

NEW LICENCES GRANTED

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-259 13-1-1961	15-1-1961	14-1-1962	M/s Tin Printing & Metal Works Ltd., Delhi	18-Litre Square Tins (IS: 916-1958)
CM/L-260 19-1-1961	1-3-1961	28-2-1962	M/s Chelpark Company (Private) Ltd., Madras	Ferro-Gallo Tannate Fountain Pen Ink (0.1 Percent Iron Content) (IS: 220- 1959)
CM/L-261 19-1-1961	1-3-1961	28-2-1962	do	Dye Based Fountain Pen Inks (Blue, Green, Violet, Black and Red) (IS: 1221- 1957)
CM/L-262 19-1-1961	1-2-1961	31-1-1962	The Indian Tube Company (1953) Ltd., Calcutta	Steel Tubes for Bicycle Seat Pillars (IS: 626-1955)
CM/L-263 19-1-1961	1-2-1961	31-1-1962	do	Steel Tubes for Pedal Assembly (IS: 628- 1955)
CM/L-264 24-1-1961	26-1-1961	25-1-1962	M/s Enamelled Wires Pvt. Ltd., Bombay	Synthetic Enamelled Wire (IS: 1595- 1960)
CM/L-265 30-1-1961	15-2-1961	14-2-1962	M/s Sathe Biscuit & Chocolate Co. Ltd., Poona	Covering Chocolate (IS: 1163-1958)
CM/L-266 30-1-1961	15-2-1961	14-2-1962	do	Cocoa-Powder (IS: 1164-1958)
CM/L-267 30-1-1961	1-2-1961	31-1-1962	M/s Devidayal (Sales) Private Ltd., Bombay	BHC Dusting Powders (IS: 561-1958)
CM/L-268 30-1-1961	1-2-1961	31-1-1962	M/s All-India Medical Corpora- tion, Bombay	BHC Water Dispersible Powder Con- centrates (IS: 562-1958)
CM/L-269 30-1-1961	1-2-1961	31-1-1962	M/s Flintrock Products Pvt. Limited, Bombay	DDT Water Dispersible Powder Con- centrates (IS: 565-1955)
CM/L-270 31-1-1961	15-2-1961	14-2-1962	M/s Kathiawar Metal and Tin Works (P) Limited, Rajkot	18-Litre Square Tins (IS: 916-1958)
CM/L-271 10-2-1961	15-2-1961	14-2-1962	The Indian Tube Company (1953) Ltd., Calcutta	Steel Tubes for Bicycle Frames (IS: 623- 1955)
CM/L-272 10-2-1961	20-2-1961	19-2-1962	M/s Sahebgunge Electric Supply Company Limited, Calcutta	Aluminium Conductor Steel Reinforced and All Aluminium Conductors (IS: 398-1953)
CM/L-273 10-2-1961	15-2-1961	14-2-1962	M/s India Tar and Bitumen Pro- ducts Private Limited, Calcutta	Bitumen Felts for Water Proofing and Damp Proofing, Type-3, Grade I (IS: 1322-1959)
CM/L-274 15-2-1961	1-3-1961	28-2-1962	M/s Sudhir Chemical Company, Bombay	Copper Oxychloride Dusting Powders (IS: 1506-1959)
CM/L-275 15-2-1961	1-3-1961	28-2-1962	do	Copper Oxychloride Water Dispersible Powder Concentrates (IS: 1507-1959)
CM/L-276 27-2-1961	1-3-1961	28-2-1962	M/s Devidayal (Sales) Private Limited, Bombay	DDT Dusting Powders (IS: 564-1955)
CM/L-277 27-2-1961	1-3-1961	28-2-1962	M/s Standard Lamination, Cal- cutta	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-278 27-2-1961	1-3-1961	28-2-1962	M/s Aluminium Cables & Conduc- tors (UP) Private Limited, Calcutta	All Aluminium Conductors (IS: 398-1953)
CM/L-279 27-2-1961	1-3-1961	28-2-1962	M/s Jawala Flour Mills, New Delhi	Maida, Grade I (IS: 1009-1957)
CM/L-280 13-3-1961	20-3-1961	19-3-1962	M/s Jayshree Plywoods, Calcutta	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-281 14-3-1961	1-4-1961	31-3-1962	M/s Sulekha Works Limited, Cal- cutta	Blue-Black Superior Fluid Ink for Writing (IS: 222-1950)
CM/L-282 14-3-1961	1-4-1961	31-3-1962	M/s Zenith Fire Services, Bombay	Portable Chemical Fire Extinguisher, Foam Type (IS: 933-1959)
CM/L-283 14-3-1961	1-4-1961	31-3-1962	M/s Bharat Barrel & Drum Mfg. Company Pvt. Ltd., Calcutta	Steel Drums (IS: 1549-1960)
CM/L-284 24-3-1961	15-4-1961	14-4-1962	M/s Huns Dewan & Co., Bombay	Biscuits (Excluding Wafer Biscuits) (IS: 1011-1957)
CM/L-285 28-3-1961	15-4-1961	14-4-1962	M/s All-India Medical Corporation, Bombay	BHC Dusting Powders (IS: 561-1958)
CM/L-286 28-3-1961	15-4-1961	14-4-1962	do	DDT Dusting Powders (IS: 564-1955)
CM/L-287 28-3-1961	15-4-1961	14-4-1962	M/s Hindustan Breakfast Food Mfg. Factory, New Delhi	Corn Flakes (IS: 1158-1957)
CM/L-288 28-3-1961	15-4-1961	14-4-1962	M/s Dr. Writer's Chocolates & Can- ning Company, Bombay	Macaroni, Spaghetti and Vermicelli (IS: 1485-1959)
CM/L-289 30-3-1961	15-4-1961	14-4-1962	M/s Devidayal (Sales) Private Limited, Bombay	BHC Water Dispersible Powder Con- centrates (IS: 562-1958)

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	from	to		
CM/L-7 27-12-1955	1-4-1961	31-3-1962	The Pioneer Magnesia Works Ltd., Bombay	Magnesium Chloride, Technical (IS: 254-1950)
CM/L-26 21-3-1957	1-4-1961	31-3-1964	M/s Carew & Co. Ltd., Rosa (UP)	Rectified Spirit, Grade A (IS: 323-1959)
CM/L-44 20-1-1958	1-2-1961	31-1-1962	M/s Shalimar Tar Products (1935) Ltd., Calcutta	Naphthalene (IS: 539-1955)
CM/L-45 20-1-1958	1-2-1961	31-1-1962	M/s B.S. and Co., Calcutta (Ply- wood Mills No. I)	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-46 20-1-1958	1-2-1961	31-1-1962	M/s B.S. and Company, Jalpaiguri (Plywood Mills No. II)	do
CM/L-47 20-1-1958	1-2-1961	31-1-1962	M/s Hunsur Plywood Works, P.O. Hunsur (Mysore State)	do
CM/L-48 20-1-1958	1-2-1961	31-1-1962	The Bharat Plywood and Timber Products Ltd., Cannanore (North Malabar)	do
CM/L-50 20-1-1958	1-2-1961	31-1-1962	M/s East India Plywood Co. Pri- vate Limited, Calcutta	do
CM/L-51 20-1-1958	1-2-1961	31-1-1962	M/s Jeypore Timber and Veneer Mills Private Limited, Dibruga- rgh	do
CM/L-52 20-1-1958	1-2-1961	31-1-1962	The Malabar Plywood Works, Feroke (Kerala State)	do
CM/L-53 20-1-1958	1-2-1961	31-1-1962	The South India Plywood Indus- tries, Kottayam (Kerala State)	do
CM/L-55 20-1-1958	1-2-1961	31-1-1962	M/s Albion Plywood Limited, Calcutta	do
CM/L-56 20-1-1958	1-2-1961	31-1-1962	The Great Indian Plywood Mfg. Co., Calcutta	do
CM/L-58 20-1-1958	1-2-1961	31-1-1962	M/s Assam Bengal Veneer Indus- tries Private Limited, Calcutta (Factory at Calcutta)	do
CM/L-59 20-1-1958	1-2-1961	31-1-1962	M/s Assam Bengal Veneer Indus- tries Private Limited, Calcutta (Factory at Oodlabari)	do
CM/L-60 20-1-1958	1-2-1961	31-1-1962	The Standard Furniture Company Limited, Kozhikode	do
CM/L-61 20-1-1958	1-2-1961	31-1-1962	M/s Assam Saw Mills and Timber Company Ltd., Calcutta	do
CM/L-63 7-2-1958	17-2-1961	16-2-1962	The Indian Turpentine and Rosin Co. Ltd., Bareilly (UP)	Gum Spirit of Turpentine (Oil of Tur- pentine) (IS: 533-1954)
CM/L-64 7-2-1958	1-3-1961	28-2-1962	M/s Assam Forest Products Pri- vate Ltd., Dibrugarh	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-66 7-2-1958	1-3-1961	28-2-1962	M/s Woodcrafts (Assam), Mariani	do
CM/L-67 7-2-1958	1-3-1961	28-2-1962	M/s Woodcraft Products Limited, Calcutta	do
CM/L-68 7-2-1958	1-3-1961	28-2-1962	M/s Varat Plywood, Calcutta	do
CM/L-70 7-2-1958	1-3-1961	28-2-1962	The Standard Furniture Co. Ltd., Chalakuadi (Kerala State)	do
CM/L-71 7-2-1958	1-4-1961	31-3-1964	M/s Travancore Chemical & Mfg. Co. Limited, Alwaye	Copper Sulphate, Technical (IS: 261-1950)
CM/L-72 13-3-1958	1-4-1961	31-3-1964	The Hindustan Electric Co. Ltd., Faridabad (Punjab)	Three-phase Induction Motors, From 1 H.P. to 10 H.P. (IS: 325-1959)
CM/L-75 14-3-1958	1-4-1961	31-3-1964	The Alkali & Chemical Corpora- tion of India Limited, Calcutta	BHC Water Dispersible Powder Con- centrates (IS: 562-1958)
CM/L-113 19-1-1959	1-2-1961	31-1-1962	M/s Phoenix Plywood, Kottayam (Kerala)	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-114 19-1-1959	1-2-1961	31-1-1962	M/s Venus Plywood Co., Nemmara (Kerala)	do
CM/L-116 3-2-1959	16-2-1961	15-2-1962	M/s Minerva Plywood Industries, Calcutta	do
CM/L-118 19-2-1959	2-3-1961	1-3-1962	M/s Bengal Plywood Mfg. Co., Calcutta	do
CM/L-120 20-3-1959	1-4-1961	31-3-1962	M/s Himalayan Plywood Indus- tries (P) Ltd., Tinsukia (Assam)	do

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LICENCES RENEWED — *Contd.*

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	from	to		
CM/L-158 15-1-1960	1-2-1961	31-1-1962	The Aluminium Industries Ltd., Hirakud	Steel-Cored and Plain Standard Aluminium Conductors of all types and sizes (IS: 398-1953)
CM/L-160 15-1-1960	1-2-1961	31-1-1962	The Indian Iron & Steel Co. Ltd., Calcutta	Flushing Cisterns (IS: 774-1957)
CM/L-161 15-1-1960	1-2-1961	31-1-1962	M/s Patiala Biscuit Manufacturers Private Limited, Rajpura (Punjab)	Biscuits (Excluding Wafer Biscuits) (IS: 1011-1957)
CM/L-162 5-2-1960	1-4-1961	31-3-1962	M/s National Pipes & Tubes Co. Ltd., Calcutta	a) Naval Brass Rods, Bars and Sections (IS: 291-1951) b) Free Cutting Brass Rods and Bars for Use in Screw Machines (IS: 319-1951) c) High Strength Brass Rods, Bars and Sections (IS: 320-1951)
CM/L-163 5-2-1960	1-4-1961	31-3-1962	M/s National Pipes & Tubes Co. Limited, Calcutta	a) Copper Rods for Boiler Stays (IS: 288-1960) b) Copper Bars and Rods for Electrical Purposes (IS: 613-1954)
CM/L-164 5-2-1960	1-4-1961	31-3-1962	do	Light Sheets for General Purposes (IS: 405-1952)
CM/L-165 5-2-1960	1-4-1961	31-3-1962	do	Brass Tubes for General Purposes (IS: 407-1952)
CM/L-166 8-2-1960	1-3-1961	28-2-1962	M/s Andamans Timber Industries Ltd., Calcutta	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-167 22-2-1960	1-3-1961	28-2-1962	M/s Shalimar Biscuits Private Limited, Bombay	Biscuits (Excluding Wafer Biscuits) (IS: 1011-1957)
CM/L-168 22-2-1960	1-3-1961	28-2-1962	M/s Tata Fison Private Limited, Calcutta	BHC Water Dispersible Powder Concentrates (IS: 562-1958)
CM/L-170 11-3-1960	1-4-1961	31-3-1962	The Britannia Biscuit Co. Limited, Calcutta	Biscuits (Excluding Wafer Biscuits) (IS: 1011-1957)
CM/L-171 11-3-1960	1-4-1961	31-3-1962	The Britannia Biscuit Co. Limited, Bombay	do
CM/L-172 11-3-1960	1-4-1961	31-3-1962	M/s Parle Products Mfg. Co. Pvt. Ltd., Bombay	do
CM/L-173 11-3-1960	1-4-1961	31-3-1962	M/s Lily Biscuits Co. Private Ltd., Calcutta	do
CM/L-174 11-3-1960	1-4-1961	31-3-1962	The Sathe Biscuit & Chocolate Co. Ltd., Poona	do
CM/L-175 14-3-1960	1-4-1961	31-3-1962	M/s Camlin Private Ltd., Bombay	Ferro-Gallo Tannate Fountain Pen Ink (0.1 Percent Iron Content) (IS: 220-1959)
CM/L-176 14-3-1960	1-4-1961	31 3 1962	do	Dye-Based Fountain Pen Ink, Blue (IS: 1221-1957)

New ISI Members

Enrolled During the Period 1.2.61 to 31.3.61

Sustaining Members

Antifriction Bearing Corporation Ltd., Lonavla (Dist. Poona)
Arunodaya Engineering Corporation, Bombay
Baiton Cables Limited, Jaipur
Bayer-Agrochem Private Ltd., Bombay
Bharat Wood Works Private Ltd., Dibrugarh
Chandan Metal Products Private Ltd., Baroda
Controller of Weights and Measures, Madras
Elecon Engineering Co. Private Ltd., Bombay
Indian Yeast Co. Private Ltd., Calcutta
Sarathi, A.R.P., Madurai
Sekhar Iron Works Private Ltd., Calcutta

Sustaining Members (Associates)

Central Trading Co., Secunderabad
Delhi Brick Kiln Owners Association, New Delhi
Kapsons, New Delhi
Lava Batteries, Kanpur
Leos Mercantile Corporation, Bombay

Madura Ramnad Chamber of Commerce, Madurai
National Machine Tool Industries, Jullunder City
Plastics & Linoleums Export Promotion Council, Bombay
Plywood Manufacturers Association of West Bengal, Calcutta
Research Chemical Laboratories, Bangalore
Shree Ram Oil & General Mills, Gurgaon
Vijay Industries, Bombay

Ordinary Members

Ahuja, B. C., Bombay
Chary, K. V. N., Rajamundry (Andhra Pradesh)
Chetty, P. S. P., Alwar (Madras)
Datta, Subhas Chandra, Serampore (Dist. Hooghly)
Nadirshah, E. A., Bombay
Natarajan, S., Madras
Patel, N. S., Ahmedabad
Prasad, G. S. D., Pondicherry
Shah, Ladhoobhai D., Morvi
Sudarsanam, M. K., Madras

ISI ACTIVITIES

GENERAL COUNCIL

The sixteenth meeting of the General Council was held on 23 March 1961 under the presidentship of Shri Lal Bahadur Shastri, the then Union Minister for Commerce & Industry and President ISI. In his opening address he said*: 'The Indian Standards Institution has made a place for itself in the industrial field as well as in the country. During the last few years it has made continuous progress although we may still feel that we have not made enough progress, because there is no end to ambition especially if it is in public good. I do, therefore, feel that the Institution has still to move forward and go ahead with a rapid pace.'

The General Council unanimously adopted the following resolution in appreciation of the work done by the ISI Building Fund Committee which was constituted by GC at its seventh meeting held on 20 March 1952 but which had started functioning in March 1954 under the chairmanship of Seth Tulsidas Kilachand:

'The General Council of the Indian Standards Institution wishes to place on record its deep appreciation of the work done by the Building Fund Committee which was constituted by the Council for collection of funds for the construction of Manak Bhavan, ISI Headquarters building. The Committee, under the inspiring chairmanship of Seth Tulsidas Kilachand, was able to collect a sizable amount from the industry, and the Council wishes to express its gratitude to the Chairman and Members of the Committee.'

The Council further decided that as the task entrusted to the ISI Building Fund Committee had already been completed, the Committee be formally dissolved.

The Council adopted the Annual Report for the year 1959-60 and approved the revised budget for the year 1960-61 and budget estimate for the year 1961-62.

Lala Shri Ram and Shri E. A. Nadirshah were unanimously re-elected as Vice-Presidents for the year 1961-62.

EXECUTIVE COMMITTEE

The Executive Committee at its sixty-ninth meeting held in joint

*For full text of the speech see ISI Bull., Vol 13, No. 3, p. 107 (1961).

session of the 56th meeting of the Executive Committee, in March 1961 at Manak Bhavan re-elected Lala Shri Ram as its Chairman for another term.

FIRST MEETING

Power Installation and Maintenance

Consequent upon the dissolution and re-organization of the Electrical Plant and Switchgear Sectional Committee, ETDC 4, one of the new committees set up recently has the title: Power Installation and Maintenance Sectional Committee, ETDC 20. This committee at its **first meeting** held on 9 and 10 March 1961 under the chairmanship of Shri T. N. Idnani, finalized for adoption as Indian Standard and printing the draft codes of practice for: (a) Installation and Maintenance of Power Transformers, and (b) Maintenance of Insulating Oil. These two codes form part of a series on codes on installation and maintenance of electrical equipment and wiring. The Code on Installation and Maintenance of Power Transformers makes extensive reference to the regulations as stipulated in the Indian Electricity Rules and also gives a detailed maintenance schedule for various sizes of transformers based on experience gained in the field. The Code of Practice for Maintenance of Insulating Oil covers the insulating oil used for transformers as well as switchgear and describes in detail the maintenance schedule, checking and testing of oil to ensure proper operation and life of the equipment in which the oil is used.

The Committee also gave consideration to the use of insulated cables with aluminium conductors for house wiring. This question is being examined in detail.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Agricultural and Food Products Division Council

In the absence of Dr. M. S. Randhawa, Chairman, AFDC and Dr. V. N. Patwardhan, Vice-Chairman, AFDC, Dr. Lal C. Verma, Director ISI, presided over the 6th meeting of AFDC held at Manak Bhavan on 20 March 1961.

The Council appointed Dr. M. S. Randhawa, Adviser (N.R.), Planning

Commission, and Dr. V. Subrahmanyan, Director, Central Food Technological Research Institute, as the Chairman and Vice-Chairman respectively, of AFDC for a period of three years. Also, the Council placed on record the valuable services rendered by Dr. V. N. Patwardhan, who had resigned from the vice-chairmanship as he had accepted an assignment abroad.

