

INDIAN STANDARDS INSTITUTION (ISI)

FIFTH  
ANNUAL REPORT

APRIL 1951 — MARCH 1952



19 UNIVERSITY ROAD  
DELHI 8

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# INDIAN STANDARDS INSTITUTION

1951-52

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**SHRI HAREKRUSHNA MAHTAB**  
MINISTER FOR COMMERCE AND INDUSTRY, GOVERNMENT OF INDIA

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**DR. K. S. KRISHNAN**  
DIRECTOR, NATIONAL PHYSICAL LABORATORY, NEW DELHI

**LALA SHRI RAM**  
20, CURZON ROAD, NEW DELHI

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### *Chairman*

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ALL-INDIA MANUFACTURERS' ORGANIZATION, BOMBAY

### *SWCE Vice-Chairman*

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### *SWCT Chairman*

**SHRI BHARAT RAM**

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### *SWCC Vice-Chairman*

**DR. A. NAGARAJA RAO**  
INDUSTRIAL ADVISER (CHEMICALS)  
DEVELOPMENT WING, MINISTRY OF COMMERCE & INDUSTRY

## STAFF

### *Director*

**DR. LAL C. VERMAN**

### *Technical Staff*

Deputy Director (Chem)	... DR. K. L. MOUDGILL	Deputy Director (Eng)	... J. P. MEHROTRA
Assistant Director (Tex)	... MAHARAJ KISHEN	Assistant Director (Bldg)	... C. S. CHANDRASEKHARA
Secretary (Pub)	... JAINATH KAUL	Technical Officer	... A. B. RAO
Technical Officer	... S. K. SEN	Technical Officer	... M. V. PATANKAR
Technical Officer	... D. DAS GUPTA	Technical Assistant	... T. BALAKRISHNAN
Technical Assistant	... S. P. BATTOO	Librarian	... G. L. GULATI

### *Administrative Staff*

Secretary (Administration) ... B. L. BHATIA  
Superintendent ... HARBANS LAL

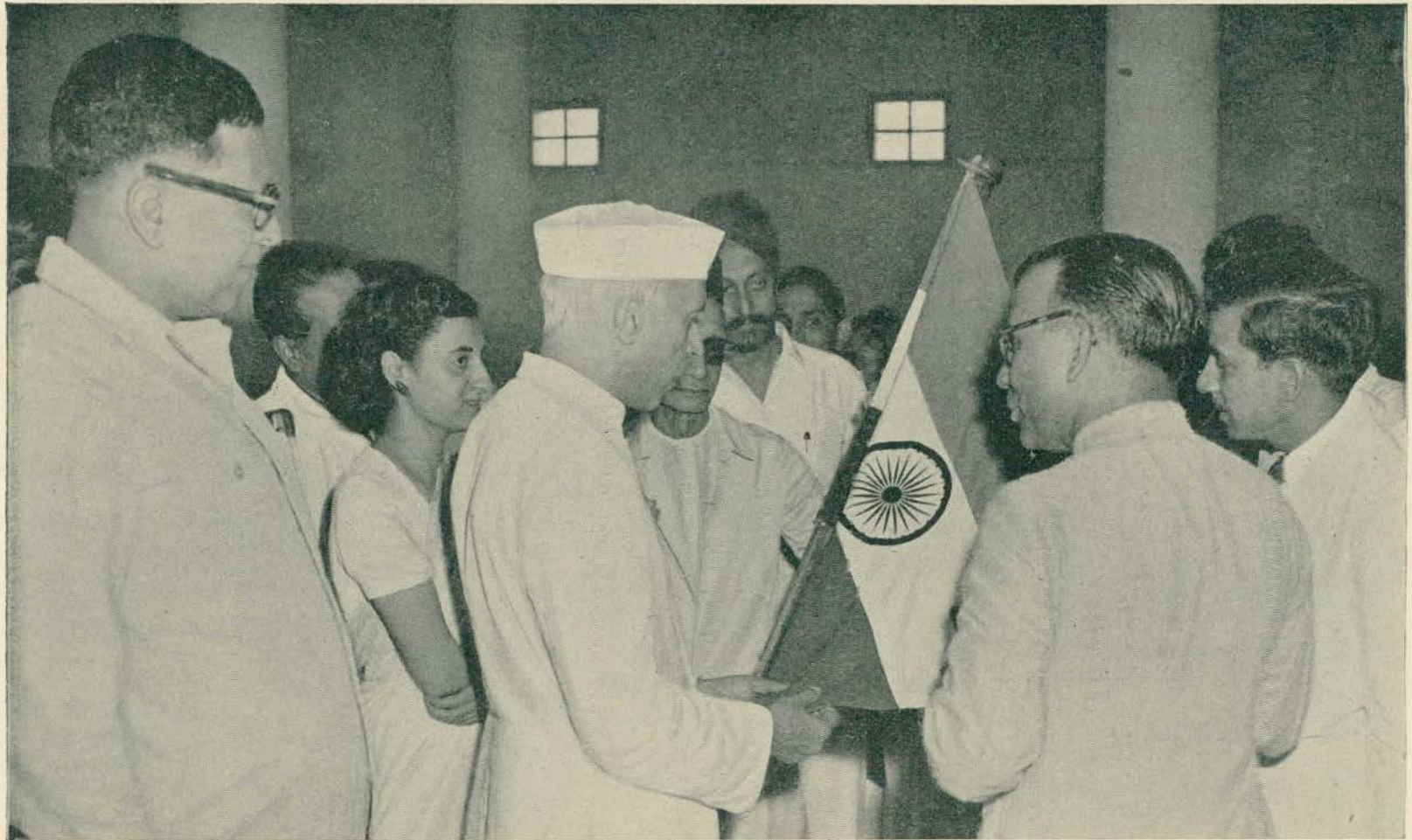
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A NATIONAL FLAG OF INDIA, PREPARED IN CONFORMITY WITH IS : 1-1951 INDIAN STANDARD SPECIFICATION FOR THE NATIONAL FLAG OF INDIA (COTTON KHADI), WAS PRESENTED TO THE PRIME MINISTER AT THE ISI HEADQUARTERS ON 10 AUGUST 1951. THE PICTURE SHOWS THE PRIME MINISTER EXAMINING THE FLAG AFTER THE PRESENTATION CEREMONY. STANDING (FROM L TO R) ARE SHRI HAREKRUSHNA MAHTAB, PRESIDENT, ISI; DR. K. S. KRISHNAN, VICE-PRESIDENT, ISI AND CHAIRMAN, EXECUTIVE COMMITTEE (STANDING BEHIND SHRIMATI INDIRA GANDHI); PRIME MINISTER; LALA SHRI RAM, VICE-PRESIDENT, ISI; DR. LAL C. VERMAN, DIRECTOR; SHRI BHARAT RAM, CHAIRMAN, TEXTILE DIVISION COUNCIL AND THE NATIONAL FLAG SECTICNAL COMMITTEE

## CONTENTS

	PAGE
0. LIST OF ABBREVIATIONS USED IN THE INSTITUTION ... ..	iii
1. GENERAL ... ..	1
2. DIRECTORATE ... ..	1
2.1 Accommodation ... ..	1
2.2 Staff ... ..	2
2.3 Organization ... ..	2
3. GENERAL COUNCIL ... ..	2
4. EXECUTIVE COMMITTEE ... ..	3
5. FINANCE COMMITTEE ... ..	3
6. MEMBERSHIP ... ..	3
7. DIVISION COUNCILS ... ..	3
7.1 Creation of New Division Councils ... ..	3
7.1.1 Building Division Council ... ..	3
7.1.2 Certification Marks Division Council ... ..	4
7.2 Activities of the Existing Division Councils and the Standing Working Committees ... ..	5
7.2.1 Engineering Division Council ... ..	5
7.2.2 Textile Division Council ... ..	6
7.2.3 Chemical Division Council ... ..	6
7.3 Meetings of Committees and Subcommittees ... ..	8
8. PROGRESS OF STANDARDS ... ..	8
9. IMPLEMENTATION OF INDIAN STANDARDS ... ..	13
10. CONFERENCE OF DIRECTORS OF INDUSTRIES ... ..	15
11. LABORATORY FACILITIES ... ..	15
12. INTERNATIONAL ACTIVITIES ... ..	17
12.1 ISO/TC Secretariat for Lac and Mica ... ..	17
12.2 Other ISO Conferences ... ..	18
12.2.1 ISO Council ... ..	18
12.2.2 DDE's Tour Abroad ... ..	18
12.2.3 DDC's Tour Abroad ... ..	18
12.2.4 Other Delegations Abroad ... ..	18
12.3 International Electrotechnical Commission ... ..	19
13. RELATIONS WITH COMMONWEALTH AND OTHER OVERSEAS COUNTRIES ... ..	19
14. ISI CERTIFICATION MARKS ... ..	21
15. PLANNING COMMISSION ... ..	21
16. OTHER ACTIVITIES ... ..	22
16.1 Exhibitions ... ..	22
16.2 International Statistical Conferences ... ..	22
16.3 Symposium on the 'Social Relations of Sciences' ... ..	22
16.4 Symposium on 'Development of Fine Chemicals and Pharmaceuticals in India' ... ..	22
16.5 Rotary Club of Jamshedpur ... ..	22
16.6 Modi Textile Staff Club ... ..	22
16.7 Textile Association (India) ... ..	22
16.8 Banaras Hindu University ... ..	22
16.9 Other Meetings ... ..	22

	PAGE
16.10 ISI Club ... ..	22
16.11 Distinguished Visitors ... ..	22
17. LIBRARY ... ..	23
18. PUBLICATIONS ... ..	24
18.1 Standards ... ..	24
18.2 ISI Bulletin ... ..	24
18.3 ISI Handbook of Publications ... ..	24
18.4 Information Folder ... ..	24
18.5 Articles Published in other Journals ... ..	24
18.6 Press Notes ... ..	24
18.7 Sale of Standards ... ..	24
19. FINANCE ... ..	25
20. APPENDICES ... ..	27
20.1 Members of the General Council ... ..	27
20.2 Members of the Executive Committee ... ..	28
20.3 Members of the Finance Committee ... ..	28
20.4 List of Subscribing Members ... ..	29
20.5 Contributions and Subscriptions by the Central and State Governments, Firms, Traders and Individuals for the Calendar Year 1951 ... ..	36
20.6 Members of the Building Division Council ... ..	37
20.7 Members of the Engineering Division Council ... ..	38
20.8 Members of the Textile Division Council ... ..	40
20.9 Members of the Chemical Division Council ... ..	42
20.10 Sectional Committees and Subcommittees of the ISI under the EC, EDC, TDC, CDC and BDC; Their Chairmen and Meetings ... ..	43
20.11 Indian Standards in Different Stages of Drafting ... ..	48
20.12 Standards and Technical Journals received in ISI Library ... ..	53
20.13 Indian Standards Published and in Press ... ..	55
20.14 Audited Accounts for the Year 1951-52 ... ..	60

## 0. LIST OF ABBREVIATIONS USED IN THE INSTITUTION

ADB	Assistant Director ( Building )
ADT	Assistant Director ( Textiles )
BDC	Building Division Council
BFC	Building Fund Committee
BL 10	Bye-Law 10 of ISI
CDC	Chemical Division Council
CM	Committee Member of ISI
CSO	Central Standards Office, Railway Board
DC	Division Council(s)
DDB	Deputy Director ( Building )
DDC	Deputy Director ( Chemicals )
DDE	Deputy Director ( Engineering )
DG S & D	Director ( Directorate ) General, Supplies & Disposals
Doc: D(6)	Document No. 6 concerning Directorate of ISI
Doc: GC(4)	Document No. 4 concerning GC activities
Doc: TDC 6(58)	Document No. 58 concerning TDC 6 activities
DR	Director
EC	Executive Committee
EDC	Engineering Division Council
FC	Finance Committee
GC	General Council
IEC	International Electrotechnical Commission
IE(I)	Institution of Engineers ( India )
INC-IEC	Indian National Committee of IEC
IS	Indian Standard
IS: 2-1949	Indian Standard No. 2 adopted in 1949
ISI	Indian Standards Institution
ISO	International Organization for Standardization
ISO(GS)	General Secretariat of ISO
ISO/TC	Technical Committee of ISO
ISO/TC 56	Technical Committee 56 of ISO
Lib	Library ( Librarian )
MA 3	Memorandum of Association of ISI, para 3
MDC	Certification Marks Division Council
OM	Ordinary Member of ISI
' P ' Member	Member Body of ISO participating actively in an ISO/TC
RR 6	Rules and Regulations of ISI, para 6
SA	Secretary ( Administration )
SC	Sectional Committee, generally
SM	Sustaining Member of ISI
SM(A)	Sustaining Member ( Associate ) of ISI
SP	Secretary ( Publications )
Sub	Subcommittee, generally
Supt	Superintendent
SWCC	Standing Working Committee of CDC
SWCE	Standing Working Committee of EDC
SWCT	Standing Working Committee of TDC
TA	Technical Assistant
TDC	Textile Division Council
TDC 6	Sectional Committee 6 of TDC
TDC 6: 3	Subcommittee 3 of TDC 6
TDC 5: 2/A	Administrative file of TDC 5: 2
TDC 5: 2/3.1T	Technical file concerning subject No. 3.1 assigned to TDC 5: 2
TO	Technical Officer
UDC	Universal Decimal Classification
' O ' Member	Member Body of ISO interested to receive documents of an ISO/TC
' N ' Member	Member Body of ISO not interested in the work of an ISO/TC

# FIFTH ANNUAL REPORT

OF THE

## INDIAN STANDARDS INSTITUTION

(1951-52)

### 1. GENERAL

**1.1** Tenth August 1951 was a notable day in the history of the ISI when the Prime Minister of India, Shri Jawaharlal Nehru, very kindly visited it on an invitation from the President of the ISI, Shri Harekrushna Mahtab, and received a National Flag of India, prepared in accordance with 'IS: 1-1951 Indian Standard Specification for the National Flag of India (Cotton Khadi)'. The presentation of the Flag was made by the President and Shri Bharat Ram, Chairman of the TDC and the National Flag Sectional Committee, TDC 8, at a simple but impressive ceremony, witnessed by distinguished visitors, including local subscribing members, members of the General Council, the Executive Committee and the National Flag Sectional Committee and others. The Prime Minister was shown round the premises of the Directorate and he took keen interest in all phases of work of the Institution, particularly in the international activities and in the exhibits of samples of some of the materials so far standardized or under consideration for standardization.

**1.2** Another notable event which took place during the year under review was that of the passing of the Indian Standards Institution (Certification Marks) Act 1952 by the Union Parliament. The passage of this measure through the Parliament is an indication of the public confidence that this Institution has earned.

**1.3** It is a matter of satisfaction for the Directorate that the Institution has succeeded in enlisting the active co-operation of some 2,700 experts, representing the country's divergent interests of trade, commerce, industry, technology and consumers, who are ceaselessly working in developing standards for the 300 technical committees of the ISI. During the year, the membership of the Institution rose from 684 to 758, and the income from subscription from Rs 1.87 lakhs to Rs 2.06 lakhs.

**1.4** Progress in standardization during the year, which is reported in detail in the following pages, may be summed up by stating that by 31 March 1952, 291 standards had been published and 101 were under print or ready for the press, while the number of draft standards in circulation for eliciting views and comments was 83.

**1.5** The sale figure of Indian Standards was Rs 29,000/- as against last year's Rs 20,000/-.

**1.6** In the international field, the member bodies of the International Organization for Standardization re-elected India to its governing Council for another term of three years.

**1.7** The Institution takes pleasure in acknowledging with pride and gratitude the co-operation and assistance it received from its contributing members, as also from many other bodies and individuals, in response to the exacting demands made on their time and attention in connection with the work of the ISI.

### 2. DIRECTORATE

**2.1 Accommodation**—In pursuance of the GC's decision of 17 March 1951 to create a Building Fund Committee, the Executive Committee decided in June 1951 that the President be requested to be the Chairman of the Committee, with prominent industrialists as its members.

The General Council considered on 20 March 1952 the replies received from prominent industrialists in India who were addressed by the President, requesting them to accept the membership of the ISI Building Fund Committee (BFC) and, on the recommendation of the Executive Committee, formed the BFC with the following composition:

#### *Chairman*

Shri Harekrushna Mahtab, Minister for Commerce and Industry (*Ex-officio*),

#### *Members*

- 1) Shri K. A. D. Naoroji, Director, Tata Industries Ltd.,
- 2) Shri D. C. Driver, Calcutta,
- 3) Shri C. M. Kothari, Chairman, Federation of Indian Chambers of Commerce and Industry,
- 4) Mr. Elliott Lockhart, Chairman, Bengal Chamber of Commerce,
- 5) Shri K. D. Jalan, Chairman, Indian Jute Mills Association,
- 6) Shri E. A. Nadirshah, Chief Engineer, The Concrete Association of India, and
- 7) Shri B. M. Birla.

The GC also authorized the Chairman to co-opt such additional members as he might consider necessary.

As a result of Shri C. M. Kothari's circular letter, the following parties donated as under, making a



total collection of Rs 2,04,752/-, including Rs 2 lakhs transferred from the ISI funds:

- |                                                              |                                                                                         |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) Indian Colliery Owners' Association, Dhanbad              | Donated coal required for the purpose of manufacturing bricks to construct the building |
| 2) Indian Chemical Manufacturers' Association, Calcutta      | Rs 1,001/-                                                                              |
| 3) Engineering Association of India, Calcutta                | Rs 1,000/-                                                                              |
| 4) Plywood Manufacturers' Association of India, Calcutta     | Rs 1,000/-                                                                              |
| 5) Indian Sugar Mills Association, Calcutta                  | Rs 1,000/-                                                                              |
| 6) Indian Confectionary Manufacturers' Association, Calcutta | Rs 501/-                                                                                |
| 7) Indian Electrical Manufacturers' Association, Calcutta    | Rs 250/-                                                                                |

A request had been made to the Central Government to allow rebate of income-tax on contributions made to the ISI Building Fund.

With regard to land for erection of office building, the Town Planning Committee of the Chief Commissioner, Delhi, recommended allotment of four acres of land near Hardinge Bridge in New Delhi. The proposal, which had been scrutinized by the Ministry of Commerce and Industry, is awaiting sanction of the Ministry of Finance of the Government of India.

The problem of finding residential accommodation for the ISI staff continues to be acute. In pursuance of the Executive Committee's decision, the Government of India has been requested to restore the privilege of sharing in the general pool for residential accommodation previously enjoyed by the permanent staff of the ISI. As a further step towards acquiring suitable land for residential accommodation, the employees of the Directorate formed a Co-operative House Building Society. An application for allotment of land has been sent by the Society to the Secretary, Ministry of Works, Production and Supply.

**2.2 Staff**—The following changes occurred during the year:

- Dr. Lal C. Verman, Director, ISI, was appointed Honorary Adviser, Standardization, Government of India, in the Ministry of Commerce and Industry, with effect from 1 May 1951.
- Shri C. S. Chandrasekhara, Assistant Director (Building), took charge of his office on 1 December 1951.
- At the request of the Central Planning Commission, the services of Shri K. Vyasulu, Technical Officer (Chemicals), were extended for a further period of one year ending 28 February 1953.

- The period of service of Shri D. Das Gupta, Technical Officer (Chemicals), who was recruited temporarily in place of Shri K. Vyasulu, was extended up to 28 February 1953.

On 31 March 1952, the position of the ISI staff was as shown in Table I.

**TABLE I STAFF POSITION ON 31 MARCH 1952**

DESIGNATION	SANCTIONED	RECRUITED
Director	1	1
Deputy Director	4	2
Assistant Director	4	2
Secretary	2	2
Technical Officer	8	4
Superintendent	2	1
Technical Assistant	2	2
Librarian	1	1
Clerical Staff	67	57
Others (Peons, etc)	26	22
<b>TOTAL</b>	<b>117</b>	<b>94</b>

**2.3 Organization**—There has been no substantial change in the set-up of the organization: which continues to be as reported last year, except that, with the appointment of the Assistant Director (Building), the work regarding the organization of Building Division Council was started in December 1951.

### 3. GENERAL COUNCIL (GC)

**3.1 Elections to the General Council**—An election was held by postal ballot for choosing representatives of the Sustaining Members of the Institution on the General Council for a period of three years. The following were re-elected:

- Associated Cement Companies Ltd., Bombay,
- Indian Jute Mills Association, Calcutta.

**3.2 Shri Harekrushna Mahtab**, the President, presided over the seventh meeting of the General Council, the composition of which is given in Appendix 20.1, held on 20 March 1952, at which Lala Shri Ram and Dr. K. S. Krishnan were re-elected as Vice-Presidents of the ISI for the year 1952-53 and Shri B. C. Munshaw was elected as the representative of the GC on the FC for a term of three years.

Budget estimates for the year 1952-53, along with the revised estimates for the year 1951-52, as recommended by the FC and approved by the EC, were sanctioned, and the ISI Building Fund Committee was constituted.

**3.3 Accepting the recommendations of the EC**, the GC approved of the composition of the Building Division Council (see Appendix 20.6) and decided that the BDC be inaugurated in April 1952.

**3.4 Tour Report of Deputy Director (Engineering)**—The GC adopted the brief report of the European tour of Shri J. P. Mehrotra, Deputy Director (Engineering).

**3.5 Commonwealth Standards Conference Report**—The GC accepted the recommendation

of the EC that the Government of India be advised to accept all such recommendations of the Commonwealth Standards Conference as required action by them, with a couple of exceptions, in which case no general advice by the ISI could be rendered, since action on those would depend on varying needs of different ministries of the Government.

**3.6 Increase in Membership Subscription** — The GC endorsed the view of the EC that, in view of the present market position in the country, it did not consider the present as opportune time for increasing the existing rates of membership fees.

#### 4. EXECUTIVE COMMITTEE ( EC )

**4.1** A list of members of the EC is given in Appendix 20.2. The EC met four times during the year, on 22 June, 8 September and 18 December 1951 and 19 March 1952. Among the decisions taken, the following are noteworthy.

**4.2 By-Laws** — The amendments to the By-laws proposed by the Directorate were approved.

**4.3 Contributory Provident Fund Rules** — The EC agreed to the adoption of the amendments to the ISI CPF Rules consequent to the amendments made by the Government of India in the CPF Rules, India.

**4.4 Discount on ISI Publications Sold to Technical Institutions** — It was decided to grant a cash discount of 40 percent on ISI publications sold to educational institutions.

**4.5 Five-Year Plan for Development of ISI** — The EC approved of the Five-Year Plan for the Development of the ISI prepared by the Directorate, and decided to forward it through the Ministry of Commerce and Industry to the Planning Commission.

**4.6 Food Grain Storage Structures** — The proposal received from the Government of India in the Ministry of Commerce and Industry regarding the setting up of a sectional committee to formulate Standard Codes of Practice for buildings and structures used for storage of food grains was approved.

**4.7 Directors of Industries Conference** — The EC approved of the proposal of convening a Conference of the Directors of Industries of all States in the Union to consider a number of subjects relating to standardization on national scale.

**4.8 International Conferences** — It was decided to send Dr. K. L. Moudgill, Deputy Director (Chemicals), to attend the meetings of several technical committees convened by the ISO in Europe in the months of October to December 1951.

**4.9 ISO/TC 10 Drawings (General Principles)** — The EC approved the nomination of Shri S. L. Kirloskar, Chairman of the EDC, as an Indian delegate to the first meeting of ISO/TC 10 Drawings (General Principles) held in September at Zurich.

**4.10 ISO General Assembly, Council, Commonwealth Standards Conference and other**

**ISO/TC Meetings** — The EC nominated the Director, Dr. Lal C. Verman, to represent the ISI on these meetings and further authorized him to nominate Indian delegations to these and other meetings, in consultation with the ISI sectional committees concerned.

**4.11 Fiftieth Anniversary of ASTM** — The EC agreed that the Director should officially represent the ISI at the 50th Anniversary of the ASTM to be held in June 1952.

**4.12 International Electrotechnical Commission ( IEC )** — The EC accorded formal approval to the nomination of an Indian delegation to the meetings of certain technical committees of the IEC at the Estoril session.

#### 5. FINANCE COMMITTEE

**5.1** The composition of the Finance Committee is given in Appendix 20.3. It held three meetings during the period under review, on 7 September and 17 December 1951, and 19 March 1952, and dealt with financial matters.

#### 6. MEMBERSHIP

**6.1** The number of subscribing members increased during the year from 684 to 758. The list of subscribing members is given in Appendix 20.4. Fig 1 shows the growth of membership.

The detailed figures for gains and losses in membership and the net position as on 31 March 1952 is given in Table II.

**6.2** In the year under review, out of 94 Sustaining Members, whose names were removed due to resignation or non-payment of dues, the Directorate, through its repeated efforts, was able to bring back 61, leaving a net loss of 33 only. Enquiries made from the remaining parties revealed that the prevailing economic conditions in the country were chiefly responsible for their withdrawal.

**6.3** In spite of these losses, the statement shows a net gain of 74 members which is encouraging. Appendix 20.5 includes a list of all such members who contributed more than the prescribed minimum. In the year 1951, the subscription collected exceeded Rs 2,06,200/- against the previous years' figures of Rs 95,600/- in 1947, Rs 1,15,900/- in 1948, Rs 1,53,100/- in 1949 and Rs 1,86,500/- in 1950.

#### 7. DIVISION COUNCILS

##### 7.1 Creation of New Division Councils

**7.1.1 Building Division Council ( BDC )** — It was reported last year that to meet the insistent demand for the creation of this Division Council, the General Council had made a fresh request to the Government of India for a special grant of Rs 50,000/-. An Assistant Director ( Building ) was appointed on 1 December 1951 to take up the work connected with the Building Division. The grant from the Government, however, did not materialize until the Five-Year Plan for the development of ISI was accepted in part by the

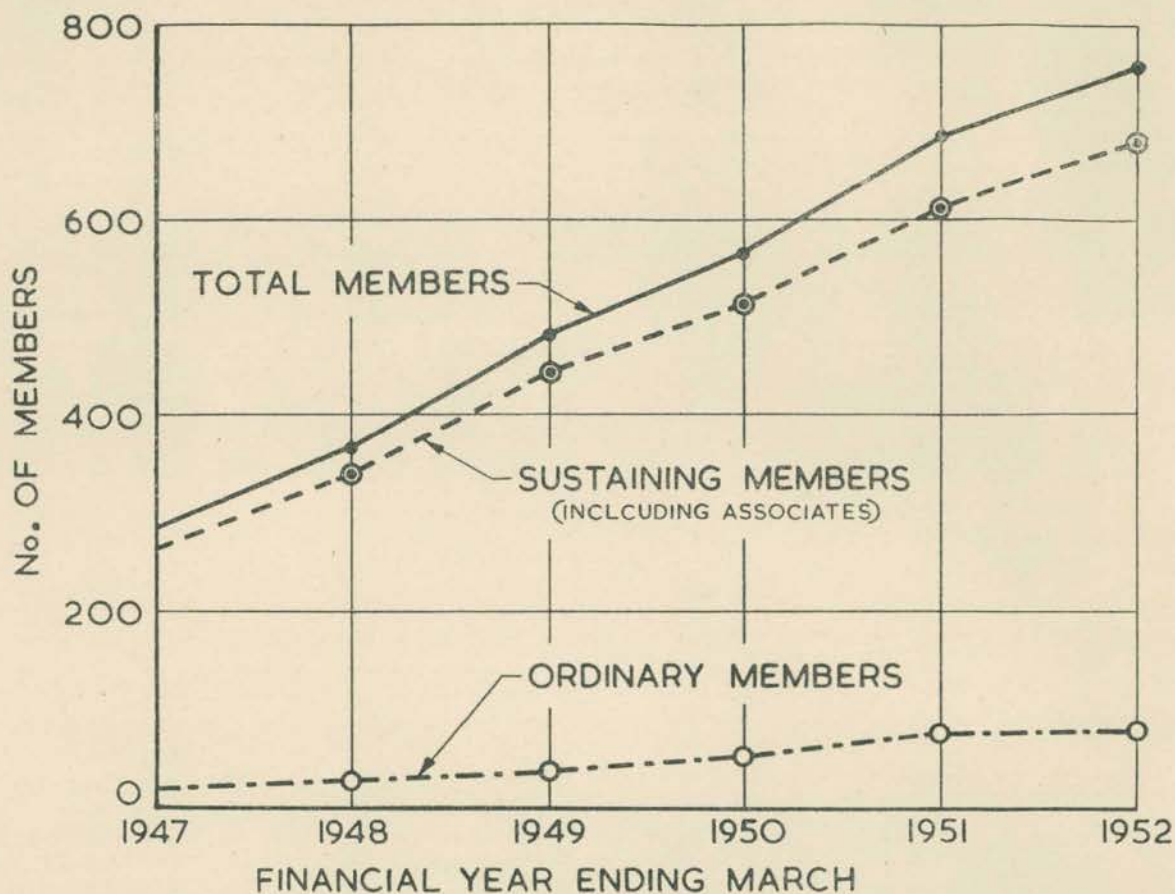


FIG 1 GROWTH OF MEMBERSHIP

TABLE II MEMBERSHIP IN 1951-52

CLASS OF MEMBERSHIP	MEMBERSHIP		LOSSES DUE TO			ADDITION BY			NET INCREASE
	1 April 1951	31 March 1952	Resignation	Non-payment	Total	Admission	Reinstatement	Total	
Sustaining Members	586	647	36	58	94	94	61	155	61
Sustaining Members (Associates)	27	33	1	8	9	11	4	15	6
Ordinary Members	71	78	6	16	22	20	9	29	7
TOTAL	684	758	43	82	125	125	74	199	74

Planning Commission. An enhanced grant-in-aid of Rs 4,20,000/- for the year 1952-53 has been sanctioned which would enable ISI to embark on the new projects contained in the Five-Year Plan, the Building Division Council being one of them. The GC at its meeting held on 20 March 1952 directed that the BDC should be inaugurated in April 1952, and approved its composition given in Appendix 20.6.

**7.1.2 Certification Marks Division Council (MDC)** — It was stated in the last year's report that in anticipation of the enactment of the ISI Certification Marks Bill in the form it was pre-

sent to the Parliament, the GC had finalized the composition of the MDC. However, the Select Committee of the Parliament which scrutinized the Bill decided that the provision for the creation of the Marks Division Council was not necessary in the Act inasmuch as the setting up of an effective machinery for the Act was an administrative problem of the Institution which could, with better justification, come within the purview of the rule-making power of the Central Government.

In view of this amendment, the EC recommended to the GC that the formal inauguration of the

Marks Division Council should be postponed to a later date until rules were framed by the Central Government and the position was known if the establishment of the Council was called for, and that an *ad hoc* committee be set up to advise the Directorate during the preliminary stages. The GC accepted the proposal and authorized the EC to set up a special committee. The rule-making power under the ISI Certification Marks Act is vested in the Central Government. Should the rule provide for the creation of the MDC, it will be necessary to re-examine the question.

## 7.2 Activities of the Existing Division Councils and the Standing Working Committees

**7.2.1 Engineering Division Council (EDC)**—The composition of the Engineering Division Council is given in Appendix 20.7.

The EDC held its fourth meeting on 18 March 1952 under the chairmanship of Shri S. L. Kirloskar.

The following were the more important decisions taken by the Council:

- a) Elected Prof. M. S. Thacker, Director, Indian Institute of Science, as its representative on the GC in place of Prof. S. K. Roy, retired.
- b) Enlarged the membership of the SWCE by the addition of the following members:
  - i) Shri K. G. Khosla (All-India Manufacturers' Organization)
  - ii) Col. A. G. C. Northcroft (Directorate of Technical Development, Army Headquarters)
  - iii) Shri Jang Bir Singh (Development Wing, Ministry of Commerce and Industry)
  - iv) Prof. S. K. Roy (Engineering Association of India)
  - v) Mr. H. Gibson (Indian Engineering Association)
- c) Recommended to the GC that the subject of Asbestos Products included in the scope of the BDC be split up into (i) those of interest to buildings, such as asbestos cement sheets, pipes, etc., and (ii) those of interest to engineering industries, such as asbestos textiles, asbestos hydraulic and steam packings, asbestos jointings, asbestos brake linings, asbestos woven tape for electrical purposes, and asbestos for thermal insulation, the former group of products to remain within the scope of the BDC and the latter group to be assigned to EDC.
- d) Directed the INC-IEC to consider, when convenient, the question of standardizing electrical instruments in general and energy meters in particular.
- e) Elected the Director, National Physical Laboratory of India, New Delhi, or his alternate on the EDC, to represent it on the Sieves Sectional Committee of the BDC.
- f) Approved of the nomination of the following Indian delegates to attend the meetings of ISO Technical Committees mentioned against each to be held in June 1952 in New York:

<i>Delegate</i>	<i>ISO/TC</i>
i) Shri Framroz D. Mehta	ISO/TC 1 Screw Threads
ii) Mr. Stanley Waggett	ISO/TC 39 Machine Tools
iii) Shri C. M. Rajgarhia (Chairman)	} ISO/TC 56 Mica
iv) Shri R. G. Aggarwala (Leader)	
v) Shri Chatturam Bhadani	
vi) Shri Baijnath Sharma	
vii) Shri C. V. Krishnaiah	
viii) Shri P. Kotta Reddy	
ix) Shri V. P. Sondhi	
x) Shri D. B. Sahana	
xi) Dr. Lal C. Verman (Spokesman)	

**SWCE** — The SWCE met twice, on 14 April 1951 and 28 January 1952. The following were the main decisions taken by it:

- a) Recommended acceptance of resignation of Shri N. P. Gandhi from the chairmanship of the Basic Non-Ferrous Metals Sectional Committee, and nominated Dr. N. Anjaneyulu, Superintendent, Development, Metallurgy, Ishapur, as his successor.
- b) Considered a number of new proposals for standardization. Details and the decisions taken on the proposals are indicated in Table III. Certain proposals were deferred partly on account of pressure of work in hand and partly because it was felt that the subjects proposed were not of immediate importance to the economy of the country.
- c) Set up the following new Sectional Committees with the proviso that the last two Sectional Committees be transferred to the BDC when inaugurated:
  - i) Oil Burning Domestic Appliances Sectional Committee (EDC 10)
  - ii) Internal Combustion Engines Sectional Committee (EDC 14)
  - iii) Safes Sectional Committee (EDC 22)
  - iv) Sanitary Appliances, Fittings and Practices and Domestic Water and Steam Fittings Sectional Committee
  - v) Sieves Sectional Committee

**INC-IEC** — During the period under report the INC-IEC held two meetings, one on 11 June 1951 and the other on 17 January 1952. Some of the more important decisions reached by the INC-IEC were as under:

- a) Recommended that the following subjects proposed by IEC/TC 32 Fuses should be taken up by a subcommittee of the existing IEC Technical Committee dealing with the subject of Insulation (IEC/TC 28):
  - i) Insulation for equipment for voltages not exceeding 1,000 V.
  - ii) Preparation of rules relating to temperature-rise common to all equipment, specifying:
    - 1) maximum permissible temperatures for various materials used in the manufacture of electrical equipment,

- 2) temperatures of cooling media, and
  - 3) conditions for heating test.
- b) Nominated the following delegation to attend the IEC meetings held in Estoril ( Portugal ) in September 1951:
- i) Prof. M. S. Thacker ( Indian Institute of Science, Bangalore )
  - ii) Mr. C. P. Storr [ Associated Electrical Industries ( India ) Ltd.]
  - iii) Shri B. K. Rohatgi ( India Electric Works Ltd.)
  - iv) Shri R. R. Joneja [ Philips Electrical Co. ( India ) Ltd.]
  - v) Shri J. P. Mehrotra [ Deputy Director ( Engineering ) ISI ]

Of these, however, only (iv) and (v) could go abroad to attend some of the IEC meetings. ( For details *please see* 12.3.2.)

- c) Appointed Prof. M. S. Thacker ( Director, Indian Institute of Science, Bangalore ) and Chairman of the Indian National Committee of the International Conference on Large Electric Systems ( INC-CIGRE ), as a representative of the ISI on the CIGRE.
- d) Nominated Shri J. P. Mehrotra, Deputy Director ( Engineering ), to represent the ISI on the INC-CIGRE.
- e) Accepted a number of additional subjects as per details given in Table III, for standardization.
- f) Appreciated the need for provision of adequate facilities for testing if satisfactory progress were to be made in the standardization of electrical materials, and recommended that the Indian Institute of Science, Bangalore, should set up adequate facilities for carrying out high current tests also.
- g) Realized the need for active participation of India in the standardization activities of the IEC in such fields as are of vital interest to the country, in view of its being an important consumer of electrical machinery, equipment and materials, and recommended closer association of the Central Water and Power Commission with the standardization activities of the IEC.
- h) Recommended admission of the Verband Deutscher Elektrotechniker ( VDE ) ( Association of Electrical Engineers of Germany ) to the membership of the IEC.
- j) Recommended the resumption of activities by the IEC Technical Committee 11 — Rules and Regulations for Overhead Lines.

**7.2.2 Textile Division Council (TDC)** — The composition of the TDC is given in Appendix 20.8. The TDC and its Standing Working Committee (SWCT) held no meeting during the year. Decisions of the SWCT and the Council on matters requiring their attention were, however, obtained

through circulation, those of importance being as under:

- a) Shri B. C. Munshaw was re-nominated on the GC to represent TDC.
- b) Dr. C. Nanjundayya, Director, Technological Laboratory, Indian Central Cotton Committee, Bombay, was recommended for appointment as Chairman of Textile Standards Sectional Committee ( TDC 1 ), *vice* Shri D. L. Sen who had retired from the service of Indian Central Cotton Committee.
- c) Shri C. S. Ramanathan of the Directorate of Technical Development, New Delhi, was recommended for appointment as Chairman of Handloom Cloth Sectional Committee ( TDC 13 ).
- d) Dr. V. B. Chipalkatti, Assistant Director, Textiles, Shri Ram Institute for Industrial Research, Delhi, was appointed as a member of (i) Textile Chemistry Sectional Committee ( TDC 5 ), (ii) National Flag Sectional Committee ( TDC 8 ), and (iii) Rayon and Rayon Products Sectional Committee ( TDC 10 ).
- e) The status of India's membership of the Subcommittee ISO/TC 38/SC 7 — Ropes and Cordages was changed from 'O' to 'P' category, and the name of Mr. J. S. Quin, President, Indian Rope Manufacturers' Association, Calcutta, was recommended for selection as India's delegate to the first meeting of ISO/TC 38/SC 7 held in Paris on 14 and 15 November 1951.

The proposals for formulation of standards on new subjects and the decisions taken on them are contained in Table III.

**7.2.3 Chemical Division Council (CDC)** — The composition of the CDC is given in Appendix 20.9.

During the year under review, the CDC and the SWCC held separately two meetings each, one on 23 June 1951 and the other on 21 March 1952.

The following is the summary of important decisions taken by the Council and the SWCC in these meetings:

- a) Elected Dr. H. L. Roy and Dr. A. Nagaraja Rao as Chairman and Vice-Chairman, respectively, of CDC.
- b) Elected Prof. T. R. Seshadri and Dr. B. P. Pal to represent CDC on the GC.
- c) Co-opted the following members on the CDC:
  - i) a representative of Messrs R. V. Briggs & Co. Ltd., a private testing organization of Calcutta,
  - ii) a representative of Directorate General of Supplies and Disposals, and
  - iii) a representative of Directorate General of Ordnance Factories.
- d) Approved co-option of representatives of the Ministry of Commerce and Industry and the

Directorate General of Supplies and Disposals on various sectional committees with a view to keep these departments fully represented on the sectional committees.

