinders of more than 5-litre water capacity* [IS : 8737 (Part II)-1978] — Valves for LPG cylinders were earlier covered in IS : 3224-1971 'Valve fittings for compressed gas cylinders'. But as LPG gas cylinders are mostly used by housewives for cooking, it was felt desirable to have a separate standard having an in-built safety arrangement so that the housewife or the domestic user did not commit a mistake which could lead to an accident by fire.

*Hexagon weld nuts* (IS : 8856-1978) — The formulation of this standard would cater to the large demand for hexagon nuts of a special variety — nuts which are amenable to electrical resistance welding on steel sheets.

*Saturated vapour pressure and test pressure for low pressure liquefiable gases contained in gas cylinders* (IS : 8867-1978) — The manufacture, possession and use of any gas, when contained in cylinders, in compressed or liquefied state, is regulated under the *Gas Cylinder Rules, 1940*, which covers about 50 gases. With the publication of this standard, ready data has been made available to the designers, users, manufacturers and fillers of low pressure liquefiable gas cylinders.

*Gauging practice for pipe threads where pressure tight joints are required on the threads* (IS : 8999-1979) — An important adjunct to IS : 554-1975 'Dimensions for pipe threads where pressure tight joints are required on the threads', this standard sets out gauging principles and covers individual dimensions of gauges and their manufacturing tolerances.

With the availability of this standard, it is expected that gauges to check pipe threads to IS : 554-1975 will be manufactured indigenously with the result that inspection of pipe threads would be streamlined. Formulation of this standard assumes added importance in view of compulsory ISI Certification of tubes under a Government notification.

*Skip suspension gear for winding in mines* (IS : 9011-1978) — This standard, which has been prepared with a view to laying down

guidelines for the manufacture of the components of the skip suspension gear used for winding operations in mines, lays down general requirements, dimensional details, heat treatment and testing requirements, consistent with safety, for suspension gears of up to 15 tonnes capacity. Rationalization has also been achieved by specifying five capacities of suspension gear which will cover most of the requirements of the Industry.

*Data sheet for aerial ropeways: Part I Data to be supplied by intending purchaser for aerial system for transportation of goods [IS : 9047 (Part I)-1978]* — This standard fulfils a long felt need for a data sheet which may help a manufacturer to obtain all the necessary information for a suitable ropeways system to be designed. It is hoped that the standard will assist the manufacturer to offer the best possible system keeping in view the user's requirements.

## STRUCTURAL AND METALS

A total of 84 Indian Standards, including revisions of 37 existing Indian Standards, were sent for publication. Of these, special mention may be made of the following:

*Hot-rolled steel columns: Part II SC series [IS : 808 (Part II)-1978]* — This Indian Standard is based on ISO/DIS 4972/1 and covers a series of square column sections. This standard is expected to assist the steel plants in making available a series of square column sections which are greatly in demand in India and abroad.

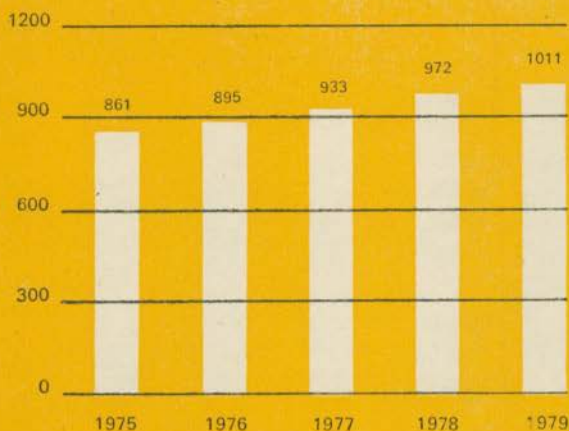
*Colour code for the identification of wrought steels for general engineering purposes [IS : 2049-1978 (first revision)]* — A uniform system of colour coding was originally introduced to facilitate easy identification of wrought steels for general engineering purposes and help steel plants avoid mix-up of the different types and grades of steels. The revised version provides a separate colour code for off-grade steel. Further, no colour code has been specified for material conforming to IS : 226-1975 'Structural steel (standard quality) (fifth revision)' as it comprises over 70 percent of the total production of steel. This would lead to considerable economy in the use of paint.

*Determination of compression strength of iron ore pellets after reduction (IS : 8604-1977); Method for determination of swelling index of iron ore and pellets (IS : 8624-1977); and Determination of crushing strength of iron ore and pellets (IS : 8625-1977)* — These standards are expected to be of considerable assistance in determining the quality of iron ores and pellets which are being exported in large quantities from India.

## Structural and Metals

As on 31 March

Standards in Force



*Recommendations for dimensional parameters for industrial buildings (IS : 8640-1977)* — This standard broadly aims at standardization of the parameters of the buildings for the structural elements to lend themselves to prefabrication.

*Forged/rolled CTC segments (IS : 8748-1978)* — This standard covers the quality requirements for CTC (crush, tear and curl) segments made from stainless steel and is intended as a guide for the manufacturers of CTC machine, and tea estate managers in the use of quality segments.

*Guidelines for marking purity of gold on gold articles/ornaments (IS : 8844-1978)* — Under *Gold (Control) Act, 1968*, every licensed dealer is required to stamp every piece of gold article/ornament made, manufactured or prepared by him certifying the purity of gold provided it is possible to mark it. Need was, therefore, felt to provide guidelines for use of certain grades of gold from which articles/ornaments are made and to provide a scheme of marking such articles/ornaments by the manufacturer.

*Clay bonded graphite crucibles (IS : 8977-1978)* — In the preparation of this standard, due consideration has been given to the use of indigenously available raw materials and the manufacturing capability available presently. Besides specifying the requirements for physical properties, this standard prescribes the minimum number of heats a crucible of specific size should withstand when in use for melting brass, cast iron, copper and aluminium.

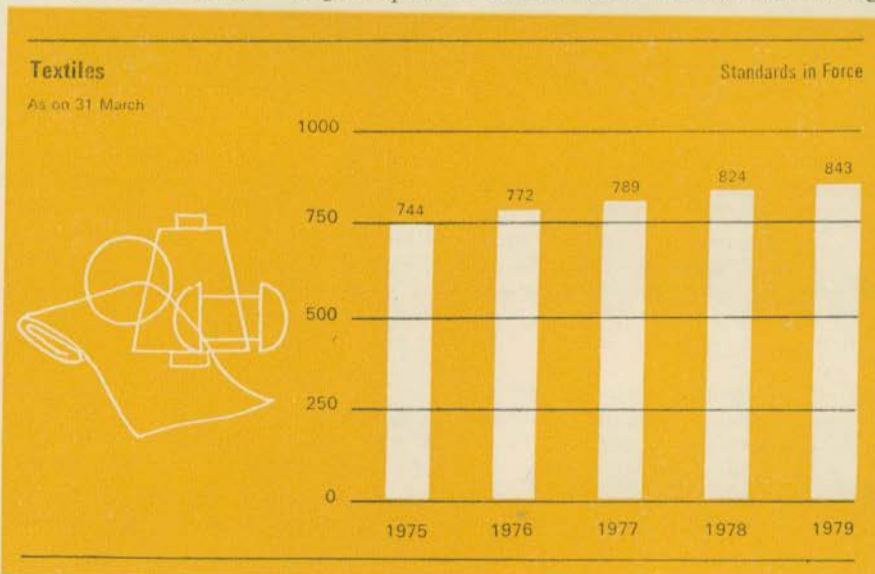
*Foundry core oils (IS : 9009-1979)* — The standard covers the requirements for evaluating the quality of foundry core oils used as binders for core and mould production. Two grades of core oils have been specified — fast baking and slow baking — which have been further classified as low strength and high strength depending upon the maximum strength obtained after baking.

## TEXTILES

Among the 48 new and revised Indian Standards sent for printing during the period under report, the following are considered to be of special importance:

*Handloom cotton fabric for school uniforms (IS : 8797-1978)* — Formulation of this standard was taken up on priority basis by the concerned technical committee to facilitate ISI certification marking on handloom cotton fabrics. It is intended to approach the Development Commissioner for Handlooms, Government of India, to issue necessary directions to various State Governments to adopt this Indian Standard with a view to ensuring production of uniforms for school children from quality cloth conforming to the specification.