The Council decided to set up the following three Sectional Committees and the names of their Chairmen are indicated against each:

- a) AFDC 24 — Transport of Live Animals Sectional Committee — Representative of the Ministry of Health;
- b) AFDC 25 — Soft Drinks Sectional Committee — Dr. V. Subrahmanyan;
- c) AFDC 26 — Cereals and Pulses Sectional Committee — Director General of Food, Ministry of Food & Agriculture;

The Council approved of the following as the Chairmen of the Committees noted against each:

- a) Shri A. S. Cheema, Joint Director of Agriculture (Extension) — AFDC 3 Central Region Storage and Marketing Structures Sectional Committee;
- b) Dr. S. V. Pingale, Director of Storage and Inspection, Ministry of Food & Agriculture — AFDC 7 Agricultural and Food Storage Practices;

The Council approved of the following new subjects for formulation of Indian Standards and allotted it to the relevant Sectional Committees under AFDC:

- a) Henna (Powder and Leaves),
- b) Desiccated Coconut,
- c) Chicory Powder,
- d) Papain, and
- e) Oil Expellers and Other Allied Machinery.

Besides, the Council approved 51 subjects as had been suggested by its various Sectional Committees.

Southern Region Storage and Marketing Structures

The eighth meeting of the Southern Region Storage and Marketing Structures Sectional Committee, AFDC 5, was held on 12 March 1961 at Guntur. Prior to the meeting, the Committee had visited important tobacco



The Sixth Meeting of AFDC in the ISI Conference Hall. Seated from r to l are: Shri Ramdhan Singh, Brig S. Rameshwar, Dr. D. V. Karmarkar (Secretary), Dr. Lal C. Verma, Col M. N. Kunzru, Shri Shamsher Singh, Dr. R. S. Vasudeva, Dr. Y. K. Subrahmanyam, Dr. N. N. Dastur and Shri S. K. Mirchandani

markets in Madras State and Andhra Pradesh. During these visits, the members had examined the various phases of tobacco marketing, that is, sales, drying, curing, processing, re-drying, stacking, packing, etc. It was observed during these visits that a regular open market for tobacco as such did not exist, and in this connection, the Chairman, Shri Chandulal C. Dangoria, in his opening remarks, mentioned that the growers directly went to traders, and the latter, more or less, were the people who controlled the price. The Chairman further remarked that everywhere the people felt that there must be some regulations which may help growers to bring their produce to the open markets for a competitive sale, and he suggested that necessary regulations to this effect should be enacted and they should be enforced by the State Marketing Officers.

Based on the experience gained during these visits, certain broad principles were decided by the Committee regarding the preparation of the draft Indian Standard Layout for Regulated Market Yard for Tobacco and the ISI Directorate was authorized to issue the draft standard so prepared in wide circulation for eliciting public comments.

It was suggested that Indian Standards for storage structures of potatoes, jaggery and turmeric be formulated, but the Committee felt that, before taking up these subjects, the views of the State Governments should be obtained about the need for such structures.

BUILDING DIVISION

Building Division Council

The ninth meeting of the Building Division Council, BDC, was held on 1 March 1961 under the chairmanship of Shri E. A. Nadirshah. Addressing the meeting, the Chairman briefly surveyed the work done by BDC during 1960 in which 59 standards had been published, 22 were under print, 14 had been finalized for printing, 34 had been widely circulated and 95 were under various stages of preparation.

The Council re-elected Shri E. A. Nadirshah as Chairman and Shri C. P. Malik as Vice-Chairman for the period 1 January 1961 to 31 December 1963.

The Council appointed the following as Chairmen of the Sectional Committees noted against each:

- a) Shri K. K. Nambiar, Chief Engineer, Concrete Association of India — BDC 2 Cement and Concrete;
- b) Shri M. S. Bhatia, Additional Chief Engineer, CPWD — BDC 8 Building Finishes;
- c) Shri V. Venkataramayya, Director (Civil Engineering) Railway Board — BDC 14 Bridges;
- d) Shri Sarup Singh, Member, Building Projects Team, Planning Commission — BDC 25 Building Bye-laws;
- e) Shri R. S. Bhalla, Deputy Materials and Plant Officer, Ministry of Transport and Communications (Road Wing) — BDC 28 Construction Plant and Machinery; and

- f) Shri D. C. Sharma, Chief Engineer (B & R), Government of Punjab — BDC 2 Bitumen and Tar Products.

The Council also accorded its approval to the re-organization of work under Building Stones and Bricks Sectional Committee, BDC 6, and set up two separate Sectional Committees: BDC 6 Stones and BDC 30 Clay Products for Buildings. Shri Rabinder Singh, Joint Director, National Buildings Organization and Shri B. D. Mathur, Additional Chief Engineer, Government of Rajasthan were appointed as Chairmen of BDC 30 and BDC 6 respectively.

The Council co-opted Shri K. F. Antia and also co-opted, for a further period of 3 years ending 31 December 1963, both the Hindustan Construction Co. Ltd., Bombay, and M/s Braithwaite, Burn & Jessop Construction Co. Ltd., Calcutta.

Doors, Windows and Building Furniture

The Doors, Windows and Building Furniture Sectional Committee, BDC 11, held its sixth meeting on 18 and 19 January 1961 at Calcutta under the chairmanship of Shri D. P. Asar.

The Committee examined the draft Indian Standard specifications for the following in the light of comments received and finalized them for adoption and printing:

- a) Venetian Blinds for Windows;
- b) Timber Flush Door Shutters;
- c) Aluminium Doors, Windows and Ventilators;
- d) Aluminium Industrial Windows; and
- e) Steel Shelving Racks.

Draft Amendments to IS:1003-1957 Timber Panelled and Glazed Doors and Windows, and IS:1038-1957 Steel Doors, Windows and Ventilators were also finalized for printing. Besides, the following draft Indian Standards were approved for wide circulation:

- a) Wooden Tables and Desks for General Office Purposes, and
- b) Materials for Furniture Constructed Mainly of Wood.

Library Buildings, Fittings and Furniture

The fifth meeting of the Library Buildings, Fittings and Furniture Sectional Committee, BDC 27, was held on 6 March 1961 at Manak Bhavan under the chairmanship of Dr. S. R. Ranganathan.

The Committee examined the draft Indian Standard Specification for Library Furniture and Fittings in

the light of comments received and finalized it for adoption and printing.

The Committee decided to offer two representations to the Building Committee of the University Grants Commission on BDC 27.

Concrete Reinforcement

The Joint Committee for Concrete Reinforcement, BSMDC 8, held its fourth meeting at Calcutta on 13 March 1961. In the absence of Shri C. P. Malik, Chairman, BSMDC 8, the Committee unanimously elected Shri K. F. Antia to preside over the meeting.

The Committee finalized draft specifications for the following for adoption as Indian Standards:

- a) Plain, Hard-Drawn Steel Wire for Prestressed Concrete; and
- b) Twisted Steel Bars for Concrete Reinforcement.

The Committee also approved for wide circulation the draft specification for High Tensile Steel Bars Used in Prestressed Concrete.

The following new subjects were recommended for being taken up:

- a) Spacers for Reinforcement,
- b) Binding Wire, and
- c) Bending Schedules for Reinforcement.

The following were co-opted on the committee:

- a) M/s Gannon Dunkerley and Co. Limited,
- b) M/s Sahu Cement Service, and
- c) M/s M. N. Dastur and Co. Limited.

CHEMICAL DIVISION

Chemical Division Council

The thirteenth meeting of the Chemical Division Council, CDC, of ISI was held on 23 March 1961 at Manak Bhavan under the chairmanship of Dr. G. P. Kane, Senior Industrial Advisor (Chemicals) Development Wing, Ministry of Commerce & Industry, New Delhi, who has succeeded Dr. A. Nagaraja Rao who had been the Chairman of CDC for a period of over seven years and had now been appointed as the Chairman of the Heavy Engineering Corporation Ltd., Ranchi. At the meeting many compliments were paid to the yeoman services rendered by Dr. A. Nagaraja Rao to the chemical industry in general and to the cause of standardization in particular. The Council recorded its sincere appreciation of the constructive and fruitful services rendered by Dr. Nagaraja Rao.

Referring to the progress made by the chemical industry, Dr. Kane

stated that indigenous production was protected from undue competition with a view to providing it a reasonable chance to establish itself suitably. He further pointed out that during the course of the Third Five-Year Plan it is incumbent for India to compete in the international markets by improving the quality of indigenous production. He further stressed the imperative need for the chemical industries of the country to keep themselves abreast with the progress of work of standardization through various sectional committees of CDC. This close association of the chemical industries with the work of CDC would enable them to stand on their own legs besides being able to compete with foreign producers on the basis of quality.

The useful and ever-increasing work in respect of the laboratory glassware and related apparatus accomplished so far by a subcommittee of Glassware Sectional Committee, CDC 10, under the chairmanship of Dr. Atma Ram, Director, Central Glass and Ceramic Research Institute, was much appreciated by CDC. It was consequently decided to raise the status of the subcommittee to that of a sectional committee with the title of Laboratory Glassware and Related Apparatus Sectional Committee, CDC 33, to cover laboratory glassware, thermometers, hydrometers, etc. Dr. S. R. Lele of Industrial and Engineering Apparatus Co. Ltd., Bombay, was appointed as Chairman of CDC 33. Representatives nominated by the Council on this Committee include: Central Glass and Ceramic Research Insti-

tute, National Physical Laboratory, Central Scientific Instruments Organization, National Chemical Laboratory, Development Commissioner, Small Scale Industries, Inter-University Board of India, Indian Council of Medical Research, besides representatives of manufacturers, consumers, etc.

The Council appointed Dr. S. Hussain Zaheer, Director, Regional Research Laboratory, Hyderabad, as Chairman of the Coal Carbonization Sectional Committee, CDC 23.

The Council re-constituted the Leather Sectional Committee, CDC 16, with Dr. Y. Nayudamma, Director, Central Leather Research Institute as its Chairman. With a view to making the Sectional Committee fully representative of all the major interests, representation was also given to the Development Commissioner, Small Scale Industries; Leather Export Promotion Council; Khadi & Village Industries Commission; and Hides and Skins Improvement Society.

The Council approved new proposals for formulation of Indian Standards for: (a) Silver Nitrate, (b) Lineman's Body Belts, and (c) Lineman's Body Straps. These subjects were allotted for their further processing to concerned Sectional Committees under CDC.

The Council reviewed the activities of various sectional committees now numbering 30 and recorded its appreciation of the useful work done by them. The various laboratories and organizations which had rendered much useful research and laboratory data by collaborating in the work of



The Thirteenth Meeting of CDC in Progress. Seated Third and Fourth from r are Dr. G. P. Kane, Chairman, and Shri M. B. Bhagvat, Vice-Chairman, CDC

various sectional committees of CDC was also noted with appreciation. Besides, the Council reviewed with satisfaction the progress of ISI Certification Marks Scheme along with the implementation of Indian Standards for chemical products.

Chemical Standards

The fourth meeting of the Chemical Standards Sectional Committee, CDC 1, was held on 28 February 1961 in Kanpur under the chairmanship of Dr. K. L. Moudgill, who stressed that one of the most important tasks of the Committee was to ensure that inconsistencies in the various chemical standards should be avoided and, where they existed, removed. The Committee discussed at length as to how uniformity in the terminology given in various chemical standards could be maintained. It was felt that preparation, in the form of a standard, of a glossary of general chemical terms would not be feasible. Ultimately it was decided to prepare, for use within ISI, a compilation of accepted definitions.

The Committee decided to prepare draft standards for methods of preparation of indicator solutions, determination of arsenic, determination of calcium and magnesium by the EDTA method, and determination of barium and/or sulphates by precipitation as barium sulphate.

The Committee also decided to recommend to the other interested sectional committees of ISI to prefer the volumetric method to the gravimetric method for the determination of chlorides and to use ferrous ammonium sulphate as a primary standard for preparing standard iron solutions.

Chemicals (Miscellaneous)

The Chemicals (Miscellaneous) Sectional Committee, CDC 3, at its seventeenth meeting held from 6 to 8 March 1961 at Bangalore, finalized for printing draft specifications for the following:

- a) Aluminium Powder for Explosives and Pyrotechnic Compositions;
- b) Red Phosphorus; and
- c) Sodium Hydrosulphite, Technical.

The draft Amendment No. 1 to IS: 1092-1957 China Clay for Textile and Paper Industries was considered and finalized for printing. While considering the comments received on the draft Amendment No. 2 to IS: 574-1954 Glassy Sodium Metaphosphate, Technical, the Commit-

tee decided that since stock of copies of IS: 574-1954 was already exhausted, it may be reprinted as a revised standard. As the technical changes proposed to be made were covered by the draft amendment, which was finalized, no further circulation of the draft Revision was considered necessary.

The Committee also approved for wide circulation the draft specifications for the following:

- a) Plaster of Paris;
- b) Mineral Gypsum, Surgical Plaster Grade;
- c) Potassium Nitrate for Explosives and Pyrotechnic Compositions (Revision of IS: 301-1951); and
- d) Activated Carbon for Respirators.

The Committee recommended that the following new subjects be approved for formulation of Indian Standards:

- a) Barium Nitrate,
- b) Strontium Nitrate,
- c) Ammonium Nitrate,
- d) Silica Gel,
- e) Activated Alumina,
- f) Mineral Wool for Thermal Insulation,
- g) Mineral Chromite,
- h) Mineral Bauxite,
- j) Lime Stone,
- k) Sodium Sulphoxylate Formaldehyde,
- m) Zinc Stearate for Cosmetic Industry, and
- n) Argon.

Items (a) to (c) will be for explosives and pyrotechnic compositions; (d) and (e) are used as desiccants and adsorbants; and (f) to (h) are for chemical and allied industries.

Production on commercial scale of all the items except sodium sulphoxylate formaldehyde is already well established in India, and its production will also be established in the very near future.

Paints and Allied Products

The Paints and Allied Products Sectional Committee, CDC 8, at its fourteenth meeting at Calcutta on 28 February 1961 finalized for publication draft Revision of IS: 101-1950 Methods of Test for Ready Mixed Paints and Enamels.

An important draft specification for Letterpress Ink, Black, General Purposes, the first draft specification to be processed by the Printing Ink Subcommittee, was approved for wide circulation. Besides, draft Revisions of the thirteen standard specifications mentioned below, as recommended by the Panel for

Revision of Paint Standards, were also approved for wide circulation:

- IS: 33-1950 Methods of Test for Dry Pigments and Extenders for Paints;
- IS: 51-1950 Zinc Chrome for Paints;
- IS: 117-1950 Ready Mixed Paint, Brushing, Finishing, Interior, Oil Gloss, for General Purposes;
- IS: 129-1950 Ready Mixed Paint, Brushing, Finishing, Interior, Oil Gloss, for General Purposes;
- IS: 132-1950 Ready Mixed Paint, Spraying, Exterior, Oil Gloss, for General Purposes;
- IS: 133-1950 Enamel, Brushing, Interior (1) Undercoating (2) Finishing, Colour as Required;
- IS: 137-1950 Ready Mixed Paint, Brushing, Matt Finish, Interior, to Indian Standard Colours;
- IS: 158-1950 Ready Mixed Paint, Brushing, Bituminous, Black, Lead Free Acid, Alkali, Water & Heat Resisting;
- IS: 290-1953 Coal Tar Black Paint;
- IS: 386-1953 Liquid Driers, Concentrated, for Paints;
- IS: 424-1953 Plastic Asphalt;
- IS: 427-1953 Distemper, Dry, Colour as Required; and
- IS: 520-1954 Enamel, Brushing, Exterior, Type I (Synthetic) (1) Undercoating (2) Finishing, Colour as Required.

A highlight of the work of the Committee was its far-reaching decision taken after detailed discussions on the problem of comparative rating of characteristics with approved sample in Indian Standards on paints and allied materials. The Committee recognized that material specifications be made least dependent on the approved sample. However, approved sample constitutes an indispensable part of a paint specification for quality control for those characteristics which cannot be evaluated in numerical units. Where no approved sample is available, the recorded standard of the particular characteristics of a number of samples of the same material, to the same specification shall serve as guide.

Alkalis and Chlorine

Draft specifications for: (a) Salt for Butter and Cheese Industry, and (b) Free Flowing Table Salt, were finalized for adoption as Indian Standards and publication by the Alkalis and Chlorine Sectional Committee, CDC 25, at its third meeting held at Mithapur on 1 February

1961 under the chairmanship of Shri M. B. Bhagvat.

The Committee also approved for wide circulation the following draft standards:

- a) Bromine, Technical.
- b) Caustic Soda, Technical (Revision of IS: 252-1950).
- c) Magnesium Chloride. The technical grade of the material has been covered by IS: 254-1950 which is now being revised to cover the pure grade (suitable for pharmaceutical industry) also.
- d) Sodium Bicarbonate. Two standards had been laid down — IS: 491-1954 Sodium Bicarbonate, Pure and Analytical Reagent Grade; and IS: 492-1954 Sodium Bicarbonate Refined. It was decided to revise IS: 492-1954 and along with revision, to amalgamate these two standards.
- e) Common Salt for Hide Curing and Fish Curing. Two standards, IS: 593-1954 and IS: 594-1954, had been published earlier to cover, respectively, the hide curing and the fish curing common salt. It was decided to upgrade both the standards and to merge them during the revision.

Metal Containers

Mr. R. Lawford, Director and Chief Engineer, Metal Box Company of India Ltd., presided over the sixth meeting of the Metal Containers Sectional Committee, CDC 28, which was held on 19 and 20 January 1961 in the Committee Room of the ISI Branch Office, Bombay. The following draft Indian Standards were finalized for adoption as Indian Standards:

- a) Drums large, Fixed Ends;
- b) Screwed Closures for Drums;
- c) Crown Corks;
- d) Square Tins for General Purposes; and
- e) Round Tins for General Purposes.

In addition, draft amendments to IS: 916-1958, IS: 1407-1959 and IS: 1413-1959 were also finalized for printing.

It was decided that draft standard for specifications (a) Closures for Drums and Kegs, (b) Collapsible Tubes, and (c) Butter Tins may be issued into wide circulation.

The title of CDC 28: 5 was modified to Aluminium Seamless Containers Subcommittee and its scope defined accordingly. A range of seamless aluminium containers to meet the

needs of the essential oil industry and also those of the packers of certain poisonous chemicals will be evolved by this subcommittee under the Convener'ship of Shri B. Sreekantiah of Government Sandalwood Oil Factory, Mysore.

The title of the Panel CDC 28: P1 was also changed to Panel for Containers for Poisonous Chemicals and Insecticides and Shri S. D. Bhasin of Alkali and Chemical Corporation Ltd., Rishra, was nominated as its convener. This panel has been entrusted with the task of examining the standards for metal containers for use for packing poisonous chemicals of the type listed by the Kerala and Madras Food Poisoning Enquiry Commission.

Shri A. R. A. Krishnan of the Chief Inspectorate of General Stores, (Ministry of Defence) Kanpur, was appointed Convener of the Drums and Kegs Subcommittee, CDC 28: 2 and the Closures for Drums Panel, CDC 28: 2: 1.

ELECTROTECHNICAL DIVISION

Electrotechnical Division Council

Addressing the fifth meeting of the Electrotechnical Division Council, on 6 March 1961, Shri M. Hayath, Chairman, ETDC, briefly surveyed the work done by the Council during the last year. He made a mention about the significance to India of the meetings of the International Electrotechnical Commission which were held in New Delhi in November 1960. He made special mention of the need for complete implementation of the Indian Standards by all concerned — the State Governments in particular, and hoped that the statutory representation given recently to the various State Governments on the Council would help in this direction.

The Council accorded its approval to the re-organization by SWCET (see below) of the committees dealing with electronics and telecommunication, and set up an Advisory Committee under the chairmanship of Shri B. V. Baliga, Vice-Chairman, ETDC, to co-ordinate the work of the four new sectional committees dealing with this subject and also to advise the Division Council on matters connected with electronics and telecommunication.