- e) Decided that apart from Dr. H. L. Roy, Chairman of CDC, and Shri J. Chakravarti and Shri R. G. Bhatawadekar, who are not local members, all the local members of CDC be members of the SWCC, subject to a maximum of 15.
- f) Created a Plastic Sectional Committee (CDC 17) under the chairmanship of Shri N. Srinivasan, Deputy Development Officer, Ministry of Commerce and Industry, for the standardization of (i) Phenolic Moulding Powders for General Purposes and Electrical Accessories, (ii) Cashew Nut Shell Liquid (CNSL), and (iii) CNSL Resin. The CDC also authorized the Sectional Committee to extend its terms of reference to paints and varnishes manufactured from CNSL in consultation with Paints and Allied Products Sectional Committee (CDC 8).
- g) Approved the creation of a Sectional Committee for Treated Fabrics (CETDC 3) under the joint responsibility of Chemical, Engineering and Textile Division Councils, and the assignment of the Secretariat for this Committee to the Chemical Division, with Dr. T. S. Subramanian, Superintendent, Technical Development Establishment Laboratories, Kanpur, as its Chairman, for the standardization of Fuel Pump Diaphragms and Leatherite.
- h) Changed the name of Belting and Rubber Products Sectional Committee to Rubber Products Sectional Committee (CDC 6), since a new joint responsibility sectional committee has been set up (with the EDC providing the Secretariat) to deal with Pulleys and Belts (ECTDC 4).
- j) Changed the name of Solid Mineral Fuels (Coal, Coke, etc) Sectional Committee to Solid Mineral Fuels Sectional Committee (CDC 14).
- k) Changed the designations of Lubricants Sectional Committee (CDC 5) and Bitumen and Tar Products Sectional Committee (CDC 7) to CEDC 1 and CEDC 2, respectively to make them jointly responsible to CDC and EDC, with CDC providing the Secretariat. In a subsequent meeting, recommended to the EC that the designation of CEDC 2 be changed to BCDC 2 in view of the inauguration of the Building Division Council.
- m) Approved the list of nominations for the Indian delegation, recommended by the Lac and Lac Products Sectional Committee (CDC 9) to attend the meeting of ISO Technical Committee on Lac (ISO/TC 50) to be held in New York in June 1952.
- n) Recommended that the ISI should change from 'O' to 'P' (Participating) membership of ISO Technical Committee on Petroleum Products (ISO/TC 28), and entrusted to the Director, ISI, the appointment of Indian delegates, in consultation with Lubri-

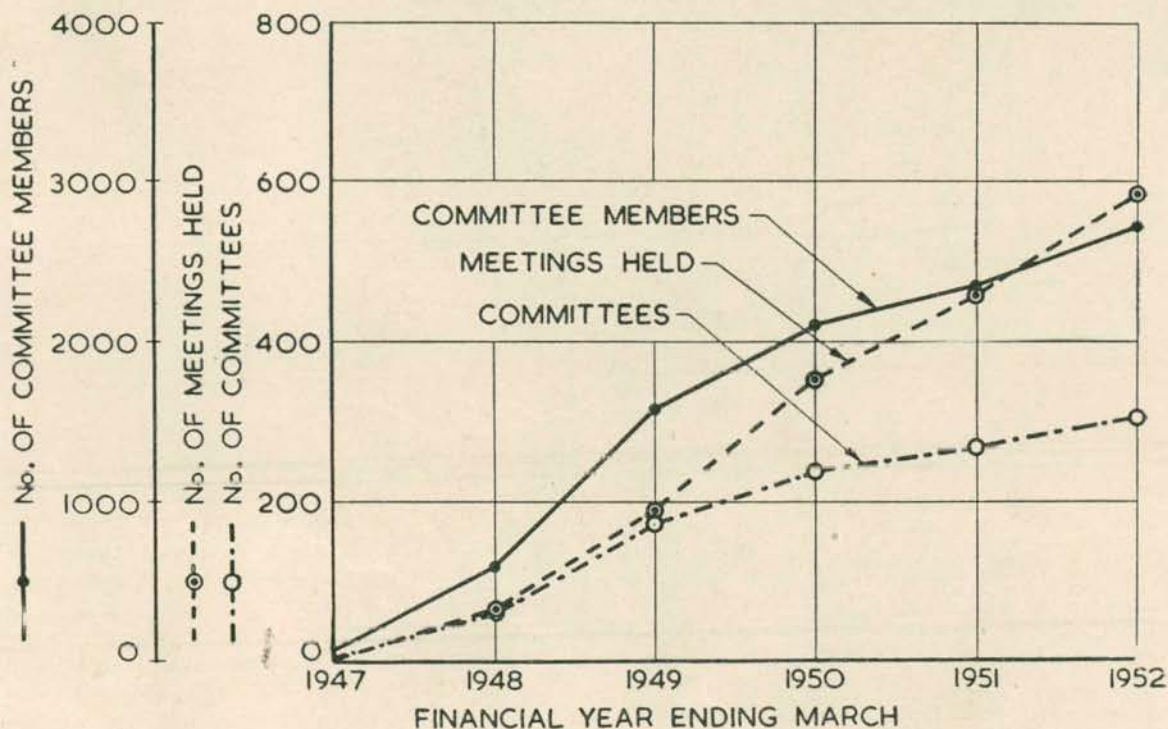


FIG 2 GROWTH OF ACTIVITIES AND COMMITTEES

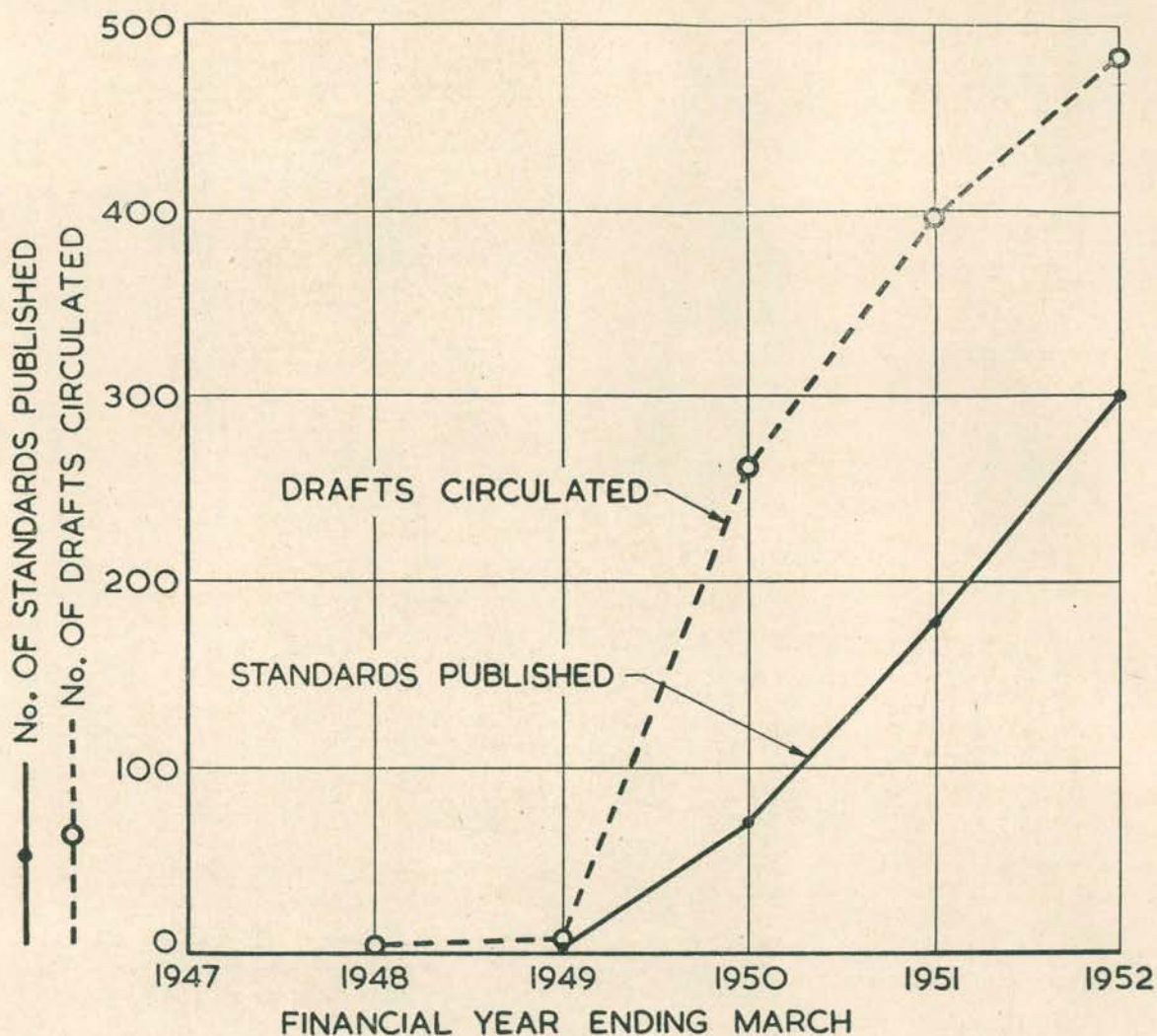


FIG 3 GROWTH OF STANDARDS

cants Sectional Committee (CEDC 1), for attending the meeting of ISO/TC 28 to be held in New York from 12 to 14 June 1952.

- p) Considered a number of new proposals for standardization. Details and decisions taken on the proposals are indicated in Table III. Consideration of some of the subjects has been deferred either because there is no indigenous production or because the industry concerned does not support the proposed standardization.

**7.3 Meetings of Committees and Subcommittees**—During the year under review, ISI committees and subcommittees held 142 meetings (as against 106 meetings held in 1950-51) which are summarized in Appendix 20.10. The increase in the number of meetings indicates an all-round increase in the activities of the Institution. In Fig 2 are presented graphs indicating

the general growth of the activities of the committees and subcommittees.

## 8. PROGRESS OF STANDARDS

**8.1** With the publication of 112 Indian Standards during the year under review, the total number of standards published and under print reached the figure of 300 on 31 March 1952. Besides this, there were on this date 92 finalized standards, 83 in circulation for eliciting comments and 320 in other stages of preparation. Fig 3 shows the growth of published standards and draft standards in circulation.

**8.2** In Table IV is shown the position at the end of the year under review of the progress of standards and subjects under active consideration of each sectional committee. The standards, which at the end of the year under report were at stage B and subsequent stages, are classified in Appendix 20.11.

TABLE III NEW SUBJECTS CONSIDERED BY THE THREE DIVISION COUNCILS

SL No.	SUBJECT	PROPOSED BY	ALLOTTED TO TECHNICAL COMMITTEE
<b>Engineering Division Council (EDC)</b>			
1	Split Cotter Pins	Guest, Keen, Williams Ltd., Calcutta	BDC 15—Builders' Hardware
2	G.I. Roofing Hardware Fittings	Indian Railway Building Standards Committee, through Central Standards Office for Railways	Deferred till formation of BDC
3	Water and Steam Fittings	a) Annapurna Metal Works, Calcutta b) Govardhan Das, PA, Jullundur	BDC 3—Domestic Sanitary Appliances, Fittings and Practices
4	Sanitary Appliances	a) Mr. F. Ashmore b) Burn & Co., Calcutta	do
5	Sanitary Fittings	a) Parry & Co., Madras b) Govardhan Das, PA, Jullundur	do
6	Codes of Practice for Plumbing and Installation of Sanitary Appliances	P.W.D., Madras	do
7	Test Sieves	Dr. R. C. Hoon	BDC 19 — Sieves
8	Asbestos Pipes and Sheets	a) Dr. S. P. Raju b) State Transport Central Office, Bombay	BDC 2 — Cement and Concrete
9	Switchboard Lamps	Senior Electrical Engineer, Posts and Telegraphs, Calcutta	EDC 8 — Electrical Accessories
10	Accessories for Use with Transmission Line Conductors	Senior Electrical Commissioner, Government of Bombay	Not accepted
11	Dimensional Standards for Pins, Caps and Fixtures for Suspension Insulators	Swedish National Committee of the IEC	EDC 5 — Electrical Conductors and Insulators
12	Ball Bearings	National Bearing Co. Ltd., Jaipur	Not accepted
13	Safes	Director General of Supplies and Disposals, Ministry of Works, Production & Supply	EDC 22 — Safes
14	Raw Materials for Refractory Industry such as Kayanite, Chromite, Magnesite, Zircon, Bentonite, Alumina, Bone Ash, Cryolite, Plaster of Paris	Deputy Development Officer (Glass), Ministry of Commerce & Industry	EDC 17 — Refractories
15	Fire Fighting Equipment, including Automatic Sprinklers	Indian Fire Engineering Co., Bombay	Not accepted
16	Pressure Lamps	a) Indian Tariff Board b) Oil Pressure Industries' Association (India), Calcutta c) Development Officer (Mech), Ministry of Commerce & Industry	EDC 10 — Oil Burning Domestic Appliances
17	Hurricane Lanterns	a) Oriental Metal Industries Ltd., Calcutta b) Development Officer (Mech), Ministry of Commerce & Industry	do
18	Identification Number for Cylinders of Internal Combustion Engines for Marine, Stationary and Vehicular Use	Director, Technical Development, Army Headquarters, New Delhi	EDC 14 — Internal Combustion Engines
19	Piston Rings	Indian Pistons Ltd., Madras, through Development Officer (Mech), Ministry of Commerce & Industry	do
20	Chaff Cutter Blades	Ministry of Food & Agriculture	EDC 12 — Hand Tools
21	Hardness Testing	EDC 12 — Hand Tools Sectional Committee	Deferred
22	Mammoties	do	EDC 12 — Hand Tools
23	Phaoras	do	do



TABLE III NEW SUBJECTS CONSIDERED BY THE THREE DIVISION COUNCILS—Contd

Sl No.	SUBJECT	PROPOSED BY	ALLOTTED TO TECHNICAL COMMITTEE
<b>Engineering Division Council — Contd</b>			
24	Pipe Cutters	EDC 12 — Hand Tools Sectional Committee	EDC 12 — Hand Tools
25	Vices, Bench and Hand	do	do
26	Pliers	do	do
27	Augers	do	do
28	Axes	do	do
29	Adzes	do	do
30	Plumb Line and Bob	do	do
31	L-Square	do	do
32	Pruning Knives and other Agricultural Tools required in Tea Gardens	The National Small Tools and Cutlery Manufacturers' Association, Calcutta	do
33	Method of Test for Plating	EDC 26 — Bicycle, Bicycle Parts and Accessories Sectional Committee	EDC 26 — Bicycle, Bicycle Parts and Accessories
34	Pressed Hard Building Boards	Central Standards Office ( Ministry of Railways )	Under investigation
35	Nets for Tennis, Badminton, Volley Ball, Table Tennis, Basketball, Cricket Practice, Football and Hockey Goals	EDC 28: 5 — Nets Subcommittee of the Sports Goods Sectional Committee ( EDC 28 )	EDC 28: 5 — Nets
36	Boiler Plates	The Tata Iron & Steel Co. Ltd., Jamshedpur	EDC 3 — Basic Ferrous Metals
37	Machine Screws	Indian Tariff Board	EDC 27 — Screw Threads
38	Screw Threads	do	do
39	Rivets	SWCE	do
40	Bolts, Nuts and other Fasteners	do	do
41	Microphones	EDC 19: 4 — Transformers and Chokes Subcommittee	EDC 19: 4 — Transformers and Chokes
42	Low Level Transformers	do	do
43	Intervalve Transformers	do	do
44	Drawing Board and T-Square	EDC 20 — Drawings Sectional Committee	EDC 20 — Drawings
45	Drawing Pins	do	do
46	Drawing Instrument	do	do
47	Drawing Office Organization	do	do
48	Limits and Fits for Engineering	do	Accepted
49	Surface Finish for Engineering	do	do
50	Dimensions of Bolts, Nuts and Rivets.	do	EDC 27 — Screw Threads
51	Welding and Cutting Terms	do	Accepted
52	Aluminium Casting Alloys	Aluminium Hindustan Ltd., New Delhi	EDC 4 — Basic Non-Ferrous Metals
53	Table Tennis Rackets	EDC 28: 3 — Badminton and Tennis Rackets, Hockey Sticks and Cricket Bats Subcommittee	EDC 28 — Sports Goods
54	Squash Rackets	do	do
55	Steel Conduit Pipes	EDC 8 — Electrical Accessories Sectional Committee	EDC 8 — Electrical Accessories
<b>Textile Division Council ( TDC )</b>			
56	Fluted Rollers	Indian Tariff Board	TDC 6 — Textile Stores and Machinery

TABLE III NEW SUBJECTS CONSIDERED BY THE THREE DIVISION COUNCILS—Contd

Sl No.	SUBJECT	PROPOSED BY	ALLOTTED TO TECHNICAL COMMITTEE
<b>Textile Division Council ( TDC ) — Contd</b>			
57	Silk Waste	Ministry of Commerce & Industry, at the instance of the Trade Commissioner, Government of India, in the U.K.	Under investigation
58	Ropes and Cordages	Indian Rope Manufacturers' Association, Calcutta	do
<i>Handloom Products</i>			
( Cotton — Category A )			
59	Cloth of plain weave of counts 8s and below	TDC 13 — Handloom Cloth Sectional Committee	TDC 13 — Handloom Cloth
60	Saries, including coloured saries with headings exceeding 9 in. width and borders exceeding 2 in., of striped and check patterns	do	do
61	Dhoties with borders exceeding $\frac{1}{4}$ in.	do	do
62	Gauze Cloth	do	do
63	Bandage Cloth	do	do
64	Jaconet Cloth	do	do
65	Towels, Huckaback and Honeycomb	do	do
66	Chaddars and Bedsheets	do	do
67	Lungies	do	do
68	Table Cloth	do	do
69	Napkins	do	do
70	Counterpanes of check patterns	do	do
( Cotton — Category B )			
71	China Sheeting	do	do
72	Dusters	do	do
73	Mazri Cloth, Light	do	do
74	Sponge Cloth	do	do
75	Durries	do	do
76	Sheetings	do	do
77	Ticking Cloth	do	do
78	Pugri Cloth	do	do
( Woollen )			
79	Blankets	do	do
80	Shirting	do	do
81	Lohis and Shawls	do	do
82	Rough Tweeds	do	do
83	Silk and Rayon Handloom Cloth	do	Under investigation
84	Handloom Cloth for Liveries for Police, Railways and Postal Services	do	do
<b>Chemical Division Council ( CDC )</b>			
85	Bone Meal ( Raw and Steamed )	CDC 3:2 — Fertilizers and Allied Products Subcommittee	CDC 3 — Heavy Chemicals ( inorganic )
86	Ammonia, Anhydrous, Used for Refrigeration and Manufacture of Nitric Acid	do	do

TABLE III NEW SUBJECTS CONSIDERED BY THE THREE DIVISION COUNCILS—Contd

SL No.	SUBJECT	PROPOSED BY	ALLOTTED TO TECHNICAL COMMITTEE
<b>Chemical Division Council ( CDC ) — Contd</b>			
87	Copper Naphthenate	EDC 9 — Timber Products Sectional Committee	CDC 4 — Fine Chemicals ( Organic and Inorganic )
88	Pentachlorophenol	do	do
89	Casein	do	do
90	Zinc Oxide for Ceramic Industry	CDC 10: 9 — Ceramic Raw Materials Subcommittee	CDC 3 — Heavy Chemicals ( Inorganic )
91	China Clay for Ceramic Industry	do	CDC 10 — Glassware
92	Ball Clay for Ceramic Industry	do	do
93	Felspar for Ceramic Industry	do	do
94	Gypsum for Ceramic Industry	do	do
95	Dolomite for Ceramic Industry	do	do
96	Calcite for Ceramic Industry	do	do
97	Marble for Ceramic Industry	do	do
98	Quartz for Ceramic Industry	do	do
99	Bentonite for Ceramic Industry	do	do
100	Nepheline Syenite for Ceramic Industry	do	do
101	Turkey Red Oil	Textile Advisory Committee No. 3 of Govt. of India, and Association of Merchants and Manufacturers of Textile Stores	CDC 12 — Oils, Fats and Soaps
102	Glossary of Terms Relating to Hides, Skins and Leather	Ministry of Commerce & Industry	CDC 16 — Leather
103	Phenolic Moulding Powder for General Purposes	Indian Tariff Board and All-India Plastics Manufacturers' Association	CDC 17 — Plastics
104	Phenolic Moulding Powder for Electrical Purposes	do	do
105	Cashew Nut Shell Liquid	Hardcastle Waud & Co., Bombay	do
106	Cashew Nut Shell Liquid Resin or Cashew Resin	do	do
107	Blown Rape or Blown Mustard Oil	CEDC 1 — Lubricants Sectional Committee	CEDC 1 — Lubricants
108	Oil, Mineral, Hydraulic Buffer ( Army Grade )	do	do
109	Oil, Army Grade — M-65	do	do
110	Oil, M-88 ( SMLO )	do	do
111	Fuel Pump Diaphragms	United Trading Co., Delhi	CETDC 3 — Treated Fabrics
112	Leatherite	Ministry of Commerce & Industry	do
113	Marine Paints	Central Standards Office, Ministry of Railways	CDC 8 — Paints and Allied Products*
114	Safety Matches	Late Directorate General of Industries and Supplies	Deferred
115	Vegetable Protein	EDC 9 — Timber Products Sectional Committee	do
116	Blood Albumin	do	do
117	Formaldehyde	do	do
118	Urea	do	do
119	Sodium Fluoride	do	do

\* Indian Navy has advised that the standardization of these subjects be deferred. The question will be reconsidered by CDC 8.

## 9. IMPLEMENTATION OF INDIAN STANDARDS

9.1 Since Indian Standards are formulated by a consensus of consumer, producer and technological interests, represented on expert committees, these standards are most suited for voluntary adoption, and some major government departments have already adopted a number of them for their purchase specifications. The position in respect of this at the end of the year under review was as given in Table V. It is gratifying to observe that 176 Indian Standards out of 291 published up to 31 March 1952 had been adopted by the various departments listed in table V.

TABLE IV POSITION OF STANDARDS UNDER EACH SECTIONAL COMMITTEE AS ON 31 MARCH 1952

SL No.	SECTIONAL COMMITTEE	STAGE*							TOTAL
		B <sub>5</sub>	B <sub>6</sub>	C	D	E	F	G	
1	EC 1	Dissolved January 1949							
2	EC 2	3	-	1	-	1	-	2	7
3	EC 3	2	-	-	-	-	-	1	3
4	EC 4	-	-	-	-	-	-	1	1†
5	EC 5	-	-	-	-	-	-	1	1
6	EC 6	Submitted report April 1949							
7	EC 7	1	-	-	-	-	-	-	1
8	EDC 1	5	-	-	-	-	-	2	7
9	EDC 3	10	-	8	3	-	-	10	31
10	EDC 4	4	9	12	6	2	-	24	57
11	EDC 5	21	1	2	1	2	-	2	29
12	EDC 6	9	2	3	-	-	1	2	17
13	EDC 8	4	3	2	1	7	-	1	18
14	EDC 9	8	5	-	1	2	-	3	19
15	EDC 10	2	-	-	-	-	-	-	2
16	EDC 11	16	2	1	4	-	-	-	23
17	EDC 12	7	23	4	1	1	-	2	38
18	EDC 13	5	-	-	1	1	-	-	7
19	EDC 14	2	-	-	-	-	-	-	2
20	EDC 16	4	-	-	-	-	-	-	4
21	EDC 17	10	2	-	-	-	-	5	17
22	EDC 19	15	2	4	1	-	-	-	22
23	EDC 20	4	-	1	-	-	-	-	5
24	EDC 21	6	-	-	-	-	-	2	8
25	EDC 22	1	-	-	-	-	-	-	1
26	EDC 24	-	-	-	-	2	-	-	2
27	EDC 25	2	3	1	2	-	-	3	11
28	EDC 26	24	6	2	-	-	-	-	32
29	EDC 27	4	-	-	1	-	-	-	5
30	EDC 28	8	4	1	-	-	-	-	13
31	ECTDC 4	1	5	-	-	-	-	-	6
32	TDC 1	20	15	25	3	5	-	7	75
33	TDC 2	29	6	1	1	-	-	19	56
34	TDC 3	5	1	-	1	-	-	2	9
35	TDC 4	1	21	1	1	-	-	2	26
36	TDC 5	32	4	5	-	5	-	6	52
37	TDC 6	17	9	1	7	-	-	1	35
38	TDC 7	-	5	-	1	-	-	-	6
39	TDC 8	-	2	-	-	-	-	1	3
40	TDC 9	4	2	-	-	-	-	-	6
41	TDC 10	16	9	-	-	-	-	-	25
42	TDC 11	18	-	-	-	-	-	-	18
43	TDC 12	-	-	1	-	-	-	1	2
44	TDC 13	24	-	-	-	-	-	-	24
45	CDC 1	1	-	-	-	-	-	-	1
46	CDC 2	1	3	3	1	4	-	1	13
47	CDC 3	24	1	5	5	14	1	22	72
48	CDC 4	9	-	7	3	2	3	7	31
49	CEDC 1	11	4	11	5	1	1	6	39
50	CDC 6	19	9	-	4	-	-	-	32
51	CEDC 2	6	7	-	2	1	1	4	21
52	CDC 8	5	2	7	17	36	-	132	199

TABLE IV POSITION OF STANDARDS UNDER EACH SECTIONAL COMMITTEE AS ON 31 MARCH 1952 — Contd

SL No.	SECTIONAL COMMITTEE	STAGE*							TOTAL
		B <sub>5</sub>	B <sub>6</sub>	C	D	E	F	G	
53	CDC 9	3	-	-	-	-	-	3	6
54	CDC 10	26	3	2	2	-	-	-	33
55	CDC 11	-	7	1	3	4	-	-	15
56	CDC 12	6	5	-	-	-	1	2	14
57	CDC 13	-	-	-	2	-	-	4	6
58	CDC 14	1	2	-	2	-	-	-	5
59	CDC 15	18	-	-	-	-	-	-	18
60	CDC 16	7	-	11	-	-	-	-	18
61	CDC 17	4	-	-	-	-	-	-	4
62	CETDC 3	2	-	-	-	-	-	-	2
63	BDC 2	5	2	4	-	2	-	1	14
64	BDC 3	14	-	-	-	-	-	-	14
65	BDC 15	-	3	2	1	-	1	9	16
66	BDC 18	3	-	-	-	-	-	-	3
67	BDC 19	-	-	1	-	-	-	-	1
TOTAL		509	189	130	83	92	9	291	1303
Last year's Total		493	93	132	98	59	38	179	1092

\* Stage B<sub>5</sub> — Subjects accepted for standardization (not yet subdivided into titles for standards)  
 " B<sub>6</sub> — Draft Standards under preparation  
 " C — Draft Standards in compilation  
 " D — Draft Standards in circulation  
 " E — Draft Standards finalized  
 " F — Standards under print  
 " G — Standards published

† Report of Committee EC4 on Weights and Measures has been published and submitted to the Government of India for consideration.

9.2 Though there is clearly much to be done yet to promote a general recognition of Indian Standards, and the work will take time, their implementation by the purchasing departments of governmental organizations should become easier than hitherto. The proposal for a general policy directive from the Government of India requiring all purchasing departments to quote Indian Standards in their contracts for the supply of materials, is being actively pursued, and it is hoped that with the issue of such a directive the time-lag between the publication of Indian Standards and their adoption by purchasing departments may be reduced.

9.3 It is understood that preliminary inter-departmental consultations on the ISI's memorandum for the policy directive are nearly complete and the Ministry of Commerce & Industry may call a conference of the interested departments in the near future. The Ministry of Defence has, however, expressed the desire to have a preliminary discussion with the ISI officials, and the Ministry has been informed that the ISI is ready to hold such a discussion at the convenience of the technical experts of the Ministry of Defence.

9.4 The Conference of the Directors of Industries, reference to which is made elsewhere in the report (See p. 15), discussed the question of implementation of Indian Standards by State Governments, and the States representatives heartily endorsed the principle of implementation.

**TABLE V ADOPTION OF INDIAN STANDARDS BY GOVERNMENT DEPARTMENTS**

NAME OF DEPARTMENT	NO. AND TITLE OF INDIAN STANDARD EITHER ADOPTED OR REFERRED TO IN PURCHASE SPECIFICATIONS	
Ministry of Home Affairs	IS: 1-1951 National Flag of India	
Directorate General of Supplies and Disposals	IS: 10-1949 Plywood Tea-Chests	
	IS: 16-1949 Shellac	
	IS: 22-1950 98 Percent Aluminium Notched Bars and Ingots for Remelting Purposes	
	IS: 24-1950 Brazing Solder	
	IS: 25-1950 Antifriction Bearing Alloys	
	IS: 26-1950 Tin Ingots	
	IS: 27-1950 Pig Lead	
	IS: 28-1950 Phosphor Bronze Ingots and Castings	
	IS: 33 to 72-1950	Paints and Allied Products
	IS: 74 to 169-1950	
	IS: 170-1950 Acetone	
	IS: 192-1950 Silver Solder	
	IS: 193-1950 Soft Solder	
	IS: 204-1950 Mild Steel and Brass Door Bolts, Tower and Barrel Types	
	IS: 205-1950 Butt Hinges	
	IS: 206-1950 Tee and Strap Hinges	
	IS: 207-1950 Gate and Shutter Hooks and Eyes	
	IS: 208-1950 Door Handles	
	IS: 209-1950 Zinc (Spelter)	
	IS: 224-1950 Pig Iron (Coke)	
	IS: 225-1950 Pig Iron (Charcoal)	
	IS: 226-1950 Structural Steel	
	IS: 269-1951 Ordinary, Rapid-Hardening and Low Heat Portland Cement	
Railway Board	IS: 5-1949 Colours for Ready Mixed Paints	
	IS: 6-1949 Moderate Heat Duty Fireclay Refractories, Group 'A'	
	IS: 7-1949 Moderate Heat Duty Fireclay Refractories, Group 'B'	
	IS: 8-1949 High Heat Duty Fireclay Refractories	
	IS: 45-1950 Manufactured Red Oxides of Iron for Paints	
	IS: 46-1950 Natural Red Oxides of Iron for Paints	
	IS: 57-1950 Red Lead for Paints and Jointing Purposes	
	IS: 86-1950 Oil Paste for Paints (29 colours)	
	IS: 89-1950 Oil Paste for Paints (3 colours)	
	IS: 93-1950 Oil Paste for Paints (7 colours)	
	IS: 94-1950 Oil Paste for Paints (4 colours)	
	IS: 117-1950 Ready Mixed Paint, Brushing, Finishing, Exterior, Oil Gloss, for General Purposes (29 colours)	
	IS: 119-1950 Ready Mixed Paint, Brushing, Finishing,	

**TABLE V ADOPTION OF INDIAN STANDARDS BY GOVERNMENT DEPARTMENTS — Contd**

NAME OF DEPARTMENT	NO. AND TITLE OF INDIAN STANDARD EITHER ADOPTED OR REFERRED TO IN PURCHASE SPECIFICATIONS
	Oil Gloss, for General Purposes (10 colours)
	IS: 120-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (5 colours)
	IS: 123-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (7 colours)
	IS: 130-1950 Ready Mixed Paint, Spraying, Finishing, for Railway Wagon Stock (2 colours)
	IS: 194-1950 Recommendations for Refractories for Railways
	IS: 195-1950 Fireclay Mortar for Laying Fireclay Bricks
	IS: 203-1950 Leclanché Type Dry Cells and Batteries for Flash Lamps
	IS: 226-1950 Structural Steel
	IS: 264-1950 Nitric Acid
	IS: 265-1950 Hydrochloric Acid
	IS: 266-1950 Sulphuric Acid
	IS: 269-1951 Ordinary, Rapid-Hardening and Low Heat Portland Cement
	IS: 276-1951 Plain Austenitic Manganese Steel Castings
	IS: 281-1951 Sliding Door Bolts for Use with Padlocks
	IS: 283-1951 Porcelain Insulators for Telegraph and Telephone Lines
	IS: 302-1951 General Requirements for Electrical Appliances for Domestic Use
Inspectorate of Military Explosives, Kirkee, Directorate of Technical Development	IS: 5-1949 Colours for Ready Mixed Paints
Directorate of Marketing and Inspection, Ministry of Food & Agriculture	IS: 11-1949 Grading of Wool for Export
	IS: 15-1949 Seedlac
	IS: 16-1949 Shellac
Ministry of Food & Agriculture (Agriculture)	IS: 294-1950 Superphosphate
Indian Posts and Telegraphs Department	IS: 16-1949 Shellac
	IS: 24-1950 Brazing Solder
	IS: 26-1950 Tin Ingots
	IS: 27-1950 Pig Lead
	IS: 192-1950 Silver Solder
	IS: 193-1950 Soft Solder
	IS: 203-1950 Leclanché Type Dry Cells and Batteries for Flash Lamps
	IS: 283-1951 Porcelain Insulators for Telegraph and Telephone Lines
U.P. Govt (Directorate of Cottage Industries)	IS: 275-1951 Padlocks

## 10. CONFERENCE OF DIRECTORS OF INDUSTRIES

**10.1** The ISI convened a Conference of Directors of Industries of States on 20 March 1952. The President, Shri Harekrushna Mahtab, Minister for Commerce & Industry, Government of India, presided at this Conference, and a number of subjects dealing with standardization on national scale were discussed.

**10.2** The Conference recognized the need for collective action by the States and the Centre for the practical implementation of Indian Standards on a nation-wide basis and the following resolutions were passed:

- i) Implementation of Indian Standards  
 "THIS Conference resolves to recommend to the Central and State Governments that all their purchases be made, as far as possible, according to Indian Standards where such standards already exist."
- ii) ISI Certification Marks Scheme  
 "THIS Conference commends the ISI Certification Marks Scheme to the consideration of the State Governments and suggests that suitable machinery be set up by the ISI in co-operation with the State Governments to assist in the application of the scheme to the production of materials in the States to conform to Indian Standards."
- iii) States' Participation in Technical Committees of the ISI  
 "THIS Conference recommends that the State Governments may direct one of their officers, preferably their representative on

the General Council of the ISI, to examine the position of States' representation on ISI Committees and to suggest how their representation and participation may be made more effective, for which the Conference feels there exists an urgent need."

- iv) Investigational and Research Facilities at State Government Administered Laboratories

"THIS Conference resolves that the Central and State Governments be requested to make available the resources of their research and testing laboratories for purposes of investigations needed by the Indian Standards Institution."

- v) Enlistment of Support for Enrolment of Municipalities, Chambers, Associations, Firms, etc, within the jurisdiction of the States

"THIS Conference resolves that the Directors of Industries be requested to advise Municipalities, Chambers, Associations, Firms, etc, within the jurisdiction of their respective States, to join as Sustaining Members of the ISI."

## 11. LABORATORY FACILITIES

**11.1** In connection with the preparation of Indian Standard Specifications, the ISI continued to receive from various organizations active assistance for laboratory investigations. A list of problems of this nature entrusted by ISI to the different organizations/laboratories during the period under review is given below:

PROBLEM	ORGANIZATION/LABORATORY
<b>Engineering Division Council</b>	
1. Tests on indigenously made boiling plates for conforming to Draft Indian Standard under consideration	National Physical Laboratory of India, Delhi, CSIR
2. Testing plywood for glue adhesion strength in dry state, wet state and after subjection to mycological tests	1) Forest Research Institute, Dehra Dun 2) Technical Development Establishment, Laboratories, Kanpur
3. Collection of up-to-date data for maximum permissible moisture content of timbers used in different climatic conditions	Forest Research Institute, Dehra Dun
4. Testing indigenously made tumbler switches to find out if rolled copper sheets could be permitted in place of phosphor bronze	Government Test House, Alipore, Calcutta
5. Testing of indigenous and overseas coated abrasives. Results to be utilized in finalizing Draft Indian Standard	1) Government Test House, Alipore, Calcutta 2) Technical Development Establishment, Laboratories, Kanpur
6. Practical tests on electric hot plates to evolve suitable method for leakage resistance	Indian Lac Research Institute, Namkum, Ranchi
7. Effectiveness of contact in reversible type two-pin plugs and sockets	do
8. Investigations to evolve suitable load test for claw bars and claw bars	Tata Iron & Steel Co. Ltd., Jamshedpur
9. Comparative tests on 'blanks' and processed tin plates of indigenous and overseas make	do
10. Investigations into space factor, and brittleness of electrical steel sheets for the purpose of simplifying the test procedure	do
11. Drawing and stamping characteristics of tin plates	The Metal Box Co. of India Ltd. Calcutta

PROBLEM	ORGANIZATION/LABORATORY
12. A method for direct determination of alumina in manganese ore incorporated in the Indian Standard	R. V. Briggs & Co. Ltd., Calcutta
<b>Textile Division Council</b>	
13. Tests on samples of round and flat polished reed wire of different gauges	1) Government Test House, Alipore, Calcutta 2) The Director of Inspection (Metallurgical) in the Ministry of Works, Production & Supply
14. Testing silk khadi for (i) physical characteristics, (ii) dyeing the bunting, (iii) making it into flags, and testing the flags under actual flying conditions	Technical Development Establishment, Textiles and Clothing, Kanpur
15. Varieties of filter cloth for sugar industry. Filtration and durability test under actual working conditions	Indian Institute of Sugar Technology, Kanpur
16. Tests on various varieties of cloth	Technological Laboratory, Indian Central Cotton Committee, Bombay
<b>Chemical Division Council</b>	
17. Development of suitable methods of tests for coal, for: i) determination of nitrogen in coal, ii) maximum inherent moisture value, iii) determination of phosphorus in coal, iv) fusion range of ash, etc	Fuel Research Institute, Jealgora, Manbhum, Bihar, CSIR
18. Tests on glass shells for electric lamps, glass ampoules and vaccine phials for determining specification limits	Central Glass & Ceramic Research Institute, Jadavpur, Calcutta, CSIR
19. Examination of raw materials for glass and ceramics	do
20. Investigations for collecting data on various essential oils specifications and their methods of test	Forest Research Institute, Dehra Dun
21. Testing samples of paper to determine: i) fibre content, ii) ash content, iii) basic weight, iv) bursting strength, v) tensile strength, vi) tear and water resistance, etc	Shree Gopal Paper Mills Ltd., Calcutta
22. Investigations for correlation of outside exposure tests and weatherometer tests on paints and varnishes	Government Test House, Alipore, Calcutta
23. Tests on leather for tensile strength, percent elongation, etc	do
24. Collection of data for colour specification for linseed oil	Technical Development Establishment, Laboratories, Kanpur
25. Testing indigenous samples of turpentine to determine: i) iodine value, ii) optical rotation, iii) unpolymerizable matter, iv) refractive index of unpolymerized residue, v) Lovibond colorimeter readings, etc	do
26. Tests to determine suitable method for estimation of lead in paints, and its limits in lead-free paints	Technical Development Establishment, Military Explosives, Kirkee
27. Tests to fix limits for residue on evaporation of coal tar solvent naphtha, light	do
28. Tests to fix specific gravity limits at 30°/30°C for amyl alcohol and butyl alcohol (normal)	do
29. Tests on samples of indigenous drawing papers for determining physical and chemical characteristics. The samples were collected from seven different sources	do
30. Investigation into technical soundness of a proposed method for fixing necks of drums for paints	Technical Development Establishment, Stores, Kanpur
31. Tests on various requirements of seedlac, shellac and dry bleached lac	Indian Lac Research Institute, Namkum, Ranchi
32. Tests on sealing wax; results to be utilized in draft specification	do
33. Requirements for acetone in Indian Standard checked by a series of tests	Central Revenues Control Laboratory, New Delhi
34. Determination of solubility of potassium permanganate at 25°C	Inspectorate of General Stores Laboratories, Bombay
35. Testing samples of cinnamon leaf, clove and vetivert oils	Tata Oil Mills Co. Ltd., Bombay

## PROBLEM

## ORGANIZATION/LABORATORY

- |     |                                                                                                             |                                                                                              |
|-----|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 36. | Testing samples of activated charcoal used in vegetable oil industry                                        | Lever Brothers ( India ) Ltd., Bombay                                                        |
| 37. | Preparation of colour charts for ready mixed paints from Indian red oxide with the help of suitable tinters | 1) Indian Paint Manufacturers' Association, Calcutta<br>2) P. C. Chanda & Co. Ltd., Calcutta |

**Building Division Council***Cement*

- |     |                                                                                      |                                                                                                                                                                                                                                                                                                                                    |
|-----|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 38. | Mechanical methods of compacting briquettes to determine tensile strengths of cement | } 1) Central Building Research Institute, Roorkee<br>2) Hirakud Research Station, Hirakud<br>3) Engineering Research Laboratories, Hyderabad<br>4) Government Test House, Alipore, Calcutta<br>5) Irrigation Research Institute, Amritsar<br>6) Chief Engineer for Irrigation, Madras<br>7) Indian Institute of Science, Bangalore |
| 39. | Compressive strength test                                                            |                                                                                                                                                                                                                                                                                                                                    |
| 40. | Water-cement ratio and strength of mortar and concrete                               |                                                                                                                                                                                                                                                                                                                                    |
| 41. | Autoclave test for determining soundness of cement                                   |                                                                                                                                                                                                                                                                                                                                    |
| 42. | Statistical method of sampling cement                                                |                                                                                                                                                                                                                                                                                                                                    |
| 43. | Strength of concrete at different normal temperatures and different ages             |                                                                                                                                                                                                                                                                                                                                    |

*Aggregates*

- |     |                                                                                                                                     |                                                                                                                                                                                                                   |
|-----|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 44. | Variation in bulk density of aggregates measured with different sizes of containers and effect of variation on strength of concrete | 1) Central Building Research Institute, Roorkee<br>2) Hirakud Research Station, Hirakud<br>3) Research Engineer, U.P., P.W.D., B & R Branch, Lucknow<br>4) Central Road Research Institute, New Delhi             |
| 45. | Establishing an Indian sand as Indian Standard Sand for all testing purposes in place of Leighton Buzzard Sand currently used       | 1) Geological Survey of India<br>2) Associated Cement Cos' Works Laboratory, Khalari<br>3) Concrete Laboratory, Madras<br>4) Hirakud Research Station, Hirakud<br>5) Engineering Research Laboratories, Hyderabad |
| 46. | Tests on samples of hard-drawn steel wire for proof-stress                                                                          | 1) Research Department of the Tata Iron & Steel Co. Ltd., Jamshedpur<br>2) Government Test House, Alipore, Calcutta                                                                                               |

**12. INTERNATIONAL ACTIVITIES****12.1 ISO/TC Secretariat for Lac and Mica —**

The second draft proposals which the ISI as the Secretariat for ISO/TC 50 Lac and ISO/TC 56 Mica circulated after the first meetings of the committees in New Delhi in January 1950, elicited comments from the U.K., U.S.A. and French Member Bodies during the year under review. The Secretariat Committees considered the comments and felt that further discussions at the international level were necessary. Realizing that for any further progress to be achieved, a better attendance of overseas representatives than had been possible at New Delhi had to be secured, the Secretariat Committees decided to hold meetings in New York, where the ISO General Assembly and Council, and a number of ISO Technical Committees were scheduled to meet in June 1952.