*Code of practice for maintenance of bottom rollers for drafting systems (IS : 8831-1978)* — Higher speed of bottom roller with heavier loading





through the top arm is resorted to for attaining higher production which invariably results in stress and strain on the bottom roller and other components of the drafting system. Hence, the need for their proper maintenance is of paramount importance. This standard specifies detailed procedure for preventive maintenance of bottom rollers for drafting systems which, if followed, enhances the life of rollers and ensures better performance of the drafting system.

*Rubber blanket for shrinking range [IS : 9102 (Parts I & II)-1979]*— This standard represents a pioneering effort as no other country has done work in this field. Prepared with the active participation of the manufacturers, the standard specifies:

- a) dimensional and functional requirements of the blankets,
- b) recommended method for grinding,
- c) precautions to be observed during use, and
- d) procedure for storage for attaining optimum life of rubber blankets.

## SECTIONAL COMMITTEE UNDER THE EXECUTIVE COMMITTEE

**Documentation Sectional Committee (EC 2)**— The thirtythird meeting of the Documentation Sectional Committee (EC 2) was held on 26 May 1978. Two draft Indian Standards, namely: (a) Guide for the preparation of bibliographic description sheet for technical reports, and (b) Guidelines for placement of images in roll microfilm, were approved for wide circulation. A draft Indian Standard on recommendations for bibliographical references in regard to essential and supplementary elements (*first revision of IS : 2381*) was finalized for publication.

*New Subjects Approved*— (a) Data elements and data structure for bibliographical description of different kinds of documents in computer-readable data bases (bibliographical record format), (b) Data coding and data classification, and (c) Proformae for recording information on ongoing research projects at the institutional and national levels.

## STATISTICS

Important among the Indian Standards sent for printing was 'Criteria for rejection of outlying observations' (IS : 8900-1978). An outlying observation is one that appears to deviate markedly from other observations of the sample in which it occurs.

The standard provides certain statistical criteria which are helpful in the identification of outlying observation(s) on an objective basis. Some of the uses of the statistical tests for locating the outlying observation(s) include (a) screening of data before statistical analysis; (b) sounding of an alarm that outlying observations are present, thereby indicating the need for a closer study of the data generating process; and (c) pinpointing of the observations which may be of special interest just because they are extremes. Other five standards sent for publication comprised the following:

Methods of test for tyre yarn, cords and tyre cord fabrics, made from man-made fibres: Part IX Sampling for tyre yarns, cords and tyre cord fabrics made from rayon [IS : 4910 (Part IX)-1978];

Methods for sampling of clay building bricks (*first revision of IS : 5454-1978*);

Methods for sampling of burnt clay tiles (IS : 8920-1978);

Methods of sampling steel forgings (IS : 9100-1979); and

Methods of sampling iron ore pellets (IS : 9101-1979).

During the year, 628 draft Indian Standards were scrutinized and, in 294 cases, statistically sound sampling plans were recommended.

In all, 133 schemes of testing and inspection meant for licences under the ISI Certification Marks Scheme were scrutinized. The routine inspection data collected from a number of licensees in accordance with the recommended schemes were statistically analyzed to evaluate the performance of the licensees.

Extensive investigations and statistical analysis of resulting data were carried out for revision of specification limits for:

- a) Strength characteristics in laminated jute bags for packing fertilizers (IS : 7406-1974);
- b) Strength characteristics in jute fabric for fertilizer bags (IS : 7407-1974);
- c) Heat retention capacity of refills for vacuum flasks (IS : 3702-1975);
- d) Elongation percentage of mild steel tubes [IS : 1239 (Part I)-1973];
- e) 12 mm dia cotton ropes (IS : 2452-1963);
- f) Tungsten filament general service electric lamps (IS : 418-1963); and
- g) Black pepper (IS : 1798-1961).

Other studies were undertaken to:

- a) evolve suitable specification limits for strength characteristics for reverse B-twill jute bags, a newly developed product;
- b) evaluate cotton yarn for handloom (IS : 171-1973) with respect

to count, leaf breaking load and count strength product. On the basis of analysis, it has been suggested that an upward revision of specification limits for these characteristics is feasible; and

- c) review the frequency for testing of malathion emulsifiable concentrates (IS : 2567-1978) for malathion content.

## RESEARCH AND INVESTIGATIONS

### Agricultural and Food Products

*Development of deep brown colour in condensed milk (IS : 1166-1973)*

— To tackle the problem of colouration of condensed milk which is associated with the presence of neutralizers and scorched particles in milk, the following studies are underway at the National Dairy Research Institute (NDRI), Karnal:

- Detection of neutralizer in condensed milk and suggesting suitable method and limits for lactic acid-cum-lactates content;
- Establishment of colour standard for condensed milk and correlation of this characteristic with the shelf-life of the product, also preparation of suitable standard discs for direct colour readings; and
- Development of method for determination of scorched particles in milk powder and specification of suitable limits to be prescribed for the purpose.

*Shelf-life of liquid coal tar food colour preparations (IS : 5346-1975)* —

Investigation had been undertaken to verify the shelf-life of certain liquid colour preparations which indicated that liquid colour preparations containing indigo carmine deteriorated during storage. The manufacturers were, therefore, required to indicate the shelf-life of liquid colour preparations containing indigo carmine.

*Method of determination of dye intermediates in brilliant blue, FCF (IS : 6406-1977)* — Investigations were carried out which helped develop paper chromatographic method for the determination of dye intermediate for inclusion in the Indian Standard as the existing column chromatographic method was quite cumbersome.

*Mustard honey* — Mustard honey is popular in certain parts of the country as it has thixotropic properties like those of *Carvia Calossa* honey. With a view to laying down rational limits for various characteristics like reducing sugars and moisture a number of samples of mustard honey are being analyzed at the Central Bee Research Institute, Pune.

*Cleaning efficiency and output of seed cleaner* — The Indian Council of Agricultural Research, New Delhi, has been asked to study through various agricultural universities the possible correlation between the output of the seed cleaner and the cleaning efficiency with varying initial percentage of foreign matter in wheat and paddy crop samples.

*Oleoresin, chillies (capsicum)* — Collaborative trials have been carried out at five laboratories for developing thin layer chromatographic and paper chromatographic methods for estimation of capscin content of chillies as the current Scoville Unit test is considered to be subjective. The results are currently under scrutiny of the Committee.

### Chemicals

Testing and research investigations were carried out in the following areas during the period under report:

- a) Development of a suitable method for determination of absorption capacity of silica gel;
- b) Optimum iron content for permanent inks;
- c) Iodine value of linseed stand oil;
- d) Development of accelerated laboratory tests for durability of traffic paints;
- e) Collaborative testing for requirements of wet opacity of synthetic enamels;
- f) Decolourizing power of bleaching earths of Indian origin; and
- g) Comparison of TAPPI method for determination of chloride in pulp with the Indian Standard method.

### Civil Engineering

*Investigation regarding Portland pozzolana cement* — At the instance of Indian Roads Congress (IRC), a Committee has been set up to undertake investigation on certain properties of Portland pozzolana cement for use in reinforced concrete work. ISI is represented on the Committee.

### Consumer Products and Medical Instruments

At the instance of the Surgical Instruments Sectional Committee (CPDC 11), investigational work was undertaken to study the possible use of stainless steel for instruments like director and guide, prode, rectal dilators, etc, where malleability is a main requirement. Evaluation of prototypes of such instruments supplied by Surgical Instruments Plant of IDPL at Madras confirmed the unsuitability of stainless steel for this application.

### Petroleum, Coal and Related Products

During the period under review, testing and research investigations

were being carried out on the following aspects:

- a) Checking of ageing requirements for hot water bottles;
- b) Determination of suitability of pentachlorophenyl-1-hydroxy-*iso*-propyl ether as rot proofing agent for fire fighting hoses;
- c) Development of suitable performance test for fire fighting hose;
- d) Determination of *pH* of semi-reinforcing furnace (SRF) carbon black;
- e) Determination of measurement of thickness for lining and cover of small diameter hoses;
- f) Determination of organic acid content for acrylonitrile butadiene rubber and solvent extract;
- g) Determination of iron content in ammonia preserved concentrated natural rubber latex;
- h) Collaborative study for reproducibility and repeatability of curing characteristics with oscillating disc curemeters;
- j) Collaborative test for double centrifuged natural rubber latex;
- k) Determination of copper (optimum content) as rot proofing content in tarpaulins;
- m) Collaborative testing for proofing content of the sandwich layer of double texture rubberized fabric for fumigation covers;
- n) Test for performance of fumigation sheets and covers using coated fibreglass fabrics;
- p) Collaborative testing for drying time for labelling paste for automatic machines;
- q) Evolution of a suitable test for bacteriological content of food grade guar gum;
- r) Collaborative testing for determination of creep characteristics for oil and water finding paste;
- s) Collaborative investigations on ion-exchange resins for attrition characteristics;
- t) Determination of trace elements (inorganic) and other chemicals used in plastics;
- u) Development of a suitable method for determination of specific and/or overall migration of plastics materials and articles meant to come in contact with foodstuff;
- v) Collaborative testing for packageability of various plastics;
- w) Evolution of a thin layer chromatographic method for determination of *p*-nitrochlorobenzene as an impurity in *p*-nitrophenol;
- y) Collection of data for prescribing the limit for ash content and *o*-nitrophenol content;

- z) Investigations on ill effect of relaxed diesel fuel on engine performance; and
- aa) Collaborative study for flame height of match wax with different oil content.