The Council co-opted for a further period of 3 years ending 31 December 1963, both the Indian Institute of Science, Bangalore; and the Engineering Association of India, Calcutta. They also reviewed the mem-

bership of the Standing Working Committee and decided to appoint two new members, namely Shri K. C. Grover of Central Public Works Department, and Shri M. Y. Koli of Madhya Pradesh Electricity Board.

The Council learnt with satisfaction about the assurances from the several State Electricity Boards and Undertakings about complete implementation of IS: 1180-1958 Specification for Outdoor Type Three-Phase Distribution Transformers up to and including 100 kVA 11 kV.

Standing Working Committee

An important recommendation made to ETDC by the Standing Working Committee, Electrotechnical (SWCET) at its fourth meeting held on 6 March 1961 at Manak Bhavan, was the re-organization of the Committees dealing with electronics and telecommunication. To cope with the ever-increasing work in this field both at the national and international levels, and also to line up the structure of the National Committee with that of the IEC Committees, the SWCET recommended that four new Sectional Committees dealing with the following be set up in place of the existing Radio Equipment Sectional Committee, ETDC 8:

- a) Electronic Equipment, ETDC 24;
- b) Electronic Components, ETDC 25;
- c) Environmental Procedures, ETDC 26; and
- d) Acoustics, ETDC 27.

The Committee also recommended to ETDC for the formation of an Advisory Committee on Electronics and Telecommunication to co-ordinate the work of the newly set up Sectional Committees and also to advise ETDC on such matters.

The Committee accepted the recommendation of the Electrical Appliances and Accessories Sectional Committee, ETDC 7, and decided to raise the status of the Electrical Lamps and Lamp Accessories Subcommittee into an independent Sectional Committee, ETDC 23, with the title Electrical Lamps and Accessories.

The Committee appointed Shri S. S. Kumar, Member, CWPC, as the Chairman of the Flame-Proof Electrical Equipment Sectional Committee, ETDC 22, in place of Dr. J. W. Whitaker.

Other routine matters attended to by the SWCET at its meeting were the review of the composition of the

various Sectional Committees which were constituted about three years back. The Committee also approved taking up work on a number of new subjects (see p. 208).

Radio Equipment

The thirteenth meeting of the Radio Equipment Sectional Committee was held at Manak Bhavan on 4 February 1961 with Shri B. V. Baliga in the Chair. The Sectional Committee meeting was preceded by meetings on the previous four days of: (a) The Capacitors and Resistors Subcommittee, ETDC 8:1; (b) The Tropic Proofing Subcommittee, ETDC 8:4; and (c) The Co-ordinating Subcommittee, ETDC 8:5.

The Committee approved the finalization of the following two documents for printing:

- a) Specification for Ceramic Dielectric Capacitors, Type I; and
- b) Basic Testing Procedures for Electronic Components (Revision of IS: 589-1954).

A draft on Methods of Measurement on and Requirements of Amplitude Modulated High Frequency Signal Generators was considered for approval for wide circulation, but it was referred back to the Electronic Measuring Instruments Subcommittee for re-consideration specially regarding the limitations of its scope and other requirements.

Secondary Cells and Batteries

The fourth meeting of the Secondary Cells and Batteries Sectional Committee, ETDC 11, was held at Manak Bhavan on 18 January 1961 and was presided over by its Chairman, Shri G. D. Joglekar. This meeting was preceded by the meetings of the Aircraft Batteries Subcommittee and Motor Vehicles Batteries Subcommittee on 16 and 17 January 1961, respectively.

The Committee discussed and approved the printing of the Specification for Lead-Acid Storage Batteries for Aircraft (Aerobatic and Non-aerobatic) accepting the recommendations of the Subcommittee that the design details earlier included in the draft should be removed and the specification should essentially cover tests, performance requirements, overall dimensions, maximum weight and only such other critical features. Proposals for amendment to IS:395-1959 Lead-Acid Storage Batteries (Light Duty) Motor Vehicles, were also discussed and the Committee approved the issue of amendments to a

number of clauses which were mostly to remove ambiguities in the interpretation of the specification requirements.

While discussing these amendments it was brought out that sufficient quantities of battery grade sulphuric acid complying with IS: 266-1950 were not available in all parts of the country and this resulted in difficulties for consumers as well as others. The Sectional Committee recommended that this situation should be brought to the notice of the concerned Development Councils of the Ministry of Commerce & Industry so that effective steps could be taken to rectify the position.

The Committee also considered draft Revisions of IS:985-1958 Lead-Acid Storage Batteries (Heavy Duty) for Motor Vehicles and IS:1145-1957 Specification for Motor Cycle Batteries. These were postponed for finalization at the next meeting after incorporation of amendments similar to the ones approved for IS:395-1959.

A panel for examining the technical aspects of the proposed specification for Miners Cap Lamp Batteries was set up with the following membership:

- a) Dr. H. V. K. Udupa (Convener);
- b) Mr. A. G. Jolly (Chloride & Exide Batteries);
- c) Shri B. S. Kedare (Standard Batteries); and
- d) Representative, Central Mining Research Centre, Dhanbad.

This panel was authorized to examine in detail the type of tests which should be included in the draft specification for the subject and report back to the Sectional Committee.

The Committee appointed Sq-Ldr S. B. Puranik as the new Convener of the Aircraft Batteries Subcommittee in place of Group Captain K. C. Krishnan who had expressed his inability to continue in that capacity.

Switchgear and Controlgear

Two draft specifications were finalized for adoption as Indian Standards and printing at the third meeting of the Switchgear and Controlgear Sectional Committee, ETDC 17, held at Manak Bhavan from 6 to 8 February 1961 under the chairmanship of Mr. H. C. Hardy of Associated Electrical Industries (India) Private Ltd., Calcutta. The titles of these Indian Standards will be:

- a) Outdoor Air Break Isolators and Earthing Switches for Use up to 220 kV; and

b) Motor Starters up to 650 volts. The Committee decided to give representation to the following on ETDC 17:

- a) Indian Electrical Manufacturers' Association, and
- b) Ahmedabad Electric Supply Company.

ENGINEERING DIVISION

Standing Working Committee

Four new sectional committees were decided to be set up by the Standing Working Committee, Engineering (SWCE) at its seventeenth meeting held at Manak Bhavan on 9 March 1961 and presided over by Brig R. G. Williams. The setting up of these Committees had been recommended by the Exploratory Committee on Mining and Similar Engineering Equipment, set up by SWCE at its last meeting, to examine and to recommend formulation of Indian Standards in this field for which a large number of subjects had been proposed. The titles of the 4 new Committees thus set up are given below and the names of their Chairmen are indicated against each:

- a) Coal Cutters, Coal Loaders and Conveyors—Shri A. N. Lahiri of Coal Mining Machinery Project;
- b) Chains, Sheaves, Suspension Gears and Allied Items—Representative of the Central Mining Research Station;
- c) Coal Tubs, Mine Cars and Tipplers—to be decided later; and
- d) Duty Conditions in Mines—Shri V. B. K. Murthy of National Coal Development Corporation Ltd.

With regard to Wicker and Veneer Baskets for which a new committee was proposed to be set up by the Exploratory Committee, the SWCE recommended that this subject be referred to the Building Division of ISI. Furthermore, it was decided that a Co-ordinating Committee for these 4 new Sectional Committees be set up. The Chief Inspector of Mines was named as its Chairman.

Engineering Standards

Dr. K. S. Krishnan presided over the third meeting of the Engineering Standards Sectional Committee, EDC 1, held at Manak Bhavan on 9 February 1961.

The draft Indian Standard Equivalent Metric Units for Quantities in Mechanical Engineering was considered along with the comments received on it during its wide

circulation stage. The Committee decided that after incorporating the modifications made at the meeting, the draft would be checked by Shri Prem Prakash and then it would be sent for publication as an Indian Standard.

The Committee directed the Atmospheric Conditions for Testing Subcommittee, EDC 1:1, to examine in detail the atmospheric testing conditions that had to be specified in Indian Standards. For the Revision of IS: 196-1950 Atmospheric Conditions for Testing, the Committee decided that views of the various committees of ISI, which will be affected by this Revision, should be obtained through their respective Divisions.

With regard to the Revision of IS: 1105-1957 Method for Precise Conversion of Inch and Metric Dimensions to Ensure Interchangeability, on which a number of comments have been received, the Committee decided that draft Revision of the standard be prepared by Lt-Col J. P. Anthony.

Machine Tools

In the absence of Shri S. L. Kirloskar, the Chairman of the Machine Tools Sectional Committee, EDC 11, Shri L. N. Tandon presided over the fourth meeting of EDC 11 held on 14 and 15 March 1961 at Bangalore. Shri Tandon welcomed the members of the Czechoslovakian team of machine tool experts who had been specially invited to this meeting for an exchange of views.

The Committee finalized for printing the draft Indian Standard Test Chart for Lathes up to 800 mm Swing Over the Bed, and emphasized the urgency of publishing an Indian Standard Test Code for Machine Tools on the basis of ISO work as it was a very necessary adjunct for test charts for lathes and other machine tools.

The Committee also approved for wide circulation draft specifications for: (a) Coolant Pumps for Machine Tools, (b) T Slots, (c) T Bolts, and (d) T-Nuts. In addition, the draft Indian Standard Test Charts for Radial Drilling Machines was approved for wide circulation.

The following items were recommended for being taken up on the future programme of work:

- a) Machine Tool Test Code,
- b) Lathe Tool Posts,
- c) Lathe Centres,
- d) 7/24 Tapers for Tool Shanks,
- e) Direction of Operation of Controls,

- f) Symbolization of Indicators Appearing on Machine Plates, and
- g) Two Types of Spindle Noses for Lathes.

Small Tools

Three draft standards were finalized for printing and another three approved for wide circulation at the fourth meeting of the Small Tools Sectional Committee, EDC 45, held at Calcutta from 8 to 10 March 1961 under the chairmanship of Mr. O. D. Friedman. The titles of three draft Indian Standards finalized are as follows:

- a) Specification for Screwing Taps,
- b) Specification for Thread Cutting Dies, and
- c) Dimensions for Driving Squares.

Drafts approved for wide circulation related to specifications for the following:

- a) Milling Arbors,
- b) Collars and Spacers for Milling Arbors, and
- c) Single Point Turning Tools.

The Committee decided that a colour code for cutting tools, and dimensions for self-release, 7/24 taper should be prepared by the ISI Directorate on the basis of the relevant ISO draft recommendation available. In addition, the following two new items were recommended for being taken up on the programme of work:

- a) Accessories for Taps and Dies, and
- b) Frames for Hacksaw Blades.

STRUCTURAL AND METALS DIVISION

Structural and Metals Division Council

The fifth meeting of the Structural and Metals Division Council, SMDC, was held on 24 March 1961 at Manak Bhavan under the chairmanship of Shri J. J. Ghandy, Director-in-Charge, Tata Iron and Steel Co. Ltd.

Welcoming the members to the meeting, Shri Ghandy mentioned that as a result of rapid industrialization programme undertaken by the Government of India through Five-Year Plans, the work of SMDC had assumed greater national importance, and the demand for standards in the structural and metallurgical fields had continued to increase year after year. The Chairman highly commended the progress made by SMDC during the last four years and stated that it was gratifying to note that the number of standards printed including revisions was 212 on 31 December 1960, as compared to 85 standards in October 1956 when this Division was formed. Reviewing the progress made during the last 12 months, the Chairman mentioned that 42 new standards had been formulated, of which 11 had been published and the remaining were in the course of publication. In addition, 42 standards had been finalized and 50 draft standards circulated widely for eliciting comments. Another 150 draft standards were under preparation out of which 21 preliminary drafts had already been approved for wide circulation.



Shri J. J. Ghandy, Chairman, SMDC, Addressing Its Fifth Meeting. On Extreme r is Dr. B. R. Nijhawan, Vice-Chairman, SMDC

Highlighting the achievements of this Division during the year under review, the Chairman particularly made a mention about standardization and rationalization of carbon and alloy steels which would go a long way in establishing the alloy steels production industry in India on a sound footing. He added that work done in India on the preparation of Handbooks for Structural Engineers and the formulation of dimensional standards for steel sheets, plates, strips, bars and bulb-plates had received recognition from foreign countries. Concluding, Shri Ghandy mentioned that broad agreement had been reached that steel products manufactured by major steel producers in this country would be covered under the ISI Certification Mark wherever Indian Standards exist. This, he pointed out, was an effective step forward in the popularization of the ISI Certification Mark and the recognition of the value of work done by ISI.

The Council noted that representation on SMDC had now been given to all the States of India and felt that this would result in greater implementation of Indian Standards. While discussing the ways and means for implementation, it was generally felt that its lack in private sector was due to the ignorance of many people about the existence of Indian Standards. To overcome this handicap, the Council requested the representatives of various Associations represented on SMDC to stress the need for implementation of national standards at the annual meetings of their Associations. They were further requested to include an item on the agenda on implementation of Indian Standards while organizing the annual meetings of their Associations.

A suggestion was made at the meeting that ISI should approach the Railway Board and try to secure their agreement for formulation of Indian Standards for rails and similar other materials used exclusively by the Railways. It was, however, clarified that Indian Standards for railway materials would necessarily have to be guided by the requirements of Indian Railways.

It was pointed out that with the expansion of steel industry, a large quantity of steel is now being produced in this country which does not come up to any specification. The Council, therefore, recommended that in order to avoid use of such steel in important locations, the Steel Sectional Committee, SMDC 5, should consider laying down a specification for the majority of material

falling outside the limits specified in IS : 226-1958 Specification for Structural Steel.

Alloy Steels and Special Steels

The fourth meeting of the Alloy Steels and Special Steels Sectional Committee, SMDC 19, was held at Calcutta on 6 February 1961. Shri K. N. P. Rao of the Tata Iron and Steel Co. Ltd., Jamshedpur was in the chair.

The Committee finalized for publication the draft Indian Standard Schedule for Carbon and Alloy Tool Steels. The following draft Indian Standard Schedules for Wrought Steels for General Engineering Purposes were also approved for printing:

Schedule I — Steel Specified by Tensile Properties but Without Detailed Chemical Composition;

Schedule II — Carbon Steels with Specified Chemical Composition and Related Mechanical Properties;

Schedule IIA — Carbon Steel Wires with Related Mechanical Properties;

Schedule III — Carbon and Carbon-Manganese Free Cutting and Semi-Free Cutting Steels with Specified Chemical Composition and Related Mechanical Properties;

Schedule IV — Alloy Steels (Other than Stainless and Heat Resisting Steels) with specified Chemical Composition and Related Mechanical Properties;

Schedule V — High Alloy Steels, Stainless and Heat Resisting Steels, with Specified Chemical Composition and Related Mechanical Properties; and

Schedule VI — Carbon and Alloy Tool Steels.

The following new subjects were decided to be taken up by the Committee:

a) Comparison of Indian and Overseas Standards for Wrought Steels, and

b) Commentary on Indian Standard Schedules for Wrought Steels.

The Committee decided to take over the work of Ferrous Metals for Automobiles Subcommittee, EDC 38:2, and designated it as Subcommittee, SMDC 19:2, with Shri T. V. N. Kidao as its Convener.

TEXTILE DIVISION

Textile Standards

The twentieth meeting of the Textile Standards Sectional Com-

mittee, TDC 1, was held in joint session with the eleventh meeting of the Textile Standards Subcommittee for Physical Methods of Tests for Wool, TDC 1:2, on 2 February 1961 at Bangalore under the chairmanship of Shri Srinagabhushana. The Committee finalized for publication the draft Indian Standard Guide for Marking Textile Materials Made of Wool.

The Textile Standards Sectional Committee, TDC 1, at its twenty-first meeting held on 3 and 4 February 1961 at Bangalore decided to appoint Dr. M. K. Sen, subject to the concurrence of the Indian Jute Mills Association Research Institute, Calcutta, as a member of the working Group on Quality of Bast Fibres newly set up to work under ISO/TC 38/SC 6 Fibre Testing. The Committee also considered, among other things, draft Indian Standard Method of Determination of Strength of Cotton Fibres at Zero Gauge Length: Flat Bundle Method and referred it back to TDC 1:1.

Cotton, Yarn and Cloth

Shri Trilokinath presided over the fourteenth meeting of the Cotton, Yarn and Cloth Sectional Committee, TDC 2, held at Bombay on 7 March 1961. The Committee finalized the following draft Indian Standard Specifications for publication:

- a) Cotton Embroidery Thread, Bleached or Dyed;
- b) Cotton Lining Cloth (Warp Faced Satin); and
- c) Cotton Tape Newar, Grey or Dyed.

With regard to the new subject of Cotton Silk Italian proposed by the Director of Industries, Punjab, TDC 2, decided that this be allotted to a committee dealing with artificial silk fabrics since this fabric was woven with artificial silk in the warp and cotton in the weft.

Textile Chemistry

The twenty-seventh and twenty-eighth meetings of the Textile Chemistry Sectional Committee, TDC 5, were held on 19 and 20 January 1961 respectively at Bombay. The twenty eighth meeting was held in joint session with the Subcommittee for Biological Test Methods, TDC 5:10. Both the meetings were presided over by Dr. P. C. Mehta.

The Committee finalized for publication the following three draft Indian Standards:

- a) Determination of pH Value of Aqueous Extracts of Textile Materials;

- b) Determination of Colour Fastness of Textile Materials to Formaldehyde; and
- c) Detection and Estimation of Damage in Cotton Yarns and Cordages due to Micro-Organisms.

The Committee also approved for general circulation the following draft Indian Standards:

- a) Detection and Estimation of Damage in Jute Fabrics due to Micro-Organisms;
- b) Detection and Estimation of Damage in Jute Yarns and Cordages due to Micro-Organisms; and
- c) Estimation of Residual Starch in Cotton Fabrics.

The new subject taken up for standardization relates to Detection and Estimation of Damage in Manila Cordages.

Spindle Tapes and Tubular Banding

The fifth meeting of the Spindle Tapes and Tubular Banding Sectional Committee, TDC 25, was held on 13 March 1961 at Calcutta under the chairmanship of Shri B. C. Munshaw.

The Committee set up two Sub-committees for the following:

- a) Spindle Tapes for Jute Textile Industry, TDC 25:1; and

- b) Spindle Tapes for Woollen Textile Industry, TDC 25:2.

The Committee approved the draft Indian Standard Specification for Spindle Tapes Used in the Jute Textile Industry for general circulation

BRANCH OFFICE

Madras

The sixth meeting of the Madras Branch Office Advisory Committee was held at Madras on 30 March 1961 under the chairmanship of Shri D. C. Kothari who, in his presidential address, urged that the purchasing wings of both the public and private sectors should insist upon ISI Certified goods as a protection against sub-standard goods. The Chairman also suggested that the meetings of the Advisory Committee should be held at least once in three months at different centres, preferably principal cities, such as, Bangalore, Hyderabad, Madras, Mysore, Trivandrum, etc, since this would help to have a forum to exchange the ideas of members and to review progress of work of Madras Branch Office and to advise about its further activities. In this regard the Committee agreed with the Chairman and further suggested that arrangements may also be made in future for industrial visits at the places of the meetings;

particularly, visits to the factories of the licensees of the ISI Certification Marks should be arranged.