After the Executive Committee had accepted these decisions of the Secretariat Committees, the Directorate held a series of consultations with the ISO General Secretariat, the British Standards Institution, the American Standards Association and Mica and Lac interests in the U.K. and U.S.A., which enabled it to call the meeting of ISO/TC

50 Lac on 23-25 June 1952 and the meeting of ISO/TC 56 Mica on 9-11 June 1952, both at Columbia University in New York.

Attempts were made to send two strong delegations from India to the New York meetings. In accordance with international practice, the ISI as the Secretariat is also expected to provide the Chairman for each meeting. The following personnel was nominated by the Executive Committee on the recommendation of the respective Secretariat Committee. It was not known whether all of them would be able to make the journey to New York:

*ISO/TC 50 Lac*

1. DR. LAL C. VERMAN (Chairman)  
Director  
Indian Standards Institution
2. DR. P. K. BOSE (Leader)  
Director  
Indian Lac Research Institute
3. DR. T. G. SHIRNAME  
Agricultural Marketing Adviser to the  
Government of India



4. SHRI BASANT LAL SINGH  
Representing Indian Lac Cess Committee
5. SHRI S. S. L. JAYASWAL  
Representing Indian Lac Cess Committee
6. THE SECRETARY  
Calcutta Shellac Trade Association
7. RAI SAHIB LAKSHMI NARAYAN  
President  
Bihar Shellac Industrialists' Association
8. SHRI R. S. JAYASWAL  
Representing Trade Interests
9. SHRI ARTHUR LALL  
Consul General of the Government of India  
in New York

#### ISO/TC 56 Mica

1. SHRI CHANDMULL RAJGARHIA (Chairman)  
President, Federation of Mica Associations  
of Bihar
2. SHRI R. G. AGARWALA (Leader)  
Representing Export Interest
3. SHRI D. B. SAHANA  
Representing Bihar Mica Trade
4. SHRI CHATTURAM BHADANI  
Representing Bihar Mica Trade
5. SHRI C. V. KRISHNAIAH  
Representing Madras Mica Trade
6. SHRI P. KOTA REDDY  
Representing Madras Mica Trade
7. SHRI BAIJ NATH SHARMA
8. SHRI V. P. SONDDHI  
Deputy Director, Geological Survey of India
9. DR. LAL C. VERMAN (Spokesman)  
Director, Indian Standards Institution

## 12.2 Other ISO Conferences

**12.2.1 ISO Council** — India has been re-elected to the ISO governing Council, and will continue to retain its membership for another term of three years ending 31 December 1954.

**12.2.2 DDE's Tour Abroad** — The Deputy Director (Engineering), Shri J. P. Mehrotra, was deputed to represent the ISI on the following International Conferences held in the summer of 1951.

MEETING	PLACE	DATE
1) ISO/TC 38 — Textiles	Bournemouth	4-9.6.51
2) Commonwealth Standards Conference	London	12-15.6.51
3) Jubilee Celebration of the BSI	do	16-23.6.51
4) 25th Anniversary of Association Francaise de Normalisation, France	Paris	29.5.51
5) ISO Council	Geneva	2-5.6.51
6) Technical Committees and Committee of Action of the IEC	Estoril	4-12.7.51

**12.2.3 DDC's Tour Abroad** — The Deputy Director (Chemicals), Dr. K. L. Moudgill, was deputed to represent the ISI on the following International Technical Committee meetings held in the winter of 1951:

MEETING	PLACE	DATE
1) ISO/TC 62 Sheets and Wire Gauges	London	8-9.10.51
2) ISO/TC 73 Marks Indicating Conformity with Standards	Paris	11-13.10.51
3) ISO/TC 41 Pulleys and Belts	do	15-18.10.51
4) ISO/TC 48 Laboratory Glassware and Related Apparatus	London	29.10.51 to 2.11.51
5) ISO/TC 47 Chemistry	Milan	5-7.11.51
6) ISO/TC 38/SC 7 Textiles/Ropes and Cordages	Paris	14-15.11.51
7) ISO/TC 69 General Definitions Relating to Chemical and Physical Test Results	Geneva	26-29.11.51
8) ISO/TC 27 Solid Mineral Fuels	London	10-14.12.51

#### 12.2.4 Other Delegations Abroad

MEETING	DELEGATES/OBSERVERS	PLACE AND DATE OF MEETING
ISO/TC 27 Solid Mineral Fuels	Dr. J. Sanjana, President, Mining, Geological and Metallurgical Institute of India, Calcutta Commander (E) B. P. Sinha, Dy. Naval Adviser to the High Commissioner for India in UK, London	London 10-14 Dec 1951
ISO/TC 38 Textiles	Shri C. S. Ramanathan, Directorate of Technical Development, New Delhi Shri K. C. Biswas, Pravat Textile Mills Ltd., Calcutta Dr. A. K. Deshpande, Government of Bombay Shri J. S. Quin, President, Indian Rope Manufacturers' Association, Calcutta	Bournemouth (England) 4-9 June 1951
ISO/TC 38/SC 7 Textiles/Ropes and Cordages	Shri J. S. Quin, President, Indian Rope Manufacturers' Association, Calcutta	Paris 14-15 Nov 1951
ISO/TC 45 Rubber	Shri D. N. Sen, Senior Scientific Officer, Technical Development Establishment, Textiles and Clothing, Kanpur Dr. V. R. Sharma, Imperial Chemical Industries (India) Ltd., Calcutta	Oxford (England) 1-5 Oct 1951
ISO/TC 48 Laboratory Glassware and Related Apparatus	Shri S. P. Ogale, Ogale Glass Works Ltd., Ogalevadi	London 29 Oct to 2 Nov 1951

MEETING	DELEGATES/OBSERVERS	PLACE AND DATE OF MEETING
ISO/TC 72 Textile Machinery and Acces- sories	Shri B. C. Munshaw, As- sociation of Merchants and Manufacturers of Textile Stores and Ma- chinery (India), Bombay	Scheveningen (Netherlands) 17-20 Sep 51
ISO/TC 76 Transfusion Equipment for Medical Use	Col. C. L. Pasricha, C/o High Commissioner for India in the U.K., Lon- don	London 3-5 March 1952
IEC/TC 12 Radio Communi- cations	Shri R. R. Joneja, Philips Electrical Co. (India) Ltd., Calcutta	Montreux (Switzerland) 7 Nov 1951
IEC/SC 12/2 Safety (Radio)	do	Montreux 5-7 Nov 1951
IEC/SC 12/3 Radio Compo- nents	do	Estoril (Portugal) 4-6 July 1951
IEC/SC 12/3 Radio Compo- nents	do	Montreux 1-3 Nov 1951

The ISI is indebted to these officials and the Government for their co-operation in this connection.

### 12.3 International Electrotechnical Commission — IEC

**12.3.1** The IEC remained very active and a number of its technical committees held their meetings during the period under report.

The INC-IEC, however, could not take as much active interest in the deliberations of these technical committees as it wished to, on account of financial difficulties.

**12.3.2** The meetings of the following committees were, however, attended by the Indian delegates mentioned against each:

COMMITTEE	PLACE	ATTENDED BY
i) IEC/SC 2B Di- mensions of Motors	Estoril (Portugal)	Shri J. P. Mehrotra
ii) IEC/SC 12-1 Radio Measure- ments	Montreux (Switzer- land)	Shri R. R. Joneja (All-India Radio Manufacturers' As- sociation, Calcutta)
iii) IEC/SC 12-2 Safety (Radio)	do	do
iv) IEC/SC 12-3 Radio Compo- nents	1) Estoril 2) Montreux	do do
v) IEC/TC 12 Radio Communi- cation	do	do

Shri J. P. Mehrotra also attended the meeting of the Committee of Action of the IEC by invitation.

**12.3.3** IEC recommendations on the following subjects were approved for publication:

- 1) Tungsten Filament Lamps for General Service
- 2) Colour Code for Fixed Resistors
- 3) Series of Preferred Values and Their Associated Tolerances for Resistors and Capacitors for Apparatus for Radio Communications.

Besides the above, a number of preliminary draft proposals have been received.

Draft IEC recommendations on the following subjects were received under the six-months' rule and circulated to the committees/organizations concerned:

- 1) Fuses for Voltages not exceeding 1,000 V for A.C. and D.C.
- 2) Porcelain Insulators for Overhead Lines with Nominal Voltage of 1,000 V and Upwards
- 3) Basic Climatic and Mechanical Robustness Testing — Procedure for Components
- 4) Standardization of Rated Currents of Fuse-link on Low Voltage Fuses
- 5) Plugs and Sockets — Outlets for Domestic and Similar General Use
- 6) Shunt Capacitors for Power System (First Part)
- 7) Standard Sheets on Lamp Caps and Holders

### 13. RELATIONS WITH COMMONWEALTH AND OTHER OVERSEAS COUNTRIES

**13.1** Relations of the ISI with the national standards bodies of the Commonwealth and other overseas countries continued on the same friendly and co-operative basis as in the past. Publications, draft standards and minutes of first meetings of technical committees continued to be exchanged throughout the year.

**13.1.1** A total of 1,302 draft standards and proceedings of 93 first meetings of technical committees were received from various countries as detailed in Table VI. These figures do not include the large number of similar documents emanating from the ISO, the IEC and their technical committees which are received here. A total of 88 draft standards and proceedings of one first meeting of a technical committee were sent out from the ISI.

Such an exchange of standards literature and up-to-date information not only helps to keep our library up to date, which is at the disposal of our members and others, but also keeps the ISI technical committees informed of modern trends overseas. Since the unification of international standards, based on national standards, is an important objective, such an exchange provides helpful ground-work for international co-ordination. The ISI Directorate is often asked whether Indian Standards are based on British or American practice. The answer to this question is that while Indian Standards are primarily aimed at meeting national needs, and are formulated in the light of existing industrial practices in the country, the available standards of all other countries are always consulted and often drawn upon to a large measure, subject to and consistent with the Indian needs.

TABLE VI DRAFT STANDARDS AND PROCEEDINGS OF FIRST MEETINGS RECEIVED FROM OVERSEAS COUNTRIES

SOURCE	NUMBER OF	
	Draft Standards	Proceedings of First Meetings
Australia	19	8
Austria	29	-
Belgium	31	-
Chile	3	-
Denmark	13	-
Eire	14	-
France	148	-
Germany	250	-
Israel	28	-
Italy	2	-
Netherlands	42	-
New Zealand	19	6
Poland	240	-
South Africa	95	21
Spain	107	-
U.K.	262	58
TOTAL	1,302	93

### 13.2 Commonwealth Standards Conference

— The 1951 Commonwealth Standards Conference was held in London from 12 to 15 June 1951 and the Indian delegation to this meeting consisted of:

- 1) NAWAB ZAIN YAR JUNG BAHADUR ( Leader )
- 2) DR. S. KRISHNA ( Scientific Adviser to the High Commissioner for India in the U.K. )
- 3) SHRI K. B. RAO ( Director General of Indian Stores Department, London )
- 4) LT.-COL. W. LACEY ( Indian Defence Organization )
- 5) MAJOR HARBANS LAL ( Indian Defence Organization )
- 6) SHRI J. P. MEHROTRA ( Secretary )

Dr. S. Krishna deputized for the leader of the delegation when he could not attend the meetings due to pre-occupation with the work of another international meeting in London.

**13.2.1** The recommendations made at the last conference held in 1946 and action taken by different member countries on them were reviewed. Consideration was also given to amendments or additions found necessary in the light of experience gained since the last conference. It was noted with satisfaction that on the whole the earlier recommendations had been satisfactorily implemented and a number of additional recommendations were made covering different aspects of inter-Commonwealth relationship in the field of standardization and related subjects. These recommendations have received the approval of the EC and GC and have been passed on to the Government of India for action on some of them. From among the general subjects considered at the conference special mention may be made of the following:

*Relations with Defence Services* — The conference discussed at length the need for impressing upon the respective Commonwealth governments the desirability of establishing and maintaining close contacts between their Defence Service Chiefs and the Heads of their Standards Bodies, so that standardization for Defence purposes is integrated with industrial standardization so far as this can be achieved from the earliest stages. It was, however, realized that this problem was rather complicated and a variety of considerations, such as time factor from the point of view of operational necessities, would have to be kept in mind. At this stage, it was thought proper to make only a general recommendation on the need for closer collaboration between the national standards organizations and the various authorities of the Defence Services in each Commonwealth country so as to secure the maximum practicable integration of the standards requirements of the Defence programme with the standards for normal industrial production, in the interest of Defence production potential, economy of materials and ease of inspection and testing.

The ISI has good relations with the Indian Defence Services which are represented on many of our committees. The above recommendation would, of course, lead to greater collaboration between us and assist in securing the maximum possible integration between Indian Standards and Defence requirements.

**13.2.2 Central Translation Service** — One of the general questions considered at the meeting was the proposal made by ISI for the creation of a Central Translation Service for translating into English, for the use of the Commonwealth standards bodies, documents in French and other non-English languages received from ISO Member Bodies. The need for such facilities was generally appreciated, but it was agreed that it should first be decided whether the service should be done at the ISO or the Commonwealth level and whether it would be more economical to have the central service at Geneva or a Commonwealth service in London, at the BSI, on a fee-paying basis of some character. It was finally decided that the question should be raised at the ISO Council meeting at Geneva and that the U.K. and Indian delegates should consult each other before the meeting. It was also agreed that any service that may be set up should not involve any extra charge in the form of contributions and that it should be on a fee-paying basis.

**13.2.3 Use of Standards for Promotion of Export Trade** — In connection with the discussion on the use of standards in relation to export trade, an interesting suggestion was made by a delegate that one of the ways in which different countries could help one another, where their interests did not clash, was persistent propaganda that the goods imported should bear the standards mark of the exporting country. The conference agreed that each Commonwealth country should under-

take a certain degree of propaganda about the marks of other Commonwealth countries *pari passu* with its propaganda about its own mark.

**13.2.4 Decimalization of Coinage** — The question of decimalization of coinage was briefly raised at a late stage in the meeting. It was realized that this and the question of metric system were somewhat complicated to be usefully discussed within the short time available at the conference and that they should be included in the agenda for the next conference. In the meantime, it was agreed that views on these subjects should be exchanged between the different Commonwealth countries. It was interesting to learn, during the course of discussions, that the U.K. Government thought it might be possible to introduce the metric system in their country by 1975.

### **13.3 Jubilee Celebrations of the British Standards Institution**

**13.3.1** The British Standards Institution celebrated from 16 to 23 June 1951 its first half century of achievement. The Commonwealth and other countries participated in the celebrations as the guests of the BSI. The Indian Standards Institution was represented by a delegation consisting of Nawab Zain Yar Jung Bahadur, Dr. S. Krishna and Shri J. P. Mehrotra, Deputy Director (Engineering). The guests received in a generous measure hospitality at the hands of the BSI and the U.K. Government. The High Commissioner for India in London associated himself with the celebrations by sending a message of good wishes to the BSI, which was conveyed in very appropriate terms by Nawab Zain Yar Jung Bahadur. A remarkable feature of the celebrations was the Standards Exhibition organized in the Science Museum at Kensington with the cooperation of the British industries and Government departments. One of the interesting functions arranged for the overseas visitors, who numbered nearly 70, including the ladies who accompanied the invitees, was a visit to the South Bank Exhibition of the Festival of Britain.

**13.3.2 Present for the British Standards Institution** — Nawab Zain Yar Jung Bahadur kindly presented a lacquered cigar and cigarette case to the BSI on behalf of the ISI as its memento on the BSI's Jubilee. In accepting the gift, the Director, BSI, on behalf of the Chairman of the General Council of the BSI, extended his thanks to the ISI.

**13.4 25th Anniversary of Association Française de Normalisation (AFNOR)** — The AFNOR celebrated its 25th Anniversary on 29 May 1951, at which the ISI was represented by Shri J. P. Mehrotra, Deputy Director (Engineering). At a function, presided over by a Minister of the French Republic, the very valuable work done by the AFNOR during the last 25 years was reviewed.

### **14. ISI CERTIFICATION MARKS**

**14.1** In the introductory paragraphs to this Report, mention has been made of the enactment of the ISI Certification Marks Bill.

**14.2** The Bill was introduced in Parliament on 5 March 1951. But it was not before a later session that it could be taken up for discussion, and on 25 September 1951, Parliament resolved to refer it to a Select Committee with Dr. Bakshi Tek Chand as Chairman. The Select Committee held three meetings in the last week of September and the first week of October 1951. It resumed its deliberations in February 1952 when Parliament met again, and submitted its report to Parliament on 15 February 1952.

**14.3** The Deputy Minister for Commerce & Industry moved the redrafted Bill in Parliament on 1 March 1952, and it was passed the same day, with some amendments. The Act received the President's assent on 21 March 1952 and was immediately published in an extraordinary issue of the *Gazette of India* bearing the same date. It was reproduced in *ISI Bulletin*, Volume 4, No. 2, April 1952 issue.

It is hoped that it would be possible to have the Certification Marks Scheme in operation before long. The next step will obviously be taken by the Institution after the rules are framed by the Central Government.

At the Conference of the Directors of Industries of States (referred to earlier) held in March 1952, the scope of States' participation in the ISI Certification Marks Scheme was discussed.

From newspaper reports from time to time it had appeared that some States had been considering the possibility of starting similar schemes, while a few such State schemes were already in operation. The conference discussed favourably the desirability of having uniform policies and procedures in such schemes in all States, and felt that the opinion of the State Governments should be obtained before powers of the ISI were delegated to non-governmental organizations in respect of matters relating to the administration of the ISI Certification Marks Scheme.

### **15. PLANNING COMMISSION**

**15.1** In view of the inevitable difficulties that have arisen in the past, due to financial stringency, in obtaining special grants from time to time for various schemes and projects, and further in view of the Planning Commission's interest in the work of standardization, a Five-Year Plan (1951-56) for the development of the ISI was drawn up for consideration of the Planning Commission. This Plan, as approved by the EC, was forwarded to the Planning Commission through the Ministry of Commerce & Industry. Though it had not been possible to get the Plan accepted for the first year (1951-52), a substantial part of the Plan was approved by the Planning Commission from the year 1952-53, and it is gratifying to record that the Government agreed to increase its grant-in-aid from Rs 2.20 lakhs to Rs 4.20 lakhs to enable the Institution to implement the Plan for 1952-53.

The details for the remaining three years are, at present, under examination of the Ministry

of Commerce & Industry and the Planning Commission.

**15.2** With the increase of Rs 2 lakhs in the grant for the year 1952-53, the General Council has decided to embark on the following new projects:

- 1) Building Division Council,
- 2) Steel Economy Section,
- 3) International Electrotechnical Commission work taken over from the Institution of Engineers (India),
- 4) Partial initiation of work on Agricultural and Food Products Division, mainly concerning the standardization of food grain storage.

## 16. OTHER ACTIVITIES

**16.1 Exhibitions** — The ISI participated in the following exhibitions during the year under review:

- 1) The International Industries Fair at Bombay,
- 2) The Colombo Plan Exhibition,
- 3) Exhibitions of Literature on Library Science
  - a) at Indore in May 1951 on the occasion of the 9th Annual Conference of the All-India Library Association, and
  - b) at Chagalamarri, Kurnool District, when the 28th Andhrades Library Conference was held in July 1951.

**16.2 International Statistical Conferences** — The 27th session of the International Statistical Institute, which was held in New Delhi from 5 to 11 December 1951, was attended by Dr. Lal C. Verman, Director, ISI. In addition to representing the ISI, the Director was nominated to represent the ISO and the CSIR in these conferences.

**16.3 Symposium on the 'Social Relations of Sciences'** — Dr. Lal C. Verman, Director, ISI, attended the symposium on the 'Social Relations of Sciences' held at the Lady Hardinge Medical College, New Delhi, under the auspices of the Association of Scientific Workers in India, on 21 October 1951, and delivered a speech on 'Standardization — A Social Service by Science'.

**16.4 Symposium on 'Development of Fine Chemicals and Pharmaceuticals in India'** — Dr. K. L. Moudgill, Deputy Director (Chemicals), attended the symposium on 'Development of Fine Chemicals and Pharmaceuticals in India' held in Poona under the joint auspices of the National Institute of Sciences and the National Chemical Laboratory of India on 3 and 4 August 1951 and delivered a speech on 'Standardization of Fine Chemicals and Pharmaceuticals'.

**16.5 Rotary Club of Jamshedpur** — Shri J. P. Mehrotra, Deputy Director (Engineering), delivered an address to the Rotary Club at Jamshedpur on 'Standardization with Particular Reference to the Engineering Industry'.

**16.6 Modi Textile Staff Club** — At the invitation of the Technological Section, Modi Textile

Staff Club, Shri Maharaj Kishen, Assistant Director (Textiles) gave a talk on 'Standardization of Textiles' at Modi Mills, Modinagar, on 20 April 1951.

**16.7 Textile Association (India)** — Shri Maharaj Kishen accepted the invitation of the Textile Association (India) and read a paper on 'The Rôle of Textile Standards in India's Development Plans' before the 9th All-India Textile Conference and Industrial Exhibition held in Baroda from 11 to 13 March 1952.

**16.8 Banaras Hindu University** — Shri A. B. Rao, Technical Officer (Engineering), spoke to the Engineering students of the Banaras Hindu University on 'The Rôle of National Standards and the Standardization Activities of the ISI'.

**16.9 Other Meetings** — The ISI staff attended the following meetings on invitation by agencies calling such meetings:

MEETING	ATTENDED BY
Nineteenth All-India Library Conference, held at Indore from 11 to 14 May 1951	Shri G. L. Gulati, Librarian
Delhi University Seminar in Library Science, held on 3 November 1951	Shri G. L. Gulati, Librarian

**16.10 ISI Club** — The ISI Club, which was inaugurated in February 1951, celebrated the fourth anniversary of the ISI Directorate on 2 June on which date the Directorate had started functioning in 1947. The employees and their families participated in the celebrations.

**16.11 Distinguished Visitors** — During the course of the year, the following were among the distinguished persons who visited the Institution:

- 1) LORD HALSBURY
- 2) MR. SAMIOZELSEL, Commercial Attache, Turkish Embassy
- 3) SHRI SHANKAR PRASAD, Chief Commissioner, Delhi State
- 4) MR. P. NARARAJ CHAMMONG, ECAFE (Bangkok)
- 5) MR. A. S. PHILPOT, Director of Scientific Instruments Manufacturers' Research Institute, U.K.

Mr. Cyril Ainsworth, Technical Director, ASA, who visited this country on the invitation of the ILO to attend the seminar on industrial safety, held in Calcutta during the month of February 1952, visited this Institution on 20 to 22 February 1952. By special request of the Board of Directors of the ASA, he brought greetings and salutations to the ISI. He expressed the ASA's appreciation of the common interest between America and India and their hope for the continued friendly and co-operative relations which the two organizations have enjoyed to the mutual benefit of their respective national economies.

Dr. E. E. Nishibori, a statistician from Japan, who visited the ISI headquarters in January 1952, and discussed with the officers of the ISI

Directorate the statistical problems in standardization, presented a Stochastic Slide Rule on behalf of the Japanese Standards Association. The gift was highly appreciated.

## 17. LIBRARY

**17.1** The Library continued to collect and receive standards issued by a large number of standards organizations from all parts of the world. During the year under review, 6,534 new standards were accessioned.

**17.2** The Library now holds sets of standards of the following organizations listed under their respective countries:

- 1) AUSTRALIA  
Standards Association of Australia
- 2) AUSTRIA  
Osterreichischer Normenausschuss
- 3) BELGIUM  
Institut Belge de Normalisation
- 4) BRAZIL  
Associacao Brasileira de Normas Tecnicas
- 5) BRITAIN  
British Standards Institution  
British Cycle and Motor Cycle Manufacturers' and Traders Union  
British Electrical and Allied Industries Research Association  
Institution of Civil Engineers  
Interservices Radio Components Standardization Committee  
Ministry of Supply ( Non-military and DTD only )  
Post Office Engineering Department  
Society of Motor Manufacturers and Traders
- 6) CANADA  
Canadian Government Specifications Board  
Canadian Standards Association
- 7) CHILE  
Instituto Nacional de Investigaciones Technologicas y Normalizacion
- 8) CHINA  
National Bureau of Standards
- 9) CZECHOSLOVAKIA  
Ceskoslovenska Spolecnost Normalisacni Elektrotechnicky svaz Ceskoslovensky
- 10) DENMARK  
Dansk Standardiseringsrad
- 11) EIRE  
Institute for Industrial Research and Standards
- 12) FINLAND  
Suomen Standardisoimislahtakunta
- 13) FRANCE  
Association Francaise de Normalisation  
Bureau des Normes de l'automobile
- 14) GERMANY  
Deustcher Normenausschuss  
Verband Deutscher Electrotechniker
- 15) HUNGARY  
Magyar Szabvanyubyi Intezet
- 16) INDIA  
Indian Standards Institution  
Ministry of Communications  
Ministry of Defence  
Ministry of Works, Production and Supply
- 17) ISRAEL  
Standards Institution of Israel
- 18) ITALY  
Uni Ente Nazionale Italiano de Unificazione
- 19) JAPAN  
Japanese Industrial Standards Committee
- 20) MEXICO  
Direccion General de Normas
- 21) NETHERLANDS  
Hoofdcmissie voor de Normalisatie Nederlan
- 22) NEW ZEALAND  
New Zealand Standards Institute
- 23) NORWAY  
Norges Standardiserings-Forbund
- 24) POLAND  
Polski Komitet Normalizacyjny
- 25) RUMANIA  
Comisinunea de Standardizare
- 26) SOUTH AFRICA  
South African Standards Institution  
South African Bureau of Standards
- 27) SPAIN  
Instituto de Racionalizacion de Trabajo
- 28) SWEDEN  
Sveriges Standardiseringskommission
- 29) SWITZERLAND  
VSM Normalienbureau des Vereins Schweizerischen Maschinenindustrieller
- 30) UNION OF SOVIET SOCIALIST REPUBLICS  
All Union Standards Committee
- 31) UNITED STATES OF AMERICA  
American Standards Association  
American Society of Heating and Ventilating Engineers  
American Society for Testing Materials  
National Bureau of Standards  
Bureau of Federal Supply  
Society of Automotive Engineers  
Department of Agriculture  
Department of Army  
National Electrical Manufacturers' Association  
Radio Television Manufacturers' Association  
American Institute of Electrical Engineers  
American Society of Mechanical Engineers  
Institute of Radio Engineers  
American Petroleum Institute
- 32) URUGUAY  
Instituto Uruguaye de Racionalizacion ye Normas Tecnicas

**17.3** The Library also receives all publications issued by the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), the International Bureau for Weights and Measures, and Economic Commission for Asia and the Far East (ECAFE).

**17.4** The total number of standard specifications in the Library now exceeds 21,000. These have all been catalogued and indexed for ready reference. New accessions to the Library are listed in the *ISI Bulletin* every quarter for information of the members and other subscribers. Over three hundred reference books were also added to the Library for the use of officers and staff of the Institution and for consultation by members.

**17.5** Arrangements were made from time to time for translation of standards literature from French, German, Italian and Russian. The resources of the Library were freely utilized by the committees and subcommittees of the Institution. Bibliographies for the use of committee members were prepared on more than 38 subjects. The number of specifications lent out for the use of members and staff for committee work was of the order of 3,280. The Library also collected and supplied information on standards literature on various subjects in India and abroad. Table VII gives the increase in the number of accessions during the last three years.

**TABLE VII LIBRARY RECEIPTS AND SERVICE**

	1949-50	1950-51	1951-52	INCREASE OVER 1950-51
Standards	2,988	4,098	6,534	2,436
Draft Standards	607	1,143	1,302	159
Proceedings of First Meetings of Committees	142	151	93	-58
Periodicals	72	102	130	28
Standards and Draft Standards Loaned and Con- sulted ( <i>approx</i> )	2,450	2,800	3,280	480
Bibliographies Pre- pared ( <i>approx</i> )	25	27	38	11

**17.6** The Library receives 130 technical journals regularly, including 33 on standardization. The lists of the journals are given in Appendix 20.12.

## 18. PUBLICATIONS

**18.1 Standards** — During the year under review, 112 new Indian Standards were published, bringing the total to 291. A list of the standards published so far and in press is given in Appendix 20.13.

**18.2 ISI Bulletin** — The third volume of *ISI Bulletin* was completed with the October 1951 issue, and the publication of the fourth volume commenced with the January 1952 issue. The circulation of the Bulletin has gone up from 2150 to 2250 in the course of the year. Of these, 136 copies are distributed to subscribers, 136 given in exchange for foreign and Indian technical journals, and the remaining distributed among members and officers of the ISI.

**18.2.1** Eleven technical papers were published in the second, third and fourth issues of the third volume and the first issue of the fourth volume of the Bulletin. Descriptions of the structures and functions and other distinctive features of the national standards organizations of Switzerland, New Zealand, Netherlands and Australia were included, one in each issue. Sections on Standards News, ISI Activities and Accessions to the ISI Library have already become permanent and useful features of the Bulletin. The descriptions of Indian Standards and Draft Indian Standards issued during the quarter, previously included in the feature 'ISI Activities', began to be reported under two separate heads: 'New Indian Standards' and 'Draft Indian Standards', beginning with the January 1952 issue.

**18.3 ISI Handbook of Publications** — To meet a pressing need for a book of reference on Indian Standards and to indicate in a general way the directions in which the ISI may provide the indispensable service on standardization matters for the development of an integrated industrial structure of the country, a Handbook was published for the first time. It contains a foreword

by Shri Harekrushna Mahtab, President, ISI, and is divided into two parts. The first part gives general information about the organization and the set-up of ISI, while a comprehensive list of such standards as had been issued up to August 1951, or were soon to be issued, numbering 320 in all, with a brief description of each, and a list of other publications, are given in the second part. For purposes of quick reference, an exhaustive subject index to Indian Standards, arranged in alphabetical order, and another, based on U.D.C., are included in the Handbook.

**18.4 Information Folder** — A four-page Information Folder, giving organizational set-up, progress of work and other activities of the Institution in brief, was published for free distribution.

**18.5 Articles Published in other Journals** — Several articles and technical papers were contributed during the year under review to various technical and trade journals on invitation. A list of these is given in Table VIII.

**18.6 Press Notes** — With a view to keeping the general public as well as the industrial, commercial and other interests in the country constantly informed about the activities of the Institution, the practice of issuing press notes through the Press Information Bureau, Government of India, was continued. According to this practice, a press note is released whenever a standard is issued in circulation in the draft form for comments, and again when it is published as a finalized standard. Press notes are also issued concerning other important events connected with ISI activities.

**18.6.1** Thirty-six press notes covering 133 published Indian Standards and 55 press notes for 114 Draft Indian Standards were issued during the year. In respect of other activities of the Institution, another 15 press notes were issued.

**18.6.2** Besides the daily and weekly press, important technical journals like *Current Science*, *Journal of Scientific & Industrial Research*, *Journal of the Indian Chemical Society*, *The Metal Market Review*, *The Indian Concrete Journal*, *The Indian and Eastern Engineer*, *The Monthly Review of Industry*, *Engineering News of India*, *The Manufacturer*, *The Journal of Industry and Trade*, *Indian Engineering*, *Paintindia*, *Jute and Gunny Review*, *Indian Pulp and Paper*, *Rubber India*, *Soap*, etc, continued to evince keen interest in the activities of the ISI, and published our press notes in their columns.

**18.7 Sale of Standards** — Sale of Indian Standards as well as of overseas standards registered significant increase during the year, as indicated in Table IX and Fig 4. During the year, about one lakh copies of ISI publications were distributed free to members. The sale proceeds of ISI publications amounted to Rs 29,400/- against the last year's figure of Rs 20,000/-. Moreover, BSI and other standards worth Rs 34,300 were cleared.

TABLE VIII ARTICLES CONTRIBUTED

Sl. No.	TITLE	AUTHOR	PUBLICATION	DATE
1.	Indian Standards Institution	—	Commercial Directory for Madras State	—
2.	Standardization and Its Progress in India	Shri Jainath Kaul	The Manufacturer	July 1951
3.	Standardization, ISI and Paper Standards	Shri Jainath Kaul	Indian Pulp and Paper	Anniversary Number, July 1951
4.	Indian Standards for Fine Chemicals and Pharmaceuticals	Shri Jainath Kaul	The Indian Export Trade Journal	August 1951 and September 1951
5.	Progress of Standardization in India	Shri Jainath Kaul	Engineering News of India	Special Number, September 1951
6.	Standardization—Its Principles and Development in the World and the ECAFE Region	Dr. Lal C. Verman	Trade Promotion Conference, ECAFE Publication Trade/2	3 August 1951
7.	ISI and International Standardization	—	Journal of Scientific & Industrial Research	December 1951
8.	Standardization and Export Promotion	Shri Jainath Kaul	The Indian Export Trade Journal	First Annual Number, December 1951
9.	Indian Standards Institution and Textile Standards	Shri Jainath Kaul	Directory of the Association of Merchants of Textile Stores and Machinery (India), Bombay	(Under print)
10.	Standardization and Metal Standards	Shri Jainath Kaul	The Metal Market Review	Annual Number, February 1952
11.	The Role of Textile Standards in India's Development Plans	Shri Maharaj Kishen	Souvenir 1952—The 9th All-India Textile Conference and Industrial Exhibition	March 1952
12.	Standardization of Paints and Allied Products in India	Dr. K. L. Moudgill	Paintindia	April 1952

TABLE IX SALE OF PUBLICATIONS

SOURCE ORGANIZATION	YEAR				
	1947-48 Rs	1948-49 Rs	1949-50 Rs	1950-51 Rs	1951-52 Rs
ISI	—	600	4,300	20,000	29,400
BSI	700	5,100	16,700	24,500	25,500
ASA	—	—	800	2,400	1,200
ASTM	—	—	3,100	3,900	7,000
Others	—	—	300	600	600
TOTAL	700	5,700	25,200	51,400	63,700

## 19. FINANCE

**19.1** The Institution, once again, managed to operate within its income, though the preliminary estimates had indicated a deficit of Rs 1.58 lakhs. Against an anticipated expenditure of Rs 6.64 lakhs, the actual amount spent was Rs 4.46 lakhs. The saving of Rs 0.33 lakh was achieved by exercising extreme economy in every phase of expenditure.

**19.2** As regards the income, the Institution, maintaining progressive increase in the revenues, received Rs 4.79 lakhs against an anticipated income of Rs 5.06 lakhs. It collected Rs 2.06 lakhs as subscription for the calendar year 1951 as against the previous year's figure of Rs 1.87 lakhs.

**19.2.1** Against an anticipated grant-in-aid of Rs 2.40 lakhs for the financial year 1951-52 which included Rs 20,000/- for the Marks Division Council, the Central Government gave Rs 2.20

lakhs since the Marks Division Council could not be created in the year 1951-52.

**19.2.2** In addition to the above grant-in-aid, the Central Government sanctioned Rs 5,000/- in the month of March 1952 to enable the ISI to take up the work of laying down standards for food-grain storage structures.

**19.2.3** The Government grant for IEC subscription, amounting approximately to Rs 3,000/- could not be obtained in the year 1951-52. It is expected to be received in the year 1952-53.