### **Structural and Metals**

Research and investigations were continued on graphite for foundries, spalling resistance of fireclay refractories and standard reference materials.

### **Textiles**

Testing and research investigations were in progress in the following areas:

- a) Development of suitable light duty jute bags to replace conventional bags for packing imported fertilizers, foodgrains, etc;
- b) Preparation of photo-micrographs of natural, regenerated and man-made fibres for use in identification of common commercial textile fibres;
- c) Evaluation of various sewing procedures and specifications of sewing threads, sewing needles, sewing machines, etc, for development of a code for sewing aerospace textile materials; and
- d) Study of accelerated test methods for determination of working life of healds in terms of loom hours.

**TABLE 4 INDUSTRY-WISE DISTRIBUTION OF LICENCES IN OPERATION**

(As on 31 March 1979)

SL No.	INDUSTRY	No. OF LICENCES
1)	Agricultural and food products	326
2)	Pesticides and their formulations	925
3)	Electrotechnical items	612
4)	Packaging materials	41
5)	Civil engineering and safety items	581
6)	Chemicals	445
7)	Consumer products and medical instruments	84
8)	Mechanical engineering items	271
9)	Metal products	179
10)	Steel	602
11)	Textiles	259
12)	Deferred licences	585
<b>TOTAL</b>		<b>4910</b>

**Applications for Grant of Licences to Use ISI Mark** — The position with regard to the applications for grant of licences to use ISI Mark during the year under report is given below:

Applications pending as on 1 April 1978	2 342
New Applications received during the year	1 196
Applications which matured into licences	718
Applications closed	392
Applications pending as on 31 March 1979	2 428

Of the 2 428 applications pending at the close of the year, action with the Institution rested only in respect of 333 applications; for the remaining, the applicants were required to improve or develop their quality control facilities to make themselves eligible for the ISI Certification Mark.

**Certification Revenue** — The certification revenue touched the figure of Rs 17.43 million registering a growth of 20.21 percent. The value of the goods certified is estimated to be of the order of Rs 18 000 million.

The progress of the Scheme during the past five years is graphically represented in Fig. 6.

**TABLE 5 REGION-WISE DISTRIBUTION OF LICENCES IN OPERATION**

(As on 31 March 1979)

SL No.	REGION	BRANCH OFFICE (AREAS COVERED)	No. OF LICENCES
1)	Eastern	a) Calcutta (West Bengal, Orissa, Eastern Madhya Pradesh, Assam, Arunachal, Meghalaya, Nagaland and Andamans)	881
		b) Patna (Bihar)	166
2)	Northern	a) Delhi (Delhi, Southern Haryana, Rajasthan and Western Madhya Pradesh)	673
		b) Chandigarh (Punjab, Himachal Pradesh, Jammu and Kashmir, Northern Haryana and Chandigarh)	301
		c) Kanpur (Uttar Pradesh and Central Madhya Pradesh)	187
3)	Southern	a) Madras (Tamil Nadu, Kerala and Pondicherry)	452
		b) Bangalore (Karnataka)	248
		c) Hyderabad (Andhra Pradesh)	188
		d) Trivandrum (Kerala)	103
4)	Western	a) Bombay (Maharashtra and Goa)	788
		b) Ahmadabad (Gujarat, Daman and Diu)	338
		Deferred licences	585
<b>TOTAL</b>			<b>4 910</b>

**Supervision of Operative Licences** — The number of preliminary inspections carried out for grant of licences and the number of periodic inspections carried out by various Branch Offices including lot inspections and preshipment inspections are given in Table 6.

**Users' Preference for ISI Certified Products** — The following decisions were taken this year by the Central and State Governments:

- a) The Government of Andhra Pradesh decided to reserve 50 percent of the requirement of paints for Government Departments/Undertakings from units covered under the ISI Certification Marks Scheme. The remaining 50 percent will be procured from local paint manufacturers producing paint of good quality.



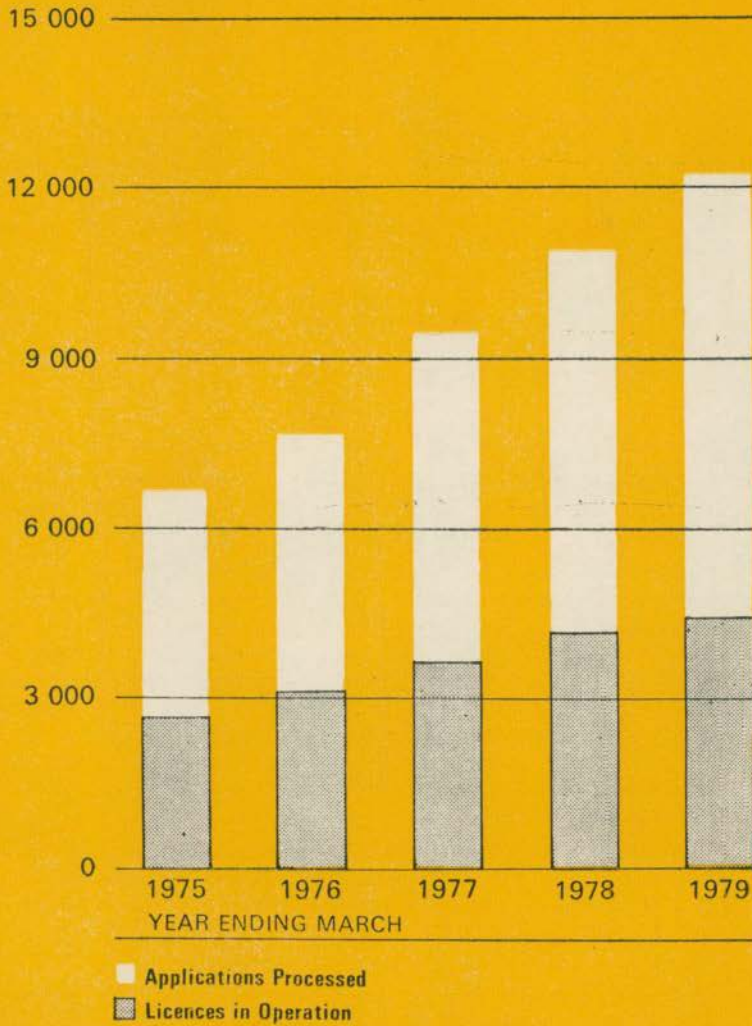
**Fig. 6 Progress of ISI Certification Marks Scheme**

TABLE 6 INSPECTIONS CARRIED OUT

Sl. No.	REGION	BRANCH OFFICE	PRELIMINARY INSPECTIONS	PERIODIC INSPECTIONS	PRESHIPMENT INSPECTIONS
1)	Eastern	a) Calcutta	176	3 493	1 471
		b) Patna	15	214	52
2)	Northern	a) Delhi	167	1 336	506
		b) Chandigarh	126	1 004	204
		c) Kanpur	91	565	18
3)	Southern	a) Madras	111	2 160	61
		b) Bangalore	71	952	338
		c) Hyderabad	58	845	62
		d) Trivandrum	12	307	71
4)	Western	a) Bombay	141	3 267	785
		b) Ahmadabad	88	1 023	421
TOTAL			1 056	15 166	3 989

- b) The Chief Engineer, Haryana State Electricity Board, Chandigarh, issued instructions to all Superintending and Executive Engineers to purchase only ISI-marked paints.
- c) The Ministry of Agriculture and Irrigation (Department of Agriculture), Government of India, issued instructions to the Directors of Agriculture of States and Managing Director of the Agro Industries Corporation to the effect that the manufacturers be advised to adopt Indian Standard on manually-operated single row jute seed drill (IS : 8781-1978) for their production. Further, ISI Certification Mark has to be recognized for selection/purchase of such a machine of assured quality. To encourage the users to buy ISI-marked drills, price preference would also be given over non-certified drills.
- d) The Ministry of Commerce, Government of India, has decided that quota of imported resin will be released for the manufacture of PVC pipes for agricultural use only to manufacturing units holding ISI Certification Mark licences.