The Committee noted the present position of the membership of ISI in the southern region and strongly felt that to achieve partly the target figure of 2 000 from this region, it became necessary on the part of ISI to expand its publicity campaign. Some of the suggestions made by the Committee are as follows:

- a) Meetings and conferences with government officials and industry at principal cities should be arranged;
- b) Lectures at polytechnics and engineering colleges should be given;
- c) Documentary films should be screened;
- d) Documentary films in regional languages should be prepared periodically changing the ideas and methods of presentation and they should form a part of the Indian News Review of the Ministry of Information and Broadcasting.
- e) Interesting articles depicting activities and services that the Institution could provide to the industry and other people, should appear in leading magazines and newspapers, in English as well as in the regional languages.

MARKING FEE OF PHENOL-FORMALDEHYDE MOULDING POWDER

The marking fee of phenol-formaldehyde moulding powder covered by IS: 1300-1959 Specification for Phenol-Formaldehyde Moulding Powder (for General Purpose Mouldings) was announced in the last issue of this Bulletin (see p. 131) as Rs 5-00 per unit for the first 300 units with a minimum of Rs 1 500-00 for production during a calendar year. For all production above 300 units, the marking fee has been fixed at Rs 3-00 per unit.

1961 K. L. MOUDGILL PRIZE

The next award of the K. L. Moudgill prize of Rs 500-00 will be made at the forthcoming Indian Standards Convention scheduled to be held at Kanpur from 25-31 December 1961. It will be recalled that this prize was instituted in 1958 by ISI in commemoration of the valuable services rendered by Dr. K. L. Moudgill to the Institution, and is given every year in recognition of the contribution made towards the advancement of the objectives of ISI. Earlier recipients of the award are: Dr. Lal C. Verma, Lala Shri Ram and Shri G. D. Joglekar.

The contributions that may be considered for the purpose of selecting the prize winner by the Awards Committee, appointed by the Executive Committee, are:

- a) Preparation of an original draft Indian Standard of basic importance to Indian economy, which represents an original piece of work involving breaking of new and difficult ground;
- b) An original piece of research work, investigation or survey comprising basic data of importance, which may be considered essential for the formulation of a new Indian Standard or standards of significant importance to Indian industry and/or commerce; and
- c) Any concrete idea proposed or a specific service rendered which significantly advances the cause of standardization in the country, nationally or internationally.

NEW INDIAN STANDARDS

Indian Standards recently published are briefly described here.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Food Grain Storage in the Central Region

It is conservatively estimated that India loses, at present, about 5 per cent of its total production of food grains during handling, transport and storage. These losses can definitely be minimized to a very large extent if food grains are stored in structures which eliminate, as far as practicable, all possible means for the enemies of stored food grains to have access to them and also if suitable measures are taken during handling and transport.

The Indian Standard Code of Practice for Construction of Food Grain Storage Structures Suitable for Trade and Government Purposes for the *Central Region* (IS: 605-1960) belongs to a series of codes of practice being prepared by ISI for:

- the construction of food grain storage structure,
- the improvement of existing structures,
- storage of food grains and their protection during storage, and
- handling of food grains during transit, etc.

The *Central Region* comprises the areas having geographical and soil conditions as are met with in the hot and dry plains of the States of Uttar Pradesh, Madhya Pradesh, Punjab, Rajasthan, Maharashtra, Gujarat and Delhi. The annual rainfall in this region varies from 25 to 150 cm (or 10 to 60 in.) and the temperature ranges during summer from 30° to 50°C (or 90° to 120°F) and in winter from 5° to 15°C (or 40° to 60°F). The main types of foundation soils met within this region are black clayey or loamy, alluvial or sandy. All such geographical and soil conditions have been taken into account in the formulation of IS: 605-1960.

Cuprous Oxide, Technical

The Indian Standard Specification for Cuprous Oxide, Technical (Fungicidal Grade) (IS: 1682-1960) prescribes the requirements and the methods of test for technical cuprous oxide used in the formulation of fungicides for agricultural and horticultural purposes.

This standard belongs to a series of Indian Standards on pesticides and their formulations. Other standards in this series cover BHC, DDT, dieldrin, aldrin, endrin, copper oxychloride and their formulations; lime sulphur solution; pyrethrum extracts; nicotine sulphate solution; zinc phosphide; 2,4-D-Sodium; BHC smoke generators; fumigants, like ethylene dichloride carbon tetrachloride mixture, ethylene dibromide, methyl bromide; and common names for pesticides.

Sugar for Food Preservation

As the preserved foods are exposed to high tropical temperature, the presence of thermophilic spores constitutes a positive spoilage danger. Sugar used in the food preservation industry, furnishes a potential source of these spores and it, therefore, becomes essential that the sugar for use in the preserved foods be 'microbiologically clean'. The Indian Standard Specification for Sugar Used in Food Preservation Industry (IS: 1679-1960) prescribes the microbiological limits and other requirements for sugar for use in food preservation industry so that this industry gets sugar of the desired quality.

Lozenges

Lozenges are confections mainly made out of pulverized sugar or icing sugar with certain binding materials and lubricants with the addition of suitable flavours and colours. Powdered spices or extract of spices are also added in the preparation of some varieties of lozenges. These confections are produced as cut goods from a sheet of tough and air dried or they might be compressed in tablet machines by compressing the suitably modified raw materials under high pressure.

The Indian Standard Specification for Lozenges (IS: 1668-1960) prescribes requirements and methods of test for the material.

Infant Foods

The infant foods used in this country have so far been imported. Efforts are now being made to manufacture them in the country and it is

felt that the stage has arrived when Indian Standards should be formulated so that manufacturers can base their production on these standards. Consequently, the following two Indian Standard Specifications have been issued:

IS: 1656-1960 Processed Cereal Infant Foods, and

IS: 1657-1960 Special Infant Foods.

The processed cereal infant foods represent the child's first solid food supplement given after three months of age. They are obtained from pre-cooked cereals to which are added milk solids, different carbohydrates; sucrose, dextrose and dextrans, maltose and lactose; salts like phosphates and citrates and of iron and calcium; and synthetic vitamins and vitamin concentrates of vitamins A, B group, C and D.

Some of the special infant foods are made for general feeding of infants but they are also made for feeding infants in special cases, such as intestinal disorders, fat intolerance, allergy, etc. The composition of each type of food may vary and, therefore, in IS: 1657-1960, no attempt has been made to lay down the requirements as regards the composition.

Mineral Mixture for Supplementing Cattle Feeds

It has become a sound animal husbandry practice to incorporate the requisite minerals in the feed ration of animals by the addition of a mixture of different substances containing minerals. It is expected that the Indian Standard Specification for Mineral Mixture for Supplementing Cattle Feeds (IS: 1664-1960) will assist in the manufacture of a mineral mixture of the required quality for supplementing cattle feeds.

Oilcakes

The following three Indian Standards, it is expected, will assist in the development of oilcake industry and the proper utilization of the materials:

IS: 1712-1960 Specification for Cottonseed Oilcake as Livestock Feed,

- IS: 1713-1960 Specification for Decorticated Groundnut Oilcake as Livestock Feed, and
 IS: 1714-1960 Methods of Sampling and Test for Oilcakes as Livestock Feed.

Cottonseed oilcake and groundnut oilcake provide a rich source of proteins and are extensively used as a protein supplement in livestock rations. The requirements of these materials are prescribed in IS: 1712-1960 and IS: 1713-1960. In IS: 1714-1960 are prescribed the methods of sampling and tests for determination of moisture, crude protein, crude fat or ether extract, crude fibre, total ash, acid insoluble ash and castor husk in oilcakes used as livestock feed.

Edible Coal Tar Colours

The following five specifications belong to a series of Indian Standards for edible coal tar colours permitted under the Prevention of Food Adulteration Rules, 1955, Ministry of Health, Government of India:

- IS: 1694-1960 Tartrazine,
 IS: 1695-1960 Sunset Yellow FCF,
 IS: 1696-1960 Amaranth,
 IS: 1697-1960 Erythrosine, and
 IS: 1698-1960 Indigo Carmine.

The specifications prescribe the requirements and the methods of test for the material covered by each.

In the preparation of these specifications, due consideration has been given to the relevant rules prescribed by the Government of India under the Prevention of Food Adulteration Act, 1954. However, these specifications are subject to the restrictions imposed under that Act, wherever applicable.

BUILDING DIVISION

Flushing Cisterns and Mixing Valves

The following two specifications deal with sanitary appliances and water fittings:

- IS: 774-1960 Flushing Cisterns for Water Closets and Urinals (Valveless Siphonic Type) (*Revised*), and
 IS: 1701-1960 Mixing Valves for Ablutionary and Domestic Purposes.

The specification for flushing cisterns is a revision of the standard published earlier in 1957. The revision became necessary in view of the comments received on the

specification from consumers and manufacturers of flushing cisterns. The present revision incorporates a number of important changes. Polyethylene has been allowed to be used for flushing pipes besides other materials, such as mild steel and lead. Galvanized steel has been recommended for bolts and nuts in place of non-ferrous metals. The chain, in the previous specification, was required to be tested for a suddenly applied load but it has now been found advisable to specify that it should be tested for a dead load. Tests for capacity of cisterns and rate of discharge have been included. The finish required for cast iron cistern has been modified to allow flexibility in the manufacture. Metric values have been incorporated in place of fps values and this has led to rationalization of the dimensions and values specified in the original specification to a certain extent.

The specification for mixing valves lays down the requirements regarding sizes, materials, manufacture, workmanship and testing. Pipe fittings used on domestic plumbing systems are being manufactured indigenously in increasing numbers and this has necessitated laying down certain minimum requirements in regard to construction, performance and workmanship with a view to guiding both the manufacturers and the consumers. Standards covering some of the fittings have already been published and this standard covers mixing valves used for mixing hot and cold water for ablutionary and domestic purposes.

Abrasive Resistance of Natural Building Stones

The Indian Standard Method for Determination of Resistance to Wear by Abrasion of Natural Building Stones (IS: 1706-1960) lays down a laboratory method for ascertaining abrasive values of stones intended for use in buildings. Natural building stones used in steps, floorings and pavements of buildings are subject to heavy wear and friction. Their durability under such circumstances can be ensured only when they have adequate hardness or abrasive resistance.

This standard belongs to a series of Indian Standards on testing of natural building stones. Six standards have already been published in the series which cover the determination of compressive, transverse and shear strength, specific gravity and porosity, petrographical

examination, water absorption, weathering, and durability of these stones.

Cement-Lime Plaster Finishes on Walls and Ceilings

Both cement plaster and cement plaster gauged with lime are widely used in this country for internal finishing of walls and ceilings of buildings. Practice with regard to the preparation and application of materials and the finishing of the plaster varies considerably from State to State and from department to department. The object of IS: 1661-1960 Code of Practice for Cement and Cement-Lime Plaster Finishes on Walls and Ceilings is to lay down a code of practice generally suitable to Indian conditions, and striking a workable compromise between theoretical requirements and existing practices.

This Indian Standard covers cement and cement-lime plaster finishes to walls, columns, ceilings and similar surfaces on backgrounds normally met with, such as brick, stone or concrete (plain or reinforced). Lime and mud plasters are not covered by this code. Also, special plasters, such as hydraulic or acoustic plasters have been excluded.

Fire Safety of Buildings

The Indian Standard Code of Practice for Fire Safety of Buildings (General): Exposure Hazard (IS: 1643-1960) belongs to a series of fire safety codes being formulated by ISI with a view to providing reliable and adequate guidance for fire prevention, fire fighting, and fire grading of buildings.

Fire safety of buildings technically means fire resistance of buildings in terms of hours when subjected to a fire of known intensity. The term 'exposure hazard' expresses the danger or risk of spread of fire through the open air from a building on fire to another building or buildings situated in the vicinity, or from any materials outside the building, or from one section or compartment or floor of a building to another of the same building by external means only.

The construction and spacing of buildings with due regard to their occupancies are the major factors to be considered, which otherwise may easily lead to a serious conflagration in densely built-up areas. As such, the standard covers requirements regarding spacing of buildings to provide adequate safety against exposure hazard.

Hard-Drawn Steel Wire Fabric for Concrete Reinforcement

Steel wire fabric is being extensively used in the country as reinforcement in reinforced concrete work and there exists a great potential for its further development and use.

The Indian Standard Specification for Hard-Drawn Steel Wire Fabric for Concrete Reinforcement (IS: 1566-1960) covers the requirements and the methods of test for steel wire fabric consisting of hard-drawn steel wire with cross wires electrically welded to them. The requirements covered are with regard to material, manufacture, dimensions, sizes of sheets or rolls, weight, tolerances, mechanical properties, tests, and marking and delivery.

CHEMICAL DIVISION**Pigments and Fillers for Rubber Industry**

Rubber manufacturers, since a long time, have been experiencing difficulty in procuring suitable quality of raw material for want of national standards. The purpose of the following three specifications is to facilitate the supply of a defined quality of material to the rubber industry:

IS: 1683-1960 Barytes for Rubber Industry,

IS: 1684-1960 Natural Red Oxides of Iron for Rubber Industry, and

IS: 1685-1960 Whiting for Rubber Industry.

These standards prescribe the requirements and methods of sampling and test for the material covered by each. Natural red oxide of iron is widely used in the rubber industry as a pigment while barytes and whiting are used as fillers.

Testing of Paper and Allied Products

A number of test methods for paper and allied products had been prescribed in IS: 1060 (Part I)-1956 Methods of Sampling and Test for Paper and Allied Products, Part I. These covered the more general types of tests required for paper and allied products. Tests included in the Indian Standard Methods of Sampling and Test for Paper and Allied Products, Part II [IS: 1060 (Part II)-1960] are intended for paper for special purposes. These relate to: bursting strength, wet; tensile strength, wet; bending, cupping, and exudation tests;

bleeding resistance; fastness to light; brightness; water vapour permeability; and estimations of alpha cellulose content, lead and lead compounds, chlorides (water soluble), sulphates (water soluble), fatty and/or rosin acid extractable by ether, matter soluble in ether, and benzene soluble water.

Shoe Sizes

Footwear manufacture constitutes a widespread industry in the country, both at the large scale and the cottage industry level. Lately, ample encouragement has been provided by the development of a growing export market. Realizing the potentialities of this new growth and the existing multiplicity as also bewildering variety of sizes and fittings in vogue at present all over the country, it has been felt necessary to classify the sizes and fittings which are an essential prerequisite for the manufacture of footwear in standard sizes.

Consequently, the Indian Standard Specification for Sizes and Fittings of Footwear (IS: 1638-1960) has been issued. The specification covers the sizes and fittings of footwear which are manufactured on lasts. It is hoped that this standard will assist manufacturers to fabricate footwear of non-variable size in the same size designation.

Treatment of Water for Land Boilers

The object of IS: 1680-1960 Code of Practice for Treatment of Water for Land Boilers is to lay down conditions to be aimed at in boiler feed water and boiler water to overcome the troubles experienced on the water side of boilers. While boilers operating at higher pressures are usually attended by qualified works chemists, low pressure boilers usually receive little attention. Particular attention has, therefore, been given in this standard to the needs of the operators of low pressure boilers, that is, those operating below 18 kg/cm² (or 250 lb/in.²) pressure. Specifications for boiler feeds and methods for treatment suitable for boilers working under higher pressures have also been given but it is recommended that advice of technical specialists in the treatment of water as also of the boiler makers should be obtained to determine the special form of water treatment suitable to meet the particular requirements. Whenever available, advice of these specialists may also be sought in operating low pressure boilers.

ELECTROTECHNICAL DIVISION**Enamelled High-Conductivity Annealed Round Copper Wire**

The Indian Standard Specification for Enamelled High-Conductivity Annealed Round Copper Wire (Synthetic Enamel) (IS: 1595-1960) covers the requirements of high-conductivity annealed round copper wire of sizes 0.050 to 4.000 mm in diameter, insulated with synthetic enamel and used for winding coils of instruments, electrical machinery and apparatus. The wires covered by this standard have been classified as having a 'Fine' (F), 'Medium' (M), 'Thick' (T) or 'Extra Thick' (X) covering, depending on the thickness of the insulations. This specification does not cover the requirements for wires used in the manufacture of cables for which reference may be made to the appropriate standards for cables.

Electrical Fans and Regulators

The following two revised specifications specify requirements and methods of test of capacitor and non-capacitor type AC and DC fans including the associated speed regulators:

IS: 374-1960 Electric Ceiling Fans and Regulators (*Revised*), and

IS: 555-1960 Electric Table Type Fans and Regulators (*Revised*).

These two Indian standards were first issued as tentative standards in 1951 and 1955 respectively. They have been revised to bring them in line with the existing manufacturing practices and to assist in regulating the design, manufacture and use. The main modifications introduced in these revisions are as follows:

- In view of the difficulty experienced in procuring rotating vane anemometers having an internal diameter of 76 mm (or 3 in.), diameter in the range of 70 to 100 mm for these anemometers has been specified.
- Two new type tests, namely, 'mechanical endurance test' for the regulator and 'moisture-proofness test', have been introduced.
- It has been made obligatory for fans associated with regulators to be capable of running down to 50 percent of the full speed with the rated voltage applied.

General and Safety Requirements for Light Electrical Appliances

The Indian Standard General and Safety Requirements for Light Electrical Appliances (*Revised*) (IS: 302-1960) lays down the general and safety requirements and the related tests for light electrical appliances and the associated accessories and fittings intended for use on circuits in which the operating voltage between terminals exceeds 32 volts but does not exceed 250 volts, and which are to operate at ambient temperatures from 0° to 50°C. Electronic appliances, like domestic radio receivers, are excluded from the scope of this standard.

This Indian Standard was first published in 1951. This revised edition has been based mainly on the recommendations of the Commonwealth Standards Conference, 1957. With the increased demand for light electrical appliances, the facilities at the disposal of the industry and also the special requirements of a tropical country, like India, have been taken into consideration while preparing this revision.

Steel Conduits for Electrical Wiring

The Indian Standard Specification for Steel Conduits for Electrical Wiring (IS: 1653-1960) specifies the material, dimensions, and other general requirements of screwed type steel conduits for electrical wiring. The plain or unscrewed type conduits are not recommended for wiring purposes and have, therefore, been excluded from the scope of this standard.

ENGINEERING DIVISION

Constant Speed Internal Combustion Engines

The object of IS: 1601-1960 Specification for Performance of Constant Speed Internal Combustion Engines for General Purposes is primarily to provide a referee method for evaluating the performance of such engines, the design of which has already been type tested. This standard specifies the performance requirement and tests for constant speed reciprocating internal combustion engines of the following types:

- a) Compression ignition engines,
- b) Carburettor type engines, and
- c) Gas engines.

This standard is not applicable to pressure-charged engines, engines for road or rail traction, engines for ship propulsion or marine auxiliaries, and

engines for aircraft propulsion or aircraft auxiliaries.

Black Hexagonal Bolts

The Indian Standard Specification for Black Hexagonal bolts (6 to 39 mm) with Nuts and Black Hexagonal Screws (6 to 24 mm) (IS: 1363-1960) belongs to a series of Indian Standards on threaded fasteners.

It covers requirements in respect of mechanical properties, grade, designation, leading dimensions and tests of the bolts.

Household Sewing Machines

At the instance of the Development Commissioner for Small Scale Industries, Government of India, and also on the recommendation of the Tariff Commission, ISI has now issued IS: 1610-1960 General Requirements for Sewing Machines (Household Model). The standard covers requirements for two types of household model sewing machines of cam-take-up and link-take-up classes, with round bobbin, oscillating sewing mechanism, and designed for operation by hand, foot or motor. The two types are designated as Type A with speed of 1 000 stitches per minute and Type B with speed of 800 stitches per minute.