**19.3** The Government of India, in appreciation of the valuable work the ISI has already accomplished and in recognition of the work that still needs to be done for the industrial development of the country, has almost doubled the last year's grant-in-aid by sanctioning Rs 4.20 lakhs for the year 1952-53.

**19.3.1** Notwithstanding the increase in the grant-in-aid over that for the preceding year, the Institution faces an estimated deficit of Rs 0.71 lakh in the year 1952-53. The ISI, however, hopes that the State Governments and the Industry may fall in line with the Central Government by increasing their contributions proportionally or to such an extent that its activities may be further extended and strengthened.

**19.3.2** The Institution takes pleasure in placing on record its appreciation of the financial support rendered freely by its members and others by way of meeting the travelling expenses of members of sectional committees and representatives of the ISI within India and abroad for attending the nu-



merous meetings of technical committees and sub-committees of ISI, ISO and IEC. It is estimated that the indirect contribution of this kind amounted approximately to Rs 1.26 lakhs.

**19.4 Budget** — The accounts of the ISI for the year 1951-52, as duly audited by the Comptroller and Auditor General of India and found correct, are detailed in Appendix 20.14.

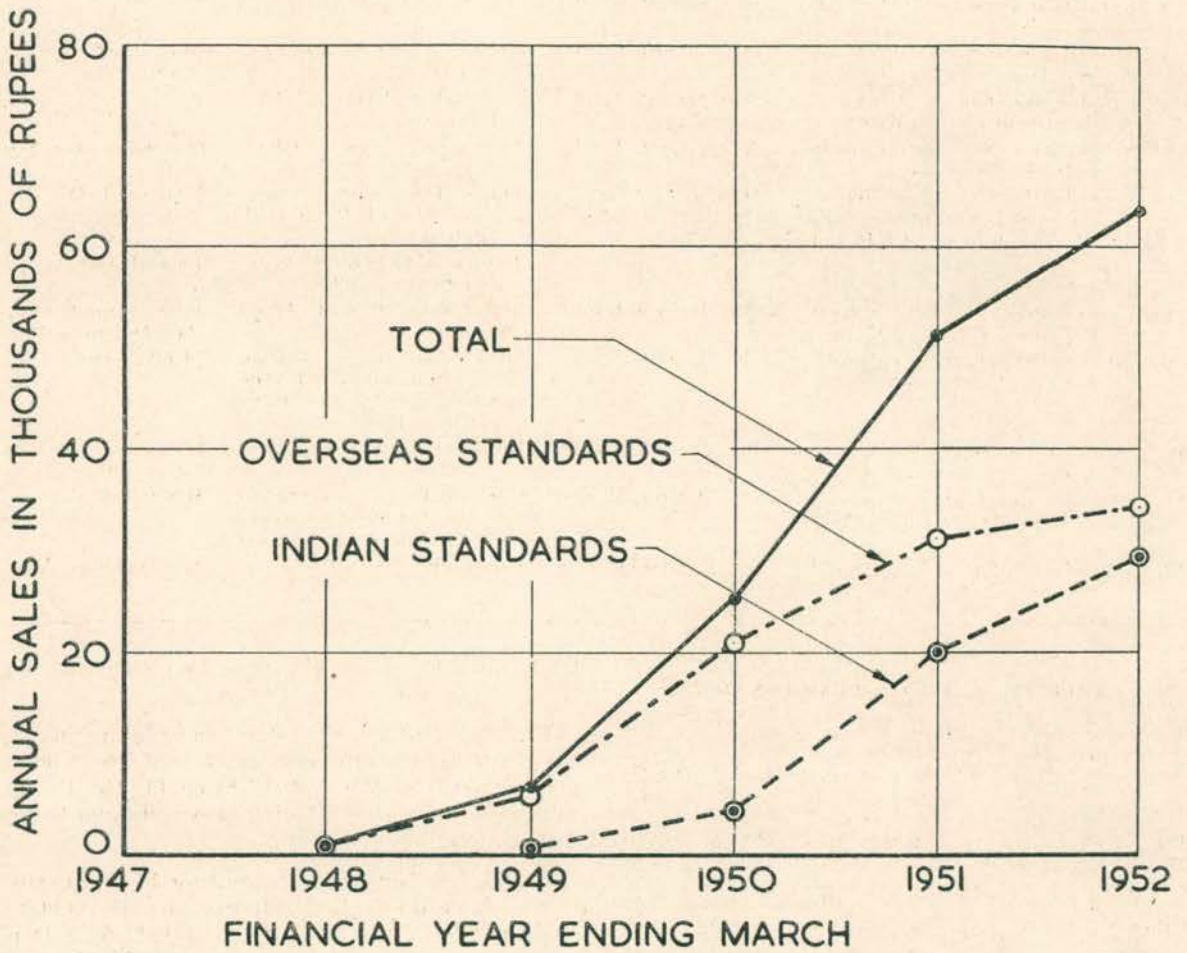


FIG 4 GROWTH OF SALE OF INDIAN AND OVERSEAS STANDARDS

## 20. APPENDICES

### APPENDIX 20.1

#### MEMBERS OF THE GENERAL COUNCIL

PRESIDENT: Shri Harekrushna Mahtab  
 VICE-PRESIDENTS: Dr. K. S. Krishnan  
 Lala Shri Ram

<i>Organization/Interest</i>	<i>Representative</i>
MINISTRY OF COMMERCE AND INDUSTRY	Shri K. N. Kaul, Joint Secretary
MINISTRY OF DEFENCE	Dr. D. S. Kothari, Scientific Adviser
MINISTRY OF FOOD AND AGRICULTURE	Dr. T. G. Shirname, Agricultural Marketing Adviser
MINISTRY OF HEALTH	Shri P. M. Menon, Joint Secretary
MINISTRY OF RAILWAYS	Shri B. S. Sindhu, Deputy Chief Controller of Standardization, Railway Board
MINISTRY OF TRANSPORT	Shri H. P. Mathrani, Consulting Engineer (Roads)
MINISTRY OF COMMUNICATIONS	Chief Engineer, Posts and Telegraphs
MINISTRY OF FINANCE	Shri K. R. P. Aiyangar, Joint Secretary
MINISTRY OF WORKS, PRODUCTION AND SUPPLY	Shri N. G. Dewan, Superintending Engineer, CPWD
MINISTRY OF INFORMATION AND BROADCASTING	Shri C. L. Bhardwaj, Information Officer
MINISTRY OF NATURAL RESOURCES AND SCIENTIFIC RESEARCH	The Director, Indian Bureau of Mines
GOVERNMENT OF PUNJAB	Director of Industries
GOVERNMENT OF BIHAR	Dr. K. R. Krishnaswami, Director of Industries
GOVERNMENT OF ASSAM	The Secretary, Transport and Industries Department
GOVERNMENT OF MADRAS	Shri M. T. Raju, Director of Industries and Commerce
GOVERNMENT OF WEST BENGAL	Director of Industries
GOVERNMENT OF U.P.	Dr. D. R. Dhingra, Deputy Director of Industries (Education)
GOVERNMENT OF MADHYA PRADESH	Director of Industries
GOVERNMENT OF BOMBAY	Director of Industries
GOVERNMENT OF ORISSA	Shri D. Misra, Director of Agriculture and Food Production
GOVERNMENT OF TRAVANCORE-COCHIN	Shri M. C. Thomas, Secretary
GOVERNMENT OF SAURASHTRA	Shri M. V. Parekh, Director of Industries
GOVERNMENT OF HYDERABAD	Nawab Zain Yar Jung Bahadur
GOVERNMENT OF RAJASTHAN	Shri Bhanwar Lal Sharma, Deputy Secretary
GOVERNMENT OF JAMMU AND KASHMIR	Director of Industries
GOVERNMENT OF MADHYA BHARAT	Director of Industries
GOVERNMENT OF MYSORE	Director, Chemical and Metallurgical Industries in Mysore
GOVERNMENT OF PATIALA AND EAST PUNJAB STATES UNION	Shri K. L. Budhiraja, Secretary
GOVERNMENT OF CEYLON	Mr. Egerton Christison Selvarayan Paul, Deputy Director of Industries
CENTRAL GOVERNMENT NOMINEES	Lala Shri Ram, New Delhi Shri Biren Mookerji, Calcutta Shri G. L. Mehta, Planning Commission
COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH	Dr. S. S. Bhatnagar, Director, Scientific and Industrial Research Dr. K. S. Krishnan, Director, National Physical Laboratory
INDIAN COUNCIL OF AGRICULTURAL RESEARCH	Shri R. L. Sethi, Agricultural Commissioner with the Government of India
CENTRAL BOARD OF IRRIGATION AND POWER	Member (Irrigation), Central Water and Power Commission
NATIONAL INSTITUTE OF SCIENCES (INDIA)	Prof. G. R. Paranjpe, Poona
INSTITUTION OF ENGINEERS (INDIA)	Shri E. A. Nadirshah, Bombay Shri K. F. Antia, Bombay Shri H. N. Dallas, Bombay
INDIAN INSTITUTE OF ARCHITECTS	Shri H. N. Dallas, Bombay
FEDERATION OF INDIAN CHAMBERS OF COMMERCE	Dr. L. A. Bhatt, Bombay Seth Ratanchand Hirachand, Bombay
ASSOCIATED CHAMBERS OF COMMERCE	Shri C. P. G. Wade, New Delhi
ALL-INDIA MANUFACTURERS' ORGANIZATION	Dr. L. C. Jariwala, Bombay

<i>Organization/Interest</i>	<i>Representative</i>
INDIAN STATISTICAL INSTITUTE TEXTILE DIVISION-COUNCIL	Prof. P. C. Mahalanobis, Calcutta Shri Bharat Ram, Delhi Shri Surottam P. M. Hutheesing, Ahmedabad Shri B. C. Munshaw, Bombay
ENGINEERING DIVISION COUNCIL	Shri S. L. Kirloskar, Poona Col. A. G. C. Northcroft, New Delhi Prof. M. S. Thacker, Bangalore
CHEMICAL DIVISION COUNCIL	Dr. H. L. Roy, Calcutta Prof. T. R. Seshadri, Delhi Dr. B. P. Pal, New Delhi
SUSTAINING MEMBERS	Sir J. J. Ghandy, Jamshedpur Dr. R. R. Hattiangadi, Bombay Mr. H. Chiswell Jones, Calcutta Shri B. K. Rohatgi, Calcutta Mr. J. G. Walton, Calcutta
SUSTAINING MEMBERS ( Associates )	Shri Lalbhai Patel, Bombay
ORDINARY MEMBERS	Shri H. M. Desai, Bombay
ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION ( Co-opted )	Dr. B. P. Pal, New Delhi
DIRECTORATE GENERAL OF SUPPLIES AND DISPOSALS ( Co-opted )	Deputy Director General ( Inspection )
CHAIRMAN, COTTON TEXTILES FUND COMMITTEE ( Co-opted )	Lala Shri Ram, New Delhi
SECRETARY	Dr. Lal C. Verman, Director, ISI

## APPENDIX 20.2

### MEMBERS OF THE EXECUTIVE COMMITTEE

CHAIRMAN: Dr. K. S. Krishnan

<i>Organization/Interest</i>	<i>Representative</i>
VICE-PRESIDENTS	Dr. K. S. Krishnan, New Delhi Lala Shri Ram, New Delhi
CHAIRMAN, TDC	Shri Bharat Ram, Delhi
MEMBER, TDC	Shri Surottam P. M. Hutheesing, Ahmedabad
CHAIRMAN, EDC	Shri S. L. Kirloskar, Poona
CHAIRMAN, CDC	Dr. H. L. Roy, Calcutta
MINISTRY OF FINANCE	Shri K. R. P. Aiyangar, Joint Secretary
MINISTRY OF COMMERCE AND INDUSTRY	Shri K. N. Kaul, Joint Secretary
MINISTRY OF DEFENCE	Dr. D. S. Kothari, Scientific Adviser
MINISTRY OF FOOD AND AGRICULTURE	Dr. T. G. Shirname, Agricultural Marketing Adviser
INSTITUTION OF ENGINEERS ( INDIA )	Shri E. A. Nadirshah, Bombay
GENERAL COUNCIL ( Elected )	Prof. G. R. Paranjpe, Poona Dr. L. C. Jariwala, Bombay Dr. L. A. Bhatt, Bombay Shri H. P. Mathrani, New Delhi Dr. Lal C. Verman, Director, ISI
SECRETARY	

## APPENDIX 20.3

### MEMBERS OF THE FINANCE COMMITTEE

CHAIRMAN: Shri K. R. P. Aiyangar

<i>Organization/Interest</i>	<i>Representative</i>
MINISTRY OF FINANCE	Shri K. R. P. Aiyangar, Joint Secretary
CHAIRMAN, TDC	Shri Bharat Ram, Delhi
CHAIRMAN, EDC	Shri S. L. Kirloskar, Poona
CHAIRMAN, CDC	Dr. H. L. Roy, Calcutta
GENERAL COUNCIL ( Elected )	Dr. K. S. Krishnan, New Delhi Lala Shri Ram, New Delhi Shri K. N. Kaul, Joint Secretary, Ministry of Commerce and Industry
SECRETARY	Shri B. C. Munshaw, Bombay Dr. Lal C. Verman, Director, ISI

## APPENDIX 20.4

### LIST OF SUBSCRIBING MEMBERS

(\* Denotes Organizations and Associations of Industries, Trade and Commerce)

#### SUSTAINING MEMBERS

1. A. & S. Henry & Co. Ltd. Calcutta
2. Aaron Spinning & Weaving Mills Ltd., Pappinisseri P.O. (N. Malabar)
3. Acme Manufacturing Co. Ltd., Bombay
4. Adcco Ltd., Calcutta
5. Addison's Paints & Chemicals Ltd., Madras
6. Agarpara Co. Ltd., Calcutta
7. Agrico Department, Tata Iron & Steel Co. Ltd., Jamshedpur
8. Ahmedabad Advance Mills Ltd., Bombay
9. Ahmedabad Manufacturing & Calico Printing Co. Ltd., Ahmedabad
- \*10. Ahmedabad Millowners' Association, Ahmedabad
11. Ahmedabad New Cotton Mills Co. Ltd., Ahmedabad
- \*12. Ahmedabad Textile Industry's Research Association, Ahmedabad
13. Ahura Chemical Products Ltd., Bombay
14. Ajax Products Ltd., Madras
15. W. J. Alcock & Co. Ltd., Calcutta
16. Alcock Ashdown & Co. Ltd., Bombay
17. Alembic Chemical Works Co. Ltd., Baroda
18. Alfred Herbert (India) Ltd., Calcutta
19. Alkali & Chemical Corporation of India Ltd., Calcutta
- \*20. All India Bobbin Manufacturers' Association, Bombay
- \*21. All India Exporters' Association, Bombay
- \*22. All India Glass Manufacturers' Federation, New Delhi
- \*23. All India Manufacturers' Organization, Bombay
- \*24. All India Non-Ferrous Metalware Manufacturers' Association, Bombay
- \*25. All India Plastics Manufacturers' Association, Bombay
- \*26. All India Pottery Manufacturers' Association, Calcutta
- \*27. All India Radio Merchants' Association, Bombay
- \*28. All India Starch Manufacturers' Association, Bombay
29. Aluminium Corporation of India Ltd., Calcutta
30. Aluminium Hindustan Ltd., Bombay
31. Aluminium Industries Ltd., Kundara, Travancore
32. Aluminium Manufacturing Co. Ltd., Calcutta
33. Aluminium Union Ltd., Calcutta
34. Amco Ltd., Bombay
35. Angelo Brothers Ltd., Calcutta
36. Anglo-Dutch Paint, Colour & Varnish Works Ltd., Delhi
37. Anglo-Swiss Watch Co., Calcutta
38. Anil Starch Products Ltd., Ahmedabad
39. Annapurna Metal Works, Calcutta
40. A. M. Arathoon Ltd., Calcutta
41. Armco (India) Ltd., Calcutta
42. Aruna Mills Ltd., Ahmedabad
43. Arvind Mills Ltd., Ahmedabad
44. Aryodaya Ginning & Mfg. Co. Ltd., Ahmedabad
45. Asbestos Cement Ltd., Bombay
46. Ashok Motors Ltd., Madras
47. Asia Chemicals Ltd., Delhi
48. Asiatic Oxygen & Acetylene Co. Ltd., Calcutta
49. Asoka Mills Ltd., Ahmedabad
50. Assam Bengal Cement Co. Ltd., Calcutta
51. Assam Bengal Veneer Industries, Calcutta
52. Assam Government, Secretary, Transport and Industries Deptt., Shillong
53. Assam Oil Co. Ltd., Digboi P.O., Assam
54. Assam Railways & Trading Co. Ltd., P.O. Margherita, Upper Assam
55. Assam Saw Mills & Timber Co. Ltd., Calcutta
56. Associated Cement Companies Ltd., Bombay
- \*57. Associated Chambers of Commerce of India, Calcutta
58. Associated Consulting Engineers (India), Bombay
59. Associated Electrical Industries (India) Ltd., Calcutta
60. Associated Electrical Industries Mfg. Co. Ltd., Calcutta
61. Associated Instrument Manufacturers (India) Ltd., Calcutta
62. Associated Research Laboratories, Bombay
63. Association of British Chemical Manufacturers (Eastern Branch Office), Bombay
- \*64. Association of Indian Industries, Bombay
65. Association of Merchants & Manufacturers of Textile Stores & Machinery, Bombay
66. Automatic Electric Devices Co., Bombay
67. Automobile Products of India Ltd., Bombay
68. Ayery Company Ltd., Calcutta
69. B. S. & Company, Calcutta
70. Balmer Lawrie & Co. Ltd., Calcutta
71. Bangur Brothers Ltd., Calcutta
72. Bararee Coke Co. Ltd., Calcutta
73. Bata Shoe Company Ltd., Calcutta
74. Behar Chemical Traders, Howrah
75. Behar Firebricks & Potteries Ltd., Mugma P.O., Manbhium District
76. Beharilal Ramcharan Cotton Mills Ltd., Bombay
- \*77. Bengal Chamber of Commerce, Calcutta
78. Bengal Chemical & Pharmaceutical Works Ltd., Calcutta
79. Bengal Electric Lamp Works Ltd., Calcutta
80. Bengal Enamel Works Ltd., P.O. Palta, Distt. 24 Parganas
- \*81. Bengal Hosiery Manufacturers' Association, Calcutta
82. Bengal Immunity Co. Ltd., Calcutta
83. Bengal Ingot Co. Ltd., Calcutta
- \*84. Bengal Millowners' Association, Calcutta
- \*85. Bengal National Chamber of Commerce, Calcutta
86. Bengal Potteries Ltd., Calcutta
87. M. Best Cotton Rope Mfg. Co., Bombay
88. Bharat Battery Manufacturing Co. Ltd., Calcutta
89. Bharat Carbon & Ribbon Mfg. Co. Ltd., Calcutta
- \*90. Bharat Chamber of Commerce, Calcutta
91. Bharat Electrical Industries Ltd., Calcutta
92. Bharat Glass Works Ltd., Belgharia
93. Bharat Plastics Ltd., Calcutta
94. Bharat Tiles & Marble Ltd., Bombay
95. Bhartia Electric Steel Co. Ltd., Calcutta
96. Bhor Industries Ltd., Bhor (via Poona)
97. Bihar Government, Director of Industries, Patna
98. Bihari Mills Ltd., Ahmedabad

99. Binani Metal Works Ltd., Calcutta  
100. Birkmyre Brothers Ltd., Calcutta  
101. Birla Cotton Spg. & Wvg. Mills Ltd., Delhi  
102. Bisra Stone Lime Co. Ltd., Calcutta  
\*103. Bombay Chamber of Commerce, Bombay  
104. Bombay Government, Director of Industries, Bombay  
105. Bowreah Cotton Mills Co. Ltd., Calcutta  
106. Braithwaite & Co. (India) Ltd., Calcutta  
107. Braithwaite Burn & Jessop Construction Co. Ltd., Calcutta  
108. R. V. Briggs & Co. Ltd., Calcutta  
109. Britannia Building & Iron Co. Ltd., Calcutta  
110. British Drug Houses (India) Ltd., Bombay  
111. British India Corporation Ltd., Kanpur  
112. British Insulated Callenders Cables Ltd., Bombay  
113. British Metal Corporation (India) Ltd., Calcutta  
114. British Paints (India) Ltd., Calcutta  
115. British Timken Ltd., Calcutta  
116. Burhanpur Tapti Mills Ltd., Burhanpur  
117. Burmah-Shell Oil Storage & Distributing Co. of India Ltd., Bombay  
118. Burn & Co. Ltd., Howrah Iron Works, Howrah  
119. Burn & Co. Ltd. (Refractories & Ceramic Deptt), Calcutta  
120. Burrakur Coal Co. Ltd., Calcutta  
121. C. P. Manganese Ore Co. Ltd., Nagpur  
122. Calcutta Chemical Co. Ltd., Calcutta  
123. Calcutta Electric Supply Corpn. Ltd., Calcutta  
124. Calcutta Electrical Manufacturing Co. Ltd., Calcutta  
125. Calcutta Expanded Metal Mfg. Co. Ltd., Calcutta  
126. Calcutta Hardware Co., Calcutta  
127. Calcutta Industrial Chemicals & Minerals Co. Ltd., Calcutta  
\*128. Calcutta Paper Traders' Association, Calcutta  
\*129. Calcutta Tea Chest Fittings Manufacturers' Association, Calcutta  
130. Caltex (India) Ltd., Calcutta  
131. Cambata Industries Ltd., Bombay  
132. Camlin Limited, Bombay  
133. Capco Ltd., Calcutta  
134. Cawnpore Chemical Works Ltd., Kanpur  
135. Cawnpore Cotton Mills Co., Kanpur  
136. Cawnpore Textile Ltd., Kanpur  
137. Central Agency Ltd., Bombay  
138. Central Board of Irrigation and Power, New Delhi  
139. Central Distillery & Chemical Works Ltd., Meerut Cantt.  
140. Central India Spinning, Weaving & Manufacturing Co. Ltd., Bombay  
141. Central Organization for Oil Industry & Trade, Bombay  
142. Central Research Institute, Travancore University, Trivandrum, S.I.  
143. Ceylon Government, Director of Industries, Colombo  
144. Chakravarti & Co. (Shuttle Manufacturing Factory), Calcutta  
145. P. C. Chanda & Co. Ltd., Calcutta  
146. Chandmull Rajgarhia, Giridih, Hazaribagh  
147. Chatarbhujudas Karnani, Bombay  
148. Chatturam Horilram Ltd., P.O. Jhumri Telaiya (Kodarma), Distt. Hazaribagh, Bihar  
149. Chemical Examiner, Calcutta Custom House, Calcutta  
150. Chemical, Industrial & Pharmaceutical Laboratories Ltd., Bombay  
151. Chemo-Pharma Laboratories Ltd., Bombay  
152. Chhoi Silk Mill Co. Ltd., Bombay  
153. Chittaranjan Cotton Mills Ltd., Calcutta  
154. Chloride & Exide Batteries (Eastern) Ltd., Calcutta  
155. Chowgule & Co. (Hind) Ltd., Bombay  
156. Chrestien Mica Industries Ltd., Calcutta  
157. Ciba Dyes Limited, Bombay  
158. City Soap Works, Calcutta  
159. Clyde Fan Co. Ltd., Calcutta  
\*160. Coal Consumers' Association of India, Calcutta  
\*161. Concrete Association of India, Bombay  
162. Consolidated Mill Supplies Ltd., Bombay  
163. Continental Export & Import Co., Gudur (Nellore)  
164. Cooper Allen & Co., Kanpur  
165. Cooper & Co., Bombay  
166. Cooper Engineering Ltd., Satara Road, Bombay State  
167. Corn Products Co. (India) Ltd., Bombay  
168. Council of Scientific & Industrial Research, New Delhi  
169. Crompton Engineering Co. (Madras) Ltd., Madras  
170. Crompton Parkinson (Works) Ltd., Bombay  
171. Croydon Chemical Works Ltd., Bombay  
172. D. C. M. Chemical Works, Delhi  
173. Dalmia Cement Ltd., New Delhi  
174. Damodar Karsandas, Bombay  
175. Damodar Valley Corporation, Calcutta  
176. Daurala Distillery & Chemical Works, Daurala (Meerut)  
177. Dazzle Products Ltd., Calcutta  
178. Delhi Cloth & General Mills Co. Ltd., Delhi  
179. Delhi State, Director of Industries & Labour, Delhi  
180. Devidayal Metal Industries Ltd., Bombay  
181. Dhakeswari Cotton Mills Ltd., Calcutta  
182. Dharamsi Morarji Chemical Co. Ltd., Bombay  
183. Dhrangadhra Chemical Works Ltd., Dhrangadhra (Saurashtra)  
184. Don, Watson & Co. Ltd., Calcutta  
185. Dunbar Mills Ltd., Calcutta  
186. Dunlop Rubber Co. (India) Ltd., Calcutta  
187. S. L. Dutt & Co. Ltd., Calcutta  
\*188. Dyestuffs Manufacturers' Association of India, Bombay  
189. Eagle Plywood Industries Ltd., Calcutta  
190. East India Carpet Co. Ltd., Amritsar  
191. East India Commercial Co. Ltd., Calcutta  
\*192. East India Cotton Association Ltd., Bombay  
193. East India Distilleries & Sugar Factories Ltd., Madras  
194. East India Paint & Chemical Works Ltd., Calcutta  
195. East India Pharmaceutical Works Ltd., Calcutta  
\*196. East Indian Bolt & Nut Dealers Association, Calcutta  
197. Eastern Chemical Co. (India), Bombay  
\*198. Eastern Committee of the Overseas Rubber Cable Manufacturers' Association, Calcutta  
199. Electric Construction & Equipment Co., Calcutta  
200. Electric Lamp Manufacturers (India) Ltd., Calcutta  
201. Electrical Storage Co. Ltd., Calcutta  
202. Elephant Oil Mills Ltd., Bombay  
203. Elgin Mills Co. Ltd., Kanpur  
204. G. A. Emin & Co., Calcutta  
205. Enco Plywood & Sawmill Industries, Siliguri (Darjeeling)  
\*206. Engineering Association of India, Calcutta  
207. Engineering Research Laboratories, Director, Hyderabad Dn.  
208. Engineers' Syndicate (India) Ltd., Calcutta  
209. English Electric Co. Ltd., Calcutta  
210. Ericsson Telephone Sales Corporation AB, Calcutta

211. Estrela Batteries Ltd., Bombay
- \*212. European Mofussil Jute Balers Association, Calcutta
213. Excel Industries, Jogeshwari B.S.D.
214. F. & O. Lang Ltd., Calcutta
- \*215. Fan Makers' Association of India, Calcutta
- \*216. Federation of Electricity Undertakings of India, Bombay
- \*217. Federation of Gujarat Mills and Industries, Baroda
- \*218. Federation of Indian Chambers of Commerce and Industry, New Delhi
- \*219. Federation of Woollen Manufacturers in India, Bombay
220. Fertilizers & Chemicals Travancore Ltd., Alwaye, South India
221. Fire-Stone Tyre & Rubber Co. of India Ltd., Bombay
222. Ford Motor Company of India Ltd., Bombay
223. Free India Dry Accumulators Ltd., Calcutta
224. J. C. Gammon Ltd., Bombay
225. Ganges Galvanizing Works (India) Ltd., Howrah
226. Ganges Printing Ink Factory Ltd., Howrah
227. Ganges Rope Co. Ltd., Calcutta
228. Gannon Dunkerley & Co. Ltd., Bombay
229. Garden Reach Workshops Ltd., Calcutta
230. Garlick & Co. Ltd., Bombay
231. General Electric Co. of India Ltd., Calcutta
232. General Metal Industries, Calcutta
233. General Motors India Ltd., Bombay
234. General Radio & Appliances Ltd., Bombay
235. Gestetner Duplicators Ltd., Calcutta
236. Gladstone Lyall & Co. Ltd., Calcutta
237. Glaxo Laboratories (India) Ltd., Bombay
238. Glenfield & Kennedy Ltd., Bombay
239. Gobindo Sheet Metal Works & Foundry, Calcutta
240. Godrej & Boyce Mfg. Co. Ltd., Bombay
241. Godrej Soaps Ltd., Bombay
242. Goodlass Wall Ltd., Bombay
243. Government Porcelain Factory, Malleswaram, Bangalore
244. Government Sandalwood Oil Factory, Mysore
245. Government Silk Weaving Factory, Mysore
246. Government Soap Factory, Bangalore
247. Gramophone Co. Ltd., Dum Dum
248. Greaves Cotton & Co. Ltd., Bombay
249. Greaves Cotton & Crompton Parkinson Ltd., Bombay
250. Gresham & Craven of India Ltd., Calcutta
251. Grindwell Ltd., Bombay
252. Guest, Keen, Williams Ltd., Calcutta
253. Gurjars Limited, Calcutta
254. Gwalior Potteries, Gwalior
255. Harbanslal Malhotra & Sons Ltd., Calcutta
256. Hardcastle, Waud & Co. Ltd., Bombay
257. Harrisons & Crosfield Ltd., Engineering Deptt., Quilon, Travancore (South India)
258. Heatly & Gresham Ltd., Calcutta
259. W. T. Henley's Telegraph Works Co. Ltd., Calcutta
260. Himachal Pradesh Government, Chief Commissioner, Simla
261. Himani Limited, P.O. Belghurriah, 24 Parganas
262. Himco (India) Ltd., Bombay
263. Hind Cycles Ltd., Bombay
264. Hind Lamps Ltd., Shikohabad
265. Hind Mills Ltd., Bombay
266. Hind Tank Mfg. Co., Bombay
267. Hindustan Aircraft Ltd., Bangalore
268. Hindustan General Electrical Corporation Ltd., Calcutta
269. Hindustan Motors Ltd., Calcutta
270. Hindustan Shipyard Ltd., Gandhigram, Visakhapatnam
271. Hindustan Sugar Mills Ltd., Golagokarannath, Distt. Kheri (UP)
272. Hindustan Tyres Ltd., Bombay
273. Hindustan Vanaspati Mfg. Co. Ltd., Bombay
274. Hindusthan Development Corporation Ltd., Calcutta
275. Hindusthan Plastics Ltd., Bombay
276. Hindusthan Wire & Metal Products Ltd., Calcutta
277. Hooghly Docking & Engineering Co. Ltd., Howrah
- \*278. Hosiery Manufacturers' Association, Ludhiana
279. Hovanesian Brothers, Calcutta
280. Hoyle, Robson, Barnett & Co. (India) Ltd., Calcutta
281. Hyderabad Allwyn Metal Works Ltd., Hyderabad Dn.
282. Hyderabad Chemicals & Fertilizers Ltd., Secunderabad
283. Hyderabad State Government, Minister for Public Works, Hyderabad Dn.
284. IRP (Radio) Ltd., Calcutta
285. Imperial Chemical Industries (India) Ltd., Calcutta
286. Imperial Tobacco Co. of India Ltd., Calcutta
287. India Alkalies Ltd., Calcutta
288. India Cements Ltd., Sankarnagar, Talaiyuthu, Tirunelveli Distt., Madras State
289. India Electric Works Ltd., Behala (24 Parganas)
290. India Industrial Works Ltd., Salkia (Howrah)
291. India Linoleums Ltd., Calcutta
292. India Paint, Colour & Varnish Co. Ltd., Calcutta
293. India Pistons Ltd., Madras
294. India United Mills Ltd., Bombay
295. Indian Aluminium Co. Ltd., Calcutta
296. Indian and Eastern Newspaper Society, New Delhi
- \*297. Indian Battery Manufacturers' Association, Calcutta
298. Indian Battery Manufacturing Co. Ltd., Calcutta
299. Indian Cable Co. Ltd., Calcutta
300. Indian Central Coconut Committee, Ernakulam
301. Indian Central Cotton Committee, Bombay
302. Indian Central Jute Committee, Calcutta
303. Indian Central Oilseeds Committee, New Delhi
304. Indian Central Sugarcane Committee, New Delhi
- \*305. Indian Chamber of Commerce, Calcutta
- \*306. Indian Chemical Manufacturers' Association, Calcutta
307. Indian Coal Grading Board, Calcutta
308. Indian Coffee Board, Bangalore
- \*309. Indian Colliery Owners' Association, P.O. Jharia, Manbhum Distt.
- \*310. Indian Confectionery Manufacturers' Association, Calcutta
311. Indian Copper Corporation Ltd., Ghatsila P.O., Distt. Singhbhum
312. Indian Council of Medical Research, New Delhi
- \*313. Indian Electrical Manufacturers' Association, Calcutta
- \*314. Indian Engineering Association, Calcutta
315. Indian Expanded Metals Ltd., Bombay
316. Indian Galvanizing Co. (1926) Ltd., Calcutta
- \*317. Indian Hemp Association, Calcutta
318. Indian Hume Pipe Co. Ltd., Bombay
319. Indian Institute of Architects, Bombay
320. Indian Institute of Metals, Calcutta
321. Indian Iron & Steel Co. Ltd., Calcutta
- \*322. Indian Jute Fabrics Shippers Association, Calcutta
- \*323. Indian Jute Mills Association, Calcutta
324. Indian Lac Cess Committee, Ranchi (Behar)
- \*325. Indian Lamp Factories Association, Calcutta

- \*326. Indian Machine Tool Manufacturers' Association, Bombay
327. Indian Malleable Castings Ltd., Calcutta
- \*328. Indian Merchants' Chamber, Bombay
- \*329. Indian Mining Association, Calcutta
- \*330. Indian Motion Picture Producers' Association, Bombay
- \*331. Indian Non-Ferrous Metals Manufacturers' Association, Calcutta
332. Indian Oxygen & Acetylene Co. Ltd., Calcutta
- \*333. Indian Paint Manufacturers' Association, Calcutta
- \*334. Indian Paper Makers' Association, Calcutta
- \*335. Indian Paper Mills' Association, Calcutta
336. Indian Patent Stone Co. Ltd., Calcutta
337. Indian Plywood Mfg. Co. Ltd., Bombay
338. Indian Roads Congress, New Delhi
- \*339. Indian Rope Manufacturers' Association, Calcutta
340. Indian Rubber Board, Kottayam, Travancore
- \*341. Indian Rubber Industries Association, Bombay
342. Indian Rubber Manufacturers Ltd., Calcutta
- \*343. Indian Salt Manufacturers' Association, Bombay
344. Indian Smelting & Refining Co. Ltd., Bombay
- \*345. Indian Soap & Toiletries Makers' Association, Calcutta
346. Indian Standard Wagon Co. Ltd., Calcutta
347. Indian Statistical Institute, Calcutta
348. Indian Steel & Wire Products Ltd., Indranagar, Distt. Singhbhum
- \*349. Indian Sugar Mills Association, Calcutta
- \*350. Indian Tea Association, Calcutta
- \*351. Indian Tea-chest Batten Manufacturers' Association Calcutta
352. Indian Tool Manufacturers Ltd., Bombay
353. Indian Turpentine & Rosin Co. Ltd., P.O. Clutterbuckganj, Distt. Bareilly (UP)
354. Indian Wild-Barfield Co. Ltd., Bombay
355. Indo-Belga Engineering Co. Ltd., Ahmedabad
356. Industrial & Engineering Apparatus Co. Ltd., Bombay
- \*357. Industrial & Power Alcohol Distillers' Association, Kanpur
358. Industrial Gases Ltd., Calcutta
359. Institution of Engineers (India), Calcutta
360. International Combustion (India) Ltd., Calcutta
361. International General Electric Co. (India) Ltd., Bombay
362. International Light Weight Steels, Bombay
363. International Wool Secretariat, New Delhi
364. Investa Machine Tools & Engineering Co. Ltd., Bombay
365. J. & R. Hutchison Ltd., Calcutta
366. J. K. Cotton Mfrs.' Ltd., Kanpur
367. J. K. Cotton Spg. & Wvg. Mills Co. Ltd., Kanpur
368. J. K. Iron & Steel Co. Ltd., Kanpur
369. J. K. Jute Mills Co. Ltd., Kanpur
370. Jagatjit Distilling & Allied Industries Ltd., P.O. Jagatjit Nagar, Distt. Kapurthala
371. Jaipur Metal Industries Ltd., Jaipur
372. Jammu & Kashmir Government, Director of Industries & Commerce, Srinagar
373. L. C. Jariwala & Co., Bombay
374. Jay Engineering Works Ltd., Calcutta
375. Jeewanlal (1929) Ltd., Calcutta
376. Jenson & Nicholson (India) Ltd., Calcutta
377. Jessop & Co. Ltd., Calcutta
378. John Thompson Wolverhampton (India) Ltd., Calcutta
379. Johnson & Phillips Ltd., Bombay
380. A. M. Jordan Ltd., Calcutta
381. S. B. Joshi & Co., Bombay
382. Jyoti Limited, Baroda
383. K. C. P. Limited, Vuyyuru, Krishna Distt.
384. Kailas Carpet Co., New Delhi
385. Kale's Ink Manufacturing Co., Bombay
386. Kamani Engineering Corporation Ltd., Bombay
387. Kamani Metals & Alloys Ltd., Bombay
388. Kassels Ltd., Delhi
389. Khandelwal Brothers Ltd., Bombay
390. Kilburn & Co. Ltd., Calcutta
391. Kirloskar Brothers Ltd., Kirloskarvadi, Distt. Satara
392. Kirloskar Electric Co. Ltd., Bangalore
393. Kooverji Devshi & Co. Ltd., Bombay
394. Kores (India) Ltd., Bombay
395. Korula Rubber Co. Ltd., Bombay
396. Krishnalal Thirani & Co. Ltd., Calcutta
397. Krudd Industries Ltd., Calcutta
398. Kumardhubi Engineering Works, Calcutta
399. Kumardhubi Fireclay & Silica Works Ltd., Calcutta
400. L. H. K. Industries, Delhi
401. Lakshmiratan Engineering Works Ltd., Bombay
402. G. C. Law & Co., Calcutta
403. Leader Engineering Works, Jullundur City
404. Lever Brothers (India) Ltd., Bombay
405. Liluah Iron Works, Liluah, Howrah
406. Lister Antiseptics & Dressings Co. (1928) Ltd., Calcutta
407. Ludlow Jute Co. Ltd., Calcutta
408. M. B. M. Engineering College, Jodhpur
409. Machinery Manufacturers Corporation Ltd., Calcutta
410. Machinery Paints & Chemicals (India) Ltd., Bombay
411. Macker Pillay & Sons Ltd., Alwaye
412. Madhya Bharat Government, Director of Industries & Commerce, Indore
413. Madhya Pradesh Government, Director of Industries, Nagpur
- \*414. Madras Chamber of Commerce, Madras
415. Madras Government, Director of Industries, Madras
416. Mahadeoprasad Kashiprasad, Calcutta
- \*417. Maharashtra Chamber of Commerce, Bombay
418. Mahindra & Mahindra Ltd., Bombay
- \*419. Mahratta Chamber of Commerce & Industries, Poona
420. Malleable Iron & Steel Castings Co. Ltd., Bombay
- \*421. Maskati Cloth Market Association, Ahmedabad
422. May & Baker (India) Ltd., Bombay
423. McGregor & Balfour Ltd., Calcutta
- \*424. Mechanical Engineers' Association (India), Bombay
425. Medical Council of India, New Delhi
426. Mercury Paints & Varnishes Ltd., Bombay
427. Merz and McLellan (India), Calcutta
428. Metal Box Co. of India Ltd., Calcutta
429. Metal Container Company, Calcutta
430. Metal Goods Mfg. Co. Ltd., Banaras
431. Metal Rolling Works Ltd., Bombay
432. Mettur Chemical & Industrial Corporation Ltd., Mettur Dam (RS) (Salem Distt.)
433. Minimax Ltd., Calcutta
434. Mining, Geological & Metallurgical Institute of India, Calcutta
435. Modi Lantern Works, Modinagar
436. Modi Soap Works, Modinagar
437. Mohini Mills Ltd., Calcutta