### ISI LABORATORIES

In addition to the Central Laboratory at its Headquarters in New Delhi, the Institution has three Regional Laboratories at Bombay, Calcutta and Madras. These laboratories are primarily intended to meet the needs of

OPERATION OF ISI CERTIFICATION MARKS SCHEME

ISI Certification Marks Scheme by testing the samples of the applicants and the licensees. The Central Laboratory also takes up investigational work at the instance of the committees engaged in the formulation of Indian Standards and other developmental work relating to the methods of tests and equipment required for testing.

The total number of samples tested during the year was 18 484. Progress of testing work at ISI Laboratories in different disciplines, namely, chemical, electrical and mechanical, is given in Table 7. Graphical representation of the testing work carried out since 1974-75 is given in Fig. 7.

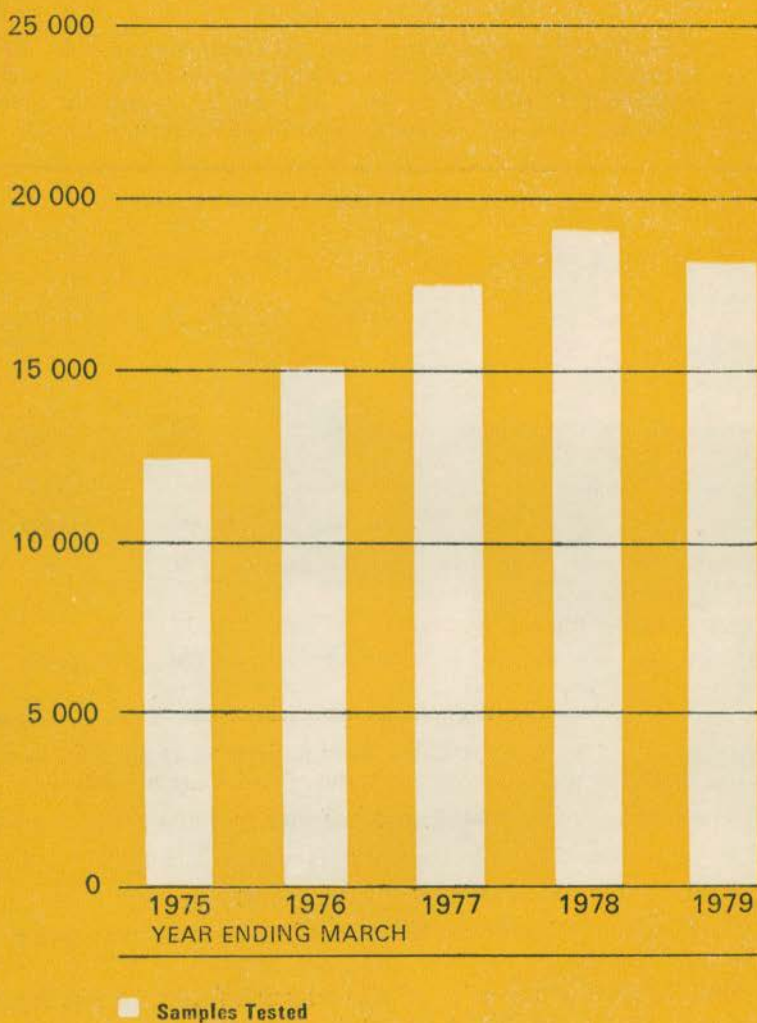
**TABLE 7 PROGRESS OF TESTING UNDERTAKEN**

Sl. No.	DETAILS OF TESTING	PROGRESS OF TESTING		
		During 1978-79	During 1977-78	Since Setting Up of the Laboratory
1)	<i>Samples</i>			
a)	Pending at the beginning of the year (1 April)	1 808	1 560	—
b)	Received	19 917	19 961	155 420
c)	Tested	18 484	18 996	148 809
d)	Pending at the close of the year (31 March)	2 423	1 792	—
2)	New specifications covered	42	43	815
3)	Testing charges estimated for the work done, Rs	2 614 874	2 640 220	16 128 630

**Investigations** — The Central Laboratory undertook 16 investigational problems during the period under report, some of which are as under:

- a) Determination of thermal efficiency of wick type non-pressure stove;
- b) Determination of bitumen content of laminated jute bag;
- c) Quality assessment of samples of toilet soaps;
- d) Determination of diffuse reflectance of black-and-white square of chequer board;
- e) Determination of the value of *K* (correction factor for loss lignin of coco fibre in alkali) for brushes;
- f) Determination of capsaicin in capsicum;
- g) Determination of starch content of arrowroot and tapioca;

**Fig. 7 Progress of Testing in ISI Laboratory**



13. ISO/TC 113/SC 1 Measurement of Liquid Flow in Open Channels  
— Velocity Area Methods
14. ISO/TC 113/SC 2 Measurement of Liquid Flow in Open Channels  
— Notches, Weirs and Flumes
15. ISO/TC 113/SC 3 Measurement of Liquid Flow in Open Channels  
— Glossary of Terms
16. ISO/TC 113/SC 4 Measurement of Liquid Flow in Open Channels  
— Dilution Methods
17. ISO/TC 113/SC 5 Measurement of Liquid Flow in Open Channels  
— Flow Measuring Instruments and Equipment
18. ISO/TC 113/SC 6 Measurement of Liquid Flow in Open Channels  
— Sediment Transport
19. ISO/TC 113/SC 7 Measurement of Liquid Flow in Open Channels  
— Methods for Measurements Under Difficult Conditions
20. ISO/TC 149 Cycles

**ISO Council** — Shri D. C. Kothari, Chairman, Executive Committee, attended the Thirtysecond meeting of the ISO Council held in Geneva during 20-22 September 1978 under the chairmanship of ISO President Dr V. V. Boitsov. Sixtyfour delegates from 18 member countries attended the meeting. The subjects discussed at the Council meeting related mainly to policy and organizational matters, financial issues, consumer programmes, assistance to developing countries, cooperation with other international bodies dealing with standards, technical work of ISO, etc. During the deliberations, the Indian delegation made effective contribution in focussing attention on the needs of developing countries. Among other things, the Council took decisions, such as the preparation of a document on ISO policy with respect to assistance from developed countries to developing countries and widest possible consultation whenever there were proposals to revise certain existing International Standards on containers having possible impact on the developing countries' trade.

Shri D. C. Kothari was appointed a member of the Planning Committee (PLACO) for the term 1979-81; thus India continues to be a member of PLACO since its inception.

**ISO Planning Committee (PLACO)** — PLACO is responsible for all matters concerning organization, coordination and planning of the technical work of ISO. During the period under report, India attended its meeting held in February 1979. The important matters discussed at this meeting related to review of the present Technical Committee structure and methods of coordination and supervision; review of four technical divisions, namely, Mechanical Engineering, Agriculture, Building and Distribution of Goods, criteria for deciding on inactive technical committees; coordination and

possible establishment of Technical Advisory Groups; and amendments to the Rules of Procedure and ISO Constitution.

### INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

As on 31 March 1979, there were 73 Technical Committees, 118 Subcommittees and 570 Working Groups of the International Electrotechnical Commission (IEC). India participated in the work of a large number of Technical Committees, Subcommittees and Working Groups. It also held the Secretariat of IEC/TC 43 Electric Fans for Domestic and Similar Use.

The Fortythird Annual General Meeting of IEC was held in Florence (Italy) during 19-30 June 1978. About 1000 delegates representing 36 National Committees attended the Annual General Meeting as also the meetings of the Council, the Committee of Action and 31 Technical Committees and Subcommittees of IEC. A three-member Indian delegation participated in these meetings. The IEC Council, which met under the chairmanship of Dr Takagi (Japan), was attended by 109 delegates from 37 countries. The business transacted by the Council included election to the post of Vice-Presidents, election of the Committee of Action and finalization of budget for 1979. The Committee of Action held its meeting on two days and was attended by nine members of the Committee of Action and observers from 28 National Committees. The Committee reviewed the progress of work by Technical Committees/Subcommittees since its last meeting.

The meetings of the Technical Committees/Subcommittees led to 81 new draft standards being agreed upon for circulation to IEC National Committees for approval under the Six Months' Rule.