Optical Glass

Optical glass differs from ordinary glass with respect to the extreme care and precise control exercised during its manufacture, so as to ensure perfect homogeneity, freedom from colour (except where certain oxides and elements are deliberately introduced for the manufacture of coloured glass) and faithful reproduction of the physical properties from batch to batch. As it forms the basic material from which all types of optical components for precision instruments are manufactured, the necessity to lay down a standard to guide the quality of optical glass produced for different purposes is of considerable importance both for the manufacturer and the purchaser of optical glass.

The Indian Standard Specification for Optical Glass (IS: 1400-1960) deals with the physical characteristics and properties of optical glass, the defects and faults often found in the material, the methods of test employed for their location, grading of optical glass according to the degree of permissibility of these common defects for different types

of work, and the methods of marking and packing of the material.

Bubbles

The Indian Standard Specification for Bubbles (IS: 1632-1960) covers bubbles, ground, unground and moulded or fabricated, either in cylindrical or circular form intended for use in precision surveying, inspection and general levelling purposes.

Although this specification deals, in detail, with the requirements for the precision type of bubbles, yet the general contents are applicable to the coarser bubbles as well. In the case of the latter, however, some of the requirements and tests may be relaxed or waived.

Metric Scales for General Purposes and for Drafting Machines

The following two specifications are the latest addition to the series of Indian Standards on metric scales being prepared by ISI in connection with the changeover to the metric system:

IS: 1480-1960 Metric Scales for General Purposes, and

IS: 1482-1960 Metric Scales for Use with Drafting Machines.

The first specification (IS: 1480-1960) recognizes wooden scales of denominations 10, 15, 20, 30, 50 and 100 cm, and plastic scales of denominations 10, 15, 20 and 30 cm. Wooden scales of denominations 50 and 100 cm may be designed either end-measuring or edge-measuring. When intended to be used for end-measuring, the scales may be designed either foldable or rigid, whereas when intended for use for edge-measuring, the scales shall be designed rigid only. The type of scale required should, therefore, be indicated clearly in the enquiry or order.

The second specification (IS: 1482-1960) covers the requirements for metric scales of 50 cm and 30 cm lengths with four ratios, namely, 1:1, 1:2.5, 1:5 and 1:20, for use with drafting machines. A 50-cm scale and a 30-cm scale constitute a set. The specification does not cover the design and dimensions of the device meant for fixing the scales to the drafting machines.

Spring Balances

The Indian Standard Specification for Spring Balances (IS: 1702-1960) belongs to a series of Indian Standards on commercial weighing machines, being prepared by ISI at

the instance of the Standing Metric Committee, Government of India, in connection with the introduction of metric system of weights and measures in the country. Other standards in the series cover general requirements for weighing instruments and specifications for beam scales, counter machines, platform weighing machines, weigh-bridges, crane weighing machines and steel-yards.

Cast Iron and Mild Steel Flat Pulleys

Pulleys of various types are in use for different power transmission systems. The Indian Standard Specification for Cast Iron and Mild Steel Flat Pulleys (IS:1691-1960) covers the requirements only for mild steel and cast iron flat and crowned pulleys of the very commonly used types. It does not include dynamo pulleys and other special types of pulleys.

STRUCTURAL AND METALS DIVISION

Chemical Analysis of Fireclay and Silica Refractory Materials

The Indian Standard Methods of Chemical Analysis of Fireclay and Silica Refractory Materials (IS:1527-1960) deals with the sampling and chemical analysis of fireclay and silica refractory materials. This standard originally formed a part of IS:485-1953 Methods for Sampling and Testing of Refractory Materials (*Tentative*). Since the preparation of IS:485-1953, considerable information had been collected by way of experience gained by laboratories, manufacturers and consumers who used the prescribed methods of test. It was, therefore, decided that a separate firm standard be issued after expanding the scope so as to include analysis for phosphorous pentoxide which may, sometimes, be found in fireclay refractories in an appreciable quantity.

Physical Testing of Steel

The following five Indian Standards are the latest addition to the series of Indian Standards for mechanical testing of steel:

IS:1599-1960 Method for Bend Test for Steel Products Other Than Sheet, Strip, Wire and Tube;

IS:1608-1960 Method for Tensile Testing of Steel Products Other Than Sheet, Strip, Wire and Tube;

IS:1692-1960 Method for Simple Bend Testing of Steel Sheet and Strip Less Than 3 mm Thick;

IS:1716-1960 Method for Reverse Bend Testing of Steel Wire; and

IS:1717-1960 Method for Simple Torsion Testing of Steel Wire.

All these standards are based on the relevant International Recommendations on the subject prepared by the International Organization for Standardization (ISO).

Manufacture of Zinc Alloy Pressure Die Castings

The object of the Indian Standard Code of Practice for Manufacture of Zinc Alloy Pressure Die Castings (IS:1655-1960) is to establish recognized practices in the design, production and inspection of zinc alloy pressure die castings in order to ensure that the materials used, the procedures followed, and the design of the castings provide a product that is reliable in every respect.

Pressure die casting in zinc alloy provides a means for the very rapid production of engineering and allied components and permits intricacy of design. It has, therefore, obvious advantages when a component is required in large quantities. In the particular case of engineering components, however, mechanical properties and durability are important considerations. For this reason, the

best features of design should be employed and optimum casting technique be adopted. Whatever the application, it is essential to use the zinc die casting alloy conforming to IS:713-1955.

TEXTILE DIVISION

Handloom Silk

Progress of the handloom industry depends, to a large extent, on the uniformity of quality of material that it can produce for internal consumption and for export. The following two standards, it is hoped, would be helpful in achieving uniformity of quality:

IS:1686-1960 Handloom Silk Bush Shirt Cloth, Loomstate; and

IS:1687-1960 Handloom Silk Kora (Loomstate) Cloth.

These standards prescribe constructional details and other particulars of handloom silk cloth for the purpose concerned

Hair Belting Yarn

The Indian Standard Specification for Hair Belting Yarn (IS:1721-1960) is being issued to help manufacturers of hair belting in obtaining hair belting yarn of a defined quality. This standard prescribes constructional details and other particulars of two varieties of hair belting yarn and

AMENDMENT SLIPS

Amendment slips were issued during the period 16 January to 31 March 1961 to the following Indian Standards:

NO. AND DATE OF AMENDMENT	NO. AND TITLE OF INDIAN STANDARD
No. 1 February 1961	IS:533-1954 Specification for Gum Spirit of Turpentine (Oil of Turpentine)
No. 2 November 1960	IS:692-1957 Specification for Paper Insulated Lead Sheathed Cables for Electricity Supply
No. 1 January 1961	IS:750-1956 Specification for Handloom Cotton Lungies, Striped or Checked
No. 1 January 1961	IS:1077-1957 Specification for Common Burnt Clay Building Bricks
No. 1 December 1960	IS:1441-1960 Specification for Insulator Stalks for Telegraph and Telephone Lines
No. 1 December 1960	IS:1445-1959 Specification for Porcelain Insulators for Overhead Lines with a Nominal Voltage Below 1 000 Volts

does not specify its general appearance, lustre and feel.

Determination of Colour Fastness for Textile Purposes

The colour fastness of textile materials and dyestuffs is of considerable importance to the consumer. The fastness depends not only upon the nature and depth of colour of the dyestuff used, but also upon the nature of the fibre on which it is applied and the method of dyeing or printing employed; the same colouring matter, when used in dyeing or printing different fibres or when applied by different methods upon the same fibre, may give vastly different results. Formulation of standard

methods of test for determining colour fastness to different agencies and processes likely to effect change in colour is, therefore, necessary. Consequently, the following two Indian Standards have been issued:

IS: 1688-1960 Procedure for Determination of Fastness of Dyestuffs, and

IS: 1690-1960 Method for Determination of Colour Fastness of Textile Materials to Nitrogen Oxides.

Barium Activity Number of Textile Materials

The barium hydroxide absorption test is one of the useful tests for identification of mercerized cotton

and for determining the extent to which cotton is swollen. The test has the advantage that it can be applied to dyed as well as undyed cotton materials. The test is carried out by determining the absorption of barium hydroxide by the sample under test and by a sample of unmercerized cotton, under identical conditions. The ratio of barium hydroxide absorbed by the unmercerized sample is then calculated and expressed as barium activity number.

The Indian Standard Method for Determination of Barium Activity Number of Cotton Textile Materials (IS: 1689-1960) prescribes a method for determining the degree of swelling of cotton materials during mercerization.

DRAFT INDIAN STANDARDS

Brief reviews are given here of draft Indian Standards issued recently for wide circulation to elicit comments from interested parties in India and abroad. Comments are considered by the Sectional Committee concerned at the stage of finalization of the drafts.

Titles of draft Indian Standards which are due to be issued in wide circulation in the near future are also given at the end; some of these might have been circulated while this issue was under print.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Bidis

The draft Indian Standard Specification for Bidis prescribes requirements in respect of length; weight of tobacco mixture per 1000 bidis; freedom from mould and tobacco beetle attacks, bidi-tobacco mixture; bidi wrapper; harmful substances and additives; and burning quality. The specific requirements for bidi-tobacco mixture relate to moisture, nicotine content, total ash, sand and silica, total chlorides, etc. The draft also includes general requirements for sampling.

BUILDING DIVISION

Schedule of Unit Weights of Building Materials

Structural calculations for any building involve a knowledge of the weights of various building materials and weights of materials that are likely to be housed or stored in the building. The draft Indian Standard

Schedule of Unit Weights of Building Materials aims at guiding the designer in regard to the weights of building materials, building components and stored materials that are encountered during the course of normal building design. It is emphasized that the unit weight in any particular case should not be taken as the exact weight of the material but as only a fair average of the weight of the material of its kind and could be considered as adequate for purposes of calculation of dead loads. Whenever a material exhibits appreciable variation in its unit weight, a range of weights has been given.

Load Tests on Soils

The method of conducting the load test, and the evaluation of bearing capacities and settlement from this test are dealt with in the draft Indian Standard Method of Load Tests on soils. The draft method assumes that down to the depth of influence of stresses, the soil strata are reasonably uniform. This should be verified by boring or sounding.

Water Meters

Changes included in the draft Revision of IS: 779-1956 Specification for Water Meters with Threaded End Connections (Domestic Type) include: (a) introduction of metric units in place of fps units, (b) revision of the dimensions of water meters and tolerances thereon with a view to ensuring the required flexibility in the manufacture, and (c) addition of an alternate method for measuring nominal and continuous capacities of water meters.

The draft Revision covers inferential (horizontal flow) and semi-positive types of water meters with threaded end connections and of sizes up to and including 50 mm. The draft applies to both wet dial and dry dial meters.

Salt-Glazed Stoneware Pipes Fittings

The Revision of IS: 651-1955 Specification for Salt-Glazed Stoneware Pipes and Fittings was considered necessary mainly with a view to changing over to the metric system.

But opportunity has also been taken to incorporate a few modifications, namely: (a) relaxation in the requirements at delivery end has been made by allowing a crack of specified dimension in the body of the socket or spigot which is not likely to affect the performance of the pipe in service; and (b) provision for re-test of samples for absorption test has now been made and an additional size of trap has been included in the class of square and round mouth gully traps.

Padlocks

The Indian Standard Specification for Padlocks was first published as IS: 275-1951. It was first revised in 1957 to provide for tolerances on various dimensions, additional constructional details, checking of non-interchangeability and use of cast brass obtained from melting sheet cuttings and brass utensils which is a common practice in the lock industry. Later, the Industries Department of Uttar Pradesh Government suggested inclusion of 90 mm (3½ in.) size of padlock in the standard with a view to covering this size also under their Quality Marking Scheme. The present second draft revision of this standard, therefore, incorporates this suggestion and specifies only rationalized metric dimensions of the various components of the padlock so that manufacturers of locks on cottage industry level may smoothly change over to the metric system by 1966 without impeding progress of the industry.

Another specification in this field was IS: 1018-1957 M-Type Brass Padlocks for which also a draft Revision has been prepared. This draft Revision specifies round metric dimensions of various components in place of exact metric conversions of inch dimensions laid down earlier.

CHEMICAL DIVISION

Methods of Sampling of Industrial Water

Clauses in the draft Indian Standard Methods of Sampling of Industrial Water for Physical and Chemical Tests relate to general requirements of sampling; apparatus; frequency of sampling; number of samples; temperature adjustment of samples; suspended solids; volume of sample; point of sampling; preparation and preservation of samples; and time interval between collection and analysis of samples. While normal variations in processes and in equipment from plant to plant preclude

the possibility of specifying methods of sampling that are applicable in all cases, definite principles have been established in the draft as a basis for the formulation of procedures for sampling which are applicable in general and in most cases.

Stabilized Hydrogen Peroxide

The draft Indian Standard Specification for Stabilized Hydrogen Peroxide, 6 Percent by Weight, prescribes the requirements and methods of sampling and test. Requirements covered in the draft include acidity; residue on evaporation; total sulphates and phosphates; and contents of chlorides, iron, aluminium, copper, nitrates and preservatives.

Methods of Test of Petroleum and Its Products

The draft Indian Standard Methods of Test of Petroleum and Its Products, Part II is complementary to IS: 1448 (Part I)-1960 which is now under print. The draft prescribes methods of test for: (a) bromine number by colour-indicator and electrometric titration methods; (b) knock characteristic of aviation fuels by the aviation method and the supercharge method; (c) knock characteristic of high performance fuels by extended motor method; (d) olefines and aromatic content; and (e) thermal stability of aviation turbine fuels. These methods are based primarily upon the standards issued by the Institute of Petroleum, London, and by the American Society for Testing Materials, USA, which have the widest acceptance in the petroleum industry all over the world.

Boric Acid

An Indian Standard Specification for Boric Acid, Technical was published as IS: 263-1950. On the basis of comments received on the method of determination of boric acid, as prescribed in IS: 263-1950, it was decided to amend the method suitably. Furthermore, it was decided to drop the fps values and to give rationalized metric values only. The draft Revision of IS: 263-1950 incorporates these modifications.

ELECTROTECHNICAL DIVISION

General and Safety Requirements for Electric Light Fittings

The object of the draft Indian Standard General and Safety

Requirements for Electric Light Fittings is to establish essential requirements and minimum standards for design and construction of light fittings in order to ensure their safe performance, good construction and high class of workmanship. This specification forms a part of and should be read in conjunction with Indian Standards related to the following:

- a) Industrial Lighting Fitting with Metal Reflectors,
- b) Commercial Lighting Fittings,
- c) Street Lighting Fittings,
- d) Lighting Fittings for Aerodrome Lighting, and
- e) Flood-Lights.

Flood-Lights

With the advent of indigenous manufacture of flood-light fittings, these are being extensively used for flood-lighting of buildings, sports grounds, yard lighting, etc. The draft Indian Standard Specification for Flood-Lights has been prepared with a view to regulating the manufacture of such flood-lights so that they are able to stand up to the open air conditions prevailing in this country, while performing their functions.

ENGINEERING DIVISION

Plain Washers

Following the recognition of metric screw thread with profile recommended by the International Organization for Standardization, ISI is now making available standards for screw threads, bolts, nuts and washers. The draft Indian Standard Specification for Plain Washers deals with various types of plain washers commonly used in general engineering practice. In selecting the sizes of the washers, care has been taken to specify the inner diameter in such a way that the washers should be used for the existing BSW and BSF volts also. For the sake of convenience, the sizes of the bolts have also been given in addition to the dimensions of the washers.

Self-Holding Tapers

The draft Indian Standard Dimensions for Self-Holding Tapers deals with metric and morse tapers, and establishes a simplified series of self-holding tapers by a selection of those sizes from metric and morse series which are most commonly in use. This draft has been based largely on the work being done by ISO/TC 39

Machine Tools so as to ensure interchangeability. While these tapers are self-holding, they are also in effect, self-driving. In all types of shanks, whether tanged, plain end or tapped, torque is transmitted by the taper itself. In case of the tanged end shank, the tang is intended solely for the purpose of ejection.

Person Weighing Machines

For the purpose of the draft Indian Standard Specification for Person Weighing Machines, the person weighing machine is defined as a weighing instrument with compound levers and with a platform to receive the person to be weighed. The weight of the person is indicated with a steelyard or any other form of indicator or by a ticket printing device. The draft covers capacity, constructional details, proportional weights, general requirements and tests.

Safety Code For Grinding Wheels

Grinding wheels in modern production shops play an important role both for the purpose of grinding manufactured articles and for the maintenance of tools. Considerable difference exists between various qualities of wheels used for different purposes. Maximum advantage can be taken only if the wheel is properly selected and used. Besides, it is imperative to have adequate safety measures. These considerations have lead to the preparation of the draft Indian Standard Safety Code for Grinding Wheels which outlines the best known practices, tests and safety from injury or damage, projection devices to be used to protect all personnel and equipment.

STRUCTURAL AND METALS DIVISION

Glossary of Terms Relating to Refractory Materials

The draft Indian Standard Glossary of Terms Relating to Refractory Materials covers the definitions of the terms commonly used in different production units of refractories industry. For convenience of reference, the draft glossary has been divided into six main classes and each has been dealt with in a separate part. Parts I to V deal with terms relating to refractory materials and the manufacture of refractories. Part VI is exclusively devoted to terms relating to properties and methods of testing refractories. The

terms common to all classes have been dealt with under the heading 'General Terms' which comes first.

Wrought Aluminium for Electrical Purposes

Keeping in view the increasing use of aluminium for electrical conductors of various types, the draft Indian Standard Specification for Wrought Aluminium for Electrical Purposes, Wire (Other than that Used for Overhead Conductors) has been prepared. This is intended only for wires used as electrical conductors, such as insulated cables or windings for rotating machinery or transformers, and may be taken as a guide for controlling the quality of wire supplied for electrical uses, such as electrical cables for aircraft which are manufactured according to other specifications. It does not relate to wires for use in overhead transmission.

Chemical Analysis of Bauxite and Tin Ingot

The two draft Indian Standard Methods of Chemical Analysis of (a) Bauxite and (b) Tin Ingot lay down procedures for determination of their various constituents. The methods included in the draft can serve as referee methods. While preparing these drafts, due consideration has been given to the facilities available in the country for such analysis.

Cast Iron Spigot and Socket Soil Waste and Ventilating Pipes, Fittings and Accessories

Hitherto in India, the manufacture of cast iron spigot and socket soil, waste and ventilating pipes, fittings and accessories has been generally on the basis of the relevant British Standards which had found wide acceptance both by producers and consumers. However, in view of the changeover to the metric system, all the values specified in the draft Indian Standard Specification for Cast Iron Spigot and Socket Soil, Waste and Ventilating Pipes, Fittings and Accessories, are given in metric units. The standard dimensions proposed will give reasonable interchangeability between the fittings at present being manufactured and the new fittings conforming to this draft specification.

The draft covers the requirements for soil, waste and ventilating pipes of sizes 50, 75, 100 and 150 mm together with details of fittings and accessories. These pipes and fittings

are suitable for use above ground only.

Coding and Classification of Scrap Metals, Pig Iron and Alloys

With a view to facilitating trade by establishing a generally recognized usage and to eliminate ambiguity and confusion arising from individual interpretation of terms commonly used in the trade in the field of non-ferrous scrap metals and residues, the draft Indian Standard Coding and Classification for Non-Ferrous Scrap Metals and Residues has been prepared. At the moment, this standard covers such arisings of scrap metals and residues which are most frequently dealt with in India. It does not purport to cover all the grades of material, and all categories not at present included in this draft shall be subject to negotiation between the purchaser and the supplier.