438. Mond Nickel Co. Ltd., Bombay  
 439. J. L. Morison, Son & Jones ( India ) Ltd., Bombay  
 440. M. C. Mowjee & Co., Calcutta  
 441. Mukand Iron & Steel Works Ltd., Bombay  
 442. S. N. Mullick & Co., Calcutta  
 443. Murarka Paint & Varnish Works Ltd., Calcutta  
 444. Murphy Radio of India Ltd., Bombay  
 445. Mysore Chemicals & Fertilizers Ltd., Krishna-  
 rajasagara Post, Belagula  
 446. Mysore Electrical Industries Ltd., Bangalore City  
 447. Mysore Electro-Chemical Works Ltd., Bangalore  
 448. Mysore Glass & Enamel Works Ltd., Bangalore City  
 449. Mysore Government, Director, Chemical & Metal-  
 lurgical Industries in Mysore, Bhadravati  
 450. Mysore Industrial & Testing Laboratory Ltd.,  
 Bangalore  
 451. Mysore Iron & Steel Works, Bhadravati  
 452. Mysore Lamp Works Ltd., Malleswaram, Bangalore  
 453. Naihati Jute Mills Ltd., Calcutta  
 454. Nanco Rubber & Plastics Ltd., Coimbatore  
 455. Napier Paint Works Ltd., Calcutta  
 456. National Art Silk Mills Ltd., Bombay  
 457. National Bearing Co. Ltd., Jaipur  
 458. National Carbon Co. ( India ) Ltd., Calcutta  
 459. National Ekco Radio & Engineering Co. Ltd.,  
 Bombay  
 460. National Electrical Industries Ltd., Bombay  
 461. National Institute of Sciences of India, New Delhi  
 462. National Insulated Cable Co. of India Ltd., Calcutta  
 463. National Iron & Steel Co. Ltd., Calcutta  
 464. National Moulding Co. Ltd., Calcutta  
 465. National Pipes & Tubes Co. Ltd., Calcutta  
 466. National Rayon Corporation Ltd., Bombay  
 467. National Rolling Mills Ltd., Calcutta  
 468. National Rubber Manufacturers Ltd., Calcutta  
 469. National Tannery Co. Ltd., Calcutta  
 470. New Commercial Mills Co. Ltd., Ahmedabad  
 471. New Delhi Municipal Committee, New Delhi  
 472. New India Industries Ltd., Baroda  
 473. New Kaiser-i-Hind Spg. & Wvg. Co. Ltd., Bombay  
 474. New Rajpur Mills Co. Ltd., Ahmedabad  
 475. New Standard Engineering Co. Ltd., Bombay  
 476. Noble Paint & Varnish Co. Ltd., Bombay  
 477. North India Light Weight Steels Ltd., New Delhi  
 \*478. Northern India Carpet Manufacturers' Association  
 ( Cottage Industry ), Mirzapur ( UP )  
 \*479. Northern India Hosiery Manufacturers' Corpora-  
 tion, Ludhiana  
 480. Northern India Oil Industries Ltd., Kanpur  
 481. Northern India Paint, Colour & Varnish Co. Ltd.,  
 New Delhi  
 482. Nursing & Co. Ltd., Calcutta  
 483. Nutan Mills Ltd., Ahmedabad  
 484. Ogale Glass Works Ltd., P.O. Ogalevadi, Distt.  
 Satara North, Bombay State  
 \*485. Oil Merchants Chamber Ltd., Bombay  
 \*486. Oil Pressure Lamp Industries Association ( India ),  
 Calcutta  
 487. Ordnance Factories, Director General, Calcutta  
 488. Oriental Metal Industries Ltd., Calcutta  
 489. Oriental Metal Pressing Works, Bombay  
 490. Orissa Government, Director of Agriculture &  
 Food Products, Cuttack  
 491. Orissa Minerals Development Co. Ltd., Calcutta  
 492. Osmanshahi Mills Ltd., Hyderabad Deccan  
 493. P. S. G. & Sons' Charity Industrial Institute,  
 P.O. Peelamedu, Coimbatore  
 494. Paint Federation, Calcutta  
 495. Parry & Co. Ltd., Madras  
 496. Parshuram Pottery Works Co. Ltd., Morvi ( Kath )  
 497. Patiala & East Punjab States Union Government,  
 Director of Industries, Patiala ( PEPSU )  
 498. Pearl Products Co. Ltd., Kurla ( BSD )  
 499. Perfect Pottery Co. Ltd., Jubbulpore  
 \*500. Pharmaceutical & Allied Manufacturers' & Dis-  
 tributors' Association Ltd., Bombay  
 501. Philips Electrical Co. ( India ) Ltd., Calcutta  
 502. Pickers Ltd., Ahmedabad  
 503. Pioneer Chromate Works Ltd., Bombay  
 504. Pioneer Magnesia Works Ltd., Bombay  
 505. Plastics Moulders Ltd., Calcutta  
 \*506. Plywood Manufacturers' Association of India,  
 Calcutta  
 507. Plywood Products, Sitapur ( UP )  
 508. C. S. Pochee & Son, Bombay  
 509. Posts and Telegraphs Workshops, General Manager,  
 Calcutta  
 510. Prabhat Products Co., Bombay  
 511. Praga Tools Corporation Ltd., Secunderabad  
 Deccan  
 512. Premier Art & Composition Flooring Co., Bombay  
 513. Premier Automobiles Ltd., Bombay  
 514. Premier Mica Company, Gudur, Nellore Distt.  
 515. Pritchett & Gold & E. P. S. Co. Ltd., Calcutta  
 \*516. Punjab Chamber of Commerce, New Delhi  
 517. Punjab Government, Director of Industries, Simla  
 518. Punjab Paint, Colour & Varnish Works, Kanpur  
 519. Radio & Electricals Ltd., Madras  
 520. Radio & Electricals Manufacturing Co. Ltd.,  
 Bangalore  
 \*521. Radio Industries Association ( Regd. ), Calcutta  
 522. Radio Lamp Works Limited, Shikohabad  
 \*523. Radio Manufacturers' Association of India, Calcutta  
 524. Raipur Manufacturing Co. Ltd., Ahmedabad  
 525. Rajasthan Government, Deputy Secretary, Com-  
 merce & Industries Dept., Jaipur  
 \*526. Rajasthan Industrial & Mining Association, Bhil-  
 wara  
 527. Rajnagar Spinning, Weaving & Manufacturing  
 Co. Ltd., Ahmedabad  
 528. Rallis India Ltd., Calcutta  
 529. Ravi Industries Ltd., Bombay  
 530. Raymond Woollen Mills Ltd., Bombay  
 531. Raza Sugar Co. Ltd., Rampur ( UP )  
 532. Reliance Firebrick & Pottery Co. Ltd., Calcutta  
 533. Republic Engineering Corporation Ltd., Calcutta  
 534. Resa Co., Madras  
 535. A. Reyrolle & Co. Ltd., Calcutta  
 536. Richardson & Cruddas Ltd., Bombay  
 537. Roberts, McLean & Co. Ltd., Calcutta  
 538. Rohtas Industries Ltd., Dalmianagar ( Bihar ),  
 Rly Station Dehri-on-Sone  
 539. Salem Magnesite Ltd., Salem  
 540. Sandoz Products Ltd., Bombay  
 541. Sankey Electrical Stampings Ltd., Bhandup  
 via Bombay  
 542. Sarangpur Cotton Mfg. Co. Ltd., Ahmedabad  
 543. Saurashtra Government, Director of Industries,  
 Rajkot  
 544. Saxby & Farmer ( India ) Ltd., Calcutta  
 545. Scientific Indian Glass Co. Ltd., Calcutta  
 546. Scientific Instrument Co. Ltd., Calcutta  
 \*547. Screen Printers' Association, Bombay  
 \*548. Screw Manufacturers' Association, Calcutta  
 549. Sen-Raleigh Industries of India Ltd., Calcutta  
 550. Seraikella Glass Works Ltd., P.O. Kandra, Distt.  
 Singbhum





551. Seth Pusalal Mansinghka Ltd., Bhilwara  
552. Shalimar Paint, Colour & Varnish Co. Ltd., Calcutta  
553. Shalimar Tar Products (1935) Ltd., Calcutta  
554. J. N. Sharma & Sons, Delhi  
555. Shaw Wallace & Co. Ltd., Calcutta  
556. Shree Digvijay Cement Co. Ltd., Seeka, via Jamnagar  
557. Shree Digvijaya Woollen Mills Ltd., Jamnagar  
558. Shree Gopal Paper Mills Ltd., Calcutta  
559. Shree Karan Singh Woollen Mills Ltd., Srinagar, Kashmir
- \*560. Shree Market Silk Merchants' Association, Bombay  
561. Shree Shyam Oil Mills Ltd., Calcutta  
562. Shri Ambica Mills Ltd., Ahmedabad  
\*563. Silk & Art Silk Mills' Association Ltd., Bombay  
\*564. Silk Merchants' Association, Bombay  
565. Simpson & Co. Ltd., Madras  
566. Sinclair Murray & Co. Ltd., Calcutta  
567. Singareni Collieries Company Ltd., Hyderabad Dn.  
568. B. M. Singh & Son, Calcutta  
569. Sirpur Paper Mills Ltd., Hyderabad Dn.  
570. Sirsilk Ltd., Hyderabad (Deccan)  
571. Sisir Oil Industries Ltd., Calcutta  
572. Solar Paint & Varnish Manufacturing Co., Calcutta  
573. Sonawala Industries Ltd., Bombay  
574. Sone Valley Portland Cement Co. Ltd., Calcutta  
575. South India Corp. Ltd., Ernakulam  
\*576. South India Mica Mine Owners' Association, Gudur, Nellore Distt.  
577. South Indian Export Co. Ltd., Madras  
578. South Madras Electric Supply Corporation Ltd., Tiruchirapalli (S.I.)
- \*579. Southern India Chamber of Commerce, Madras  
\*580. Southern India Millowners' Association, Coimbatore  
\*581. Southern India Skin & Hide Merchants' Association, Madras
582. Standard Batteries Ltd., Bombay  
583. Standard Furniture Co. Ltd., P.O. Kallai (Malabar)  
584. Standard Motor Products of India Ltd., Madras  
585. Standard Pottery Works Ltd., Alwaye  
586. Standard-Vacuum Oil Co., India Division, Bombay  
587. Star Metal Refinery Ltd., Bombay  
588. Steel Corporation of Bengal Ltd., Calcutta  
\*589. Steel Re-Rolling Mills' Association of India, Calcutta  
590. Stewarts & Lloyds of India Ltd., Calcutta  
591. Stewarts & Lloyds Ltd., Glasgow, Calcutta  
592. J. Stone & Co. (India) Ltd., Calcutta  
593. Structural Engineering Works Ltd., Bombay  
594. T. V. Sundram Iyengar & Sons Ltd., Madurai, S. India  
595. Swadeshi Mills Co. Ltd., Bombay  
596. Swadeshi Cotton Mills Co. Ltd., Kanpur  
597. Swastik Oil Mills Ltd., Bombay  
\*598. Tanners' Federation of India, Kanpur  
599. Tarway Mica Works, Giridih (Behar)  
600. Tata Chemicals Ltd., Bombay  
601. Tata Iron & Steel Co. Ltd., Bombay  
602. Tata Locomotive & Engineering Co. Ltd., Tatanagar  
603. Tata Mills Ltd., Bombay  
604. Tata Oil Mills Co. Ltd., Bombay  
605. Tatanagar Foundry Co. Ltd., Calcutta  
606. Texmaco (Gwalior) Ltd., Gwalior  
\*607. Textile Association (India) Regd., Bombay  
\*608. Textile Manufacturers' Association (Regd.), Amritsar  
609. Textool Company Ltd., Coimbatore
610. Therapeutics Chemical Research Corporation, Bombay  
611. J. Thomas & Co. Ltd., Calcutta  
612. Thomas Duff & Co. Ltd., Calcutta  
613. Tide Water Oil Co. (India) Ltd., Calcutta  
614. Titaghur Paper Mills Co. Ltd., Calcutta  
615. Travancore Cements Ltd., Kottayam  
616. Travancore-Cochin Government, Secretary, Development Department, Trivandrum  
\*617. Travancore Coir Mats & Matting Manufacturers' Association, Alleppey  
618. Travancore Ogale Glass Mfg. Co. Ltd., Alwaye  
619. Travancore Rayons Ltd., Perambavoor P.O. (N. Travancore)  
620. Trinidad Lake Asphalt Operating Co. Ltd., Madras  
621. Udyog Vikash Ltd., Bombay  
622. Union Conduits Ltd., Bombay  
623. Union Drug Co. Ltd., Calcutta  
624. United Engineering Corporation Ltd., Bangalore  
625. United Salt-Works & Industries Ltd., Bombay  
626. United Steel Cos. (India) Ltd., Bombay  
627. United Trading Co., Delhi  
628. Universal Lamp Mfg. Co. Ltd., Calcutta  
629. Universal Screw Factory, Chheharta (Amritsar)  
\*630. Upper India Chamber of Commerce, Kanpur  
631. Uttar Pradesh Government, Director of Industries & Commerce, Kanpur  
\*632. Vanaspati Manufacturers' Association of India, Bombay  
633. Vasant Industrial & Engineering Works, Bombay  
634. Vasanta Mills Ltd., Singanallur, Coimbatore Distt.  
635. Victor Oil Co. Ltd., Calcutta  
636. Victory Chemical & Pharmaceutical Works Ltd., Chalakudi  
637. Vindhya Pradesh Government, Director of Industries, Rewa  
638. Volkart Brothers, Bombay  
639. C. C. Wakefield & Co. Ltd., Bombay  
640. D. Waldie & Co. Ltd., Calcutta  
641. West Bengal Government, Director of Industries, Calcutta  
\*642. Western India Glass Manufacturers' Association, Bombay  
643. Western India Match Co. Ltd., Bombay  
644. Western India Plywood Ltd., P.O. Baliapatam (Rly. Station Azhikkal), Malabar  
645. Westinghouse Trading & Engineering Co. (Asia) Ltd., Bombay  
646. William Jacks & Co. Ltd., Calcutta  
647. Wood Screw Ltd., Ahmedabad

#### SUSTAINING MEMBERS (ASSOCIATES)

1. Ahmedabad Star Engineering Works Ltd., Ahmedabad
- \*2. All India Bichromate Manufacturers' Association, Bombay
- \*3. All India Federation of Cycle Traders, Kanpur
4. Atlas Trading Co., Calcutta
5. Basic & Synthetic Chemicals Ltd., Calcutta
6. Calcutta Mineral Supply Co. Ltd., Calcutta
- \*7. Carpet Manufacturers' Association, Mirzapur
8. Catholic Press, Ranchi
- \*9. Cinematographic Importers' Association, Bombay
10. Ellora Chemical Works, Bombay
11. Essen Electrical Accessories Mfg. Co. Ltd., Calcutta
12. General Lead Batteries Co., Calcutta
13. Ghose Brothers (Perfumers), Calcutta
14. M. L. Ghosh & Co., Calcutta

- \*15. Howrah Manufacturers' Association, Howrah  
 \*16. Indian Chamber of Commerce, Mathencheri P.O., Cochin  
 17. Italab Ltd., Industrial Testing & Analytical Laboratories, Bombay  
 18. Joseph Leslie & Co., Bombay  
 19. Jyothi Paint & Varnish Industries Ltd., G.T., Madras  
 20. Krishna Mining Company, Goginenipuram, Gudur P.O., Nellore Distt., Madras  
 \*21. Leather Goods Manufacturers' & Dealers' Assn., Bombay  
 22. Liberty Chemical Works, Bombay  
 23. Mysore Spun Silk Mills Ltd., Channapatna (Mysore State)  
 24. Pannalal Girdharlal, Delhi  
 25. Ramco Chemical Works, Ahmedabad  
 26. Sealand (India) Ltd., Delhi  
 27. Simplex Manufacturing Company Ltd., Delhi  
 28. Spirit Warehouse, Madras  
 29. Srimathi Muthukrishnammal, Lessee, Adirampatnam Salt Factory, Adirampatnam (Tanjore Distt.)  
 30. Subol Dutt & Sons Ltd., Calcutta  
 31. Sulekha Works Ltd., Calcutta  
 32. Suresh Chemical Works, Calcutta  
 33. Variety Industrial Works Ltd., Calcutta  
 26. Friedlaender, F., Calcutta  
 27. Gangadharan, G., Bombay  
 28. Ghosh, S., Bally P.O., Distt. Howrah  
 29. Gill, S. S., Calcutta  
 30. Gullapalli Ramakrishnaiah, Tenali (M.S.M. Rly.)  
 31. Halder, N., Calcutta  
 32. Halwasia, J. G., Baroda  
 33. Hocking, W. T., Oorgaum P.O. (S.I.)  
 34. Indu Bhusan, Banaras  
 35. Jain, B. N., Verka (Distt. Amritsar)  
 36. Jain, S. S., Meerut  
 37. Jayaraman, N., Bangalore  
 38. Kagalwala, A., Bombay  
 39. Kesavan, T. A., Madras  
 40. Krishan Deva, Nawabganj, Distt. Gonda  
 41. Lath, M. L., Calcutta  
 42. Lavingia, J. P., Ahmedabad  
 43. Laclercq, Rene F., Bombay  
 44. Lele, S. R., Bombay  
 45. Macgregor, J. C., Calcutta  
 46. Man Singh, Delhi  
 47. Menon, B. V. D., Udyogamandal P.O., Alwaye (S.I. Rly.)  
 48. Mitra, R. K., Calcutta  
 49. Musaddi, A. R., P.O. Giridih (Distt. Hazaribagh)  
 50. Nanabhoy, Rattanshaw, Bombay  
 51. Narayana Rao, T. S., Bangalore  
 52. Owen, C. W., Bombay  
 53. Pande, G. C., Delhi  
 54. Pandit, C. M., Baroda  
 55. Patel, Jethabhai C., Bombay  
 56. Patel, M. M., Bombay  
 57. Raj Kishan, Madras  
 58. Rajderkar, E. B., Bombay  
 59. Ram Narain, Abdullapur, Distt. Ambala  
 60. Raman, G. A., Bombay  
 61. Ramaswami, V. S., Perambur, Madras  
 62. Ranade, G. S., Bombay  
 63. Rangaswami, V. N., Madras  
 64. Rose, S., Madras  
 65. Ruia, J. V., Bombay  
 66. Sambasiva Rao, R., Madras  
 67. Sastry, S. G., Bangalore  
 68. Sastry, V. V. K., Madras  
 69. Scervai, F. P., Madras  
 70. Shah, B. M., Ahmedabad  
 71. Shah, J. M., Bombay  
 72. Sharma, M. S., Ahmedabad  
 73. Shroff, M. L., Calcutta  
 74. Sitapati, T. S., Calcutta  
 75. Sohan Singh, Amritsar  
 76. Soneji, C. J., Bombay  
 77. Weir, D. W., Oorgaum P.O. (S.I.)  
 78. Yogi, M. V., Poona

#### ORDINARY MEMBERS

1. Aiyar, V. S., New Delhi
2. Alvares, A., Bombay
3. Anujan Nambudiripad, P. M. Olavakkot, S. Malabar
4. Banerjee, S., P.O. Jharia, Manbhum
5. Bannerjee, G. N., Bombay
6. Basu, B., Bombay
7. Batni, K. B., Okhla P.O., Delhi
8. Best, P., Champion Reefs P.O. (S.I.)
9. Bhandarkar, M.S., P.O. Pallom (Travancore)
10. Bhutta, P. H., Nagpur
11. Chainani, R. W., Willingdon Island P.O. (S.I.)
12. Chakravarty, K. M., Rurhaband, P.O. Sindri, Pathardihi (Manbhum)
13. Champa Lal, Delhi
14. Chinnasami, V. S., T. Nagar, Madras
15. Collins, A. E. L., Delhi
16. Das, H. S., Calcutta
17. Daw, B. C., Calcutta
18. Desai, H. M., Bombay
19. Dhani Ram, Delhi
20. Dixon, J. D., Marikuppam P.O. (S.I.)
21. Doshi, R. V., Anand (Distt. Kaira)
22. Dunlop, M., Korgaum P.O. (S.I.)
23. Dutt, S. K., Calcutta
24. Fazalbhoy, Y. A., Bombay
25. Fielder, C. J., Calcutta

## APPENDIX 20.5

### CONTRIBUTIONS AND SUBSCRIPTIONS BY THE CENTRAL AND STATE GOVERNMENTS, FIRMS, TRADERS AND INDIVIDUALS FOR THE CALENDAR YEAR 1951

1. Contributions	Rs	As	P	Rs	As	P	Rs	As	P
Central Government's Grant-in-Aid ... ..	2,25,000	0	0						
Indian Jute Fabrics Shippers Association, Calcutta ... ..	250	0	0				2,25,250	0	0
2. Membership Subscriptions									
a) State Governments									
Bombay ... ..	8,500	0	0						
U.P. ... ..	5,000	0	0						
West Bengal ... ..	4,000	0	0						
Bihar ... ..	2,500	0	0						
Madras ... ..	2,000	0	0						
Hyderabad ... ..	2,000	0	0						
Mysore ... ..	1,250	0	0						
Do for 1950 ... ..	1,000	0	0						
Madhya Bharat ... ..	1,000	0	0						
Saurashtra ... ..	1,000	0	0						
Rajasthan ... ..	1,000	0	0						
Travancore-Cochin ... ..	1,000	0	0						
Orissa ... ..	500	0	0						
Punjab ... ..	500	0	0						
Patiala and East Punjab States Union ... ..	500	0	0						
Madhya Pradesh ... ..	500	0	0						
Himachal Pradesh ... ..	500	0	0						
Vindhya Pradesh ... ..	500	0	0						
Assam ... ..	250	0	0						
Jammu and Kashmir ... ..	250	0	0						
Delhi ... ..	250	0	0				34,000	0	0
b) Firms, Trade Associations, Non-Government Bodies, etc, paying more than minimum:									
Associated Cement Companies, Bombay ... ..	3,000	0	0						
Tata Iron & Steel Company Ltd., Bombay ... ..	3,000	0	0						
Delhi Cloth & General Mills Co. Ltd., Delhi ... ..	1,500	0	0						
Federation of Indian Chambers of Commerce and Industry, New Delhi ... ..	1,000	0	0						
D.C.M. Chemical Works, Delhi ... ..	750	0	0						
Saru Smelting & Refining Corpn. Ltd., Meerut ... ..	500	0	0						
Indian Jute Mills Assn., Calcutta ... ..	500	0	0						
B. M. Singh & Sons, Calcutta ... ..	500	0	0						
Engineering Association of India, Calcutta ... ..	500	0	0						
Lever Brothers (India) Ltd., Bombay ... ..	500	0	0						
P. C. Chanda & Co. Ltd., Calcutta ... ..	500	0	0						
Hindustan Vanaspati Mfg. Co. Ltd., Bombay ... ..	500	0	0						
Sinclair Murray & Co. Ltd., Calcutta ... ..	500	0	0						
Dalmia Cement Ltd., New Delhi ... ..	500	0	0						
Chloride & Exide Batteries (Eastern) Ltd., Bombay ... ..	500	0	0						
Tata Mills Ltd., Bombay ... ..	500	0	0						
Ahmedabad Advance Mills Ltd., Bombay ... ..	500	0	0						
Svadeshi Mills Co. Ltd., Bombay ... ..	500	0	0						
Central India Spg., Wvg. & Mfg. Co. Ltd., Bombay ... ..	500	0	0						
National Carbon Co. (India) Ltd., Calcutta ... ..	500	0	0						
Chandmull Rajgariah, Giridih, Hazaribagh ... ..	500	0	0						
Tarway Mica Works, Giridih, Hazaribagh ... ..	500	0	0						
Chrestien Mica Industries Ltd., Calcutta ... ..	500	0	0						
India Paint, Colour & Varnish Co. Ltd., Calcutta ... ..	500	0	0						
Hindustan Motors Ltd., Calcutta ... ..	500	0	0						
Ludlow Jute Co. Ltd., Calcutta ... ..	500	0	0						
Standard Batteries Ltd., Bombay ... ..	500	0	0						
Indian Aluminium Co. Ltd., Calcutta ... ..	500	0	0						
Standard Vacuum Oil Co., Bombay ... ..	500	0	0						
Hindustan Aircraft Ltd., Bangalore ... ..	500	0	0						
Indian Copper Corporation Ltd., Ghatsila ... ..	400	0	0						
Crompton Parkinson Works Ltd., Bombay ... ..	350	0	0						
Estrela Batteries Ltd., Bombay ... ..	350	0	0						
C. C. Wakefield & Co. Ltd., Bombay ... ..	350	0	0						
Coal Consumers' Assn. of India, Calcutta ... ..	350	0	0						
Anglo-Swiss Watch Co., Calcutta ... ..	350	0	0						
India Electric Works, Behala, 24 Parganas ... ..	350	0	0						
C. O. ... ..	24,250	0	0	34,000	0	0	2,25,250	0	0

	Rs	As	P	Rs	As	P	Rs	As	P
B. F. ...	24,250	0	0	34,000	0	0	2,25,250	0	0
IRP (Radio) Ltd., Calcutta ...	300	0	0						
Indian Galvanizing Co. (1926) Ltd., Calcutta ...	300	0	0						
Ganges Galvanizing Works (India) Ltd., Howrah ...	300	0	0						
Angelo Bros. Ltd., Calcutta ...	300	0	0						
Association of Merchants and Mfrs. of Textile Stores and Machinery, Bombay ...	300	0	0						
British Metal Corporation (India) Ltd., Calcutta ...	300	0	0						
Bengal Silk and Art Silk Millowners' Association, Calcutta ...	300	0	0						
Ganges Rope Co. Ltd., Calcutta ...	300	0	0						
Indian Rope Mfrs. Assn., Calcutta ...	300	0	0						
J. C. Gammon Ltd., Bombay ...	300	0	0						
Sen-Raleigh Industries of India Ltd., Calcutta ...	300	0	0						
Metal Rolling Works Ltd., Bombay ...	300	0	0						
North India Light Weight Steels Ltd., New Delhi ...	300	0	0						
Behar Firebricks & Potteries Ltd., P.O. Mugma, Distt. Manbhum ...	275	0	0						
Gannon Dunkerley & Co. Ltd., Bombay ...	275	0	0						
Sankey Electrical Stampings Ltd., Bhandup ...	275	0	0						
Aluminium Mfg. Co. Ltd., Calcutta ...	275	0	0	29,250	0	0			
c) Other Sustaining Members at Rs 250/- each ...				1,38,503	4	0			
d) Sustaining Members (Associates) ...				2,650	6	0			
e) Ordinary Members ...				1,851	12	0			
				<b>Total Subscription</b>			2,06,255	6	0
				<b>Grand Total</b>			4,31,505	6	0

## APPENDIX 20.6

### MEMBERS OF THE BUILDING DIVISION COUNCIL ( BDC )

CHAIRMAN:	Shri A. N. Khosla
Organization/Interest	Representative
DIRECTORATE OF TECHNICAL DEVELOPMENT, MINISTRY OF DEFENCE	( DTD do not wish to nominate a representative at this stage )
ENGINEER-IN-CHIEF'S BRANCH, MINISTRY OF DEFENCE	Lt.-Col. N. S. Bhagat, S.O.I. ( Planning )
ROADS ORGANIZATION, MINISTRY OF TRANSPORT	Shri H. P. Sinha, Additional Consulting Engineer ( Roads )
CENTRAL PUBLIC WORKS DEPARTMENT	Shri M. S. Mathur, Chief Engineer ( Shri N. G. Dewan, Superintending Engineer, Planning Circle — <i>Alternate</i> )
CENTRAL WATER AND POWER COMMISSION	Shri A. N. Khosla, Chairman [ Shri Kanwar Sain, Member ( Designs ) — <i>Alternate</i> ]
BUREAU OF STANDARDS ( MEDICAL INSTITUTIONS ), MINISTRY OF HEALTH	Shri J. D. Shastri, Senior Architect, Directorate General of Health Services
FOREST RESEARCH INSTITUTE	Capt. N. J. Masani
CENTRAL STANDARDS OFFICE, MINISTRY OF RAILWAYS	Shri V. Venkataramayya, Deputy Chief Controller ( Civil )
ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION, MINISTRY OF EDUCATION	Shri N. K. Mitra
DIRECTORATE GENERAL OF SUPPLIES AND DISPOSALS	Mr. F. Ashmore, Deputy Director General ( Inspection ) ( Shri R. N. Sarma, Director of Inspection — <i>Alternate</i> )
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH	Dr. J. N. Mukherji, Director, Central Building Research Institute Sir Teja Singh Malik, Chairman, Local Planning Committee of the Central Building Research Institute
CENTRAL BOARD OF IRRIGATION & POWER	Shri S. L. Malhotra, Secretary
INDIAN ROADS CONGRESS	Shri S. B. Joshi, Messrs S. B. Joshi & Co., Bombay ( Shri H. P. Sinha — <i>Alternate</i> )
INSTITUTION OF ENGINEERS ( INDIA )	Shri Chandulal C. Dangoria, Retd. Superintending Engineer, Hyderabad-Dn. Shri Akshoy Bose, Partner, Messrs Ballardie, Thompson & Matthews, Calcutta

<i>Organization/Interest</i>	<i>Representative</i>
INDIAN INSTITUTE OF ARCHITECTS	Shri H. N. Dallas, Bombay
THE CONCRETE ASSOCIATION OF INDIA	Shri E. A. Nadirshah, Chief Engineer
BITUMINOUS PRODUCTS	Shri S. S. Sujan Singh, The Burmah-Shell Oil Storage and Distributing Co. of India Ltd., New Delhi ( Shri J. Chopra — <i>Alternate</i> )
BUILDERS HARDWARE AND IRONMONGERY	Mr. C. J. Fielder, Shalimar Tar Products (1935) Ltd., Calcutta Shri S. F. Desai, Godrej and Boyce Mfg. Co. Ltd., Bombay Shri V. P. Mehta, Messrs Purushottam Ramji & Sons, Calcutta ( Shri Yousuf Mowjee, Messrs M. C. Mowjee & Co., Calcutta — <i>Alternate</i> )
TIMBER	The Timber Traders' Association, Pathankot Nepal Forest Contractors Association, Lucknow
CLAY AND CERAMIC PRODUCTS	Burn & Co. Ltd., Calcutta Shri M. K. Ganpule, Parshuram Pottery Works, Ltd., Wankaner ( Saurashtra )
STEELWORKS AND STRUCTURAL	Mr. William Miller, C/o Braithwaite, Burn & Jessop Construction Co. Ltd., Calcutta Shri A. M. Kapadia, Director, Structural Engineering Works Ltd., Bombay ( Shri K. K. Mitter, Director, Messrs National Structurals Ltd., Calcutta — <i>Alternate</i> )
BUILDING CONTRACTORS	Hindustan Construction Co. Ltd. Shri Sardar Chand, Honorary Secretary, Central Builders Association, New Delhi
CEMENT MANUFACTURE	Dr. R. R. Hattiangadi, Managing Director, The Associated Cement Cos. Ltd., Bombay ( Shri V. N. Pai, Manager, Banmor Cement Works — <i>Alternate</i> )
LIME AND GYPSUM	Shri M. L. Suri, Northern India Lime Marketing Association, Dehra Dun
NATURAL STONE AND QUARRY PRODUCTS	Pakur Quarry Owners' Association, Calcutta
PLUMBING	Shri B. K. Malhan, Managing Director, John Tinson & Co. Ltd., New Delhi
ELECTRICAL WIRING	Shri T. S. Sitapati, National Insulated Cable Co. of India Ltd., Calcutta ( Mr. P. H. Bolland, Messrs Greaves Cotton Crompton Parkinson Ltd., Calcutta — <i>Alternate</i> )
HEATING, VENTILATING AND REFRIGERATION	Shri Krishan Dev, Honorary Secretary, The Central Council of Refrigeration and Air-Conditioning Traders' Association, New Delhi
CEMENT PRODUCTS	Shri S. G. Telang, The Indian Hume Pipe Co. Ltd., Delhi ( Shri D. F. Daroga — <i>Alternate</i> )
ASBESTOS PRODUCTS ( BUILDING )	Mr. W. H. Rooksby, Asbestos Cement Ltd., Bombay ( Mr. G. A. Gardner — <i>Alternate</i> )
ILLUMINATION	International General Electric Co. ( India ) Ltd.

## APPENDIX 20.7

### MEMBERS OF THE ENGINEERING DIVISION COUNCIL ( EDC )

CHAIRMAN: Shri S. L. Kirloskar  
VICE-CHAIRMEN: Shri D. Narayanaswamy Chetty  
Shri S. A. Gadkary

<i>Organization/Interest</i>	<i>Representative</i>
CENTRAL STANDARDS OFFICE, MINISTRY OF RAILWAYS	Shri D. Narayanaswamy Chetty, Deputy Chief Controller of Standardization
CENTRAL PUBLIC WORKS DEPARTMENT	Shri M. S. Mathur, Chief Engineer ( Shri N. G. Dewan, Superintending Engineer — <i>Alternate</i> )
CENTRAL WATER AND POWER COMMISSION	Dr. R. C. Hoon, Deputy Director
BUREAU OF MINES	Director
CENTRAL WATER AND POWER COMMISSION	Shri N. Venkatesan ( Shri V. Venugopalan, Project Officer — <i>Alternate</i> )

<i>Organization/Interest</i>	<i>Representative</i>
ROADS ORGANIZATION, MINISTRY OF TRANSPORT	Shri H. P. Mathrani, Consulting Engineer
DIRECTORATE OF POSTS AND TELEGRAPHS, MINISTRY OF COMMUNICATIONS	Chief Engineer (Shri H. N. Shrivastava, Additional Chief Engineer — <i>Alternate</i> )
CIVIL AVIATION DIRECTORATE, MINISTRY OF COMMUNICATIONS	Shri D. Chakravarti, Deputy Director General (Dr. P. Nilakantan, Deputy Director — <i>Alternate</i> )
DIRECTORATE OF TECHNICAL DEVELOPMENT, MINISTRY OF DEFENCE	Col. A. G. C. Northcroft, Controller of Armament Development
DIRECTORATE OF MECHANICAL ENGINEERING, MINISTRY OF DEFENCE	Col. W. J. Redmond-Lyon, Deputy Director
ENGINEER-IN-CHIEF'S BRANCH, MINISTRY OF DEFENCE	Brig. Partap Narain, Brigadier Engineer, Staff
DIRECTORATE OF ORDNANCE FACTORIES, MINISTRY OF DEFENCE	Mr. P. Cutler, Ordnance Factory, Muradnagar
INDIAN AIR FORCE, MINISTRY OF DEFENCE	Sq./Ldr. S. Satgursaran, Assistant Director, Technical Services, Air Headquarters
INDIAN NAVY, MINISTRY OF DEFENCE	Commander (E) C. L. Bhandari, Deputy Director of Naval Engineering, Naval Headquarters
DIRECTORATE GENERAL OF SUPPLIES AND DISPOSALS (INSPECTION WING)	Mr. F. Ashmore, Deputy Director General (Inspection)
MINISTRY OF COMMERCE AND INDUSTRY	Shri Jang Bir Singh, Industrial Adviser, Engineering
DIRECTORATE GENERAL OF HEALTH SERVICES, MINISTRY OF HEALTH	Shri Ramesh S. Mehta, Superintending Engineer
HEAD OF THE AGRICULTURAL ENGINEERING MACHINERY, MINISTRY OF FOOD AND AGRICULTURE	Shri C. P. Shrivastava
FOREST RESEARCH INSTITUTE	Shri C. R. Ranganathan, President
ALL INDIA RADIO, MINISTRY OF INFORMATION AND BROADCASTING	Shri B. V. Baliga, Chief Engineer
ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION (MINISTRY OF EDUCATION)	Dr. Shiv Narayan
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH	Dr. Ernst Zipkes, Director, Central Road Research Institute
	Dr. K. S. Krishnan, Director, National Physical Laboratory of India
	(Dr. K. N. Mathur, Assistant Director — <i>Alternate</i> )
CENTRAL BOARD OF IRRIGATION AND POWER	Shri S. L. Malhotra, Secretary
INSTITUTION OF ENGINEERS (INDIA)	Mr. H. J. Mulleneux, Messrs Mulleneux & Mulleneux Ltd., Bombay
	Shri S. A. Gadkary, Central Water and Power Commission
	Shri S. V. Ramaswami, Superintending Engineer, Indian Telephone Industries, Bangalore
	Shri H. P. Sinha, Deputy Consulting Engineer (Roads)
	Shri H. N. Dallas, Bombay
	Dr. D. P. Antia, Honorary Secretary
	Mr. C. Monteath, Chief Engineer, Cawnpur Woollen Mills
	Shri G. M. Ray, Secretary, Coalfields Committee
	Mr. H. Gibson, Messrs Martin Burn Ltd., Calcutta
	Prof. S. K. Roy, Jadavpur
	Shri K. G. Khosla, Messrs K. G. Khosla & Co. Ltd., New Delhi
	Shri S. L. Kirloskar, Modi Baug, Poona
	Shri N. H. Mapara, Messrs Mapara Parekh & Co., Bombay
	Shri C. M. Shaw, General Electric Co. of India Ltd.
	(Shri I. L. Dass — <i>Alternate</i> )
	(Shri R. L. Kirloskar, Messrs Kirloskar Electric Co. Ltd. — <i>Alternate</i> )
STEEL RE-ROLLING MILLS' ASSOCIATION OF INDIA	Shri B. N. Gupta, Parkash Engineering Co. and Rolling Mills, Agra
MACHINE TOOL MANUFACTURERS' ASSOCIATION	Shri M. B. Jambhekar, Managing Director, Messrs Mysore Kirloskar Ltd., Harihar
COAL CONSUMERS' ASSOCIATION OF INDIA	Shri S. C. Ghosh, The Tata Iron & Steel Co. Ltd., Calcutta
IRON AND STEEL	Shri J. S. Vatchagandhy, Chief Metallurgist, The Tata Iron & Steel Co. Ltd., Jamshedpur
	(Dr. D. R. Dhanbhora, Deputy Chief Metallurgist — <i>Alternate</i> )
	Shri B. A. Narayana Murti, Works Manager, The Mysore Iron & Steel Works, Bhadravati
MECHANICAL ENGINEERING	Shri A. J. Lund, General Manager, Cooper Engineering Ltd., Satara
	Shri N. K. Joshi, Kirloskar Brothers Ltd., Kirloskarwadi