### INDIAN DELEGATIONS TO ISO/IEC MEETINGS

During the year under report, the Institution sent delegations to the meetings of ISO/IEC Technical Committees/Subcommittees of direct interest to India. A brief report of the delegations sent is given in Table 9.

**TABLE 9 INDIAN DELEGATIONS TO ISO/IEC MEETINGS**

NAME OF THE COMMITTEE	PLACE	DATE	INDIAN DELEGATION (No.)
ISO/TC 8 Shipbuilding Steering Committee; ISO/TC 8/SC 11 Terminology, Symbols, Drawings, etc; and ISO/TC 8/SC 5 Machinery and Piping	Genoa (Italy)	9-15 October 1978	3
ISO/TC 11/WG 10 Shell Boilers	London (UK)	15-19 May 1978	1

(Continued)

TABLE 9 INDIAN DELEGATIONS TO ISO/IEC MEETINGS — *Contd*

NAME OF THE COMMITTEE	PLACE	DATE	INDIAN DELEGATION (No.)
ISO/TC 17/SC 8/WG 1 Hot Rolled Sloping Flange, I-Beam, Column and Channel Sections	Dusseldorf (Germany)	2 October 1978	3
ISO/TC 17/SC 8/WG 2 Parallel Flange Sections (Metric Series)	Dusseldorf (Germany)	3 October 1978	3
ISO/TC 17/SC 8/WG 3 Structural Angles (Equal and Unequal)	Dusseldorf (Germany)	4 October 1978	3
ISO/TC 17/SC 8 Dimensions and Tolerances of Structural Steel Sections and Bars	Dusseldorf (Germany)	5-6 October 1978	3
ISO/TC 17/SC 2 Terminology, Classification and Designation of Steel	Dusseldorf (Germany)	9-13 October 1978	3
ISO/TC 28 Petroleum Products	The Hague (Netherland)	5-7 June 1978	1
ISO/TC 34/SC 7 Spices and Condiments	Colombo (Sri Lanka)	25-27 April 1978	3
ISO/TC 34/SC 8 Tea	Colombo (Sri Lanka)	19-21 April 1978	4
ISO/TC 45 Rubber and Rubber Products	Stockholm (Sweden)	18-27 September 1978	2
ISO/TC 45/WG 4 Physical Properties	Stockholm (Sweden)	19-21 September 1978	1
ISO/TC 102 Iron Ores	Sydney (Australia)	31 October-10 November 1978	5
ISO/TC 102/SC 1 Sampling of Iron Ores	Sydney (Australia)	1-8 November 1978	2
ISO/TC 102/SC 2 Chemical Analysis of Iron Ores	Sydney (Australia)	1-8 November 1978	1
ISO/TC 102/SC 3 Physical Testing of Iron Ores	Sydney (Australia)	1-8 November 1978	2
ISO/TC 104 Freight Containers	Genoa (Italy)	19-23 June 1978	2
ISO/TC 110/SC 2 Safety of Powered Industrial Trucks	Philadelphia (USA)	19-21 September 1978	1

*(Continued)*

TABLE 9 INDIAN DELEGATIONS TO ISO/IEC MEETINGS — *Contd*

NAME OF THE COMMITTEE	PLACE	DATE	INDIAN DELEGATION (No.)
ISO/TC 113 Measurement of Liquid Flow in Open Channels and Its Seven Subcommittees	Leningrad (USSR)	12-23 June 1978	5
ISO/TC 147/SC 1 Water Quality. Terminology	Ottawa (Canada)	29-30 May 1978	}
ISO/TC 147/SC 6 Water Quality. Sampling (General Methods)	Ottawa (Canada)	31 May 1978	
ISO/TC 147/SC 4 Water Quality. Microbiological Methods	Ottawa (Canada)	1 June 1978	
ISO/TC 147/SC 2 Water Quality. Physical, Chemical and Biochemical Methods	Ottawa (Canada)	2 June 1978	
ISO/TC 147/SC 5 Water Quality. Biological Methods	Ottawa (Canada)	2 June 1978	
ISO/TC 147 Water Quality	Ottawa (Canada)	3 June 1978	1
ISO/TC 149/SC 1 Cycles. Cycles and Major Sub-Assemblies	Tokyo (Japan)	24-25 April 1978	1
ISO/TC 149 Cycles	Tokyo (Japan)	26 April 1978	1
ISO/TC 149/SC 2 Cycles. Sub-Assemblies and Components	Tokyo (Japan)	27-28 April 1978	1
<i>Ad hoc</i> Meeting of ISO/TCs on Metals	Geneva (Switzerland)	18-19 October 1978	1
IEC/SC 15C Specifications	Florence (Italy)	26-29 June 1978	1
IEC/TC 16 Terminal Markings and Other Identifications	Sofia (Bulgaria)	2-3 November 1978	2
IEC/SC 17B Low-Voltage Switchgear and Controlgear	Sofia (Bulgaria)	30 October 1978	2
IEC/SC 28A Insulation Coordination for Low-Voltage Equipment	Sofia (Bulgaria)	2-4 November 1978	1
IEC/TC 55 Winding Wires	Florence (Italy)	21-24 June 1978	1
IEC/TC 61 Safety of Household Electrical Appliances	Florence (Italy)	19-20 June 1978	}
IEC/SC 61F Safety of Hand-Held Motor Operated Electric Tools	Florence (Italy)	22-24 & 26-27 June 1978	
IEC/SC 65A System Consideration, IEC/SC 65B Elements of Systems, and IEC/TC 65 Industrial Process Measurement and Control	Florence (Italy)	27-30 June 1978	1



## PARTICIPATION IN OTHER INTERNATIONAL MEETINGS

Apart from ISO/IEC meetings, ISI also participated in the following International Meetings/Seminars:

<i>Sl No.</i>	<i>Meeting/Seminar</i>	<i>Organized by</i>	<i>Place</i>	<i>Period</i>
1.	Seminar on Quality Assurance and Standardization	Nepal Institute of Standards	Kathmandu	6-10 January 1978
2.	Meeting on Metrication	Commonwealth Science Council (CSC)	London	26-27 April 1978
3.	Project Group Meeting on Quality Control and Enforcement of Standards	Commonwealth Science Council (CSC)	Accra	10-17 May 1978

## PART V

## FINANCIAL HIGHLIGHTS

The Institution derives its income from:

- a) Government grants,
- b) Subscription from members,
- c) Sale of Indian and Overseas Standards, and
- d) Certification marking.

The Institution has been constantly striving to be self-reliant in regard to its financial needs with the result that the component of the Government grant in meeting revenue expenditure which was 100 percent to begin with has come down during 1978-79 to only about 21 percent.

### Financial Analysis

*Revenue* — The revenue expenditure rose to Rs 32.82 million during 1978-79 from Rs 28.33 million during the previous year — an increase of Rs 4.49 million reflecting a growth of 15.8 percent. To meet this expenditure, the Institution's income from its different sources, namely, membership subscription, sale of standards, and Certification Marking has gone up to Rs 25.83 million during 1978-79 from Rs 22.74 million during the previous year — an increase of Rs 3.09 million representing a growth of 13.6 percent. The break-up of income under different activities during the years 1977-78 and 1978-79 with the respective growth percentage is given below:

<i>Activity</i>	<i>1977-78</i> Rs (in million)	<i>1978-79</i>	<i>Growth,</i> <i>Percent</i>
Membership subscription	3.99	4.08	2.3
Sale of standards and Bulletin advertisements	4.12	4.20	1.9
Certification Marking Scheme	14.63	17.55	20.00
<b>TOTAL</b>	<b>22.74</b>	<b>25.83</b>	<b>13.6</b>

The Government grant to cover the deficit during 1978-79 was Rs 6.99 million which is 21.3 percent.

The position regarding growth in income under different activities of the Institution and the level of Government grant since 1974-75 is graphically represented in Fig. 8.