Copper Strip For Electrical Purposes

The draft Indian Standard Specification for Copper Strip for Electrical Purposes specifies requirements for the strip, in coil or straight lengths, in the annealed, half hard and hard conditions, in widths from 0.50 mm (or 0.020 in.) up to and including 150 mm (or 6 in.), and in thicknesses from 0.50 mm to 10.0 mm (or 0.020 in. to 0.375 in.). The draft includes requirements for both square and radiused edges or corners and also recommends sizes of annealed copper strip for transformer windings, and for windings of rotating electrical machinery.

Chemical Analysis of Limestone, Dolomite and Allied Minerals

Since various indigenous laboratories concerned with analysis of minerals follow different methods for a similar estimation, necessity was felt to prescribe standard methods which, as far as possible, could be followed by these laboratories in their day to day work. In preparing the draft Indian Standard Methods of Chemical Analysis of Limestone, Dolomite and Allied Minerals, due consideration has, therefore, been given to existing practices and facilities available in this country for such analysis, as these methods are to be used as referee methods whenever needed.

The draft covers methods of chemical analysis of various grades of minerals like limestone, dolomite, calcite and magnesite. The methods prescribed deal with the

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OBITUARY



DR. K. S. KRISHNAN

We regret to record the sad deaths of Dr. K. S. Krishnan, Nawab Zain Yar Jung Bahadur, Dr. L. A. Bhatt, Shri T. Rajamanikam and Shri S. J. Savant.

Dr. K. S. Krishnan (b. 1898-d. 14 June 1961), one of the leading lights of Indian Science and an eminent scholar of Vaishnavite literature in Tamil and Sanskrit, was associated with the work of ISI almost since its inception in 1947. He had been Vice-President of ISI from 1948 to 1955 and Chairman of its Executive Committee from 1948 to 1952. He was a member of the General Council, Executive Committee and Engineering Division Council of ISI up to the time of his death. In addition, he was Chairman of the Engineering Standards Sectional Committee and a member of the Mica Sectional Committee. Thus, the Institution had the privilege of being benefited considerably by his rich and versatile experience.

Born in the village of Watrap in Ramnad District, Madras State, Dr. Krishnan had his college education at Madurai and later in the Christian College, Madras. In 1923, he joined the Indian Association for the Cultivation of Science at Calcutta and collaborated with Shri C. V. Raman in the discovery of Raman Effect. Afterwards, he joined Dacca University (1928-'33) as Reader and conducted intensive studies on the diamagnetic and para-magnetic crystals. As Professor of Physics in the Indian Association for the Cultivation of Science (1933-'47) and Allahabad University (1942-'47) he carried out pioneering researches on the magnetic and optical properties of crystals, statistical thermodynamics, quantum theory and wave mechanics. As the Director of National Physical Laboratory (1947-'61) he conducted researches on the physics of solid state and took keen and abiding interest in the affairs of NPL and all the major scientific and technical institutions of the country.

Dr. Krishnan won honours from all quarters. He was elected a Fellow of the Royal Society in 1940, knighted in 1946 and awarded Padma Bhushan in 1954. Dr. Krishnan's quick grasp of essentials and the brevity and lucidity of his exposition made him a respected member in several international scientific meetings and assemblies.

The Institution regards his passing away a grievous loss to the scientific world in general and to India in particular.

Syed Zainuddin Hussain Khan, Nawab Zain Yar Jung Bahadur (b. 1889-d. 16 May 1961) was associated with the work of ISI in its early stage of formation, and was its Vice-President during 1947-'48, and member of the General Council, Executive Committee and Finance Committee for a number of years. He also guided the Institution as Chairman of the Executive Committee for some time.

Nawab Zain Yar Jung Bahadur was educated in Hyderabad and in England, and began his career as an Assistant Engineer in the PWD in the former State of Hyderabad. He held a number of high posts until he was appointed as a member of the Council of Ministers. Nawab Sahib was responsible for evolving a new architectural design which represented the happy synthesis of Hindu and Muslim cultures and the historical traditions of the Deccan. The city of Hyderabad owes a great deal to him; the Osmania University, the Jubilee Hall, the Aza-Qana Zehra and a number of other buildings stand a testimony to his genius. Nawab Sahib also served as President of the Institution of Engineers (India) during 1945-'46.

Nawab Sahib was a great asset to ISI, particularly when its foundations were being prepared. If ISI has accomplished any thing during the past years, a great measure of credit goes to the soundness of these foundations which Nawab Sahib helped lay. That his interest in ISI and standardization continued to his last days was clear when he participated in the Standards Convention of Hyderabad in December 1959. His loss will be felt



DR. L. A. BHATT



NAWAB ZAIN YAR JUNG BAHADUR

keenly not only by ISI but many other technical Institutions in which he took keen and abiding interest.

Dr. L. A. Bhatt (b. 1903-d. Mar 1961) was one of the premier chemical engineering consultants of the Indian chemical industry. Shri Bhatt took his M.Sc. Degree from the Bombay University in 1926, and simultaneously took the Associateship of the Indian Institute of Science, Bangalore. Thereafter, he proceeded to UK and specialized in fuel technology and chemical engineering, and in 1929 took the D.I.C. This was followed by a Ph.D. in Chemical Technology of the London University in 1931.

On return to India, he started his career as a Professor of Chemistry at the Samaldas College, Bhavanagar (1932-'34). Then, he joined the Department of Chemical Technology, Bombay (1934-'37) and shared the responsibility for laying a sound foundation for its chemical engineering department. In 1937, he became Chief Chemist in Ordnance Laboratories at Kanpur in the Defence Services of the Government of India. Three years later, he rose to the important position of the Director and Controller of Chemicals in the Department of Supplies. In 1945, he covered his connections with the Government and became Technical Adviser to M's Kilachand Devchand & Co., Bombay. After a seven-year tenure of this office, he started practising as a consultant to chemical industry.

He won great honour from various chemical and industrial organizations. He had been President, Indian Chemical Manufacturers' Association (1950-'52); President, Sulphur Users' Organization (1952-'53); President Indian Institute of Chemical Engineers (1957-'58); Chairman, Industries Development Committee, Saurashtra (1954-'56); etc.

To ISI he gave mature advice and sound guidance as a member from 1951 to 1957 of

(Continued on next page)

the General Council, on which he represented the Federation of Indian Chambers of Commerce & Industry.

Shri T. Rajamanikam (b. 1913-d. 5 May 1961), was Planning Officer, All India Radio, Delhi, at the time of his most untimely death following a severe heart attack.

He was born at Ipoh, Malaya. He came to India for higher education and took his B.Sc. degree in 1935 from the Presidency College of the University of Madras and later underwent a three-year Diploma Course in Communication Engineering in the Indian Institute of Science, Bangalore. In May 1938, he joined AIR as a Technical Assistant, and after two years was promoted as an Assistant Engineer. In 1944, he was appointed Deputy Engineer-in-Charge of the High Power Transmitters at Kingsway, Delhi, where the very first 100 kW short wave transmitter of AIR had just then been installed. Shri Rajamanikam was appointed Assistant Chief Engineer in 1948 and held that post till 1953 when on promotion to the Senior Engineer's Cadre he left for Bombay to take up the installation of the 50 kW medium wave transmitter and the 100 kW short wave transmitter. In 1957, he became the Research Engineer in AIR and held that post till January this year

when he was posted as Planning Officer in the Planning and Development Unit of AIR. During his tenure as Research Engineer, he organized the first television service in India.

Shri Rajamanikam represented the Institution of Telecommunication Engineers on the Electrotechnical Division Council and Radio Equipment Sectional Committee of ISI. In his official capacity, he was also an active member of the following subcommittees: (a) Capacitors, Resistors and Miscellaneous Parts, (b) Radio Receivers, (c) Transformers and Chokes, and (d) Acoustical Equipment. He took a particularly keen interest in the work of the last named committee and was largely responsible for the preparation of the draft Indian Standard Code of Practice for Installation of Indoor Sound Distribution and Amplifying Systems which is to be published shortly.

Shri S. J. Savant (b. 1897-d. 25 Mar 1961) started his career as an ordinary apprentice in one of the glass factories at the age of 15 when he was not even a matriculate, and died as proprietor of Bharat Glass Works Private Ltd., which has now two factories—one at Calcutta and the other at Bombay. The self-made technical man Shri Savant was President of the Indian Section of the Society of Glass Technology



SHRI T. RAJAMANIKAM

of Sheffield, UK, in 1951-'53; and President of the Bengal Glass Manufacturers' Association, Calcutta, in 1950-'52.

He was a member of two Subcommittees of the Glassware Sectional Committee of ISI.

New Subjects Approved for Formulating Indian Standards

The following list gives the new subjects approved by the Division Councils or their Standing Working Committees during February and March 1961 for formulation of Indian Standards.

Agricultural and Food Products Division

Chicory Powder
Desiccated Coconut
Flue-Curing Tobacco Barn Construction & Equipment
Sickles
Transplanting Spades and Seprangs
Pruning Saws and Secateurs
Cleaning Out Knife
Skiffing Knife
Clasp Pruning Knife
Rubber Draining and Tapping Knife
Matchet
Bill Hook, Single and Double
Dhows of All Types (Jungle Cutting and Transplanting)
Henna (Powder & Leaves)
Papain
Carriage of Monkeys by Air
Bottled Carbonated or Plain Soft Beverages

Building Division

Binding Wire (for Investigation)
Spacers for Reinforcement
Bending Schedules for Reinforcement

Chemical Division

Silver Nitrate
Lineman's Body Belts
Lineman's Body Straps

Electrotechnical Division

Drums for Contact Wires
Electric Ovens
Multi-Test Meters
Terminal Clamps for Batteries
Ratings, Dimensions, Characteristics, and Tests on Polycrystalline Semi-Conductor (Metal) Rectifiers
Composite Rectifying Equipment Using Polycrystalline Semi-Conductor (Metal) Rectifiers
PVC Insulated Automobile Cables
Fuel Gauges
Cotton Covered Rectangular Strips
Enamelled Strips and Enamelled Strips with Paper Covering
Enamelled Round Conductors with Cotton Covering
Plastics Conduit Pipe

Engineering Division

Kerosene Stoves
Spirit Stoves

Solid Fuel Stoves
Tail Lamps
Dubber Burner
Side Lamp
Hand Signal Lamp
Kerosene Flares for Night Landing Purposes
Machine Tool Test Code
Lathe Tool Posts
7/24 Tapers for Tool Shanks
Lathe Centres
Direction of Operation of Controls
Symbolization of Indications Appearing on Machine Tools
Two Types of Spindle Noses for Lathes
Hacksaw Frames
Methods of Test for Lubricating Oil Filters for IC Engines
Methods of Test for Air Filters
Domestic Pressure Cookers

Structural and Metals Division

Comparison of Indian and Overseas Standards for Wrought Steels
Commentary on Indian Standard Schedules for Wrought Steels

Draft Standards from Commonwealth Countries

The following draft standards from Commonwealth Countries were received for comments during 16 January to 15 March 1961. Copies of these documents are available in ISI Library for reference.

Australia

- Doc-535 Determination of Sulphur in Steel
- Doc-536 Determination of Copper in Iron and Steel
- Doc-537 Method for the Sampling of Iron and Steel
- Doc-538 Gypsum Plaster for Building Purposes

Canada

- A119.2 Code for Thin-Walled Tube Sampling of Soils
- B33.1 Square and Hexagon Bolts and Nuts, Studs and Wrench Openings
- B125 Plumbing Brass
- B140.4 Construction and Test of Oil-Fired Furnaces
- B150.13 Gas-Fired Gravity and Forced Air Central Furnaces
- O112.6 Phenol, Melamine and Resorcinol Base Resin Adhesives
- O116 Physical Properties of Power and Communication Wood Crossarms
- O121 Douglas Fir Plywood
- O132.3 Wood Double Hung Window Frames and Double Hung Prefit Window Units
- O151 Western Softwood Plywood
- O153 Poplar Plywood
- Z87 Underground Storage Tanks for Petroleum Products

New Zealand

- D6239 Neutral-Screened Cables

Rhodesia and Nyasaland

- D(FTI)7 Miner's Boots
- D(BC5)11 Dimensions of Common Building Bricks

South Africa

- SABS15/6/30 Standard Test Methods for Paints

SABS15/10/30/5 Asbestos Cement Soil, Waste and Ventilating Pipes and Fittings

United Kingdom

- AA(LGE)6493 High-Intensity Elevated Runway-Threshold Lighting Fittings
- AA(LGE)6494 Omni-Directional Elevated Runway-Threshold Lighting Fittings
- AA(DNC)6501 Dental Gold Solders
- AA(ISE)6540 Austenitic Cast Irons. Part I: Corrosion and Erosion Resistant Irons
- AA(M)6646 Methods of Test for Prototype Testing of Portable Poultry Feeding Appliances
- AA(MEE)6760 Dimensions of Instrument Precision Rolling Bearings
- AA(MEE)6780 Through Transit Flat Pallets Suitable for Use in Aircraft
- AA(CIC)6950 Di-n-butyl Sebacate
- AA(CIC)6951 Dimethyl Phthalate
- AA(CIC)6952 Di-(2-ethylhexyl) Sebacate
- AA(CIC)6953 Di-(2-ethylhexyl) Phthalate
- AA(PVC)6963 Air Drying Varnish
- AA(MEE)6969 Brake Hose Couplings for Locomotives and Rolling Stock
- AA(MEE)6970 Carbon Steel Butt-Welding Pipe Fittings for General Purposes
- AA(MEE)6974 Austenitic Stainless Steel Butt-Welding Fittings
- AA(PVC)6982 Turpentine for Paints
- AA(ELE) 6998 Reactive Volt-Ampere Hour Meters
- AA(SFE)7022 Method for the Determination of Atmospheric Sulphur Dioxide
- AA(T)7096 Method for the Determination of Oils, Fats and Waxes in Cotton
- AA(CIC)7126 Ammonium Chloride
- AA(T)7214 Method for the Determination of Oils, Fats and Waxes in Wool

- AA(CIC)7296 Methods of Testing Desiccant Used in Dynamic Dehumidification Equipment
- AA(M)7328 Bowl Stands
- AA(INE)7353 Evaluation Testing of Pneumatic Transmitters with 3 to 15 lb/in.² (Gauge) Output
- AA(MEE)7354 Method for Creep and Rupture Testing of Metals. Part 2: Interrupted Tensile Rupture Testing
- AA(P)7378 Recommendations for the Carriage of Live Animals by Air. Primates (Apes and Monkeys) not intended for Laboratory Use
- AA(P)7517 Recommendations for the Carriage of Live Animals by Air. Birds Other than Chicks, Turkey Poults and Small- and Medium-Sized Seed-Eaters
- AA(ACE)7549 Rubber Grommets for Aeronautical Purposes
- AA(P)7558 Fibreboard and Composite Drums for Oversea Shipment
- AA(MEE)7622 Dimensions for Mounting Pads for Low Pressure Mechanical Fuel Lift Pumps for i.e. Engines
- AA(ELE)7633 Safety Requirements for Electrically Heated Food Conveyors
- AA(MEE)7768 Drawing Detail Papers
- AA(RDE)7792 Cold Asphalt
- AA(OEM)7888 Sizes and Recommended Layouts of Commercial Forms
- AA(TMT)7957 Warp Tubes for Ring Spinning and Twisting Frames
- AA(TLE)7968 Materials and Finishes for Telecommunication
- AA(INE)8034 Reference Tables for Iron V Constantan Thermocouples
- AA(CME)8063 Dimensional Features of Magnetic Sound Recording on Perforated Film
- AA(DAC)8077 Chemical Analysis of Butter, Milk Cheese, Casein and other Dairy Products
- AA(EIE)8263 Radio-Interference Suppression on Marine Installations
- AA(TIB)8356 Grading and Sizing of Softwood Flooring

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STANDARDS ADDED TO ISI LIBRARY

The list includes standards received in ISI Library during 16 January 1961 to 15 March 1961. Full titles of only those standards are given which, besides being accessioned in the Library, are also stocked by ISI for sale. Numbers of all other standards are listed under their respective general classification headings. Readers, who are interested in obtaining their titles or any other information concerning them, are requested to address the Librarian.

The standards are in the official language(s) of the country of origin.

001.816 Numbering, Document

Germany: DIN 1421

53 Physics and Mechanics

Canada: CSA Z69

Czechoslovakia: CSN 25 3240, 3241, 3280, 3284 to 3287, 3816, 4620, 4621

Germany: DIN 58110 to 112; TGL 4416

UK: BS 734: Part 1: 1960 Density Hydrometers for Use in Milk

BS 823: 1960 Density Composition Tables for Aqueous Solutions of Sodium Chloride and of Calcium Chloride

BS 3273: 1960 Distant Indicating Thermometers for Ships' Refrigerated Cargo Spaces.

BS 3276: 1960 Thermometers for Measuring Air Cooling Power

USSR: GOST 9409

54 Chemistry

Czechoslovakia: CSN 44 1602; 68 6130, 7307, 7345

Germany: DIN 12035

UK: BS 572: 1960 Interchangeable Conical Ground Glass Joints

BS 1792: 1960 One-Mark Volumetric Flasks

614.845 Fire Extinguisher

Czechoslovakia: CSN 38 9190

615.47 Medical and Surgical Instruments

Germany: DIN 58334

UK: BS 3277: 1960 Thigh Corsets and Cuff Tops for Orthopaedic Calipers

615.777 Disinfectant

UK: BS 3286: 1960 Method for Laboratory Evaluation of Disinfectant Activity of Quaternary Ammonium Compounds

620.1 Materials Testing

Australia: SAA B161: 1960 Charts for Approximate Comparison of Hardness Scales for Steels

UK: BS 3228: Part 3: 1960 Procedures for Obtaining Properties of Steel at Elevated Temperatures: Creep Strength

USSR: GOST 9377, 78

621-1/-9 Machinery Details

Czechoslovakia: CSN 11 0808

Germany: DIN 23277, 278; 42961; TGL 6361, 64, 65

UK: BS 3274: 1960 Tubular Heat Exchangers for General Purposes

621.181 Boiler Tubes

Australia: SAA B155: 1960 Electric Resistance Welded Steel Air Heater Tubes

621.3 Electrical Engineering

Australia: SAA C140: 1960 Approval and Test Specification for Edison-Type Screw Lampholders

SAA C161: 1960 Approval and Test Specification for Thermostats

SAA C162: 1960 Approval and Test Specification for Domestic Electric Food Mixers

Austria: ONORM E4750, 65

Canada: CSA C22.2 No. 78, 124; C105

Czechoslovakia: CSN 24 8004, 8101 to 8103, 8404, 8601; 35 8351; 36 0130 to 0139; 37 0140 to 0148, 1340 to 1348, 1350, 1355, 1357, 1550; 38 4065; 72 7235

Germany: DIN 41221, 262, 425, 547, 915, 950, 951 (Bl 1 & 2); 45590, 593; 46199, 280; 47600 (Bl 1 & 2); 48511; 49449, 848; 89151, 152; TGL 5563

India-Ministry of Defence: ILE Report No. 18 to 21

Israel: SI 344 to 355

Turkey: TS 12 to 18

UK: BS 358: 1960 Method for the Measurement of Voltage with Sphere-Gaps

BS 495: 1960 Lamp Caps and Lampholders for Double-Capped Tubular Lamps

BS 1853: 1960 Tubular Fluorescent Lamps for General Lighting Service

BS 2960: Part 2: 1960 Dimensions of 3-Phase Electric Motors: Totally-Enclosed Fan Cooled Motors

BS 3283: 1960 Non-Reversible Connectors and Appliance Inlets for Portable Electrical Appliances

BS 3288: Part 1: 1960 Insulator and Conductor Fittings: Performance and General Requirements