<i>Organization/Interest</i>	<i>Representative</i>
NON-FERROUS METALS	Shri C. D. Jhamb, Director, Kamani Metals & Alloys Ltd., Calcutta
	Mr. J. G. Berry, Works Manager, Indian Copper Corporation Ltd., Ghatsila ( Mr. R. M. Hannah, Assistant Works Manager — <i>Alternate</i> )
ELECTRICAL	Shri B. K. Rohatgi, Calcutta
	Mr. J. D. Meijer, Managing Director, Philips Electrical Co. ( India ) Ltd., Calcutta
MINING	Shri D. Samanta, Patherdih Sudamdih Colliery, Patherdih
AGRICULTURAL MACHINERY AND IMPLEMENTS	Shri S. K. Datta, Sales and Planning Engineer, The Tata Iron & Steel Co. Ltd., Jamshedpur
SHIPBUILDING	Mr. E. Smith, Superintendent and Manager, The Hooghly Docking & Engineering Co. Ltd., Howrah
TELEPHONE AND TELEGRAPH ENGINEERING	Shri R. Natarajan, General Manager, Indian Telephone Industries, Bangalore
RADIO AND ELECTRONICS	Shri R. K. Phatak, Messrs Radio Services, Bombay ( Shri Hari Krishan Lal Arora, Messrs Radio Centre, Delhi — <i>Alternate</i> )
AIRCRAFT	Dr. V. M. Ghatage, Chief Designer, Hindustan Aircraft Ltd., Bangalore ( Shri K. T. G. Iyengar, Chief Project Engineer — <i>Alternate</i> ) ( Shri N. Srinivasan, Chief of Aerodynamics — <i>Alternate</i> )
AUTOMOBILE	Shri Lakshnipati Misra, General Manager, Hindustan Motors Ltd., Calcutta
CINEMATOGRAPHY	Shri B. M. Tata, Government Gate Road, Bombay
SCIENTIFIC INSTRUMENTS	Shri P. C. Mahajan, Works Manager, National Instrument Factory, Calcutta
WATCHES AND CLOCKS	Mr. M. I. A. Dester, General Manager, Anglo-Swiss Watch Co., Calcutta
CHEMICAL ENGINEERING	Shri J. D. Adhia, Chemical Engineer, Tata Chemicals Ltd., Mithapur ( Shri C. M. Shah, Construction Engineer — <i>Alternate</i> )
GOVERNMENT TEST HOUSE, ALIPORE, CALCUTTA ( Co-opted )	Director
METALS COMMITTEE, COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH ( Co-opted )	Director, National Metallurgical Laboratory
ENGINEERING RESEARCH DEPARTMENT, HYDERABAD ( Co-opted )	Dr. S. P. Raju, Director
INDIAN INSTITUTE OF SCIENCE ( Co-opted )	Prof. M. S. Thacker, Director
THE FEDERATION OF ELECTRICITY UNDERTAKINGS OF INDIA ( Co-opted )	Shri N. P. Kirpalani, Deputy Chief Engineer and Manager, Bombay Suburban Electric Supply Ltd., Bombay
SIGNALS DIRECTORATE, ARMY HEADQUARTERS, MINISTRY OF DEFENCE ( Co-opted )	Col. P. N. Luthra, Deputy Director, Signals

## APPENDIX 20.8

### MEMBERS OF THE TEXTILE DIVISION COUNCIL ( TDC )

CHAIRMAN:            Shri Bharat Ram

<i>Organization/Interest</i>	<i>Representative</i>
TEXTILE COMMISSIONER	Shri M. C. Dutt, Deputy Director ( Production )
DIRECTORATE GENERAL OF SUPPLIES AND DISPOSALS ( INSPECTION WING )	Shri Randhir Singh, Assistant Director of Inspection ( Textiles )  ( Shri S. N. Dass Gupta, Director of Inspection, Bombay — <i>Alternate</i> )
GOVERNMENT TEST HOUSE	Director, Government Test House, Calcutta
DIRECTORATE OF TECHNICAL DEVELOPMENT, MINISTRY OF DEFENCE	Col. N. N. Chopra, Controller of Stores, Development ( Shri C. S. Ramanathan — <i>Alternate</i> )
DIRECTORATE OF TECHNICAL DEVELOPMENT, MINISTRY OF DEFENCE	Lt.-Col. A. N. Kapur, Chief Superintendent, Development, Textiles and Clothing, Kanpur
DIRECTORATE OF TECHNICAL DEVELOPMENT, MINISTRY OF DEFENCE	Dr. T. S. Subramanian, Superintendent, Technical Development Establishment Laboratories, Kanpur
FOREST RESEARCH INSTITUTE AND COLLEGES	Dr. R. V. Bhat, Officer-in-Charge, Cellulose and Paper Branch
ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION	Head of the Textile Department, Delhi Polytechnic

<i>Organization/Interest</i>	<i>Representative</i>
DIRECTORATE OF MARKETING AND INSPECTION	Dr. T. G. Shirname, Agricultural Marketing Adviser to the Government of India (Dr. B. C. Sen, Deputy Agricultural Marketing Adviser — <i>Alternate</i> )
INSTITUTION OF ENGINEERS (INDIA)	Shri P. V. S. Iyengar, Manager and Chief Engineer, Shri Sadul Textiles Ltd.
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH	Dr. G. M. Nabar, Department of Chemical Technology, University of Bombay
INDIAN COUNCIL OF AGRICULTURAL RESEARCH	Shri R. L. Sethi, Agricultural Commissioner with the Government of India
INDIAN CENTRAL COTTON COMMITTEE	Shri R. G. Saraiya (Shri Chimanlal B. Parikh — <i>Alternate</i> )
TECHNOLOGICAL LABORATORY, INDIAN CENTRAL COTTON COMMITTEE	Dr. C. Nanjundayya, Director
INDIAN CENTRAL JUTE COMMITTEE	Dr. B. C. Kundu, Director, Jute Agricultural Research Institute
TRAVANCORE COIR MATS AND MATTING MANUFACTURERS' ASSOCIATION	Shri K. G. Thomas, President (Shri H. Sutton — <i>Alternate</i> )
TEXTILE ASSOCIATION (INDIA)	Shri Y. T. Mondkar
AHMEDABAD MILLOWNERS' ASSOCIATION	Shri Surottam P. M. Hutheesing
SOUTHERN INDIA MILLOWNERS' ASSOCIATION	Shri K. Sreenivasan
BENGAL MILLOWNERS' ASSOCIATION	Shri B. M. Bagri
MASKATI CLOTH MARKET ASSOCIATION	Shri Ramanlal Fakirchand Mashruwala (Shri Chandulal Jeshingbhai Shah — <i>Alternate</i> )
FEDERATION OF WOOLLEN MANUFACTURERS IN INDIA	Shri Maganlal B. Patel
INDIAN JUTE MILLS ASSOCIATION	Mr. J. M. Duncan
INDIAN JUTE MILLS ASSOCIATION RESEARCH INSTITUTE	Dr. W. G. Macmillan, Research Director
INDIAN HEMP ASSOCIATION	Shri B. L. Jalan
EAST INDIA COTTON ASSOCIATION	Shri Madan Mohan R. Ruia
CENTRAL SILK BOARD, INDIA	Shri S. K. Chaudhuri, Secretary
COTTON TEXTILES	Shri Bharat Ram, Delhi Cloth & General Mills Co. Ltd.
COTTON TEXTILES	Shri Arvind Narottam, The Arvind Mills Ltd. (Shri C. H. Desai — <i>Alternate</i> )
COTTON GROWING	Shri Raje J. R. Deshmukh
JUTE TEXTILES	Dr. P. B. Sarkar, Director, Technological Research Laboratories, Indian Central Jute Committee
JUTE GROWING	Shri Indu Bhushan Mazumdar, President, Polarbat Union Board and Union Jute Committee
SILK	Shri C. Puttaraj Urs, General Manager, Govt. Silk Weaving Factory, Mysore
SILK	Shri K. C. Biswas, Honorary Secretary, Bengal Silk Millowners' Association, Calcutta
WOOL	Shri A. K. Wattal, Shri Karan Singh Woollen Mills Ltd., Srinagar
ARTIFICIAL SILK AND OTHER SYNTHETIC FIBRES AND TEXTILES	Shri D. K. Khetani, Khetani Textile Industries Ltd., Bombay
HEMP AND COIR	Mr. J. S. Quin, President, Indian Rope Manufacturers' Association, Calcutta
TEXTILE MACHINERY	Shri D. P. Mandelia, Director, TEXMACO (Gwalior) Ltd., Gwalior
TEXTILE MILL STORES	Shri B. C. Munshaw, President, Association of Merchants and Manufacturers of Textile Stores and Machinery (India), Bombay
KNITTED GARMENTS AND HOSIERY	Shri Kidar Nath, Kesar Hosiery, Ludhiana
IMPERIAL CHEMICAL INDUSTRIES (INDIA) LTD. (Co-opted)	Dr. F. S. Tomlinson, Technical Manager, Dyes Department, Bombay
GOVERNMENT OF UTTAR PRADESH (Co-opted)	Shri J. N. Singh, Principal, Government Central Weaving Institute, Banaras
EAST INDIA CARPET CO. LTD. (Co-opted)	Shri Kirpa Shankar, Director
THE FEDERATION OF GUJARAT MILLS AND INDUSTRIES (Co-opted)	Shri B. B. Joshi, Director, The New India Industries Ltd., Baroda
THE TEXTILE MANUFACTURERS' ASSOCIATION (Co-opted)	Shri B. K. Munjal, Proprietor, Bharat Udhar Cloth Manufacturing Co., Amritsar
NATIONAL ART SILK MILLS LTD. (Co-opted)	Shri S. G. Natu, The National Art Silk Mills Ltd., Bombay
UPPER INDIA CHAMBER OF COMMERCE (Co-opted)	Shri S. D. Garg, The Lakshmiratan Cotton Mills Co. Ltd., Kanpur (Shri S. N. Bagla — <i>Alternate</i> )



## APPENDIX 20.9

### MEMBERS OF THE CHEMICAL DIVISION COUNCIL ( CDC )

CHAIRMAN: Dr. H. L. Roy

<i>Organization/Interest</i>	<i>Representative</i>
DIRECTORATE GENERAL OF HEALTH SERVICES, MINISTRY OF HEALTH	Shri P. M. Nabar, Drugs Controller ( India ) [ Shri P. S. Ramchandran, Assistant Drugs Controller ( India ) — <i>Alternate</i> ]
INDIAN AGRICULTURAL RESEARCH INSTITUTE FOREST RESEARCH INSTITUTE AND COLLEGES	Dr. B. P. Pal, Director Dr. S. V. Puntambekar, Officer-in-Charge, Chemistry of Forest Products Branch
CENTRAL STANDARDS OFFICE, MINISTRY OF RAIL- WAYS	Shri R. G. Bhatawadekar, Research Officer ( Metallurgical and Chemical )
DIRECTORATE OF TECHNICAL DEVELOPMENT, MINISTRY OF DEFENCE	Col. N. N. Chopra, Controller of Stores Department, Master General of the Ordnance Branch
DIRECTORATE OF MEDICAL SERVICES, MINISTRY OF DEFENCE	Major J. B. C. Delemos, Office of the DGAFMS
MINISTRY OF COMMERCE & INDUSTRY	Dr. A. Nagaraja Rao, Industrial Adviser ( Chemicals ) [ Shri N. Srinivasan, Deputy Development Officer ( C. D. and P. ) — <i>Alternate</i> ]
GOVERNMENT TEST HOUSE	Director ( or his Representative )
ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION, MINISTRY OF EDUCATION	Head of the Department of Applied Science, Delhi Polytechnic
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH	Dr. J. Gupta, Assistant Director, Inorganic Chemistry Divi- sion, National Chemical Laboratory of India Dr. Krishna Gopal Mathur, Assistant Director, Survey & Information Division, National Chemical Laboratory of India Dr. Mata Prasad, Principal, The Institute of Science Prof. T. R. Seshadri, Professor of Chemistry, Delhi University ( Dr. B. Mukerji, Director, Central Drugs Research Institute — <i>Alternate</i> )
NATIONAL INSTITUTE OF SCIENCES OF INDIA	Dr. J. N. Mukherji, Director, Central Building Research Institute
INDIAN COUNCIL OF MEDICAL RESEARCH	Dr. K. N. Sinha, Professor of Pharmacology, Medical College, Nagpur
MEDICAL COUNCIL OF INDIA	Dr. H. L. Roy, Professor-in-Charge, Chemical Engineering Department, College of Engineering and Technology, Calcutta
THE INSTITUTION OF ENGINEERS ( INDIA )	Shri C. P. Gupta, Raj Traders Ltd., Jaipur City Shri I. B. Amin, Messrs Alembic Chemical Works Co. Ltd., Baroda Shri Madan Lal H. Vakil, C/o. Tata Chemicals Ltd., Calcutta Mr. W. C. Caswell, Messrs Allen and Hanburys Ltd., Bombay
ALL-INDIA MANUFACTURERS' ORGANIZATION INDIAN CHEMICAL MANUFACTURERS' ASSOCIATION, CALCUTTA	Shri Krishan Kapur, Messrs Nagrath Paints Ltd., Kanpur ( Shri G. K. Mukherjee, Messrs Murarka Paint and Varnish Works Ltd., Calcutta — <i>Alternate</i> )
PHARMACEUTICAL AND ALLIED MANUFACTURERS AND DISTRIBUTORS' ASSOCIATION LTD. INDIAN PAINT MANUFACTURERS' ASSOCIATION	Shri P. K. Adhikari, Messrs Jenson and Nicholson ( India ) Ltd., Calcutta ( Mr. W. E. Norris, Goodlass Wall Ltd., Bombay — <i>Alternate</i> ) Shri V. Poddar, Works Manager, Rohtas Industries Ltd., Dalmianagar ( Mr. K. Lenz, Paper Expert — <i>Alternate</i> ) Shri Lalit Mohan Jamnadas, Indian Rubber Industries Asso- ciation, Bombay
PAINT FEDERATION	Shri Y. G. Pathak, Manager, Vasant Vijay Mills, Bombay Mr. C. J. Fielder, General Manager, Shalimar Tar Products ( 1935 ) Ltd., Calcutta ( Mr. Basil Gray, Manager for North India — <i>Alternate</i> ) Dr. S. K. Sircar, Works Manager, Bararee Coke Co. Ltd., Kusunda
INDIAN PAPER MILLS' ASSOCIATION	Shri M. B. Bhagvat, Works Superintendent, Tata Chemicals Ltd., Mithapur ( Shri J. D. Adhia, Chemical Engineer — <i>Alternate</i> ) Shri C. Krishnamurthy, The Mysore Chemicals and Fertilizers Ltd., Mysore
INDIAN RUBBER BOARD	Mr. G. St. L. Berkley, Burmah-Shell Oil Storage & Distri- buting Co. of India Ltd., New Delhi ( Mr. W. E. G. Humphrey — <i>Alternate</i> )
TEXTILE ASSOCIATION ( INDIA ) COAL CARBONIZATION AND TAR PRODUCTS	
HEAVY CHEMICALS	
PETROLEUM PRODUCTS	

<i>Organization/Interest</i>	<i>Representative</i>
OILS, FATS, GREASES AND SOAPS	Mr. F. F. Richardson, Standard-Vacuum Oil Co., New Delhi ( Shri G. W. Lall — <i>Alternate</i> ) Shri K. P. Rau, Manager, Tata Oil Mills Co. Ltd., Tatapuram ( Shri P. T. John, Manager, Tata Oil Mills Co. Ltd., Bombay — <i>Alternate</i> ) Dr. J. S. Badami, The Swastik Oil Mills Ltd., Bombay ( Shri B. G. Pendharkar — <i>Alternate</i> )
PLASTICS AND RUBBER	Mr. E. N. Wood, Acting Technical Manager, Dunlop Rubber Co. ( India ) Ltd., Sahagunj ( Shri P. K. Bose, Section Manager, Laboratories, Sahaganj — <i>Alternate</i> ) Shri B. M. Thakkar, All-India Plastics Manufacturers Asso- ciation, Bombay ( Shri G. N. Parikh, Great India Plastics, Bombay— <i>Alternate</i> )
LEATHER AND TANNING	Shri T. Abdul Wahied, Deputy Secretary, Southern India Skin and Hide Merchants Association, Madras Shri Pyare Lal Jha, Chief Leather Chemist, Messrs Cooper Allen & Co., Kanpur
PAINTS, VARNISHES, PIGMENTS AND RELATED PRODUCTS	Shri R. B. Ghosh, Factory Manager, P. C. Chanda & Co. Ltd., Baranagore Mr. W. E. Norris, Technical Director and Chief Chemist, Goodlass Wall Ltd., Bombay ( Shri S. V. Sathaye, Factory Manager — <i>Alternate</i> )
DRUGS AND PHARMACEUTICAL PRODUCTS	Dr. Mahdi Hassan, Chemical, Industrial and Pharmaceutical Laboratories Ltd., Bombay ( Shri R. H. Usmani — <i>Alternate</i> ) Dr. U. P. Basu, Director, Bengal Immunity Research Institute, Calcutta ( Shri N. De Sarkar, Chemical Engineer — <i>Alternate</i> )
GLASS AND CERAMICS	Shri T. Gupta, Messrs Hind Lamps Ltd., Shikohabad ( U.P.) Shri A. K. Ganpule, General Manager, Parshuram Pottery Works Ltd., Morvi
PAPER	Shri P. K. Nanda, Shree Gopal Paper Mills Ltd., Jamnanagar ( Distt. Ambala )
PHOTOGRAPHIC PRODUCTS	Thakur Raghbir Singh Rammaye, Managing Director, Udyog Vikash Ltd., Bombay
WOOD PRESERVATIVES DISINFECTANTS	Shri J. Chakravarti, Lister Antiseptics & Dressings Co. ( 1928 ) Ltd., Calcutta-2
FERTILIZERS	Shri N.D. Gopinath, The Fertilizers and Chemicals, Travancore, Ltd., Alwaye ( Shri K. K. Sankunni Nair — <i>Alternate</i> )
FINE CHEMICALS	Shri N. Adhikari, Bengal Chemical and Pharmaceutical Works Ltd., Calcutta ( Shri A. Lahiri — <i>Alternate</i> )
DYE STUFFS	Dr. F. S. Tomlinson, Imperial Chemical Industries ( India ) Ltd., Bombay ( Mr. J. D. Ilett — <i>Alternate</i> )
COAL CONSUMERS' ASSOCIATION OF INDIA	Shri G. S. Gupta, General Manager, Central Distillery and Chemical Works Ltd., Meerut Cantt.
INDIAN RUBBER INDUSTRIES ASSOCIATION	Mr. F. Zinsenheim, Sett Minar, Bombay ( Shri K. V. Modak — <i>Alternate</i> )
INDIAN CENTRAL SUGARCANE COMMITTEE	Prof. J. M. Saha, Director, Indian Institute of Sugar Techno- logy, Kanpur ( Dr. K. S. G. Doss, Physical Chemist — <i>Alternate</i> )
R. V. BRIGGS & CO. LTD., CALCUTTA	Mr. E. J. Brenleux, Managing Director, Calcutta
DIRECTORATE GENERAL OF SUPPLIES AND DISPOSALS	Representative
DIRECTORATE GENERAL OF ORDNANCE FACTORIES	Representative

## APPENDIX 20.10

### SECTIONAL COMMITTEES AND SUBCOMMITTEES OF THE ISI UNDER THE EC, EDC, TDC, CDC, AND BDC: THEIR CHAIRMEN AND MEETINGS

<i>Committee</i>	<i>Chairman or Convener</i>	<i>Meeting Dates</i>
<b>Executive Committee</b>		
✓ EC 2 Documentation	Dr. S. R. Ranganathan	20.5.51 & 24.2.52
EC 2: 1 Paragraph Numbering	Dr. S. R. Ranganathan	...
EC 2: 2 Documentary Reproduction	Dr. S. R. Ranganathan	...

Committee	Chairman or Convener	Meeting Dates
EC 2:3 Layout of Periodicals	Dr. S. R. Ranganathan	24.2.52
EC 2:4 U.D.C. Numbers	Dr. S. R. Ranganathan	...
EC 2:5 Abbreviations for Titles of Periodicals	Shri B. N. Sastry	...
EC 2:6 Alphabetization	Dr. S. R. Ranganathan	20.5.51 & 23.2.52
EC 2:7 Transliteration	Dr. S. R. Ranganathan	23.2.52
✓ EC 3 Quality Control and Industrial Statistics	Prof. P. C. Mahalanobis	19.11.51
EC 4 Weights and Measures	Dr. J. C. Ghosh	...
EC 4:1 Weights and Measures	Dr. Lal C. Verman	...
✓ EC 5 Style Manual	Dr. Lal C. Verman	...
✓ EC 6 Export Goods	Dr. T. G. Shirname	...
✓ EC 7 Food-Grain Storage Structures	Lala Shri Ram	...
<b>Engineering Division Council</b>		
EDC 1 Engineering Standards	Dr. K. S. Krishnan	...
EDC 1:1 Standard Atmospheric Conditions for Testing	Dr. K. S. Krishnan	...
EDC 3 Basic Ferrous Metals	Shri J. S. Vatchagandhy	...
EDC 3:1 Sampling Methods	Dr. A. V. Sukhatme	...
EDC 3:2 Methods of Chemical Analysis	Dr. J. C. Ghosh	...
EDC 3:3 Methods for Physical Tests	Shri M. N. Goon	...
EDC 3:4 Pig Iron (Coke and Charcoal)	Mr. D. K. Coutts	...
EDC 3:5 Rolled Steel Products	Dr. D. R. Dhanbhoora	...
EDC 3:6 Iron Castings and Malleable Castings	Shri K. K. Nathani	...
EDC 3:7 Steel Castings	Shri H. R. Kapur	...
EDC 3:8 Galvanized Steel Sheets	Shri H. N. Commar	...
EDC 3:9 Steel Wire, Black and Galvanized	Shri S. C. Lahiry	9.4.51
EDC 3:10 Expanded Metals	Shri M. N. Goon	12.9.51
EDC 3:11 Special Quality Steel Sheets	Dr. D. R. Dhanbhoora	20.4.51, 21.8.51, 28.12.51 & 13.2.52
EDC 3:12 Electrical Steel Sheets	Dr. D. R. Dhanbhoora	25.2.52
EDC 4 Basic Non-Ferrous Metals	Dr. N. Anjaneyulu	28/29.6.51
EDC 4:1 Aluminium and Its Alloys	Dr. P. Nilakantan	9.4.51
EDC 4:2 Copper and Its Alloys	Shri D. S. Murty	...
EDC 4:3 Lead, Zinc, Tin, Antimony and Their Alloys	Shri N. P. Gandhi	...
EDC 4:5 Methods of Chemical Analysis	Mr. E. J. Breuleux	...
EDC 4:6 Methods of Physical Tests	Dr. N. Anjaneyulu	...
EDC 5 Electrical Conductors and Insulators	Shri V. Venugopalan	7/9.2.52
EDC 5:1 Bare Conductors	Shri V. Venugopalan	...
EDC 5:2 Instruments and Machine Winding Wires	Shri T. S. Sitapati	...
EDC 5:3 Insulated Cables	Mr. D. J. F. McIntosh	7/8.2.52
EDC 5:4 Insulators	Shri I. K. Gupta	...
EDC 6 Electrical Plant and Switchgear	Mr. F. Wade-Cooper	4/7.6.51 & 24/25.3.52
EDC 6:1 Standard Frequency and Voltages	Shri R. Rajagopalachari	...
EDC 6:2 Marking and Arrangement for Switchgear	Shri K. B. Patel	...
EDC 6:3 Industrial Motors	Shri Ravi L. Kirloskar	1/2.6.51
EDC 6:4 Fractional Horsepower Motors	Mr. J. H. Yeadon	...
EDC 6:5 Transformers for Power and Lighting	Shri P. R. Deshpande	...
EDC 6:6 Electric Fans	Shri B. K. Rohatgi	25.4.51, 8.5.51, 12.2.52 & 22.3.52
EDC 6:7 Tropic Proofing	Shri T. B. Merchant	...
EDC 6:8 Graphical Symbols	Shri R. C. Talwar	...
EDC 6:9 Insulation	Shri R. Allan	...
EDC 6:10 Starters and Control Gear	Mr. F. A. Popen	...
EDC 6:11 Bus-Bars and Bus-Bar Connections in Air, Oil or Compound	.....	...
EDC 6:12 Indian Standard Code of Practice for Installation and Maintenance of Electrical Machinery	Mr. F. Wade-Cooper	...
EDC 8 Electrical Accessories	Dr. M. B. Sarwate	24/25.5.51 & 10/11.12.51
EDC 8:1 Domestic Electrical Appliances	Shri H. S. Kulkarni	24/25.5.51
EDC 8:2 Wiring Accessories	Dr. G. N. Bhattacharya	22.5.51 & 4/5.3.52
EDC 8:3 Fuses	Dr. N. V. Raghunath	11.6.51
Drafting Panel (Fuses)	.....	...
EDC 8:4 Electrical Lamps	Shri Sachin Sen	...
EDC 8:5 Steel Conduits and Fittings for Electrical Wiring	Shri P. N. Deobhakta	...
EDC 9 Timber Products	Dr. S. N. Kapur	18/20.4.51
EDC 9:1 Timber	Dr. S. N. Kapur	...
Panel for Grading of Coniferous Sawn Timber	Dr. S. N. Kapur	...
Panel for Classification of Commercial Timbers	Dr. S. N. Kapur	...
Panel for Logs for Plywood	Shri J. Prasad	...
Panel for Glossary of Technical Terms used in Timber Technology	Dr. K. A. Chowdhury	...

<i>Committee</i>	<i>Chairman or Convener</i>	<i>Meeting Dates</i>
EDC 9: 2 Plywood	Lt.-Col. J. B. Howell	...
EDC 9: 3 Treatment	Dr. A. Purshotham	...
EDC 9: 4 Standard Names of Indian Timbers	Dr. S. N. Kapur	...
EDC 9: 5 Investigation into Grading of Commercial Plywood	Lt.-Col. J. B. Howell	...
EDC 9: 6 Investigation into Coniferous Sawn Timbers	Dr. A. N. Nayar	...
EDC 9: 7 Wood Separators	Shri J. Prasad	...
EDC 10 Oil Burning Domestic Appliances	.....	...
EDC 11 Machine Tools and Small Tools	Shri S. L. Kirloskar	...
EDC 11: 1 Machine Tools, Elements and Materials	Shri K. N. Sharma	...
EDC 11: 2 Expectation of Accurate Performance of Machine Tools	Shri K. I. N. Iyengar	...
EDC 11: 3 Small Cutting Tools	Shri R. N. Gandhi	...
EDC 11: 4 Safety Codes	Chief Mechanical Engineer, G.I.P. Railway, Bombay	...
EDC 12 Hand Tools	Shri A. B. Banerji	22/23.11.51
EDC 12: 1 Earth Work Tools	Shri S. K. Datta	3.7.51
EDC 12: 2 Blacksmith's Tools	Shri J. M. Marathe	24.11.51
EDC 12: 3 Handles for Tools	Shri V. D. Limaye	17.4.51
EDC 13 Abrasives	Shri S. L. Kirloskar	10/11.8.51
EDC 13: 1 Grinding Wheels	Shri S. S. Iyengar	17.5.51
EDC 13: 2 Coated Abrasives	Shri K. I. N. Iyengar	...
EDC 14 Internal Combustion Engines	Prof. H. A. Havemann	...
EDC 16 Gas Cylinders	Dr. M. K. Maitra	...
EDC 17 Refractories	Dr. H. K. Mitra	4/5.2.52
EDC 17: 1 Sampling	Shri T. W. Talwalkar	...
EDC 17: 2 Refractories for Cement Industry	Mr. J. Hammond	4.2.52
EDC 17: 3 Refractories for Railways	Shri A. Banerji	...
EDC 17: 4 Refractories for the Navy	Dr. H. K. Mitra	4.2.52
EDC 17: 5 Refractories for the Non-Ferrous Metals Industry	Shri D. R. Subramaniam	4.2.52
EDC 19 Radio Equipment	Shri B. V. Baliga	...
EDC 19: 1 Capacitors and Resistors	Shri T. V. Ramamurti	...
EDC 19: 2 Radio Receivers	Shri S. V. V. Swamy	...
EDC 19: 3 Radio Insulators	Prof. K. Sreenivasan	...
EDC 19: 4 Transformers and Chokes	Lt.-Col. H. O. Bates	4/6.6.51
EDC 19: 5 Testing Facilities	Shri S. R. Kantebet	...
EDC 19: 6 Nomenclature	Mr. H. J. Mulleneux	...
EDC 19: 7 Tropic Proofing	Dr. M. B. Sarwate	...
EDC 20 Drawings	Shri N. R. Junarkar	6/7.8.51
EDC 20: 1 Drawings	Shri H. P. Sinha	...
EDC 21 Mica	Shri Chandmull Rajgarhia	8.6.51 & 15/16.2.52
EDC 21: 1 Mica	Shri Chandmull Rajgarhia	...
EDC 21: 2 Master Standard Samples	Shri Chandmull Rajgarhia	6.3.52
EDC 22 Safes	Shri S. F. Desai	...
EDC 24 Manganese Ore	Dr. M. S. Krishnan	16/17.7.51
EDC 24: 1 Methods for Sampling and Chemical Analysis	Shri D. S. Naidu	13/14.7.51
EDC 25 Batteries	Shri G. D. Joglekar	...
EDC 25: 1 Primary Cells and Batteries	Shri G. D. Joglekar	...
EDC 25: 2 Secondary Cells	Shri G. D. Joglekar	...
EDC 26 Bicycles, Bicycle parts and Accessories	Shri Jang Bir Singh	6.12.51
EDC 26: 1 Tubular Parts	Shri K. N. Sharma	21.5.51 & 5.12.51
EDC 26: 2 Friction Parts	Shri S. M. Gandhi	5.12.51
EDC 26: 3 Wheels and Rubber Parts	Mr. E. N. Wood	...
EDC 26: 4 Accessories	Shri Janki Dass Kapur	...
EDC 27 Screw Threads	Shri R. G. da Costa	...
EDC 28 Sports Goods	Shri J. Banerji	...
EDC 28: 1 Footballs, Volley Balls and Basket Balls	Shri H. B. S. Richie	...
EDC 28: 2 Cricket and Hockey Balls	Shri Balwant Singh	28.9.51
EDC 28: 3 Badminton and Tennis Rackets, Hockey Sticks and Cricket Bats	Shri Krishna Prasada	23.7.51
EDC 28: 4 Shuttlecocks	Shri Baldev Sahai	2.8.51
EDC 28: 5 Nets	Shri Ram Nath Sharma	17.11.51
EDC 28: 6 Guts	Shri K. N. Wasan	24.9.51
EDC 28: 7 Soft Leather Goods	Shri P. Hoon	...
<b>Textile Division Council</b>		
TDC 1 Textile Standards	Dr. C. Nanjundayya	9.7.51
TDC 1: 1 Cotton	Dr. C. Nanjundayya	9/10.7.51
		( Joint Meeting of TDC 1 & TDC 1: 1 )
TDC 1: 2 Wool	Mr. R. P. Hollock	28.2.52

<i>Committee</i>	<i>Chairman or Convener</i>	<i>Meeting Dates</i>
TDC 1:3 Jute	Dr. W. G. Macmillan	23.5.51 & 24.10.51
TDC 1:4 Silk	Shri Dara H. Kooka	...
TDC 2 Cotton, Yarn and Cloth	Shri Bharat Ram	...
TDC 2:1 Cotton Yarn and Cloth	Shri C. J. Soneji	...
TDC 2:2 Mercerized Cotton Cloth, Cotton Tapes and Ropes	Shri S. Ramamritham	17.9.51
TDC 2:3 Cotton Packaging	Shri C. J. Soneji	...
TDC 3 Jute	Mr. G. J. Gardner	30.1.52
TDC 3:1 Raw Jute (Kutchha Bales)	Mr. J. Smith	...
TDC 3:2 Raw Jute (Pucca Bales)	Shri J. C. Niven	...
TDC 3:3 Jute Manufactures	Mr. G. J. Gardner	25.4.51 & 14.8.51
TDC 3:4 Bales, Trusses and Bundles	Shri T. C. Saboo	23.4.51 & 20.6.51
TDC 4 Wool	Shri A. K. Wattal	...
TDC 4:1 Raw Wool	Shri A. K. Wattal	...
TDC 4:2 Finished Products	Shri A. K. Wattal	...
TDC 4:2:1 Finished Woollen and Worsted Materials	Shri C. J. Sukhadwalla	...
TDC 4:3 Carpets, Druggets and Rugs	Shri A. K. Wattal	...
TDC 4:3:1 Carpets and Rugs	Shri O. L. Tellery	...
TDC 4:3:2 Druggets	Shri V. S. Rangasayi	...
TDC 5 Textile Chemistry	Dr. T. S. Subramanian	24/25.10.51
TDC 5:1 Identification and Analysis of Fibres	Dr. W. G. Macmillan	...
TDC 5:2 Undyed (Grey and Bleached) Cotton Materials	Shri P. S. Nadkarni	25.10.51 (Joint Meeting of TDC 5 & TDC 5:2)
TDC 5:3 Colour Fastness	Dr. F. S. Tomlinson	23.8.51
TDC 5:4 Proofed Fabrics	Dr. T. S. Subramanian	25.10.51 (Joint Meeting of TDC 5 & TDC 5:4)
TDC 5:5 Determination of Shrinkage	Dr. C. E. Salkeld	...
TDC 5:6 Textile Auxiliaries and Desizing Agents	Dr. D. R. Nanji	...
TDC 5:7 Water	Dr. S. M. Kaji	...
TDC 5:8 Dyestuffs (Informal)	Shri S. K. Dutta	26.6.51
TDC 6 Textile Stores and Machinery	Shri Narottam P. Hutheesing	...
TDC 6:1 Wooden Articles (Jute)	Mr. T. W. Scroggie	...
TDC 6:2 Wooden Articles (Cotton, Silk and Wool)	Shri Narottam P. Hutheesing	...
TDC 6:3 Hides and Leather Articles	Shri D. C. Karaka	4.8.51, 10.11.51 & 29.3.52
TDC 6:4 Textile Metal Articles	Shri B. B. Joshi	4/5.4.51
TDC 7 Textile Building Code	Shri Bharat Ram	...
TDC 8 National Flag of India	Shri Bharat Ram	...
TDC 9 Coir and Coir Products	Shri K. C. Karuna Karan	...
TDC 9:1 Coir and Coir Products	Shri K. C. Karuna Karan	18.4.51, 3.10.51 & 14.12.51
TDC 10 Rayon and Rayon Products	Shri D. N. Shroff	...
TDC 10:1 Rayon Yarn	Dr. M. D. Parekh	2.7.51 & 3.12.51
TDC 10:2 Rayon, Grey and Finished Products	Shri D. N. Shroff	...
TDC 11 Hosiery and Knitted Garments	Shri A. K. Choudhuri	...
TDC 11:1 Cotton Hosiery and Knitted Garments	Shri A. K. Choudhuri	...
TDC 11:2 Woollen Hosiery and Knitted Garments	Mr. G. R. Ginns	14.12.51 & 11.1.52
TDC 12 Textile Sizing and Finishing Materials	Shri Kanchanlal Chandulal Parikh	...
TDC 13 Handloom Cloth	Shri C. S. Ramanathan	5.11.51
TDC 13:1 Cotton	Shri C. S. Ramanathan	...
TDC 13:2 Woollen	Shri C. S. Ramanathan	...
<b>Chemical Division Council</b>		
CDC 1 Chemical Standards	Dr. T. S. Subramanian	...
CDC 2 Heavy Chemicals (Organic)	Shri N. Adhikari	18.3.52
CDC 2:1 Alcohol	Shri G. Gundu Rao	17.3.52
CDC 2:2 Wood Distillation	Shri M. K. Narasimhan	...
CDC 2:3 Acetic Acid	Shri M. K. Narasimhan	...
CDC 2:4 Charcoal (for Industrial Purposes)	Dr. M. L. Khanna	...
CDC 2:5 Ether	Shri M. B. Amin	...
CDC 3 Heavy Chemicals (Inorganic)	Dr. A. Nagaraja Rao	20 to 22.11.51
CDC 3:1 Acids	Shri M. L. Seth	...
CDC 3:2 Fertilizers and Allied Products	Shri M. C. Verghese	19.11.51
CDC 3:3 Alkali and Allied Products	Shri M. B. Bhagvat	...
CDC 3:4 Salt and Marine Products	Dr. Mata Prasad	...
CDC 3:5 Heavy Chemicals (Sulphates)	Shri M. L. Seth	...
CDC 3:6 Heavy Chemicals (Miscellaneous)	Dr. R. K. Trivedi	...
CDC 3:7 Industrial Gases	Shri Jogindar Singh	...
CDC 4 Fine Chemicals (Organic and Inorganic)	Dr. J. N. Ray	6/7.8.51
CDC 4:1 Organic Acids	Dr. K. A. Hamied	...
CDC 4:2 Alcohols and Esters	Dr. B. D. Laroia	...
CDC 4:3 Percompounds	Shri N. Adhikari	...