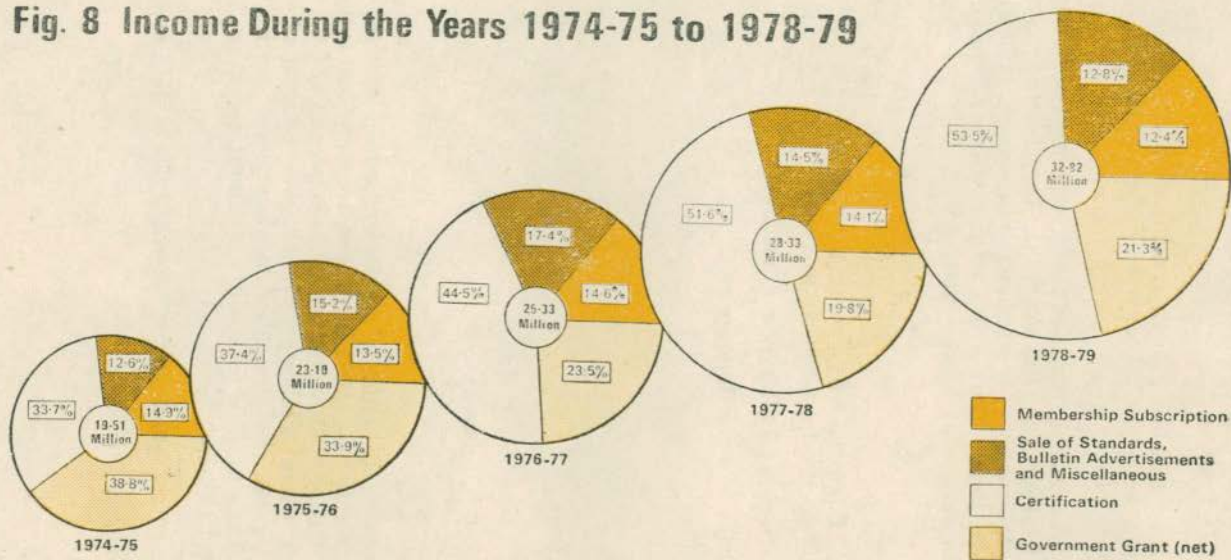
*Capital* — Recognizing the need for development of infrastructure for augmentation of ISI service to the nation, the Government has been providing the capital requirements for various projects undertaken by the Institution from time to time. During the Sixth Five-Year Plan (1978-83), the following project outlays have been envisaged:

<i>Project</i>	<i>Outlay</i> Rs (in million)
Laboratory Equipment for Voluntary and Compulsory Certification (Expansion)	21.6
Central Laboratory Building at Ghaziabad	11.1
Laboratory-cum-Office Building at:	
a) Bombay	3.0
b) Calcutta	1.8
c) Ahmadabad	1.0
d) Bangalore	1.6
e) Hyderabad	2.7
f) Kanpur	2.5
Reprographic Equipment	1.0
<b>TOTAL</b>	<b>46.3</b>

During 1978-79, an outlay of Rs 5.8 million on different items of the capital projects mentioned above have been contemplated in budget provision. Against this, the Government provided a sum of Rs 4.5 million, with which construction of laboratory buildings at Ghaziabad, Bombay and Calcutta is in progress. Besides, laboratory equipment worth Rs 1.4 million was purchased during the year for use in the laboratories at the Headquarters and the Regional Offices.

The statement of Accounts for the year 1978-79 duly audited is given in Appendix A.

Fig. 8 Income During the Years 1974-75 to 1978-79



**PART VI**  
**APPENDICES**

**APPEN**

**INCOME AND EXPENDITURE ACCOUNT FOR**

<b>EXPENDITURE</b>			
PREVIOUS YEAR Rs	SL No.	HEADS OF EXPENDITURE	AMOUNT Rs
	1.	<i>Pay</i>	
5 068 814	1.1	Officers	5 709 805
5 271 018	1.2	Staff	5 704 561
	2.	<i>Allowances</i>	
2 661 532	2.1	Officers	3 155 202
3 728 356	2.2	Staff	4 409 116
427 985	3.	CGHS and Other Medical Charges	463 404
311 793	4.	Provident Fund Contribution	356 392
722 078	5.	Pension Fund	1 179 986
30 000	6.	Gratuity Fund	30 000
78 551	7.	Staff Welfare	96 621
	8.	<i>TA</i>	
168 356	8.1	Overseas	190 058
685 236	8.2	Officers and Staff	867 438
17 225	8.3	Committee Members	13 329
88 246	8.4	Leave Travel Concession	448 281
	9.	<i>Subscription to International Organizations</i>	
952 339	9.1	ISO	1 039 604
499 548	9.2	IEC	523 020
	10.	<i>Production</i>	
983 249	10.1	Standards	850 836
477 121	10.2	Bulletin	474 460
76 453	10.3	Calculation Aids and Binders	120 401
198 623	10.4	Other Publications	146 738
2 047	11.	Research and Consultation	2 574
705 129	12.	Testing Fees	604 915
577 279	13.	Laboratory Apparatus and Stores	594 440
	14.	<i>Publicity</i>	
69 410	14.1	Exhibitions	133 110
280 385	14.2	Advertising	175 487
—	14.3	Short Films	42 000
27 545	14.4	Miscellaneous	103 190
87 885	15.	Conferences	41 041
46 929	16.	Training Programmes	73 739
24 243 132		CARRIED OVER	27 549 748

# DIX A

## THE YEAR ENDED 31 MARCH 1979

### I N C O M E

PREVIOUS YEAR Rs	Sl No.	HEADS OF INCOME	AMOUNT Rs
3 984 720	1.	Membership Subscription	4 075 357
	2.	Sales	
2 957 340	2.1	Indian Standards	2 952 414
150 810	2.2	Calculation Aids and Binders	121 050
483 691	2.3	Overseas Publications (Commission)	516 215
132 538	3.	Bulletin Advertisements	229 213
14 633 092	4.	*Certification	17 550 285
24 001	5.	CGHS Contributions	25 607
23 055	6.	Conferences (Delegates Fees)	—
63 281	7.	Training Fees	62 938
276 970	8.	Miscellaneous	293 337
10 697	9.	Transferred from Building Fund	—
22 740 195			25 826 416
7 000 000	10.	Government Grant	7 500 000

29 740 195

CARRIED OVER

33 326 416

\*Income under this Head has been taken on cash basis and not on accrual basis. A sum of Rs 560 800 realizable on accrual basis during the year has not been included.

(Continued)

## INCOME AND EXPENDITURE ACCOUNT FOR

## EXPENDITURE

PREVIOUS YEAR Rs	SL No.	HEADS OF EXPENDITURE	AMOUNT Rs
24 243 132		BROUGHT FORWARD	27 549 748*
		17. <i>Electronic Data Processing</i>	
—	a)	Expenditure during the year	92 974
28 202	b)	Less: Cost of Assets capitalized	52 735
92 840	18.	Library (Other Expenses)	97 368
		19. <i>Office Expenses</i>	
550 920	19.1	Stationery	829 546
340 837	19.2	Postage	404 948
436 158	19.3	Telephone and Telex	529 247
45 835	19.4	Recruitment	70 417
66 407	19.5	Refreshment and Entertainment	58 879
57 826	19.6	Liveries	66 281
124 265	19.7	Conveyance and Cartage	138 231
56 398	19.8	Insurance and Bank Charges	67 773
127 294	19.9	Miscellaneous	153 804
85 869	20.	Furniture and Equipment (Maintenance)	81 940
		21. <i>Buildings</i>	
597 309	21.1	Rent and Taxes	656 420
336 861	21.2	Electricity and Water Charges	518 163
247 462	21.3	Maintenance	262 371
128 130	22.	Local Transport (Maintenance)	161 734
26 432	23.	Audit Fee and Legal Charges	53 799
3 816	24.	Staff Training	7 819
41 250	25.	Interest on House Building Loan	82 500
309	26.	Loss on Assets written off/Disposed of	2 032
697 368	27.	Depreciation	983 198
28 334 920			32 816 457
1 405 275		Excess of Income over Expenditure	509 959
29 740 195		TOTAL	33 326 416