UK-War Department and Ministry of Aviation: SSM (L)9-15/2

USA-National Electrical Manufacturers Association: NEMA 227; DC7; EI20; PB2; TR 71, 72; WD2

USSR: GOST 1516; 2182; 8476; 8711; 9358; 9362; 9420, 89

621.43 Internal Combustion Engines

Czechoslovakia: CSN 04 2305; 09 0022, 0041, 4851; 30 4102, 4121 to 4125

Poland: PN L-04002

USA-National Electrical Manufacturers

Association: NEMA SM 31; 32
USSR: GOST 3941

621.565 Refrigerator

USA-National Electrical Manufacturers Association: NEMA HRF 1

621.6 Storage Containers, Pipes, Flanges

Austria: ONORM M 4766; 5610

Israel: SI 60

Turkey: TS 11; 14 to 16

UK: BS 1435: 1960 Oil Suction and Discharge Hose

BS 3016: Part 3: 1960 Pressure Regulators for Use with Butane Propane Gases: Variable High Pressure Regulators

BS 3291: 1960 10 Gallon Aluminium Alloy Milk Can and Lid

UK-Ministry of Defence: DEF 1214, 15

USA-National Electrical Manufacturers Association: NEMA BC 2 to 4

USSR: GOST 9342, 56, 99; 9400

621.65 Pumps

Czechoslovakia: CSN 11 3003, 6303, 6703

Japan: JIS B8315: 1960 Electric Deep Well Pump

621.7: 744 Technical Drawing

Austria ONORM A 6012; 6210

USSR: GOST 4444

621.753 Gauging, Tolerance

Germany: DIN 20378; 41547

Portugal: NP 257; 258

USSR: GOST 3199; 9375

621.791 Welding

USA-National Electrical Manufacturers Association: NEMA IC2

621.798 Packing and Dispatch

Germany: DIN 6044 (Bl 1-4); 46395, 396

UK: BS 2698: 1960 Containers and Notes for Filmstrips

USA-National Electrical Manufacturers Association: NEMA MW62

USSR: GOST 9338; 9421; 9525

621.822 Bearing

Germany: TGL 0-736 to -739

UK: BS SP 89: 1960 Airframe Bearings

USSR: GOST 4060; 5377; 9519

621.833 Gears

Germany: TGL 4199; 4355, 56
Italy: UNI 4430

621.855 Lifting Tackle

UK: BS Handbook No. 4 Part 2: 1960
Lifting Tackle: Chains & Fittings

621.867.5 Trough Conveyor

Czechoslovakia: CSN 26 5601, 5603, 5604, 5606, 5607, 5610, 5612 to 5617, 5620, 5624, 5625, 5628, 5630, 5634 to 5637, 5640 to 5648

621.88 Means of Attachment, Fastenings

Czechoslovakia: CSN 02 2039, 2390; 24 1120, 1125, 1127, 1520; 66 8510, 8511
Germany: DIN 1596, 97; 31210; 58113
India-Ministry of Defence: IND/GS 998
India-Ministry of Railways: IRS T2: 1960
I.R.S. Dog Spikes
IRS T13: 1960 Fang Bolts
Portugal: NP 245; 247; 248
UK: BS A 100: 1960 Bolts and Nuts for Aircraft (General Clauses)

621.89 Lubrication

Poland: PN C-96134

621.9 Machine Tools

Austria: ONORM M4373, 74
Czechoslovakia: CSN 21 0320; 22 3318, 3554, 3555; 24 2104, 2130 to 2133, 2315, 2320
Germany: DIN 204; 326; 327; 1837; 1838
Poland: PN M-55663
USSR: GOST 885; 1604; 2464; 6469; 6826; 6951; 9323, 29, 35, 44, 76; 9406; 9520, 22, 23

622 Mining

Germany: DIN 20361

624 Civil Engineering

Canada: CSA A 119.1, .2
Czechoslovakia: CSN 73 1805; 74 6350 to 6352, 6930
Germany: DIN 4112; 49779
Hungary: MSZ 14753
UK-War Department & Ministry of Aviation: SSM(L)8-3/2
USA-Department of Interior: BR/DS 10

625.1/.6 Railway Engineering

Germany: DIN 43101 B14
India-Ministry of Railways: IRS T6: 1960 Fishplates Combination
IRS T9: 1960 Transverse Track and Turnout Steel Sleepers
Poland: PN K-91252
USSR: GOST 4686; 5053, 54; 6748; 7488; 9371

625.746 Road Marking

UK: BS 3262: Part 1: 1960 Road Marking Materials: Hot-Applied Thermoplastic Materials (Superimposed Type)
BS 3262: Part 2: 1960 Road Marking Materials: Hot-Applied Thermoplastic Materials (Inset Type)

625.85 Road Binder

Germany: DIN 1995

661 Chemicals (Fine, Heavy, etc)

Germany: TGL 6524; 6526
India-Ministry of Defence: IND/SL/0543; 1573
USSR: GOST 24; 1032; 2549; 2768; 3769, 73; 4518; 5848; 9325, 36, 59, 85; 9419, 28

662.6/.9 Fuels, Heating, Combustion

Czechoslovakia: CSN 44 1363; 65 6181, 6505; 66 8201
Germany: DIN 51787, 853, 854
UK: BS 3250: Part 1: 1960 Thermal Testing of Domestic Solid Fuel Burning Appliances with Convection: Flue Loss Method
USSR: GOST 1304; 2057; 3440; 5396; 9326, 39; 9516, 17, 21

664 Food Industries, Preservation

Canada: 32-GP-281
Czechoslovakia: CSN 58 0230
Israel: SI 356
Poland: PN A-74202

665.5 Petroleum Industry

Czechoslovakia: CSN 65 6242, 6641, 7101
USSR: GOST 2760; 6307; 9410

666.1/.2 Glass Industry

Germany: DIN 52305 to 52307
UK: BS 3275: 1960 Glass for Signs and Recommendations on Glazing for Signs
USSR: GOST 9341

666.29 Enamel, Glazes

Germany: DIN 51155

666.7 Refractory Material

Germany: DIN 18505; 51091 to 094

666.8/.9 Gypsum, Lime, Cement, etc

Canada: CSA A 23
USSR: GOST 3476

667.6 Paint and Varnish Industry

Czechoslovakia: CSN 67 3540, 3803, 4701
India-Ministry of Defence: IND/SL/7073
Ireland: I.S. 10; 103; 104
Poland: PN C-04405
Portugal: NP 185; 256

668.3 Adhesive Glue

Germany: DIN 53271

668.117 Lac and Shellac

UK: BS 1284: 1960 Bleached Lac
BS 3279: 1960 Seedlac
BS 3280: 1960 Hand-Made Shellac

668.5 Essential Oil

USSR: GOST 9360, 61

669.1 Ferrous Metallurgy

Australia: SAA B161: 1960 Charts for Approximate Comparison of Hardness Scales for Steels
Canada: CSN 41 2042; 42 0107, 5350
Germany: DIN 50461 (B1 1), 462 (B1 2)
India-Ministry of Railways: IRS T5: 1960 Rectangular Mild Steel Bearing Plates
IRS T7: 1960 Cast Iron Plates for Sleepers, Anchor Plates Chairs
Italy: UNI 564; 4431

UK: BS 1442: 1960 Galvanized Mild Steel Wire for Armouring Cables
BS 3228: Part 1: 1960 Procedure for Obtaining Properties of Steel at Elevated Temperature: Proof Stress
BS 3228: Part 2: 1960 Procedure for Obtaining Properties of Steel at Elevated Temperature: Rupture Strength
BS S 124: 1960 Aircraft Material; Corrosion-Resisting Chromium Steel (Free Machining)
USSR: GOST 380; 1050; 1457; 7727; 9373, 89

669.2/.8 Non-Ferrous Metallurgy

Czechoslovakia: CSN 34 0290, 0655
Germany: TGL 5186
Portugal: NP 243; 244
UK-Ministry of Aviation: DTD 906B
USSR: GOST 1628; 3718

672.6 Chain

Austria: ONORM M 9605
Italy: UNI 4416 to 4428

674 Wood Industry

Australia: SAA CZ10: 1960 Guarding and Safe Use of Woodworking Machinery
UK: BS 1579: 1960 Connectors for Timber

676 Paper and Pulp Industries

USSR: GOST 3553; 3914; 9327, 63; 9418

677 Textile Industry

Canada: 40-GP-12
Czechoslovakia: CSN 46 2431; 80 0811, 1210, 1211
Germany: DIN 54048, 049, 053; 60650, 850; 61100; 64050; TGL 4112; 4858 to 4861; 6706
Poland: PN P-06716; -06717; -82252
UK: BS 3266: 1960 Determination of Conductivity, pH, Water-Soluble Matter, Chloride & Sulphate in Aqueous Extracts of Textile Material
UK-Ministry of Aviation: DTD 664A; 5511A, 12A
USSR: GOST 7507

678 Rubber and Plastic

Australia: SAA CK.6: 1960 Plastics Moulding
Canada: 19-GP-4
Germany: DIN 53522 (B1 1-3); TGL 3700
Portugal NP 253
UK: BS 3290: 1960 Toughened Polystyrene Extruded Sheet
USSR: GOST 4650; 5689

681.26 Weighing Instrument

USSR: GOST 9509

682.5 Furnishing Iron Work

Czechoslovakia: CSN 16 6905, 6950 to 6952, 6957 to 6967, 6970 to 6976,

683.97 Hot Water Supply Appliances

UK: BS 853: Part 1: 1960 Calorifiers for Central Heating and Hot Water Supply: Mild Steel and Cast Iron
BS 853: Part 2: 1960 Calorifiers for Central Heating and Hot Water Supply: Copper

687.053 Sewing Machine

Czechoslovakia: CSN 81 7201, 7202, 7311, 7312

69 Building Industry, Materials, Trades, Construction

Australia: SAA A53: 1960 Toilet Seats of Moulded Plastics
 SAA MP 14: Part 1: 1960 Report on Modular Co-ordination in Buildings: Introduction
Canada: CSA B54.1; 0132.3; 63-GP-1,-2
Czechoslovakia: CSN 38 6441; 73 3150, 3610 to 3612
Germany: TGL 4900
New Zealand: NZSS 791
Poland: PN B-02800
UK: BS 758: Part 2: 1960 Domestic Hot Water Supply Boilers Using Solid Fuel: Thermostat-Controlled Boilers
 BS 1431: 1960 Wrought Copper and Wrought Zinc Rainwater Goods

BS CP 3: Chapter III: 1960 Sound Insulation and Noise Reduction
 BS CP 332.601: 1960 Installation of Gas Appliances for Laundering and Ancillary Domestic Purposes
UK-Ministry of Aviation: DTD 5539
USA-Department of Interior: BR/DS 9
USSR: GOST 378; 862; 9387, 95; 9491

744.3 Drawing Equipment

USSR: GOST 9392

77 Photography and Cinematography

UK: BS 1406:1960 Sizes of Sensitized Photographic Plates
 BS 2698: 1960 Containers and Notes for Filmstrips

BS 3301: 1960 Sodium Thiosulphate Hydrated Photographic Grade
 BS 3302: 1960 Sodium Thiosulphate Anhydrous Photographic Grade
 BS 3303: 1960 Sodium Sulphate Hydrated Photographic Grade
 BS 3304: 1960 Sodium Sulphite Anhydrous Photographic Grade
 BS 3305: 1960 Sodium Carbonate Anhydrous Photographic Grade
 BS 3306: 1960 Potassium Metabisulphite Photographic Grade
 BS 3307: 1960 Potassium Bromide Photographic Grade
 BS 3308: 1960 Sodium Hydroxide Photographic Grade
 BS 3309: 1960 Benzotriazole Photographic Grade
 BS 3310: 1960 Ammonium Thiosulphate Solution Photographic Grade

DRAFT INDIAN STANDARDS — Continued from p. 206

determination of ignition loss, silica, alumina, iron oxide, calcium oxide, magnesia and carbon dioxide.

TEXTILE DIVISION

Raw Hide Pickers

Two draft Indian Standard Specifications for the following have been prepared:

- a) Raw Hide Round Foot Pattern 4B Pickers for Cotton Overpick Looms, and
- b) Raw Hide Pickers for Jute Looms.

Clauses in both these drafts relate to terminology, sampling, requirements, grading, marking and packing.

Cotton Tape for Electrical Purposes

It is felt that the tape manufacturing industry is not at present in a position to work exclusively with values expressed in the metric system. The draft Indian Standard Specification for Cotton Tape for Electrical Purposes is, therefore, divided into two parts. In Part I, all dimensions have been specified only in the metric system. The specified values had to be related to the dimen-

sions expressed in the fps system hitherto current in the tape manufacturing industry. Therefore, the current fps system values were first converted to the metric system and then to avoid unwieldy or impractical fractionation, the converted values were rounded off wherever found desirable. In part II, all values have been specified in the fps system; in each case, its equivalent in the metric system has been calculated to a precision attainable with the measuring instruments specified to be used or likely to be used. The equivalent values in the metric system have been added but within brackets. It is intended to delete part II at a later stage when the metric system comes to be generally used.

Flat Driving Chains

The draft Indian Standard Specification for Flat Driving Chains for Carding Engines prescribes the requirements for chains for driving flats for revolving flat carding engines used in the cotton textile industry.

It is expected that this draft, when finalized, will be of use to textile machinery manufacturers in

manufacturing chains of acceptable quality and to consumers in acquiring dependable supplies.

DRAFT INDIAN STANDARDS TO BE CIRCULATED

During the period under report, the following draft Indian Standards were being processed to be put into wide circulation in the near future:

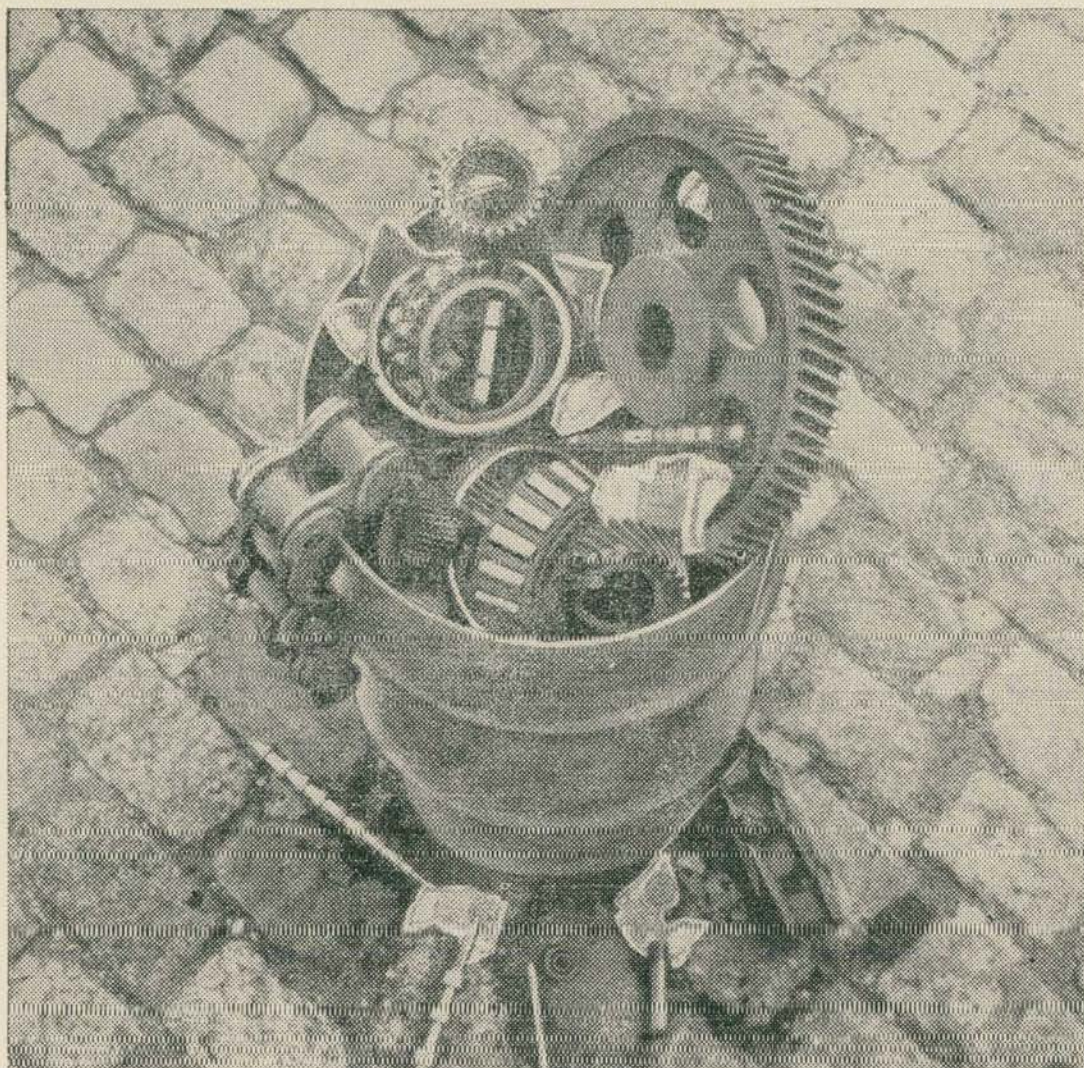
- 1) Method of Determination of Freezing Point of Milk;
- 2) Specification for Paddy Weeders, Rotary Type;
- 3) Specification for Sugarcane Crusher, Bullock Driven Type;
- 4) Specification for Load Bearing Hollow Concrete Blocks;
- 5) Requirements for River Water;
- 6) Specification for Rubber-Insulated Cables and Flexible Cords for Electric Power and Lighting (for working voltages up to and including 11 kV);
- 7) Specification for Braided Cables with Copper Conductors for overhead Transmission Lines;
- 8) Code for Designation of Pig Iron and Ferro-Alloys; and
- 9) Specification for Shuttles for Pirm Changing Automatic Looms (Cotton).

DRAFT STANDARDS FROM COMMONWEALTH COUNTRIES — Contd from p. 209

AA(RUC)8391 Methods of Testing Rubber Threads
 AA(PIC)8392 Common Names and Abbreviations for Plastics
 AA(NCE)8430 Denoting the Actual or Potential Presence of Ionizing Radiation
 AA(PAC)8431 Sampling Paper for Testing
 AA(PAC)8432 Determination of Paper Substance
 AA(PAC)8433 Conditioning of Paper and Board Test Samples

AA(PAC)8434 Sampling and Testing Paper for Moisture Content
 AA(TIB)8532 Flush Wood Doors
 AA(M)8542 Metal Spectacle Frames
 AA(TPC)8557 Coal-Tar Fuels
 AA(PEE)8610 Vertical Mild Steel Welded Storage Tanks with Butt Welded Shells for the Petroleum Industry
 AA(CIC)8613 Glycerol Tri-acetate
 AA(M)8617 Camp Beds.