<i>Committee</i>	<i>Chairman or Convener</i>	<i>Meeting Dates</i>
CDC 4:4 Chloroderivatives	Dr. J. N. Ray	6.11.51
CDC 4:5 Inorganic Salts	Dr. L. A. Bhatt	...
CDC 6 Rubber Products	Dr. D. Banerjee	9.4.51
CDC 6:1 Terms of Reference	Shri B. C. Mallick	...
CDC 6:3 Hoses	Shri S. C. De	...
CDC 6:4 General Rubber Products	Dr. D. Banerjee	...
CDC 8 Paints and Allied Products	Shri P. C. Chanda	29.8.51 & 8 to 10.11.51
CDC 8:1 Drafting	Dr. K. L. Moudgill	...
CDC 8:2 Durability Test	Shri S. V. Sathaye	10.11.51
CDC 8:3 Printing Inks	Mr. Emil Fjernerros	...
CDC 8:4 Brushes for Paints and Varnishes	Shri G. K. Pardhan	9.7.51
CDC 8:5 Packaging	Shri R. K. Goswami	7.11.51
CDC 9 Lac and Lac Products	Dr. P. K. Bose	20.2.52
CDC 9:1 Sealing Wax	Dr. P. K. Bose	...
CDC 10 Glassware	Dr. Atma Ram	7.9.51
CDC 10:1 Sheet Glass	Shri H. C. Varshnei	6.9.51
CDC 10:2 Hollow Ware	Pt. Vishnu Datt	...
CDC 10:3 Bottleware	Dr. S. N. Ghosh	20.3.52
CDC 10:4 Ampoules	Shri J. Chakravarti	31.8.51
CDC 10:5 Glass Shells (for Electric Lamps)	Shri T. Gupta	4.3.52
CDC 10:6 Laboratory Glassware	Shri J. B. Mukherjee	4 to 7.6.51
CDC 10:7 Signals (Glassware)	Shri S. M. Brahma	...
CDC 10:8 Glass Raw Materials	Dr. Y. P. Veršheney	...
CDC 10:9 Ceramic Raw Materials	Shri M. G. Bhagat	16.4.51
CDC 10:9:1 Panel for Clays	Dr. Atma Ram	9.1.52
CDC 10:9:2 Panel for Minerals and Rocks	Shri V. P. Sondhi	...
CDC 11 Essential Oils	Shri A. K. Menon	10/11.8.51
CDC 11:1 Methods of Tests	Dr. Sadgopal	...
CDC 11:2 Rosin	Shri O. N. Muttoo	...
CDC 11:3 Vetivert and Cinnamon Leaf Oil	Mr. C. Goldstein	...
CDC 12 Oils, Fats and Soaps	Shri S. C. Ghose	...
CDC 12:1 Oils and Fats	Shri K. P. Jain	...
CDC 12:2 Soaps	Mr. A. J. C. Hoskyns-Abrahall	...
CDC 13 Inks (Writing)	Dr. P. N. Sahai	...
CDC 14 Solid Mineral Fuels	Dr. J. W. Whitaker	8.9.51
CDC 14:1 Sampling	Dr. J. Sanjana	...
CDC 14:2 Testing	Dr. J. W. Whitaker	...
CDC 14:3 Standard Sizes (for Marketing)	Mr. W. Wallace	...
CDC 14:4 Terminology of Coal Types	Dr. J. W. Whitaker	...
CDC 14:5 Coke	Dr. J. Sanjana	7.9.51, 15.10.51, 14.11.51, 4.3.52 & 14.3.52
CDC 15 Paper	Shri K. B. Sen	...
CDC 15:1 Paper Sizes	Shri M. L. Datta	12.11.51
CDC 15:2 Methods of Tests	Dr. P. N. Sahai	...
CDC 15:3 Quality Standards	Shri P. K. Nanda	...
CDC 16 Leather	Shri B. M. Das	...
CDC 16:1 Medium and Light Substance Finished Leather	Shri B. M. Das	18.6.51
CDC 16:2 Heavy Leather	Mr. K. Fialka	14.2.52
CDC 16:3 East India Tanned Kips and Skins	Mr. K. H. Chambers	...
CDC 16:4 Leather Goods	Mr. A. J. Hardcastle	18.12.51
CDC 16:5 Methods of Sampling and Tests	Shri B. M. Das	25.6.51
CDC 17 Plastics	Shri N. Srinivasan	...
<b>Building Division Council</b>		
BDC 2 Cement and Concrete	Shri F. A. Nadirshah	30.8.51 & 24.1.52
BDC 2:1 Cement	Shri E. P. Nicolaides	24.1.52
BDC 2:2 Concrete	Shri S. B. Joshi	28/29.8.51 & 24.1.52
BDC 2:3 Asbestos Sheets and Pipes	Shri N. D. Daftary	4.2.52
BDC 2:4 Building Limes	Shri C. H. Khadilkar	...
BDC 2:5 Pozzolanas	Dr. R. C. Hoon	...
BDC 3 Domestic Sanitary Appliances, Fittings and Practices	Mr. F. Ashmore	...
BDC 15 Builders' Hardware	Shri Yousuf Mowjee	17/18.8.51
BDC 15:1 Bolts, Door and Tower	Shri Ajoyendu Paul	...
BDC 15:2 Hinges	Shri Yousuf Mowjee	17/18.8.51
BDC 15:3 Locks and Padlocks	Shri P. G. Vidwans	...
BDC 15:4 Miscellaneous Hardware	.....	17/18.8.51
BDC 15:5 Wood Screws	Shri G. K. Pradhan	...
BDC 18 Refrigeration	.....	...
BDC 18:1 Safety Code in Refrigeration Plant	Mr. E. Bertsch	...
BDC 18:2 Packaging Code for Perishable Food-stuffs	Agricultural Marketing Adviser to the Government of India	...
BDC 18:3 Terms of Reference	Mr. J. J. Harvey	...
BDC 19 Sieves	Dr. K. N. Mathur	...

## COMMITTEES RESPONSIBLE TO MORE THAN ONE DIVISION COUNCIL

<i>Committee</i>	<i>Chairman or Convener</i>	<i>Meeting Dates</i>
CEDC 1 Lubricants	Shri J. J. Bagchi	...
CEDC 1:1 Standard Methods of Tests and Sampling	Shri J. J. Bagchi	22.10.51
CEDC 1:2 Fixed Oils	Dr. D. R. Dhingra	...
CEDC 1:3 Defence Lubricants	Shri J. J. Bagchi	...
CEDC 1:4 Gear Transmission and Axle Oils	Dr. N. K. Gopalan	22.2.52
CEDC 1:5 Internal Combustion Engine Oils	Shri S. N. Mukerjee	...
CEDC 1:6 Steam Cylinder Oils	Shri K. C. Bhattacharya	...
CEDC 1:7 Greases and Graphited Lubricants	Dr. M. L. Khanna	15/16.11.51
CEDC 1:8 Anti-Corrosives	Shri N. K. Chakravarti	...
CEDC 1:9 Special Products	Dr. J. S. Aggarwal	...
CEDC 1:10 Engine Machinery and Spindle Oils	Shri K. V. Gopalan	...
CEDC 1:11 Turbine, Transformers, Crank Case and Switches Oil	Shri J. Verghese	...
CEDC 2 Bitumen and Tar Products	Shri K. K. Nambiar	...
CEDC 2:1 Road Tar	Mr. C. J. Fielder	...
CEDC 2:2 Crude Tar	Shri D. S. Naidu	...
CEDC 2:3 Bitumen for Roads	Shri K. K. Nambiar	...
CEDC 2:4 Oxidized Bitumen	Shri Sujan Singh	...
CEDC 2:5 Cable Compounds	Shri J. P. Mehrotra	...
CEDC 2:6 Mastic	Shri K. K. Nambiar	...
CEDC 2:7 Coal Tar Creosote	Dr. D. Narayanamurthi	...
CEDC 2:8 Coal Tar Products	Mr. C. J. Fielder	...
CEDC 2:9 Coal Tar Disinfectant	Dr. B. Mukherji	14.9.51
CEDC 2:10 Glossary of Terms	Shri S. K. Rajagopalan	29.8.51
CETDC 3 Treated Fabrics	Dr. T. S. Subramanian	...
ECTDC 4 Pulleys and Belts	...	...

## APPENDIX 20.11

### INDIAN STANDARDS IN DIFFERENT STAGES OF DRAFTING

#### STAGE B 6: DRAFTS UNDER PREPARATION

#### EDC

- |                                                                                                                                        |                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 1. Bronze Castings for Locomotive Wearing Parts                                                                                        | 23. Hoes                                                                                            |
| 2. Bronze Castings, Steam and Valve                                                                                                    | 24. Mammotties and Phaoras                                                                          |
| 3. Non-Ferrous Non-Magnetic Materials                                                                                                  | 25. Crow Bars and Claw Bars                                                                         |
| 4. Lead Sheets for Special Purposes                                                                                                    | 26. Brace Smith                                                                                     |
| 5. Lead Pipes for Special Purposes                                                                                                     | 27. Smiths' Tongs                                                                                   |
| 6. Methods of Chemical Analysis of Tin Ingots                                                                                          | 28. Swage Blocks and Stand                                                                          |
| 7. Methods of Chemical Analysis of Silver Solder                                                                                       | 29. Smiths' Fullers                                                                                 |
| 8. Methods of Chemical Analysis of White Metal Bearing Alloys                                                                          | 30. Smiths' Flatters                                                                                |
| 9. Methods of Chemical Analysis of Solders and Brazing Solder                                                                          | 31. Smiths' Swages                                                                                  |
| 10. High Tension and Low Tension Insulators intended for Electric Transmission and Distribution Lines                                  | 32. Pipe Cutters                                                                                    |
| 11. General Principles and Basis of Determining the Temperature Limits in the Rating of Electrical Machinery with Class 'A' Insulation | 33. Shears                                                                                          |
| 12. Transformers for Power and Lighting                                                                                                | 34. Vices — Bench and Hand                                                                          |
| 13. Fuses                                                                                                                              | 35. Screw Drivers                                                                                   |
| 14. Railway Head Lamps                                                                                                                 | 36. Pliers                                                                                          |
| 15. Telephone Switchboard Lamps                                                                                                        | 37. Plane Iron                                                                                      |
| 16. Definitions of Technical Terms used in Timber Technology                                                                           | 38. Chisels Wood                                                                                    |
| 17. Standard Dimensions for Wood Poles of Indian Species and for Various Breaking Loads                                                | 39. Augers                                                                                          |
| 18. Wooden Battery Separators                                                                                                          | 40. Axes                                                                                            |
| 19. Aircraft Plywood                                                                                                                   | 41. Adzes                                                                                           |
| 20. Logs for Plywood                                                                                                                   | 42. Bits, Carpenters                                                                                |
| 21. Machine Tools                                                                                                                      | 43. Trowels                                                                                         |
| 22. Safety Code                                                                                                                        | 44. Plumb Line and Bob                                                                              |
|                                                                                                                                        | 45. L-Square                                                                                        |
|                                                                                                                                        | 46. Silica Bricks for Glass Industry                                                                |
|                                                                                                                                        | 47. Refractories for the Navy                                                                       |
|                                                                                                                                        | 48. Fluorescent Lamp Chokes                                                                         |
|                                                                                                                                        | 49. Standard Sizes of Transformer and Choke Laminations                                             |
|                                                                                                                                        | 50. Hard Rubber Containers for Lead Acid Storage Batteries                                          |
|                                                                                                                                        | 51. Lead Acid Storage Batteries for Heavy Duty, for Motor Coaches and Buses and for Diesel Starting |

52. Lead Acid Storage Batteries for Motor Cycle, Side Car Combination and Three-Wheeled Vehicles
53. Bicycle Chains
54. Bicycle Hubs
55. Bicycle Pedals
56. Bicycle Spokes
57. Bicycle Nipples
58. Bicycle Rim Tapes
59. Cricket Balls
60. Hockey Balls
61. Nets for Tennis, Badminton, Volley Ball, Table Tennis and Basket Ball
62. Guts
63. Solid Woven Cotton Beltings for Power Transmission
64. Hair Beltings for Power Transmission
65. Train Lighting Belting
66. Canvas Plied Transmission Belting
67. Rubber Belting

#### TDC

68. Determination of Count (or melody) of Warp and Weft Yarns in Grey Fabrics
69. Determination of Tensile Strength of Cotton Fibre (Flat Bundle Method)
70. Determination of Breaking Load (Strength) and Elongation of Single Threads of Cotton Yarn by Means of a Constant-Rate-of-Traverse Testing Machine
71. Determination of Fibre Immaturity Percentage by Polarizing Microscope
72. Regularity and Evenness of Yarn
73. Nappiness in Cotton
74. Determination of Clean Wool Yield of Raw Wool
75. Determination of Moisture Content and Moisture Regain of Raw Wool
76. Determination of Kemp Content of Raw Wool
77. Determination of Mean Fibre Length of Wool
78. Determination of Crimp in Wool
79. Determination of Mean Fibre Diameter of Raw Wool
80. Determination of Length and Width of Jute Fabrics
81. Determination of Porter of Jute and Shots per Inch of Jute Fabrics
82. Determination of Weight per Square Yard (or Square Meter) and Weight per Linear Yard (or Linear Meter) of Jute Fabrics
83. Cotton Coating
84. Specification for 2½ to 3 oz Cotton Fabric, for Aircraft
85. Light Cotton Fabric for Covering (Plywood), for Aircraft
86. Reinforcing Tape
87. Machine Thread
88. Lacing Cord
89. Packaging of Jute Manufactures
90. Lohis — Woollen
91. Super Shawls
92. Union Suiting
93. Summer Suiting
94. Serge
95. Serge Blue
96. Serge Service Dress
97. Woollen Coating
98. Tweed
99. Woollen Great Coat Cloth
100. Woollen Flannel
101. Drab Mixtures Great Coat Cloth

102. Drab Mixture Serge
103. Shirting Worsted
104. Blazer Cloth
105. Woollen Knitting Yarn
106. Worsted Suiting
107. Cloth Barathea
108. Bunting Worsted
109. Rugs and Blankets
110. Flannel Silver Grey
111. Estimation of Scouring Loss
112. Identification of Micro-quantities of Prohibited Metals in Cellulose Textiles
113. Resistance of Fabrics and Yarns to Insect Pests
114. Identification of Finishes on Textiles
115. Slubbing and Roving Bobbins and Skewers for Cotton Mills
116. Ring Spinning Bobbins for Cotton Mills
117. Shuttles for Cotton Power-Looms
118. Picking Bands
119. Check Strappings
120. Roller Skins
121. Spindle Tapes
122. Tubular Bandings (Spindle Bandings)
123. Power Transmission Cotton Ropes
124. Code for Building Construction
125. Code for Spacing of Machinery
126. Code for Illumination
127. Code for Colour Schemes
128. Code for Air-Conditioning (Humidification, Ventilation, etc)
129. National Flag of India (Silk Khadi)
130. National Flag of India (Wool Khadi)
131. Grading of Cochin Coir Fibre
132. Spinning Types of Coir Fibre
133. Methods of Tests and Tolerances for Continuous Filament Rayon and Estron Yarn
134. Taffeta Cloth Composed of Rayon Yarns
135. Ribbed Taffeta or Poplin Composed of Filament Rayon Yarns
136. Warp Satin Cloth Composed of Artificial Silk Yarns
137. Structure of Satin Upholstery Cloth Made from Artificial Silk Yarn
138. Voile Cloth Composed of Artificial Silk Yarns
139. Georgette Cloth Composed of Rayon Yarn
140. Structure of Ninon Cloth Composed of Artificial Silk Yarn
141. Jacquard Fabrics Composed of Rayon Yarns

#### CDC

142. Activated Charcoal for Vegetable Oil Industry
143. Activated Charcoal for Sugar Industry
144. Methods of Evaluating the Activity of Activated Charcoal
145. Bone Meal (Raw and Steamed)
146. Lithium Base Grease (Low Temperature)
147. Grease, 0
148. Grease Wide Temperature Range
149. Anti-Corrosives
150. Suction Hose
151. Oil Hose
152. Oil Suction and Discharge Hose
153. Rubber Lined Fire Hose
154. Solid Rubber Sheets
155. Rubber Canvas Insulation Sheet
156. I.R. Tubing
157. Adhesive Insulating Tape for Electrical Purposes



158. Vulcanized Rubber for Government Department Requirements
159. Benzole, Pure
160. Benzole, Pure, Nitration Grade
161. Toluole, Pure, Nitration Grade
162. Toluole, Industrial Solvent Grade
163. Naphthalene
164. Phenol
165. Refined Creyslic Acid
166. Brushes, Paints and Varnishes, Oval
167. Ready Mixed Paint, Brushing, Spraying, Undercoat
168. Glass Shells for General Lighting Service Lamps
169. Beakers
170. Measuring Cylinders
171. Vetivert Oil
172. Camphor Oil
173. Clove Oil
174. Geranium Oil
175. Cinammon Leaf Oil
176. Linaloe Oil
177. Rosin
178. Methods of Testing Vegetable Oils and Fats
179. Edible Groundnut and Mustard Oil
180. Mahua Oil
181. Coconut Oil
182. Transparent Soap
183. Methods of Test for Coal and Coke
184. Cokes
- BDC**
185. Asbestos Cement Slates and Reinforced Flat and Corrugated Sheets, Straight and Curved
186. Asbestos Cement Pipes
187. Cabinet Locks
188. Rim Locks and Latches
189. Wood Screws
- STAGE C: DRAFTS UNDER COMPILATION**
- EC**
190. Transliteration of Russian Alphabet
- EDC**
191. Method of Test for Uniformity of Coating by the Preece Test on Zinc Coated Iron or Steel Articles
192. Vertically Cast Pipes for Water Gas and Sewage and Special Castings
193. Alloy Austenitic Manganese Steel Castings
194. Hard Drawn Steel Wire for Springs
195. Steel Core Wire for Electrodes
196. Steel Sheets for Special Purposes
197. Tin Plates
198. Electrical Steel Sheets
199. Aluminium and Aluminium Alloy Ingots and Castings for General Engineering Purposes
200. Copper Bus Bars
201. Brass for Gravity Die Castings (including Naval Brass)
202. Silicon Bronze Ingots and Castings
203. Phosphor Bronze, Sheets, Rods and Wire
204. Manganese Bronze, Rods, Bars and Shapes
205. Zinc Base Alloy Die Castings
206. Sampling and Chemical Analysis of Aluminium and Its Alloys
207. Methods of Chemical Analysis of Copper
208. Methods of Chemical Analysis of Brasses and Bronzes
209. Methods of Chemical Analysis of Antimony
210. Tensile Testing of Metals (Non-Ferrous)
211. Single and Double Cotton Covered Winding Wires
212. Enamelled High Conductivity Annealed Copper Wires
213. Standard Frequency and Voltages
214. Fractional Horse Power Motors
215. Table Fans
216. Single Pole Tumbler Switches
217. Reversible Protected Type Two-Pin Plugs and Sockets with Earthing Connections
218. Reamers
219. Punches Round
220. Smiths Bits
221. Hand Hammers
222. Tool Handles
223. Mica Capacitors
224. Domestic Radio Receivers
225. Low Power, Low Voltage, Mains Transformers for Use in Radio Receivers, Amplifiers, Small Transmitters and Similar other Purposes
226. Low Power, Low Voltage Audio Transformers for Use in Radio Receivers, Amplifiers, Small Transmitters and Similar other Purposes
227. Code of Practice for General Engineering Drawings
228. Leclanché Type Dry Batteries for Radio Receivers
229. Tubular Parts of Bicycles
230. Bicycle Rims
231. Shuttlecocks
- TDC**
232. Method for the Determination of Breaking Load (Strength) of Jute Yarn
233. Method for the Determination of Twist in Single Jute Yarn
234. Method for the Determination of Grist of Single Jute Yarn
235. Definitions of Textile Terms Relating to Silk
236. Method of Grading of Raw Silk
237. Method for Visual and Tactual Inspection of Standard Raw Silk
238. Method for Conducting Evenness and Low Evenness Tests for Standard Raw Silk
239. Method for Conducting Neatness Test for Standard Raw Silk
240. Method for Conducting Cleanness Test for Standard Raw Silk
241. Method for Conducting Size Deviation Test for Standard Raw Silk
242. Method for Conducting Winding Test on Standard Raw Silk
243. Method for Conducting Serigraph Test for Determining the Tenacity and Elongation of Standard Raw Silk
244. Method for Conducting the Cohesion Test for Standard Raw Silk
245. Method for Determining Dry Weight of Standard Raw Silk
246. Method for Conducting Average Size Test for Standard Raw Silk
247. Method for Visual and Tactual Inspection for Utility Raw Silk
248. Method for Conducting Evenness and Low Evenness Test for Utility Raw Silk
249. Method for Conducting Neatness Test for Utility Raw Silk
250. Method for Conducting Cleanness Test for Utility Raw Silk
251. Method for Conducting Size Deviation and Maximum Deviation Tests for Utility Raw Silk
252. Method for Conducting Serigraph Test for Utility Raw Silk
253. Method for Conducting Winding Tests on Utility Raw Silk

254. Method for Conducting the Cohesion Test for Utility Raw Silk
255. Method for Determining Dry Weight of Utility Raw Silk
256. Method for Conducting Average Size Test for Utility Raw Silk
257. Specification for Mercerized Cotton Fabric for Gliders
258. Specification for Druggets
259. Scheme of Simple Methods of Identification of Textile Fibres
260. Methods of Test of Colour Fastness of Textile Materials (Other than to Light)
261. Specification for Measuring the Relaxation Shrinkage of Woven Materials Made of Wool
262. Specification for Determining the Relaxation and Felting Shrinkage of Knitted Woollen Garments and Fabrics
263. Methods for Measuring the Efficiency of Desizing Agents
264. Round and Flat Polished Reed Wire
265. Specification for Tamarind Kernel Powder for Use in the Jute Industry

#### CDC

266. Wood Naphtha as Denaturing Material
267. Methyl Alcohol (Methanol), Technical
268. Methyl Acetone
269. China Clay
270. Caustic Soda, Rayon Grade
271. Liquid Chlorine, Technical
272. Salt for Fish Curing
273. Orthophosphoric Acid
274. Potassium Metabisulphite, Pharmaceutical
275. Sodium Nitrite
276. Sodium Acetate
277. Ethylene Dichloride
278. Methylene Chloride
279. Formic Acid
280. Tartaric Acid
281. Axle Oil Gear (SAE 80, 90, 140, 250)
282. Lubricant Gear Multipurpose (Hypoid Oils)
283. Anti-Malarial Oil
284. Special Mineral Lubricating Oil OM 88 (SMLO)
285. Machinery and Spindle Oils
286. Soft, Sodium Soap Grease for Locomotive Lubrication
287. Grease, Hard for Locomotive Journal and Rod Lubrication
288. Grease No. 4 (Water Pump Grease)
289. Grease No. 1
290. Grease, GS
291. Grease, GS, Graphited
292. Enamel, Brushing, Exterior — Natural Resin, i) Undercoating, ii) Finishing
293. Enamel, Spraying, Exterior — Natural Resin, i) Undercoating, ii) Finishing
294. Enamel, Brushing, Exterior — Synthetic Resin, i) Undercoating, ii) Finishing
295. Enamel, Spraying, Exterior — Synthetic Resin, i) Undercoating, ii) Finishing
296. Varnish, Finishing, Exterior and General Purposes, Natural Resin
297. Varnish, Finishing, Exterior — Synthetic Resin
298. Kegs
299. Sheet Glass
300. Glass Making Sands
301. Palmarosa Oil (*Motia*) and Gingergrass Oil (*Sofia*)
302. Chrome Tanned Box and Willow Kips and Hides for Shoe Uppers

303. Glazed Kid for Shoe Uppers
304. Chamois Leather
305. Upholstery Leather
306. Chrome Lace Leather
307. Russet Leather
308. Methods of Sampling and Test for Chrome Tanned Leathers
309. Methods of Sampling and Test for Vegetable Tanned Leathers
310. Methods of Sampling and Test for Oil Tanned Leathers
311. Ammunition Boots for General Purposes
312. Chaples, Frontier Pattern

#### BDC

313. Portland Blast Furnace Slag Cement
314. Natural Aggregates and Manufactured Aggregates for Use in Mass Concrete
315. Plain and Reinforced Concrete for Dams and other Massive Structures
316. Code of Practice for Ordinary Concrete and Reinforced Concrete
317. Door Springs, Rat Tail Type
318. Double Acting Spring Hinges
319. Test Sieves

#### STAGE D: DRAFTS UNDER CIRCULATION

#### EDC

320. Methods of Chemical Analysis of Pig Iron, Cast Iron, Plain Carbon Steel and Low Alloy Steel
321. Black Heart and White Heart Malleable Iron Castings
322. Expanded Metal (Steel)
323. Rolled Brass Plate, Sheet, Strip and Foil
324. Brass Tubes for General Purposes
325. Lead Sheets for General Purposes
326. Lead Pipes for General Plumbing Purposes
327. Methods of Chemical Analysis of Lead
328. Methods of Chemical Analysis of Slab Zinc and Zinc Base Alloys
329. Hard Drawn Aluminium and Steel Cored Aluminium Conductors for Overhead Power Transmission Purposes
330. Tungsten Filament General Service Electric Lamps
331. Code of Practice for Preservation of Timber
332. Drilling Jig Bushes
333. T-Slots, T-Bolts and T-Nuts
334. Twist and Straight Fluted Drills
335. Combined Drills and Countersinks
336. Anvils
337. Grinding Wheels and Segments
338. Fixed Paper Dielectric Capacitors
339. Stationary Accumulators, Lead Acid Type
340. Lead Acid Storage Batteries for Motor Vehicles, Light Duty
341. Bicycle Tube Valves

#### TDC

342. Definitions of Textile Terms Relating to Cotton
343. Definitions of Textile Terms Relating to Wool
344. Definitions of Textile Terms Relating to Jute
345. Mercerized Cotton Fabric Grade A, for Aircraft
346. Indian Hessians
347. Handloom Carpets for Export
348. Code for Solid Bobbins for Dry Jute Spinning Frames
349. Code for Bobbins for Jute Roving Frames
350. Code for Spinning Rollers

351. Code for Spool Centres for Jute Spool Winding Machines
352. Code for Swells for Jute Looms
353. Code for Picking Arms (or Sticks)
354. Code for Cotton Healds
355. Code on Safeguards for Cotton Textile Machinery
- CDC**
356. Ether, Technical, Solvent and Anaesthetic
357. Salt for Hide Curing
358. Sodium Stannate, Technical
359. Refined Sodium Bicarbonate, Technical
360. Sodium Bicarbonate, Pure and Analytical Reagent
361. Alum Cake
362. Potassium Metabisulphite, Photographic Grade
363. Chromium Trioxide (Chromic Acid) Analytical Reagent
364. Oxalic Acid, Technical and Analytical Reagent
365. Internal Combustion Engine Oils
366. Grease, Graphited, Aluminium Base
367. Grease, High Melting Point
368. Insulating Oil for Transformers and Switchgear (Low Viscosity Type)
369. Castor Oil
370. Low Pressure Water Hose
371. High Pressure Water Hose for Washing and Spraying
372. Compressed Air and Pneumatic Tool Hose
373. Oxy-Acetylene Hose
374. Solid Bituminous Filling Compound for Cable Boxes on System Up to and Including 11,000 Volts
375. Glossary of Terms Relating to Bitumen and Tar
376. Drums for Paints
377. Brushes, Paints and Varnishes, Flat
378. Putty, for Use on Wooden Frames
379. Putty, for Use on Metal Frames
380. Jointing Paste, for Bedding Mouldings on Coaching Stock
381. Sealing Paste, for Edges and Overlaps in Steel Wagons
382. Plastic Wood for Joiners Filler
383. Plastic Asphalt
384. Shellac Adhesives for Steam Flange Joints
385. Paint Remover, Solvent Type, Inflammable
386. Paint Remover, Solvent Type, Non-Inflammable
387. Liquid Driers
388. Liquid Driers, Concentrated
389. Paste Filler for Colour Coats
390. Distempers, Dry, Colours as Required
391. Distemper, Oil Emulsion, Colours as Required
392. Titanium Dioxide for Paints
393. Glass Ampoules
394. Vaccine Phials
395. Oil of Turpentine
396. Oil of Peppermint
397. Citronella Oil (Java and Ceylon)
398. Ink, Stamp-Pad
399. Ink, Cloth-Marking, Black
400. Methods of Sampling for Coal and Coke
401. Size Grading of Coal and Coke
- BDC**
402. Split Cotter Pins
- STAGE E: DRAFTS FINALIZED**
- EC**
403. Practice for Alphabetical Arrangement
- EDC**
404. High Tensile Brass Ingots and Castings
405. Aluminium Bronze Ingots and Castings
406. Bare Annealed Copper Wire for Electrical Machinery and Apparatus
407. Rubber Insulated Cables and Flexible Cords for Electric Power and Lighting, for Working Voltages Up to and Including 11 kv
408. Electric Hot Plates
409. Electric Kettles
410. Electric Portable Immersion Heaters
411. Electric Radiators
412. Electric Irons
413. Two- and Three-Terminal Ceiling Roses
414. Reversible Type Two-Pin Wall Plugs and Sockets without Earthing Connections
415. Classification of Commercial Timbers and Their Zonal Distribution
416. Recommendations for Moisture Content of Timber for Different Purposes in Different Climatic Zones
417. Chisels
418. Coated Abrasives
419. Manganese Ore — Metallurgical Grade
420. Manganese Ore — Battery Grade
- TDC**
421. Method for Determination of Fibre Length Frequency Distribution (Mean, Modal and Upper Quartile Fibre Lengths in Cotton)
422. Method for Determination of Mean Fibre Weight per Unit Length (Cotton)
423. Method for Determination of Single Fibre Strength and Intrinsic Strength (Cotton)
424. Method for Determination of Fibre Maturity Count (Cotton)
425. Determination of Twist in Cotton Yarn
426. Methods for Identification of Textile Fibres
427. Method for Estimation of Small Quantities of Sulphuric Acid and Hydrochloric Acid in Cotton Materials
428. Method for Spray Test for Estimating the Water Repellency of Water Resistant Fabrics (Permeable to Air)
429. Method for Measuring Resistance to Penetration by Water of Water Resistant Fabrics (Permeable to Air)
430. Method for Measuring the water Absorption and Penetration by water of Water Resistant Fabrics (Permeable to Air) by a Bundesmann Type Apparatus
- CDC**
431. Ethyl Alcohol (Absolute Alcohol)
432. Power Alcohol
433. Rectified Spirit
434. Denatured Spirit
435. Monosodium Phosphate, Anhydrous
436. Disodium Phosphate, Dodecahydrate, Technical
437. Trisodium Phosphate, Anhydrous, Technical
438. Glassy Sodium Metaphosphate, Technical
439. Sodium Hydroxide, Analytical Reagent
440. Epsom Salt, Pharmaceutical
441. Potash Alum, Pharmaceutical
442. Sodium Sulphate, Anhydrous, Pharmaceutical
443. French Chalk, Technical
444. Sodium Silicate for Soap Industry
445. Potassium Bichromate
446. Compressed Oxygen Gas
447. Dissolved Acetylene Gas
448. Carbon Dioxide
449. Hydroquinone, Photographic Grade

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|-----------------------------------------------------------------|---------------------------------------------------------|
| 78. Rubber Developments                                         | 90. Textile Digest                                      |
| 79. Rubber India                                                | 91. Textile Industries                                  |
| 80. Sankhaya                                                    | 92. Tisco Review                                        |
| 81. Science and Culture                                         | 93. Trade Promotion News (ECAFE)                        |
| 82. Science and Engineering                                     | 94. Transport Bulletin (ECAFE)                          |
| 83. Silk Digest                                                 | 95. UNESCO Bulletin for Libraries                       |
| 84. Soap                                                        | 96. Vijnan-Karmee                                       |
| 85. Statistical Quality Control (Japan)                         | 97. Visva Bharti News                                   |
| 86. Summaries of Road Research Notes (C.S.I.R.)                 | 98. Westing House Engineer                              |
| 87. Tanner                                                      | 99. World Construction                                  |
| 88. Tata Quarterly                                              | 100. Journal of Research (National Bureau of Standards) |
| 89. Technical News Bulletin of the National Bureau of Standards |                                                         |

## APPENDIX 20.13

### INDIAN STANDARDS PUBLISHED AND IN PRESS

(Up to 16 July 1952)

(\* indicates those in press)

EC	Rs as	Rs as	
1. ASA Z1.3-42 Control Chart Method of Controlling Quality During Production ...	5 0	23. IS: 30-1950 Aluminium-Coated High-Tensile Aluminium Alloy Sheets and Coils for Aircraft Purposes ...	1 4
2. IS: 4-1949 Practice for Make-up of Periodicals ...	0 8	24. IS: 31-1950 Aluminium-Manganese Alloy Sheets and Coils ...	1 0
3. IS: 12-1949 Style Manual for Drafting Indian Standards ...	1 8	25. IS: 191-1950 Copper ...	0 12
4. IS: 18-1949 Abbreviations for Titles of Periodicals ...	1 4	26. IS: 192-1950 Silver Solder ...	0 12
5. *IS: 382-1952 Practice for Alphabetical Arrangement		27. IS: 193-1950 Soft Solder ...	0 12
EDC		28. IS: 194-1950 Recommendations for Refractories for Railways ...	1 0
6. IS: 2-1949 Rules for Rounding Off Numerical Values...	0 8	29. IS: 195-1950 Fireclay Mortar for Laying Fireclay Bricks ...	0 12
7. IS: 3-1949 Inch-Millimeter Conversion for Industrial Use ...	0 8	30. IS: 196-1950 Atmospheric Conditions for Testing ...	1 0
8. IS: 6-1949 Moderate Heat Duty Fireclay Refractories, Group 'A' ...	2 0	31. IS: 202-1950 Aluminium-Alloy Ingots and Castings for Aircraft Purposes ...	1 4
9. IS: 7-1949 Moderate Heat Duty Fireclay Refractories, Group 'B' ...	1 0	32. IS: 203-1950 Leclanché Type Dry Cells and Batteries for Flash Lamps ...	1 4
10. IS: 8-1949 High Heat Duty Fireclay Refractories ...	2 0	33. IS: 209-1950 Zinc (Spelter) ...	1 0
11. IS: 13-1949 Methods for Grading Processed Mica ...	2 0	34. IS: 210-1950 Grey Iron Castings ...	1 8
12. IS: 14-1949 Classification of Processed Muscovite Mica ...	1 4	35. IS: 211-1950 Antimony ...	0 12
13. IS: 20-1950 Cast Aluminium for Utensils	0 12	36. IS: 223-1950 Tensile Testing of Metals (Ferrous) ...	1 12
14. IS: 21-1950 Wrought Aluminium for Utensils ...	0 12	37. IS: 224-1950 Pig Iron (Coke) ...	1 0
15. IS: 22-1950 98 Percent Aluminium Notched Bars and Ingots for Remelting Purposes ...	0 12	38. IS: 225-1950 Pig Iron (Charcoal) ...	1 0
16. IS: 23-1950 99 Percent Aluminium Notched Bars and Ingots for Remelting for Aircraft Purposes ...	0 12	39. IS: 226-1950 Structural Steel ...	1 8
17. IS: 24-1950 Brazing Solder ...	0 12	40. IS: 267-1951 Leclanché Type Inert Cells ...	1 0
18. IS: 25-1950 Antifriction Bearing Alloys ...	0 12	41. IS: 268-1951 Leclanché Type Sack Cells ...	1 8
19. IS: 26-1950 Tin Ingot ...	0 12	42. IS: 273-1951 Picks and Beaters ...	1 12
20. IS: 27-1950 Pig Lead ...	0 12	43. IS: 274-1951 Shovels ...	2 0
21. IS: 28-1950 Phosphor Bronze Ingots and Castings ...	0 12	44. IS: 276-1951 Plain Austenitic Manganese Steel Castings ...	1 0
22. IS: 29-1950 Aluminium Sheets and Coils for Aircraft Purposes ...	1 0	45. IS: 277-1951 Galvanized Steel Sheets (Plain and Corrugated) ...	1 4
		46. IS: 278-1951 Galvanized Steel Barbed Wire for Fencing ...	1 0
		47. IS: 279-1951 Galvanized Iron and Steel Wire for Telegraph and Telephone Purposes ...	1 4
		48. IS: 280-1951 Mild Steel Wire ...	1 0
		49. IS: 282-1951 Hard-Drawn Copper Solid and Stranded Circular Conductors for Overhead Power Transmission Purposes ...	1 8

	Rs as		Rs as
50.	IS: 283-1951 Porcelain Insulators for Telegraph and Telephone Lines ...	2 4	
51.	IS: 288-1951 Copper Rods for Boiler Stays	1 0	
52.	IS: 291-1951 Naval Brass Rods, Bars and Sections ...	1 0	
53.	IS: 292-1951 Brass Ingots and Castings ...	1 0	
54.	IS: 302-1951 General Requirements for Electrical Appliances for Domestic Use	1 0	
55.	IS: 306-1951 Tin Bronze Ingots and Castings ...	1 0	
56.	IS: 319-1951 Free Cutting Brass Rods and Bars for Use in Screw Machines ...	1 0	
57.	IS: 320-1951 High Strength Brass Rods, Bars and Section ...	1 0	
58.	IS: 325-1951 Three-phase Induction Motors for Industrial Use, With Class 'A' Insulation ...	2 4	
59.	IS: 372-1952 Manganese Ore—Battery Grade	1 12	
60.	IS: 373-1952 Manganese Ore—Metallurgical Grade ...	1 12	
61.	IS: 374-1951 Electric Ceiling Fans ...	2 0	
62.	IS: 375-1951 Marking and Arrangement for Switchgear Bus-Bars, Main Connections and Auxiliary Wiring ...	2 8	
<b>TDC</b>			
63.	IS: 1-1951 National Flag of India (Cotton Khadi) ...	2 0	
64.	IS: 9-1949 Method for Determining Shrinkage of Cotton and Linen Cloth on Washing ...	0 8	
65.	IS: 11-1949 Grading of Wool for Export	0 8	
66.	IS: 19-1949 Procedures for Testing Cotton Textiles and Cordages (Other than Jute) for Resistance to Attack by Micro-Organisms ...	1 0	
67.	IS: 32-1950 Code for Seaworthy Packaging of Woollen Textiles ...	1 0	
68.	IS: 171-1951 Cotton Yarn, Grey	1 0	
69.	IS: 172-1951 Plain Voiles, Mock	1 8	
70.	IS: 173-1951 Cotton Crêpes ...	1 4	
71.	IS: 174-1951 Flannelettes ...	1 4	
72.	IS: 175-1951 Cotton Bed Sheets ...	1 4	
73.	IS: 176-1951 Bedtickings ...	1 4	
74.	IS: 177-1951 Cotton Drills ...	1 4	
75.	IS: 178-1951 Cotton Twills ...	1 4	
76.	IS: 179-1951 Dosuti ...	1 4	
77.	IS: 180-1951 Cotton Sheetings ...	1 8	
78.	IS: 181-1951 Leopard Cloth, Grey	1 0	
79.	IS: 182-1951 Mazri ...	1 4	
80.	IS: 183-1951 Susies... ..	1 4	
81.	IS: 184-1951 Cotton Dhoties ...	1 4	
82.	IS: 185-1951 Cotton Saries ...	1 4	
83.	IS: 186-1951 Cotton Mulls and Nainsook	1 4	
84.	IS: 187-1951 Longcloth ...	1 4	
85.	IS: 188-1951 Cotton Poplins ...	1 4	
86.	IS: 189-1951 Tamarind Kernel Powder for Use in the Cotton Textile Industry ...	1 8	
87.	IS: 199-1950 Methods for the Estimation of Moisture, Total Size, Starch, Ash and Wax Content in Grey and Bleached Cotton Textile Materials ...	1 0	
88.	IS: 200-1950 Method for Determination of Copper Number of Cotton Textile Materials ...	1 0	
89.	IS: 201-1950 Methods of Analysis of and Tolerance for Water for Textile Purposes	1 0	
90.	IS: 237-1951 Method for Determination of Cotton Yarn Count (or Yarn Melidity in tex) ...	1 4	
91.	IS: 239-1951 Method for Determination of Lea Breaking Load (Strength) of Cotton Yarn and Its Count-Lea-Strength Product ...	1 0	
92.	IS: 240-1951 Method for Determination of Ends and Picks in Woven Cotton Fabrics ...	1 0	
93.	IS: 241-1951 Method for Determination of Cotton Fabric Dimensions ...	1 0	
94.	IS: 242-1951 Method for Determination of Weight per Square yard (or Square Meter) and Weight per Linear yard (or Linear Meter) of Cotton Fabrics ...	1 0	
95.	IS: 243-1951 Method for Determination of Breaking Load (Strength) and Elongation of Woven Cotton Fabrics (by constant-rate-of-traverse machine) ...	1 0	
96.	IS: 244-1951 Method for Determination of Viscosity (or Fluidity) of Solutions of Cotton and Regenerated Celluloses in Cuprammonium Hydroxide ...	1 8	
97.	IS: 270-1950 Code for the Manufacture of Pickers ...	2 0	
98.	IS: 271-1950 Grading of Raw Jute (Kutch Assortment) ...	1 0	
99.	IS: 272-1950 Grading of Raw Jute (Pucca Assortment) ...	1 0	
100.	IS: 293-1951 Code for Seaworthy Packaging of Cotton Textiles ...	1 4	
101.	IS: 298-1951 Method for Determination of Bursting Strength of Woven and Knitted Cotton Fabrics ...	1 0	
102.	*IS: 391-1952 Method for Measuring Resistance to Penetration by Water of Water Resistant Fabrics (Permeable to Air)		
103.	*IS: 392-1952 Method for Measuring the Water Absorption and Penetration by Water of Water Resistant Fabrics (Permeable to Air) by a Bundesmann Type Apparatus ...		
<b>CDC</b>			
104.	IS: 5-1949 Colours for Ready Mixed Paints	4 0	
105.	IS: 15-1949 Seedlac ...	1 12	
106.	IS: 16-1949 Shellac ...	2 12	
107.	IS: 17-1949 Dry Bleached Lac ...	2 0	
108.	IS: 33-1950 Methods of Test for Dry Pigments and Extenders for Paints ...	1 4	
109.	IS: 34-1950 Basic Carbonate of Lead (White Lead) for Paints ...	1 0	
110.	IS: 35-1950 Zinc Oxide for Paints ...	1 0	
111.	IS: 36-1950 Leaded Zinc Oxide for Paints	1 0	
112.	IS: 37-1950 Lithopone for Paints ...	1 4	
113.	IS: 38-1950 Antimony Oxide for Paints ...	1 0	
114.	IS: 39-1950 Basic Sulphate of Lead for Paints ...	1 0	
115.	IS: 40-1950 Carbon Black for Paints ...	0 12	
116.	IS: 41-1950 Bone Black for Paints ...	1 0	
117.	IS: 42-1950 Vegetable Black for Paints ...	0 12	
118.	IS: 43-1950 Lamp Black for Paints ...	0 12	
119.	IS: 44-1950 Black Oxide of Iron for Paints	1 0	
120.	IS: 45-1950 Manufactured Red Oxides of Iron for Paints ...	1 0	
121.	IS: 46-1950 Natural Red Oxides of Iron for Paints ...	1 0	
122.	IS: 47-1950 Ochre for Paints ...	1 0	
123.	IS: 48-1950 Natural Sienna (Raw and Burnt) for Paints ...	0 12	
124.	IS: 49-1950 Natural Umber (Raw and Burnt) for Paints ...	0 12	
125.	IS: 50-1950 Lead Chrome and Lead Molybdate for Paints ...	1 0	