**THE YEAR ENDED 31 MARCH 1979 — Contd**

**I N C O M E**

PREVIOUS YEAR Rs	SL No.	HEADS OF INCOME	AMOUNT Rs
29 740 195		BROUGHT FORWARD	33 326 416

29 740 195

TOTAL

33 326 416

## LIABILITIES

PREVIOUS YEAR Rs	SL NO.		Rs	Rs	Rs
	1.	<i>Capital Fund</i>			
	1.1	As per last Balance Sheet		15 826 086	
	1.2	<i>Add cost of Assets capitalized</i>			
	a)	Lab Bldg at Ghaziabad	2 281 532		
	b)	Laboratory Equipment	1 396 274		
	c)	Calcutta Office Building	2 000 644		
	d)	Furniture, Equipment, etc, out of S & T Project A/c	16 205	5 694 655	
	1.3	<i>Add: Excess of Income during the year as per annexed state- ment of Income and Expenditure</i>		509 959	
				22 030 700	
	1.4	<i>Less: Unutilized Govt Grant Re- funded</i>			
	a)	Recurring for 1977-78	1 230 685		
	b)	Cost of land for Bombay Bldg	132 000	1 362 685	
				20 668 015	
15 826 086	1.5	<i>Deduct: Cost of Assets refunded (Lab equipment)</i>		10 271	20 657 744
	2.	<i>Reserve and Funds</i>			
	2.1	K. L. Moudgill Prize Fund		13 396	
	2.2	Gratuity Fund		179 489	
	2.3	Benevolent Fund		51 176	
	2.4	<i>Lab Bldg at Ghaziabad</i>			
	a)	Govt Grant Received	2 000 000		
	b)	<i>Add: Unutilized Govt Grant carried forward from 1977-78</i>	343 864		
			2 343 864		
	c)	<i>Less: Transferred to Capital Account</i>	2 281 532	62 332	
	2.5	<i>Laboratory Equipment</i>			
	a)	Govt Grant Received	1 400 000		
	b)	<i>Add: Refund against pre- vious year's expenditure</i>	10 271		
			1 410 271		
	c)	<i>Less: Transferred to Capital Account</i>	1 396 274	13 997	
15 826 086		CARRIED OVER		320 390	20 657 744

AT 31 MARCH 1979

## ASSETS

PREVIOUS YEAR Rs	SL No.		Rs	Rs	Rs
	1.	<i>Fixed Assets</i>			
	1.1	<i>Buildings (HQ)</i>			
		a) As per cost value		4 921 703	
		b) <i>Less: Depreciation w/o</i>			
		i) Up to 1978-03-31	1 766 784		
3 154 919		ii) During 1978-79	110 088	1 876 872	3 044 831
	1.2	<i>Madras Office Building</i>			
		a) As per cost value		1 133 556	
1 133 556		b) <i>Less: Depreciation w/o during 1978-79</i>		37 291	1 096 265
	1.3	<i>Lab Bldg at Ghaziabad (Under Construction)</i>			
		a) As per last Balance Sheet		2 676 441	
2 676 441		b) Addition during 1978-79		2 281 532	4 957 973
	1.4	<i>Bombay Office Building (Under Construction)</i>			
		a) As per last Balance Sheet		264 110	
		b) Addition during 1978-79		71 962	
				336 072	
264 110		c) <i>Less: Refunds towards cost of land</i>		132 000	204 072
	1.5	<i>Calcutta Office Building (Under Construction)</i>			
		a) As per last Balance Sheet		917 585	
917 585		b) Addition during 1978-79		1 200 000	2 117 585
	1.6	<i>Xerox Copying Equipment</i>			
		a) As per cost value		292 000	
		b) <i>Less: Depreciation w/o</i>			
		i) Up to 1978-03-31	124 064		
167 936		ii) During 1978-79	32 375	156 439	135 561
	1.7	<i>Laboratory Equipment</i>			
		a) As per cost value up to 1978-03-31		5 663 474	
		b) <i>Deduct: Refund against previous year's expenditure</i>		10 271	
8 314 547		CARRIED OVER		5 653 203	11 556 287

(Continued)

## BALANCE SHEET AS

## LIABILITIES

PREVIOUS YEAR Rs	SL NO.		Rs	Rs	Rs
15 826 086		BROUGHT FORWARD		320 390	20 657 744
	2.6	<i>Bombay Office Building</i>			
	a)	As per last Balance Sheet	349 543		
	b)	Less: Unutilized balance of Govt Grant refunded	35 890		
			<u>313 653</u>		
	c)	Add: Receipt during 1978-79			
	i)	Govt Grant 100 000			
	ii)	Donations 156 625	256 625	570 278	
			<u>256 625</u>		
	2.7	<i>Calcutta Office Building</i>			
	a)	As per last Balance Sheet	867 103		
	b)	Add: Receipt during 1978-79			
	i)	Govt Grant 1 200 000			
	ii)	Donations 188 943	1 388 943		
			<u>1 388 943</u>		
	c)	Less: Transferred to Capital Account	2 000 644	255 402	
			<u>2 000 644</u>		
	2.8	<i>S &amp; T Projects</i>			
	a)	Govt Grant Received	800 000		
	b)	Less: Expenditure during 1978-79	502 224	297 776	
			<u>502 224</u>		
	2.9	Pension Fund		7 239 127	
	2.10	Contributory Provident Fund		12 406 491	
24 614 585	2.11	General Provident Fund		7 325 573	28 415 037
				<u>7 325 573</u>	
	3.	<i>Loan From Govt for:</i>			
	3.1	Conveyance Advances		343 750	
	3.2	House Building Loans		2 020 234	
1 234 791	3.3	Flats for Bombay Employees		200 000	2 563 984
				<u>200 000</u>	
	4.	<i>Current Liabilities</i>			
	4.1	Advance Subscription (1979)		2 666 087	
	4.2	<i>Sundry Creditors</i>			
	a)	Inland	1 249 543		
	b)	Abroad	343 282		
	c)	Earnest Money	73 306	1 666 131	
			<u>1 249 543</u>		
			<u>343 282</u>		
			<u>73 306</u>		
41 675 462		CARRIED OVER		4 332 218	51 636 765
				<u>4 332 218</u>	

AT 31 MARCH 1979 — *Contd*

## A S S E T S

PREVIOUS YEAR Rs	SL No.		Rs	Rs	Rs
8 314 547		BROUGHT FORWARD		5 653 203	11 556 287
	c)	Addition during 1978-79		1 396 274	
				<u>7 049 477</u>	
3 892 360	d)	<i>Less: Depreciation w/o</i>			
	i)	Up to 1978-03-31	1 771 114		
	ii)	During 1978-79	<u>460 547</u>	2 231 661	4 817 816
	1.8	<i>Furniture and Equipment</i>			
	a)	As per cost value up to 1978-03-31		3 011 205	
	b)	<i>Deduct: Cost of Assets</i>			
	i)	Transferred to EDP A/c	41 133		
	ii)	Disposed of	<u>1 460</u>	42 593	
				<u>2 968 612</u>	
	c)	Additions during 1978-79 (including Rs 8 985 from S & T Projects A/c and Rs 52 735 from EDP A/c)		691 455	
				<u>3 660 067</u>	
	d)	<i>Less: Depreciation w/o</i>			
	i)	Up to 1978-03-31	1 305 419		
	ii)	During 1978-79	<u>314 659</u>		
			1 620 078		
1 705 786	iii)	<i>Deduct: Depreciation on Assets disposed of dur- ing 1978-79</i>	1 106	1 618 972	2 041 095
	1.9	<i>Vehicles</i>			
	a)	As per cost value up to 1978-03-31		292 799	
	b)	<i>Deduct: Cost of vehicles dis- posed of during 1978-79</i>		16 306	
				<u>276 493</u>	
	c)	Addition during 1978-79		78 978	
13 912 693		CARRIED OVER		355 471	18 415 198

(Continued)

**BALANCE SHEET AS****LIABILITIES**

PREVIOUS YEAR Rs	SL No.		Rs	Rs	Rs
41 675 462		BROUGHT FORWARD		4 332 218	51 636 765
	4.3	Due to Steel Authority of India (A/c IPSSI Scheme)		14 057	
3 585 254	4.4	Due to Ministry of External Affairs (A/c ITEC Trainees)		12 336	4 358 611

45 260 716

CARRIED OVER

55 995 376

AT 31 MARCH 1979 — *Contd*

## A S S E T S

PREVIOUS YEAR Rs	SL No.		Rs	Rs	Rs
13 912 693		BROUGHT FORWARD		355 471	13 415 198
	d)	<i>Less: Depreciation w/o</i>			
	i)	Up to 1978-03-31	151 611		
	ii)	During 1978-79	28 238		
			<u>179 849</u>		
141 188	iii)	<i>Deduct: Depreciation on vehicles disposed of during 1978-79</i>	15 409	164 440	191 031
	1.10	<i>Library Books</i>			
	a)	As per last Balance Sheet		482 169	
	b)	<i>Deduct: Cost of books w/o during 1978-79</i>		1 676	
				<u>480 493</u>	
482 169	c)	Addition during 1978-79 (including Rs 7 220 out of S & T Projects A/c)		109 926	590 419
	2.	<i>Investments (at cost)</i>			
	2.1	Deposit with Banks	625 000		
	2.2	Shares of ISI Employees Consumers Co-op Store	7 500		
	2.3	Shares of Jay Engg Works (A/c K. L. Moudgill Prize Fund)	11 400	643 900	
				<u>7 239 127</u>	
	2.4	Pension Fund		12 406 491	
	2.5	Contributory Provident Fund		7 325 573	27 615 091
22 980 314	2.6	General Provident Fund			
	*3.	<i>Current Assets</i>			
	3.1	Stock of Printing Paper (at cost)		511 320	
	3.2	<i>Sundry Debtors</i>			
	a)	Sale of Publications	477 734		
	b)	Bulletin Advertisements	81 319		
1 153 243	c)	Licence, Inspection Charges, etc	123 890	682 943	1 194 263
	4.	<i>Loans and Advances</i>			
	4.1	<i>Loans</i>			
	a)	Conveyance	184 500		
	b)	House Building	1 428 076	1 612 576	
38 669 607		CARRIED OVER		1 612 576	48 006 002

\*The value of closing stock of Indian Standards has not been included.

(Continued)

## BALANCE SHEET AS

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**LIABILITIES**

PREVIOUS YEAR Rs	SL NO.		Rs	Rs	Rs
45 260 716		BROUGHT FORWARD			55 995 376

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45 260 716**TOTAL**

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55 995 376

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# APPENDIX B

## Principal Officers of INDIAN STANDARDS INSTITUTION

(As on 31 March 1979)

President, ISI and General Council (GC)	SHRI MOHAN DHARIA Union Minister of Commerce, Civil Supplies and Cooperation
Vice-President, ISI and Chairman, Executive Committee (EC)	SHRI D. C. KOTHARI
Vice-President, ISI and Chairman, Finance Committee (FC)	SHRI HARISH MAHINDRA
Director General, ISI	DR A. K. GUPTA

### DIVISION COUNCILS

<i>Agricultural and Food Products (AFDC)</i> Chairman	DR M. S. SWAMINATHAN
Vice-Chairman	DR N. A. RAMAIAH
<i>Chemical (CDC)</i> Chairman	DR S. P. VARMA
Vice-Chairman	SHRI S. RAMASWAMY
<i>Civil Engineering (CEDC)</i> Chairman	SHRI Y. K. MURTHY
Vice-Chairmen	PROF DINESH MOHAN SHRI I. P. KAPILA
<i>Consumer Products and Medical Instruments (CMIDC)</i> Chairman	COL R. D. AYYAR
Vice-Chairman	BRIG JOGINDER SINGH
<i>Electronics and Telecommunication (LTDC)</i> Chairman	MAJ-GEN K. K. MEHTA
Vice-Chairman	SHRI T. V. SRIRANGAN
<i>Electrotechnical (ETDC)</i> Chairman	SHRI J. S. ZAVERI
Vice-Chairman	SHRI P. C. MANKODI
<i>Marine, Cargo Movement and Packaging (MCPDC)</i> Chairman	SHRI S. PARAMANANDHAN
Vice-Chairmen	SHRI A. RAY CAPT N. A. TAMHANE
<i>Mechanical Engineering (EDC)</i> Chairman	MAJ-GEN R. JANARDHANAM
Vice-Chairman	SHRI ABHIJIT SEN
<i>Petroleum, Coal and Related Products (PCDC)</i> Chairman	DR D. BANERJEE
Vice-Chairman	DR J. S. AHLUWALIA

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### *Structural and Metals (SMDC)*

Chairman  
Vice-Chairmen

SHRI J. G. KESWANI  
SHRI M. DHAR  
PROF V. A. ALTEKAR

### *Textile (TDC)*

Chairman  
Vice-Chairman

SHRI G. K. DEVARAJULU  
SHRI D. N. SHROFF

## ADVISORY COMMITTEES

### *Certification Marks (CMAC)*

Chairman

—

### *Implementation of Indian Standards (ACI)*

Chairman

DIRECTOR GENERAL, SUPPLIES AND  
DISPOSALS, NEW DELHI

### *Industrial Safety (ISAC)*

Chairman

SHRI A. K. CHAKRABARTY

### *Consumer (CACS)*

Chairman

—

### *Environmental Protection (EPAC)*

Chairman

DR B. P. PAL

### *Ahmadabad Branch Office*

Chairman

SHRI N. VITTAL

### *Bangalore Branch Office*

Chairman

DR S. M. PATIL

### *Calcutta Branch Office*

Chairman

SHRI B. K. JHAWAR

### *Hyderabad Branch Office*

Chairman

SHRI K. S. R. MURTHY

### *Kanpur Branch Office*

Chairman

SHRI INDER SINGH

### *Madras Branch Office*

Chairman

SHRI D. C. KOTHARI

### *Patna Branch Office*

Chairman

INDUSTRIAL DEVELOPMENT COMMISSIONER,  
INDUSTRIES DEPARTMENT, BIHAR

## S T A F F

(As on 31 March 1979)

Director General	: DR A. K. GUPTA
Additional Director General	: SHRI Y. S. VENKATESWARAN
Deputy Directors General	: SHRI A. P. BANERJI } HEADQUARTERS SHRI A. S. CHEEMA } SOUTHERN REGION SHRI S. SRINIVASAN } SHRI RAM D. TANEJA (Officiating)
<b>Agricultural &amp; Food Products Department</b> Director	SHRI T. PURNANANDAM
<b>Chemical Department</b> Director	DR G. M. SAXENA
<b>Civil Engineering Department</b> Director	SHRI D. AJITHA SIMHA
<b>Consumer Products &amp; Medical Instruments Department</b> Director	SHRI SOM PRAKASHA
<b>Electronics &amp; Telecommunication Department</b> Deputy Director/Head	SHRI R. C. JAIN
<b>Electrotechnical Department</b> Director	SHRI S. P. SACHDEV
<b>Marine, Cargo Movement &amp; Packaging Department</b> Director	SHRI P. S. DAS
<b>Mechanical Engineering Department</b> Deputy Director/Head	SHRI S. CHANDRASEKHARAN
<b>Petroleum, Coal &amp; Related Products Department</b> Director	SHRI M. S. SAXENA
<b>Structural &amp; Metals Department</b> Director	SHRI C. R. RAMA RAO
<b>Textile Department</b> Director	SHRI S. M. CHAKRABORTY
<b>Accounts Department</b> Director	SHRI G. V. RAMASUBBAN
<b>Personnel Management</b> Secretary	SHRI C. K. BASU
<b>Legal Cell</b> Director	SHRI GIRDHARI LAL
<b>General Services</b> Director	SHRI K. P. KHANNA
<b>Central Marks Department</b> Directors	DR HARI BHAGWAN SHRI R. I. MIDHA
<b>Certification Marks Department (Delhi)</b> Deputy Director/Head	SHRI E. N. SUNDAR

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**Implementation Department**

Director

SHRI S. R. KUPPANNA

**Laboratory**

Director

DR S. GHOSH

**Library**

Deputy Director

SHRI V. P. VIJ

**Public Relations Department**

Deputy Director

SHRI J. K. BHAVNANI

**Publications Department**

Director

SHRI GURCHARAN SINGH

**Statistics Department**

Director

DR B. N. SINGH

**Technical Information Service**

Director

SHRI S. P. RAMAN

**Eastern Regional Office**

Director

Director, Certification Marks

SHRI H. P. GHOSE

SHRI S. P. BATTOO

**Southern Regional Office**

Director, Certification Marks

Director

SHRI S. SUBRAHMANYAN

SHRI M. RAGHUPATHY

**Western Regional Office**

Director

SHRI C. B. CHANDORKAR

**Ahmadabad Branch Office**

Director

KM H. N. MYTHILI

**Bangalore Branch Office**

Director

SHRI N. SRINIVASAN

**Bhopal Branch Office**

Deputy Director/Head

SHRI M. MURUGKAR

**Bhubaneshwar Branch Office**

Deputy Director/Head

SHRI N. K. RAMASWAMY

**Chandigarh Branch Office**

Deputy Director/Head

SHRI G. S. VILKHU

**Hyderabad Branch Office**

Director

SHRI G. RAMAN

**Jaipur Branch Office**

Deputy Director/Head

SHRI T. S. SUBRAMANIAN

**Kanpur Branch Office**

Deputy Director/Head

SHRI B. C. KAPUR

**Patna Branch Office**

Director

SHRI S. K. KARMAKAR

**Trivandrum Branch Office**

Deputy Director/Head

SHRI P. VENKATARAMAN