	Rs as		Rs as
126. IS: 51-1950 Zinc Chrome for Paints ...	1 0	176. IS: 102-1950 Ready Mixed Paint, Brushing, Red Lead, Non-setting, Priming ...	1 0
127. IS: 52-1950 Cadmium Lithopone for Paints ...	1 0	177. IS: 103-1950 Ready Mixed Paint, Brushing, White Lead, for Priming and General Purposes ...	1 0
128. IS: 53-1950 Brunswick Green for Paints ...	1 0	178. IS: 104-1950 Ready Mixed Paint, Brushing, Zinc Chrome, Priming, for Use on Aluminium and Light Alloys ...	1 0
129. IS: 54-1950 Green Oxide of Chromium for Paints ...	1 0	179. IS: 105-1950 Ready Mixed Paint, Brushing, Priming, for Enamels, for Use on Metals ...	1 0
130. IS: 55-1950 Ultramarine Blue for Paints ...	0 12	180. *IS: 106-1952 Ready Mixed Paint, Brushing, Priming, for Enamels, for Use on Wood ...	1 0
131. IS: 56-1950 Prussian Blue for Paints ...	1 0	181. *IS: 107-1952 Ready Mixed Paint, Brushing, Red Oxide-Zinc Chrome, Priming ...	1 0
132. IS: 57-1950 Red Lead for Paints and Jointing Purposes ...	1 0	182. *IS: 108-1952 Ready Mixed Paint, Spraying, Red Oxide-Zinc Chrome, Priming ...	1 0
133. IS: 58-1950 Litharge for Paints ...	1 0	183. IS: 109-1950 Ready Mixed Paint, Brushing, Priming, Plaster, Light Stone, IS Colour No. 361 ...	1 0
134. IS: 59-1950 Pigment Dyestuff for Paints ...	1 0	184. IS: 110-1950 Ready Mixed Paint, Brushing, Grey Filler, for Enamels, for Use Over Primers ...	1 0
135. IS: 60-1950 Lake Pigments for Paints ...	1 0	185. IS: 111-1950 Ready Mixed Paint, Brushing, Undercoating, Exterior (7 colours) ...	1 0
136. IS: 61-1950 Slate Powder for Paints ...	0 12	186. IS: 112-1950 Ready Mixed Paint, Spraying, Undercoating, Exterior (7 colours) ...	1 0
137. IS: 62-1950 Graphite for Paints ...	0 12	187. IS: 113-1950 Ready Mixed Paint, Brushing, Undercoating, Interior (7 colours) ...	1 0
138. IS: 63-1950 Whiting for Paints ...	1 0	188. IS: 114-1950 Ready Mixed Paint, Spraying, Undercoating, Interior (7 colours) ...	1 0
139. IS: 64-1950 Barytes for Paints ...	1 0	189. IS: 115-1950 Ready Mixed Paint, Brushing, Undercoating, Exterior, Matt Finish (2 colours) ...	1 0
140. IS: 65-1950 Blanc Fixe for Paints ...	1 0	190. IS: 116-1950 Ready Mixed Paint, Spraying, Undercoating, Exterior, Matt Finish (2 colours) ...	1 0
141. IS: 66-1950 Asbestine for Paints ...	0 12	191. IS: 117-1950 Ready Mixed Paint, Brushing, Finishing, Exterior, Oil Gloss, for General Purposes (29 colours) ...	1 0
142. IS: 67-1950 Silica for Paints ...	1 0	192. IS: 118-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (4 colours) ...	1 0
143. IS: 68-1950 Kaolin for Paints ...	1 0	193. IS: 119-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (10 colours) ...	1 0
144. IS: 69-1950 Gypsum (Calcium Sulphate) for Paints ...	1 0	194. IS: 120-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (5 colours) ...	1 0
145. IS: 70-1950 Cuprous Oxide for Paints ...	1 0	195. IS: 121-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes, Golden Brown, IS Colour No. 414 ...	1 0
146. IS: 71-1950 Mercuric Oxide for Paints ...	1 0	196. IS: 122-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (3 colours) ...	1 0
147. IS: 72-1950 Aluminium Powder for Paints ...	1 0	197. IS: 123-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes (7 colours) ...	1 0
148. IS: 74-1950 Methods of Test for Drying Oils for Paints ...	1 12	198. IS: 124-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes, Oxford Blue, IS Colour No. 105 ...	1 0
149. IS: 75-1950 Linseed Oil, Raw, for Paints ...	0 12	199. IS: 125-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes, Royal Blue, IS Colour No. 106 ...	1 0
150. IS: 76-1950 Linseed Oil, Refined, for Paints ...	1 0	200. IS: 126-1950 Ready Mixed Paint, Brushing, Finishing, Exterior, Oil Gloss, for General Purposes, Middle Graphite, IS Colour No. 671, and Dark Graphite ...	1 0
151. IS: 77-1950 Linseed Oil, Boiled, for Paints ...	0 12	201. IS: 127-1950 Ready Mixed Paint, Brushing, Finishing, Exterior, Oil Gloss, for General Purposes, White ...	1 0
152. IS: 78-1950 Linseed Oil, Pale Boiled, for Paints ...	0 12	202. IS: 128-1950 Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes, Black ...	1 0
153. IS: 79-1950 Stand Oil for Paints ...	0 12		
154. IS: 80-1950 Tung Oil for Paints ...	0 12		
155. IS: 81-1950 Dehydrated Castor Oil, Polymerized, for Paints ...	1 0		
156. IS: 82-1950 Methods of Test for Thinners and Solvents for Paints ...	2 4		
157. IS: 83-1950 Turpentine for Paints ...	1 4		
158. IS: 84-1950 White Spirit for Paints ...	1 0		
159. IS: 85-1950 Methods of Test for Oil Pastes for Paints ...	1 8		
160. IS: 86-1950 Oil Paste for Paints (29 colours) ...	1 0		
161. IS: 87-1950 Oil Paste for Paints, Oxford Blue, IS Colour No. 105 ...	1 0		
162. IS: 88-1950 Oil Paste for Paints, Royal Blue, IS Colour No. 106 ...	1 0		
163. IS: 89-1950 Oil Paste for Paints (3 colours) ...	1 0		
164. IS: 90-1950 Oil Paste for Paints, Golden Brown, IS Colour No. 414 ...	1 0		
165. IS: 91-1950 Oil Paste for Paints (10 colours) ...	1 0		
166. IS: 92-1950 Oil Paste for Paints (5 colours) ...	1 0		
167. IS: 93-1950 Oil Paste for Paints (7 colours) ...	1 0		
168. IS: 94-1950 Oil Paste for Paints (4 colours) ...	1 0		
169. IS: 95-1950 Oil Paste for Paints, Exterior, White ...	1 0		
170. IS: 96-1950 Oil Paste for Paints, Interior, White ...	1 0		
171. IS: 97-1950 Oil Paste for Paints, Jointing Purposes, Etc, White Lead ...	1 0		
172. IS: 98-1950 Oil Paste for Paints, Zinc Oxide ...	1 0		
173. IS: 99-1950 Oil Paste for Paints, Zinc Oxide, Reduced ...	1 0		
174. IS: 100-1950 Oil Paste for Paints, for General Purposes, Black ...	1 0		
175. IS: 101-1950 Methods of Test for Ready Mixed Paints and Enamels ...	2 4		

	Rs as		Rs as
203. IS: 129-1950 Ready Mixed Paint, Brushing, Finishing, Interior, Oil Gloss, for General Purposes ( 29 colours ) ... ..	1 0	228. IS: 154-1950 Ready Mixed Paint, Brushing, Dead Black, for Use on Metals ...	1 0
204. IS: 130-1950 Ready Mixed Paint, Spraying, Finishing, for Railway Wagon Stock ( 2 colours ) ... ..	1 0	229. IS: 155-1950 Ready Mixed Paint, Brushing, Matt Black, for Use on Wood ...	1 0
205. IS: 131-1950 Ready Mixed Paint, Spraying, Finishing, for Railway Under-Frames, Black	1 0	230. IS: 156-1950 Ready Mixed Paint, Brushing, for Use on Floors, Colour as Required ...	1 0
206. IS: 132-1950 Ready Mixed Paint, Spraying, Exterior, Oil Gloss, for General Purposes ( 27 colours ) ... ..	1 0	231. IS: 157-1950 Ready Mixed Paint, Brushing, Acid and Alkali Resisting, Lead-Free, for General Purposes ( 4 colours ) and Other Colours as Required ... ..	1 0
207. IS: 133-1950 Enamel, Brushing, Interior, 1) Undercoating, 2) Finishing, Colour as Required ... ..	1 0	232. IS: 158-1950 Ready Mixed Paint, Brushing, Bituminous, Black, Lead-Free, Acid, Alkali, Water and Heat Resisting, for General Purposes ... ..	1 0
208. IS: 134-1950 Enamel, Spraying, Interior, 1) Undercoating, 2) Finishing, Colour as Required ... ..	1 0	233. IS: 159-1950 Ready Mixed Paint, Brushing, Acid Resisting, for Protection Against Acid Fumes, Colour as Required ... ..	1 0
209. *IS: 135-1952 Ready Mixed Paint, Spraying, Stoving, Red Oxide-Zinc Chrome, Priming	1 0	234. IS: 160-1950 Ready Mixed Paint, Spraying, Acid Resisting, for Protection Against Acid Fumes, Colour as Required ... ..	1 0
210. *IS: 136-1952 Ready Mixed Paint, Brushing, Stoving, Red Oxide-Zinc Chrome, Priming	1 0	235. IS: 161-1950 Ready Mixed Paint, Brushing, Matt, Heat Resisting, Colour as Required ... ..	1 0
211. IS: 137-1950 Ready Mixed Paint, Brushing, Matt Finish, Interior ( 30 colours ) ...	1 0	236. IS: 162-1950 Ready Mixed Paint, Brushing, Fire Resisting, Silicate Type, for Use on Wood, Colour as Required ... ..	1 0
212. IS: 138-1950 Ready Mixed Paint, Marking, for Packages and Petrol Containers, Colour as Required ... ..	1 0	237. IS: 163-1950 Ready Mixed Paint, Dipping, Fire Resisting, for Gangways of Coaching Stock, 1) Black, 2) Other Colours as Required ... ..	1 0
213. IS: 139-1950 Ready Mixed Paint, Marking, Quick Drying, for Marking with Rubber Stamps, Colour as Required ... ..	1 0	238. IS: 164-1951 Ready Mixed Paint, Brushing, for Road Marking ( 3 colours ) ... ..	1 0
214. IS: 140-1950 Ready Mixed Paint, Brushing, Petrol Resisting, Air-Drying, for Exterior Painting of Containers, Colour as Required	1 0	239. IS: 165-1950 Aluminium Paint, Brushing, for General Purposes, in Dual Container ...	1 0
215. IS: 141-1950 Ready Mixed Paint, Spraying, Petrol Resisting, Air-Drying, for Exterior Painting of Containers, Colour as Required	1 0	240. IS: 166-1950 Aluminium Paint, Spraying, for General Purposes, in Dual Container ...	1 0
216. IS: 142-1950 Ready Mixed Paint, Brushing, Petrol Resisting, Stoving, for Exterior Painting of Containers, Colour as Required	1 0	241. IS: 167-1950 Ready Mixed Paint, Thick White, for Lettering ... ..	1 0
217. IS: 143-1950 Ready Mixed Paint, Spraying, Petrol Resisting, Stoving, for Exterior Painting of Containers, Colour as Required	1 0	242. IS: 168-1950 Ready Mixed Paint, Brushing, Quick Drying, Matt, Lead-Free, for General Purposes ( 19 colours ) ... ..	1 0
218. IS: 144-1950 Ready Mixed Paint, Brushing, Petrol Resisting, Air-Drying, for Interior Painting of Tanks and Containers, Red Oxide ( Colour Unspecified ) ... ..	1 0	243. IS: 169-1950 Ready Mixed Paint, Spraying, Quick Drying, Matt, Lead-Free, for General Purposes ( 19 colours ) ... ..	1 0
219. IS: 145-1950 Ready Mixed Paint, Slushing, Petrol Resisting, Air-Drying, for Interior Painting of Tanks and Containers, Red Oxide ( Colour Unspecified ) ... ..	1 0	244. IS: 170-1950 Acetone ... ..	1 8
220. IS: 146-1950 Ready Mixed Paint, Brushing, Petrol Resisting, Stoving, for Interior Painting of Tanks and Containers, Red Oxide ( Colour Unspecified ) ... ..	1 0	245. *IS: 197-1952 Methods of Test for Varnishes and Lacquers ... ..	1 12
221. IS: 147-1950 Ready Mixed Paint, Slushing, Petrol Resisting, Stoving, for Interior Painting of Tanks and Containers, Red Oxide ( Colour Unspecified ) ... ..	1 0	246. *IS: 198-1952 Varnish, Gold Size ... ..	1 0
222. IS: 148-1950 Ready Mixed Paint, Brushing, Undercoating, Stoving, for Enamels and General Purposes, Colour as Required ...	1 0	247. IS: 219-1950 Ink Powders and Tablets, Blue-Black and Red ... ..	1 8
223. IS: 149-1950 Ready Mixed Paint, Spraying, Undercoating, Stoving, for Enamels and General Purposes, Colour as Required ...	1 0	248. IS: 220-1950 Fountain Pen Inks, Blue-Black and Red ... ..	1 4
224. IS: 150-1950 Ready Mixed Paint, Brushing, Finishing, Stoving, Enamel, Colour as Required ... ..	1 0	249. IS: 221-1950 Fluid Ink for Registration and for Cheques and Records ... ..	1 4
225. IS: 151-1950 Ready Mixed Paint, Spraying, Finishing, Stoving, Enamel, for General Purposes, Colour as Required ... ..	1 0	250. IS: 222-1950 Blue-Black Superior Fluid Ink for Writing ... ..	1 4
226. IS: 152-1950 Ready Mixed Paint, Brushing, Stoving, Lead-Free, for General Purposes, Colour as Required ... ..	1 0	251. IS: 229-1950 Ethyl Acetate ... ..	1 8
227. IS: 153-1950 Ready Mixed Paint, Spraying, Stoving, Lead-Free, for General Purposes, Colour as Required ... ..	1 0	252. IS: 230-1950 Butyl Acetate ... ..	1 8
		253. IS: 231-1950 Amyl Acetate ... ..	1 8
		254. IS: 245-1950 Trichloroethylene ... ..	2 0
		255. IS: 246-1950 Sodium Thiosulphate ... ..	1 12
		256. IS: 247-1950 Sodium Sulphite ... ..	1 8
		257. IS: 248-1950 Sodium Bisulphite ( Sodium Metabisulphite ) ... ..	1 8
		258. IS: 249-1951 Sodium Bichromate, Technical	1 4
		259. IS: 251-1950 Soda Ash, Technical ... ..	1 4
		260. IS: 252-1950 Caustic Soda, Technical ... ..	1 4
		261. IS: 253-1950 Edible Common Salt ... ..	1 8
		262. IS: 254-1950 Magnesium Chloride, Technical	1 4
		263. IS: 255-1950 Sodium Sulphate, Anhydrous, Technical ... ..	1 4
		264. IS: 256-1950 Glauber Salt, Technical ... ..	1 4





## APPENDIX 20.14

### INCOME AND EXPENDITURE ACCOUNT OF THE ISI AS AT 31 MARCH 1952

EXPENDITURE							INCOME													
SL No.	BUDGET ESTIMATES			REVISED BUDGET ESTIMATES			ACTUALS			SL No.	BUDGET ESTIMATES			REVISED BUDGET ESTIMATES			ACTUALS			
HEADS OF EXPENDITURE	Rs	As	P	Rs	As	P	Rs	As	P	HEADS OF INCOME	Rs	As	P	Rs	As	P	Rs	As	P	
1. Pay of Officers	1,63,000	0	0	1,17,000	0	0	1,12,411	9	0	1. i) Government Grant	2,40,000	0	0	2,20,000	0	0	2,25,000	0	0	
2. Allowances of Officers	28,000	0	0	16,000	0	0	13,756	12	0	ii) Government Grant for IEC Subscription	—	—	—	3,291	0	0	—	—	—	
3. Provident Fund Contribution of Officers (including interest)	11,700	0	0	10,000	0	0	9,642	0	0	2. Contribution from Other Sources	200	0	0	—	—	—	250	0	0	
4. T.A. for:										3. Subscription for 1951	2,10,000	0	0	2,07,000	0	0	2,04,255	6	0	
i) Officers	45,000	0	0	35,000	0	0	19,363	7	0	4. Interest on Fixed Deposits and Other Investments	4,150	0	0	5,260	0	0	5,272	8	0	
ii) Committee Members	10,000	0	0	8,000	0	0	6,377	1	0	5. Miscellaneous Receipts	500	0	0	2,000	0	0	2,885	5	0	
5. Pay of Establishment	1,12,000	0	0	95,000	0	0	91,090	9	0	6. Sale Proceeds of ISI Pub.	25,000	0	0	28,000	0	0	28,526	13	0	
6. Allowances of Establishment	72,000	0	0	63,000	0	0	60,091	6	0	7. Sale Proceeds of:										
7. Provident Fund Contribution for Staff (including interest)	6,500	0	0	6,000	0	0	5,738	0	0	i) ASTM								149	2	0
8. T.A. for Staff	6,000	0	0	4,000	0	0	2,799	0	0	ii) ASA								1,199	2	0
9. Subscription for ISO and IEC	10,000	0	0	10,600	0	0	10,511	0	6	iii) Misc	6,000	0	0	3,000	0	0		269	11	0
10. Printing ( Pub.) Charges	82,000	0	0	60,000	0	0	43,999	2	0	iv) SAA								6	12	0
11. Other Charges:										8. Commission on Sale of Overseas Publications:										
i) Stationery including Printing	25,000	0	0	18,000	0	0	15,610	6	0	i) ICE								60	0	6
ii) Postage and Telegrams	15,000	0	0	15,000	0	0	11,274	9	3	ii) ASTM								2,207	2	6
iii) Purchase of Pub.										iii) SAA	10,000	0	0	10,000	0	0		68	11	0
a) Books for Sale	5,000	0	0	3,000	0	0	1,173	7	9	iv) BSI								9,417	11	3
b) Books for Library	5,000	0	0	4,000	0	0	604	13	9	9. Licencing Fee	10,000	0	0	—	—	—	—	—	—	—
iv) Telephones	3,500	0	0	3,500	0	0	2,825	12	3	Excess of Expenditure over Income	1,58,350	0	0	41,049	0	0	—	—	—	—
v) Furniture and Office Equipment	15,000	0	0	13,000	0	0	686	0	3											
vi) Rent of Building	17,000	0	0	17,000	0	0	16,500	0	0											
vii) Electric and Water Charges	1,500	0	0	1,500	0	0	1,385	10	6											
viii) Miscellaneous	12,000	0	0	12,000	0	0	10,963	11	7											
ix) Advertisement	4,000	0	0	3,000	0	0	3,741	4	0											
x) Audit Charges	1,000	0	0	1,000	0	0	—	—	—											
xi) Depreciation on Head (11-v)	—	—	—	—	—	—	4,253	9	0											
xii) Medical Relief	4,000	0	0	4,000	0	0	1,317	15	3											
12. Charges for Convening ISO Meetings	10,000	0	0	—	—	—	—	—	—											
							4,46,117	2	1											
Excess of Income over Expenditure	—	—	—	—	—	—	33,451	2	2											
	6,64,200	0	0	5,19,600	0	0	4,79,568	4	3		6,64,200	0	0	5,19,600	0	0	4,79,568	4	3	

**BALANCE SHEET AS AT 31 MARCH 1952**

LIABILITIES				ASSETS							
	Rs	As	P	Rs	As	P					
1. Subscription for 1952				1,10,163	12	0	1. Balance in Bank	2,27,682	8	0	
2. Building Fund				2,04,752	0	0	2. Cash in Hand	111	2	6	
3. Inland Payable Credits:							3. Imprest	700	0	0	
i) Sada Nand & Sons				178	0	0	4. Fixed Deposits	3,00,000	0	0	
ii) Mr. C. P. Halkatti (deceased) Pay and Allowances				581	1	0	5. Other Deposits (Delhi Safe Vault)	80	0	0	
iii) Matchwell Electricals (India) Ltd. (outstanding balance of fans)				2,448	0	0	6. Unspent Balance in Franking	58	12	3	
iv) Shri K. Vyasulu (Contribution to CPF paid on behalf of Planning Commission)				173	0	0	7. Advances Adjustable:				
4. Overseas Bills Payable:							i) Dr. K. L. Moudgill (DDC) (Advance for tour abroad)	3,572	6	0	
i) BSI				16,525	6	0	ii) Conveyance Advances	5,424	0	0	
ii) CSA				11	4	0	iii) Dy. Controller of Printing and Stationery	3,185	8	0	
iii) ASA				144	9	6	8. Outstanding Bills for Sale of Publications	12,809	9	0	
iv) SAA				71	14	9	9. Recoverable From:				
v) ASTM				3,540	7	0	i) Shree Gopal Paper Mills	18	9	0	
vi) ICE				149	15	6	ii) Indian National Press, Bombay	27	0	0	
5. Suspense Account					5	4	0	10. Furniture & Office Equipment	43,584	10	6
6. Excess of Income over Expenditure (1951-52)	33,451	2	2					11. Publications (Library)	12,113	6	2
Last Year's Balance	4,37,171	11	6								
	4,70,622	13	8								
Less transferred to Building Fund (Vide EC's decision at their 18th meeting on 16.3.51)	2,00,000	0	0								
	2,70,622	13	8	2,70,622	13	8					
				TOTAL	6,09,367	7	5	TOTAL	6,09,367	7	5

61

I certify that I have obtained all the information and explanations that I required and that, subject to the remarks in the audit report, the balance sheet exhibits, in my opinion, the true financial position of the ISI according to the best of my information and explanations given to me and as shown by the books of the ISI.

Sd. R. P. NIJHAWAN  
Assistant Examiner  
A.G.F.R. & S., New Delhi

Sd. B. L. BHATIA  
Secretary (Administration)  
Indian Standards Institution, Delhi 8

		Rs as			Rs as
IS : 376-1952	Sodium Hydroxide, Analytical Reagent	...	IS : 189-1951	Tamarind Kernel Powder for Use in the Cotton Textile Industry	...
IS : 380-1952	French Chalk, Technical	...	IS : 199-1950	Methods for the Estimation of Moisture, Total Size, Starch, Ash and Wax Content in Grey and Bleached Cotton Textile Materials	1 8
IS : 381-1952	Sodium Silicate for Soap Industry	...	IS : 200-1950	Method for Determination of Copper Number of Cotton Textile Materials	1 8
<b>CHEMICALS, FINE</b>					
IS : 229-1950	Acetates : Ethyl, Butyl, Amyl	...	IS : 201-1950	Methods of Analysis of and Tolerances for Water for Textile Purposes	1 0
IS : 231-1950		...	IS : 237-1951	Method for Determination of Cotton Yarn Count (or Yarn Melidity in tex)	1 0
IS : 245-1950	Trichloroethylene	2 0	IS : 239-1951	Method for Determination of Lea Breaking Load (Strength) of Cotton Yarn and Its Count-Lea-Strength Product	1 4
IS : 246-1950	Sodium : Thiosulphate Sulphite, Bisulphite	...	IS : 240-1951	Method for Determination of Ends and Picks in Woven Cotton Fabrics	1 0
IS : 248-1950		...	IS : 241-1951	Method for Determination of Cotton Fabric Dimensions	1 0
IS : 296-1951	Anhydrous Sodium Carbonate, Pure and Analytical Reagent	1 12	IS : 242-1951	Method for Determination of Weight per Square Yard (or Square Meter) and Weight per Linear Yard (Or Linear Meter) of Cotton Fabrics	1 0
IS : 330-1951	Chromic Acid	1 4	IS : 243-1951	Method for Determination of Breaking Load (Strength) and Elongation of Woven Cotton Fabrics (by constant-rate-of-traverse machine)	1 0
IS : 331-1951	Chrome Salt	1 4	IS : 244-1951	Method for Determination of Viscosity (or Fluidity) of Solutions of Cotton and Regenerated Celluloses in Cuprammonium Hydroxide	1 0
IS : 332-1951	Chrome Alum Potash	1 4	IS : 270-1950	Code for the Manufacture of Pickers	1 8
<b>BITUMEN, TAR AND TAR PRODUCTS</b>					
IS : 73-1950	Asphaltic Bitumen and Fluxed Native Asphalt for Road-Making Purposes	3 0	IS : 271-1950	Grading of Raw Jute (Kutchu Assortment)	2 0
IS : 212-1950	Crude Coal Tar for General Use	1 8	IS : 272-1950	Grading of Raw Jute (Pucca Assortment)	1 0
IS : 215-1951	Road Tar	3 0	IS : 293-1951	Code for Seaworthy Packaging of Cotton Textiles	1 4
IS : 216-1951	Coal Tar Pitch	1 12	IS : 298-1951	Method for Determination of Bursting Strength of Woven and Knitted Cotton Fabrics	1 0
IS : 217-1951	Cutback Bitumen	3 8	IS : 389-1952	Method for Determination of Small Quantities of Sulphuric Acid and Hydrochloric Acid in Cotton Materials	...
IS : 218-1952	Creosote and Anthracene Oil for Use as Wood Preservatives	2 0	IS : 390-1952	Method for Spray Test for Estimating the Water Repellency of Water Resistant Fabrics (Permeable to Air)	...
<b>LUBRICATING OILS</b>					
IS : 310-1951	Methods of Sampling and Test for Lubricants	...	IS : 391-1952	Method for Measuring Resistance to Penetration by Water of Water Resistant Fabrics (Permeable to Air)	...
IS : 311-1951	Cylinder Oils: Pure Mineral, Ordinary; Compounded, Ordinary; Pure Mineral, Super Heat; Compounded, Super Heat; Pure Mineral, Filtered; Compounded, Filtered	0 8	IS : 392-1952	Method for Measuring the Water Absorption and Penetration by Water of Water Resistant Fabrics (Permeable to Air) by a Bundesmann Type Appartus	...
IS : 316-1951		...	0 12	<b>UNCLASSIFIED</b>	
<b>TEXTILES AND TEXTILE ENGINEERING</b>					
IS : 1-1951	The National Flag of India (Cotton Khadi)	2 0	IS : 3-1949	Inch-Millimeter Conversion for Industrial Use	0 8
IS : 9-1949	Method for Determining Shrinkage of Cotton and Linen Cloth on Washing	0 8	IS : 196-1950	Atmospheric Conditions for Testing	1 0
IS : 11-1949	Grading of Wool for Export	0 8	IS : 317-1951	Automotive Hydraulic Brake Fluid	1 4
IS : 19-1949	Procedures for Testing Cotton Textiles and Cordages (Other than Jute) for Resistance to Attack by Micro-Organisms	1 0			
IS : 32-1950	Code for Seaworthy Packaging of Woollen Textiles	1 0			
IS : 171-1951	Cotton Yarn, Grey	1 0			
IS : 172-1951	Cotton Fabrics	1 4			
IS : 188-1951		...	1 8		

### OTHER PUBLICATIONS

ANNUAL REPORT FOR THE YEAR 1948-49	...	...	...	...	2 0
ANNUAL REPORT FOR THE YEAR 1949-50	...	...	...	...	2 0
ANNUAL REPORT FOR THE YEAR 1950-51	...	...	...	...	2 0
ANNUAL REPORT FOR THE YEAR 1951-52	...	...	...	...	2 0
ISI HANDBOOK OF PUBLICATIONS, 1951	...	...	...	...	1 0
REPORT OF THE ISI SPECIAL COMMITTEE ON WEIGHTS AND MEASURES	...	...	...	...	2 0

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(The list includes the standards published or under print)

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	Rs as		Rs as
<b>QUALITY CONTROL AND INDUSTRIAL STATISTICS</b>			
ASA Z 1-3-42 Control Chart Method of Controlling Quality during Production	5 0	IS : 375-1951 Marking and Arrangement for Switchgear Bus-Bars, Main Connections and Auxiliary Wiring	2 8
IS : 2-1949 Rules for Rounding Off Numerical Values	0 8	<b>REFRACTORIES</b>	
<b>DOCUMENTATION</b>			
IS : 4-1949 Practice for Make-up of Periodicals	0 8	IS : 6-1949 Moderate Heat Duty Fireclay Refractories, Group 'A'	2 0
IS : 12-1949 Style Manual for Drafting Indian Standards	1 8	IS : 7-1949 Moderate Heat Duty Fireclay Refractories, Group 'B'	1 0
IS : 18-1949 Abbreviations for Titles of Periodicals	1 4	IS : 8-1949 High Heat Duty Fireclay Refractories	2 0
IS : 382-1952 Practice for Alphabetical Arrangement	...	IS : 194-1950 Recommendations for Refractories for Railways	1 0
<b>OFFICE STATIONERY AND EQUIPMENT</b>			
IS : 219-1950 to IS : 222-1950 } Inks ; Powders, Tablets and Fluid	1 4 to 1 8	IS : 195-1950 Fireclay Mortar for Laying Fireclay Bricks	0 12
<b>IRON AND STEEL</b>			
IS : 210-1950 Grey Iron Castings	1 8	<b>CEMENT, CONCRETE AND ALLIED MATERIALS</b>	
IS : 223-1950 Tensile Testing of Metals ( Ferrous )	1 12	IS : 269-1951 Ordinary, Rapid-Hardening and Low Heat Portland Cement	4 0
IS : 224-1950 Pig Iron ( Coke )	1 0	IS : 383-1952 Coarse and Fine Aggregates from Natural Sources for Concrete	...
IS : 225-1950 Pig Iron ( Charcoal )	1 0	<b>TIMBER AND TIMBER PRODUCTS</b>	
IS : 226-1950 Structural Steel	1 8	IS : 10-1949 Plywood Tea-Chests	1 12
IS : 273-1951 Picks and Beaters	1 12	IS : 190-1950 Coniferous Sawn Timber Intended for Further Conversion	1 4
IS : 274-1951 Shovels	2 0	IS : 303-1951 Commercial and Moisture-Proof Plywood	1 12
IS : 276-1951 Plain Austenitic Manganese Steel Castings	1 0	<b>PAINTS, VARNISHES AND PIGMENTS</b>	
IS : 277-1951 Galvanized Steel Sheets ( Plain and Corrugated )	1 4	IS : 5-1949 Colours for Ready Mixed Paints	4 0
IS : 278-1951 Galvanized Steel Barbed Wire for Fencing	1 0	IS : 33-1950 Methods of Test for Dry Pigments and Extenders for Paints	1 4
IS : 279-1951 Galvanized Iron and Steel Wire for Telegraph and Telephone Purposes	1 4	IS : 34-1950 to IS : 72-1950 } Dry Pigments and Extenders for Paints	0 12 to 1 4
IS : 280-1951 Mild Steel Wire	1 0	IS : 74-1950 Methods of Test for Drying Oils for Paints	1 12
<b>NON-FERROUS METALS AND ALLOYS</b>			
IS : 20-1950 Cast Aluminium for Utensils	0 12	IS : 75-1950 to IS : 81-1950 } Drying Oils for Paints	1 0 to 1 0
IS : 21-1950 Wrought Aluminium for Utensils	0 12	IS : 82-1950 Methods of Test for Thinners and Solvents for Paints	2 4
IS : 22-1950 98 Percent Aluminium Notched Bars and Ingots for Remelting Purposes	0 12	IS : 83-1950 Turpentine for Paints	1 4
IS : 23-1950 99 Percent Aluminium Notched Bars and Ingots for Remelting for Aircraft Purposes	0 12	IS : 84-1950 White Spirit for Paints	1 0
IS : 24-1950 Brazing Solder	0 12	IS : 85-1950 Methods of Test for Oil Pastes for Paints	1 8
IS : 25-1950 Antifriction Bearing Alloys	0 12	IS : 86-1950 } Oil Pastes for Paints	1 0 to each
IS : 26-1950 Tin Ingot	0 12	IS : 100-1950 Methods of Test for Ready Mixed Paints and Enamels	2 4
IS : 27-1950 Pig Lead	0 12	IS : 102-1950 to IS : 169-1950 } Ready Mixed Paints and Enamels	1 0 to each
IS : 28-1950 Phosphor Bronze Ingots and Castings	1 0	IS : 197-1952 Methods of Test for Varnishes and Lacquers	1 12
IS : 29-1950 Aluminium Sheets and Coils for Aircraft Purposes	1 4	IS : 198-1952 Varnish, Gold Size	1 0
IS : 30-1950 Aluminium-Coated High-Tensile Aluminium Alloy Sheets and Coils for Aircraft Purposes	1 0	IS : 289-1952 Aluminium Paste for Paints	1 4
IS : 31-1950 Aluminium-Manganese Alloy Sheets and Coils	0 12	IS : 337-1952 to IS : 353-1952 } Varnishes and Lacquers	1 0 to 1 8
IS : 191-1950 Copper	0 12	IS : 354-1952 Methods of Test for Resins	1 8
IS : 192-1950 Silver Solder	0 12	IS : 355-1952 Resin for Paints and Varnishes	1 0
IS : 193-1950 Soft Solder	0 12	IS : 356-1952 Ester Gum for Paints and Varnishes	1 0
IS : 202-1950 Aluminium-Alloy Ingots and Castings for Aircraft Purposes	1 4	IS : 357-1952 Gum Dammar, Pale, for Paints and Varnishes	1 0
IS : 209-1950 Zinc ( Spelter )	0 12	<b>SOAPS</b>	
IS : 211-1950 Antimony	0 12	IS : 284-1951 Toilet Soap	0 8
IS : 288-1951 Copper Rods for Boiler Stays	1 0	IS : 285-1951 Laundry Soap	1 0
IS : 291-1951 Naval Brass Rods, Bars and Sections	1 0	IS : 286-1951 Methods of Sampling and Test for Soaps	3 0
IS : 292-1951 Brass Ingots and Castings	1 0	<b>RAW MINERALS</b>	
IS : 306-1951 Tin Bronze Ingots and Castings	1 0	IS : 13-1949 Methods for Grading Processed Mica	2 0
IS : 319-1951 Free Cutting Brass Rods and Bars for Use in Screw Machines	1 0	IS : 14-1949 Classification of Processed Muscovite Mica	1 4
IS : 320-1951 High Strength Brass Rods, Bars and Sections	1 0	IS : 372-1952 Manganese Ore, Battery Grade	1 12
<b>BUILDER'S HARDWARE</b>			
IS : 204-1950 Mild Steel and Brass Door Bolts, Tower and Barrel Types	1 4	IS : 373-1952 Manganese Ore, Metallurgical Grade	1 12
IS : 205-1950 Butt Hinges	1 4	<b>LAC AND LAC PRODUCTS</b>	
IS : 206-1950 Tee and Strap Hinges	1 0	IS : 15-1949 Seedlac	1 12
IS : 207-1950 Gate and Shutter Hooks and Eyes	1 0	IS : 16-1949 Shellac	2 12
IS : 208-1950 Door Handles	1 4	IS : 17-1949 Dry Bleached Lac	2 0
IS : 275-1951 Padlocks	1 8	<b>CHEMICALS, HEAVY</b>	
IS : 281-1951 Sliding Door Bolts for Use with Padlocks	1 8	IS : 170-1950 Acetone	1 8
IS : 362-1951 Parliament Hinges	1 0	IS : 249-1951 Sodium Bichromate, Technical	1 4
IS : 363-1951 Hasps and Staples, Safety and Wire Types	1 0	IS : 251-1950 Soda Ash, Technical	1 4
IS : 364-1952 Fanlight Catch	1 0	IS : 252-1950 Caustic Soda, Technical	1 4
<b>ELECTRICAL EQUIPMENT AND ACCESSORIES</b>			
IS : 203-1950 Leclanche Type Dry Cells and Batteries for Flash Lamps	1 4	IS : 253-1950 Edible Common Salt	1 8
IS : 267-1951 Leclanche Type Inert Cells	1 0	IS : 254-1950 Magnesium Chloride, Technical	1 4
IS : 268-1951 Leclanche Type Sack Cells	1 8	IS : 255-1950 to IS : 262-1950 } Sulphates of Metals	1 0 to 1 4
IS : 282-1951 Hard-Drawn Copper Solid and Stranded Circular Conductors for Overhead Power Transmission Purposes	1 8	IS : 263-1950 to IS : 266-1950 } Acids : Boric, Nitric, Hydrochloric, Sulphuric	1 4 to 2 4
IS : 283-1951 Porcelain Insulators for Telegraph and Telephone Lines	2 4	IS : 294-1951 Superphosphate	1 4
IS : 302-1951 General Requirements for Electrical Appliances for Domestic Use	1 0	IS : 295-1951 Bleaching Powder, Unstabilized	1 4
IS : 325-1951 Threephase Induction Motors for Industrial Use, with Class 'A' Insulation	2 4	IS : 297-1951 Sodium Sulphide, Technical	1 4
IS : 368-1952 Electric Portable Immersion Heaters	...	IS : 299-1951 Alumino-Ferric	1 4
IS : 369-1952 Electric Radiators for Domestic Use	...	IS : 301-1951 Potassium Nitrate, Technical	1 8
IS : 374-1951 Electric Ceiling Fans	2 0	( Please turn to previous page )	