Part 2: Cross-Legged Wood-Framed Camp Beds
 AA(DPE)8633 Stationery Feeding Mechanisms for Line-at-a-time High-Speed Printers
 AA(T)8786 Quantitative Chemical Analysis of Binary Mixtures of Acrylic and Certain other Fibres
 AA(CME)8938 Preparation of Export Scripts
 AA(MEE)8986 Charpy U-Notch Impact Test



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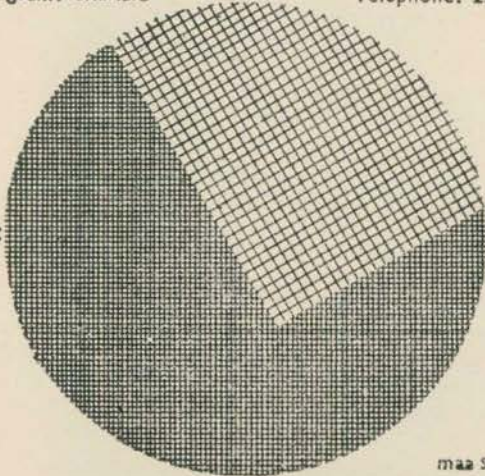
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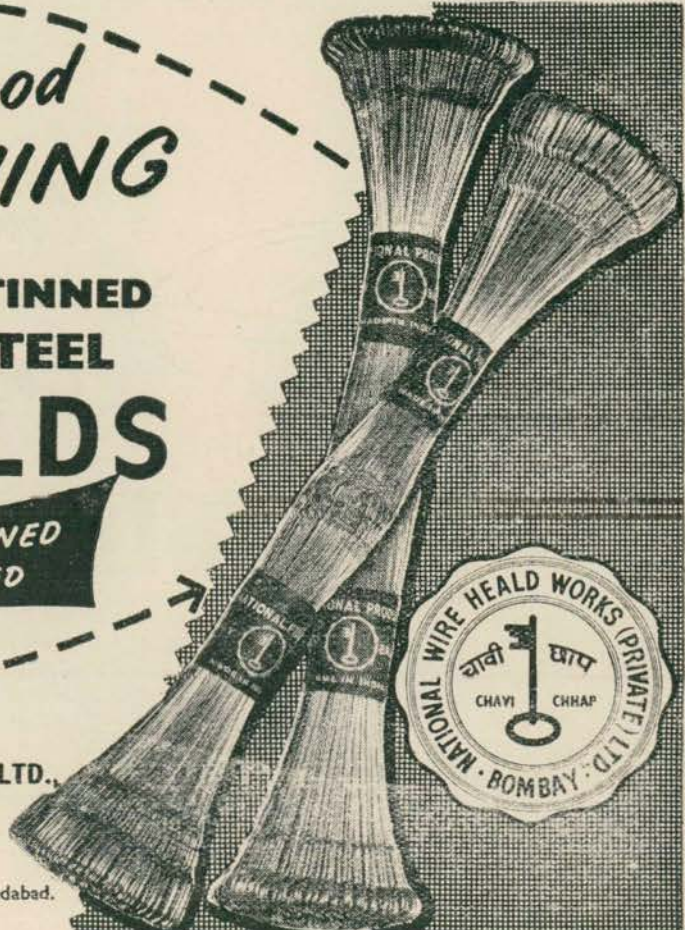
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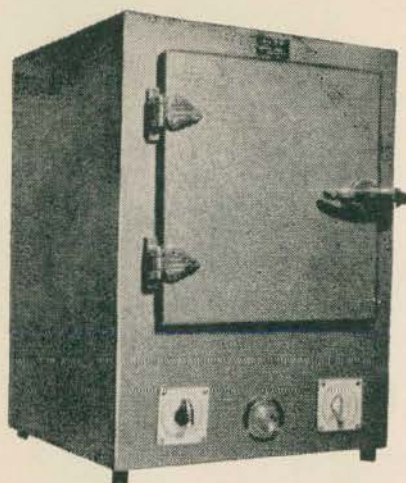
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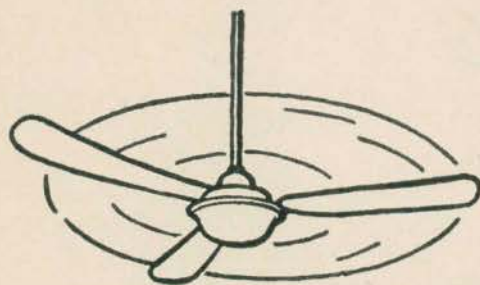
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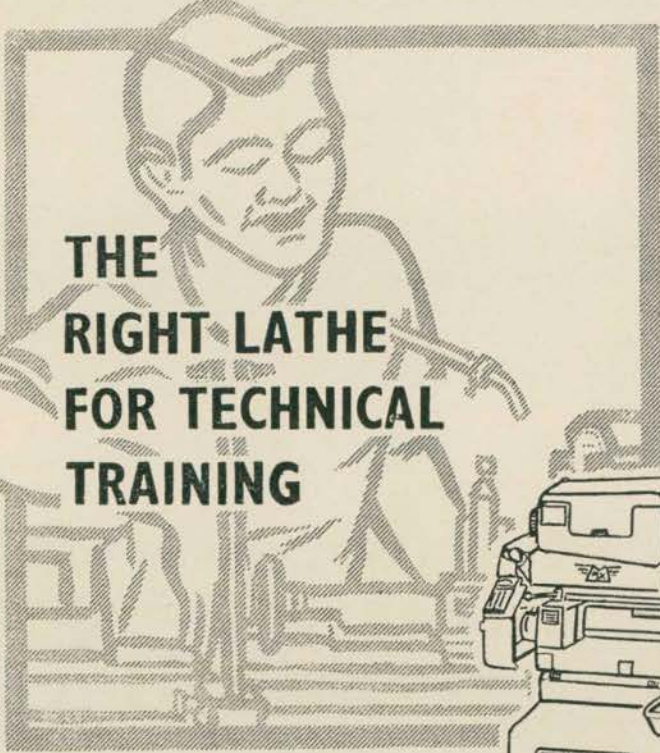
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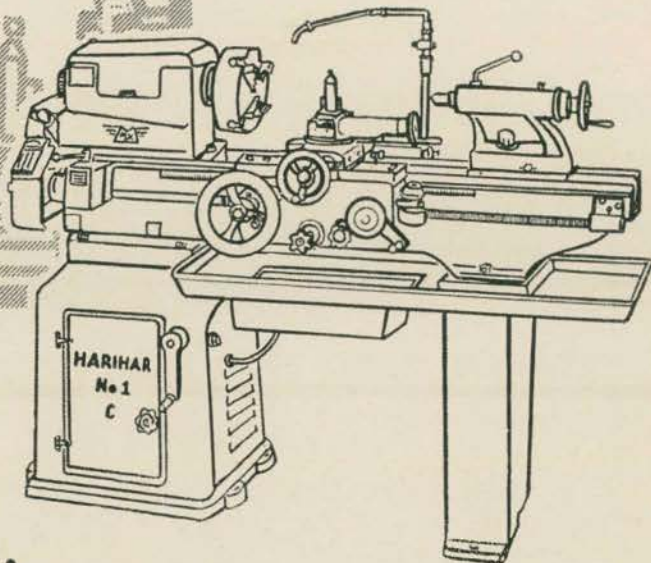
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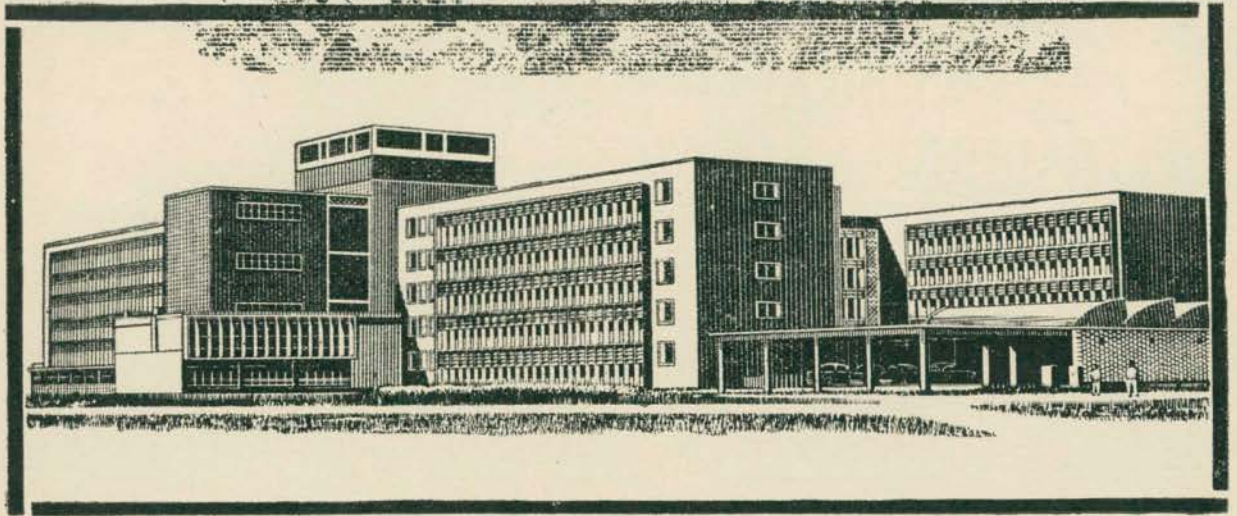
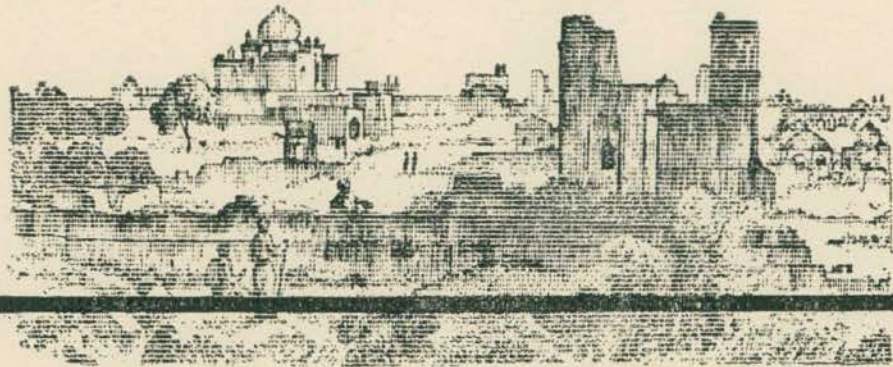
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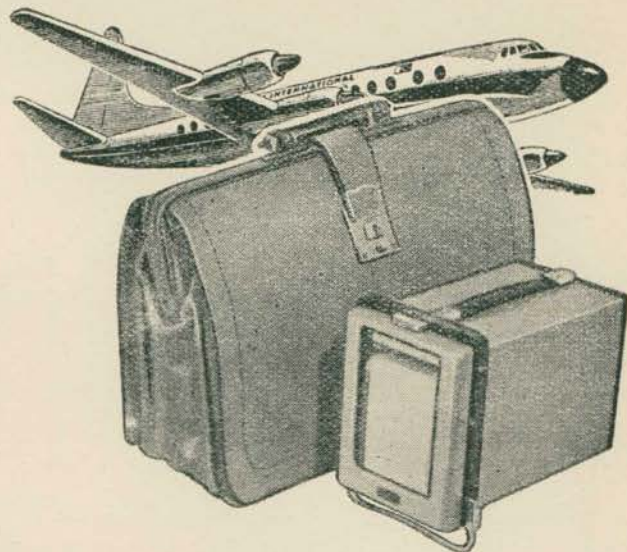
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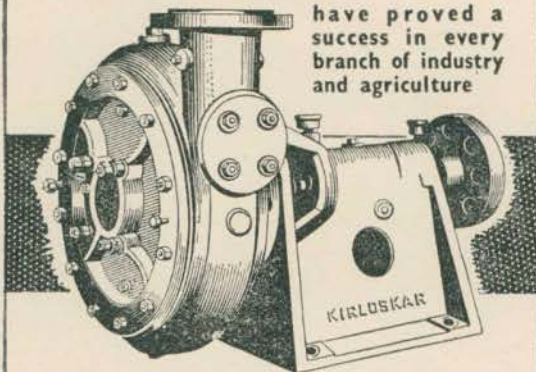
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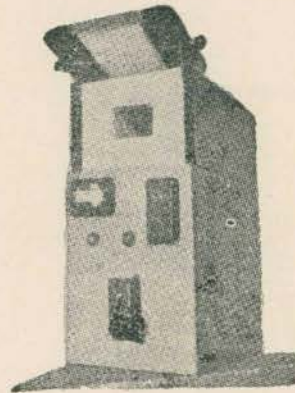
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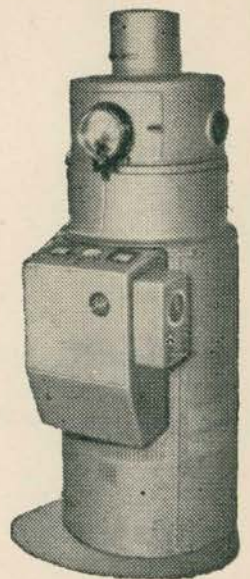
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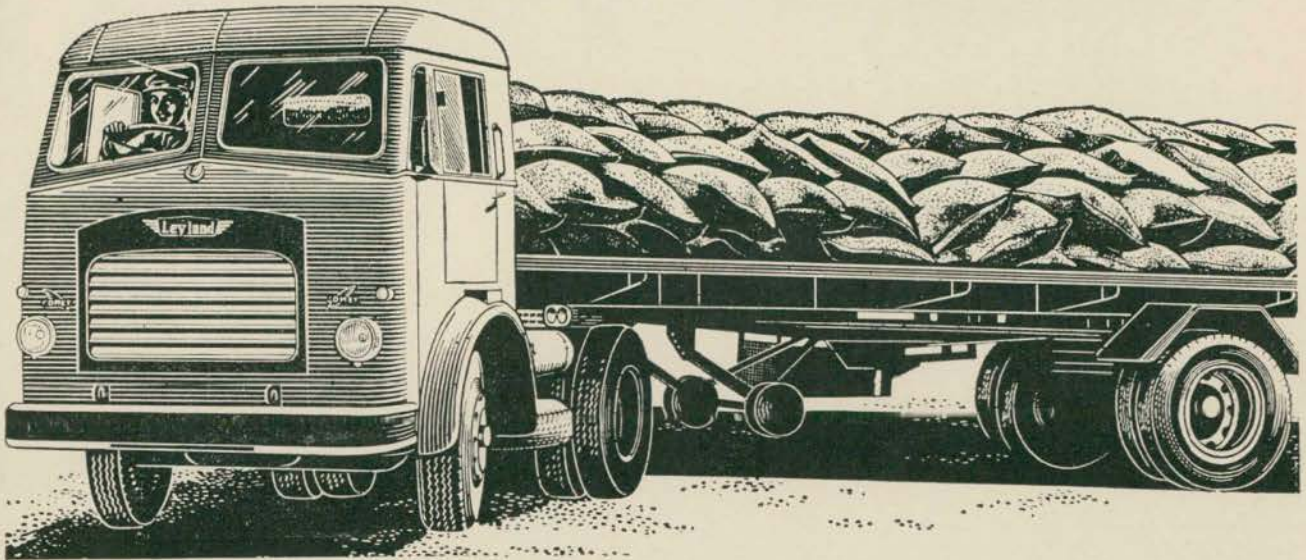
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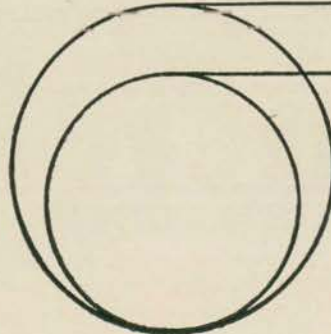


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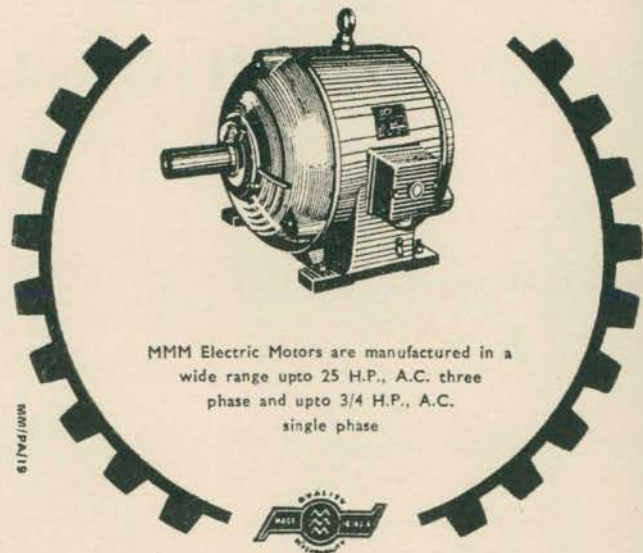
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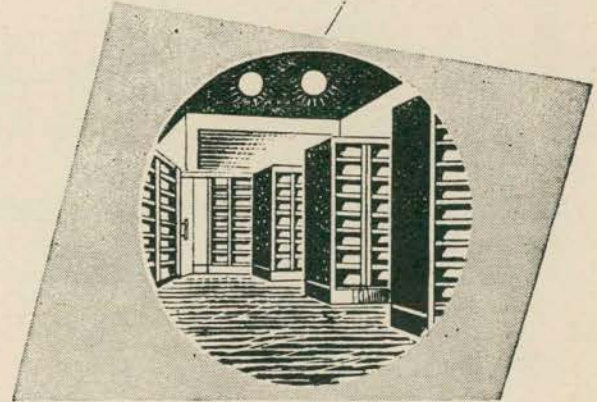
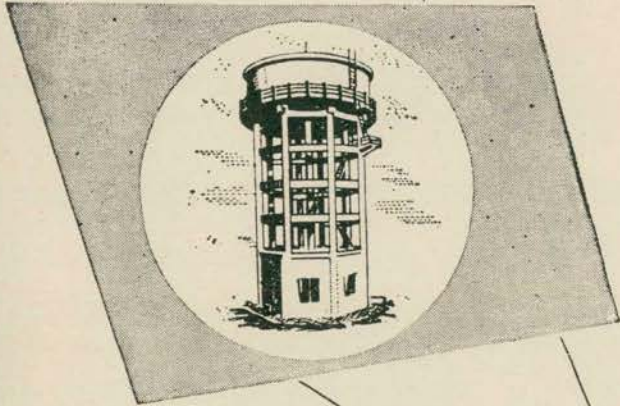
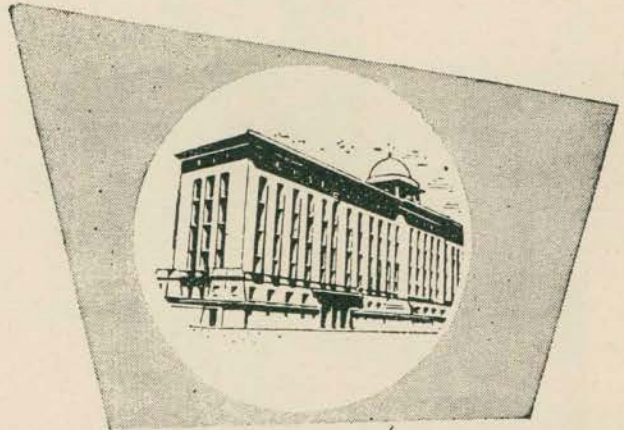
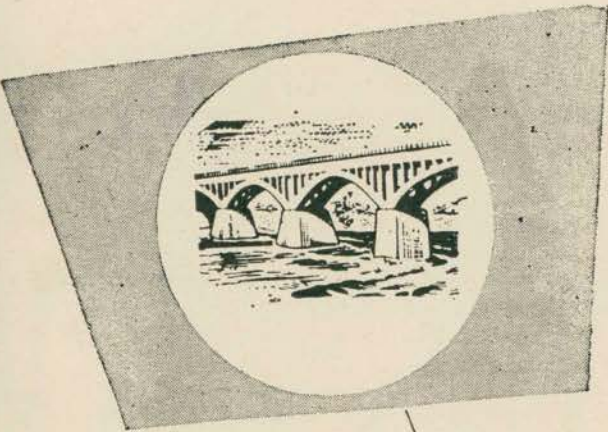
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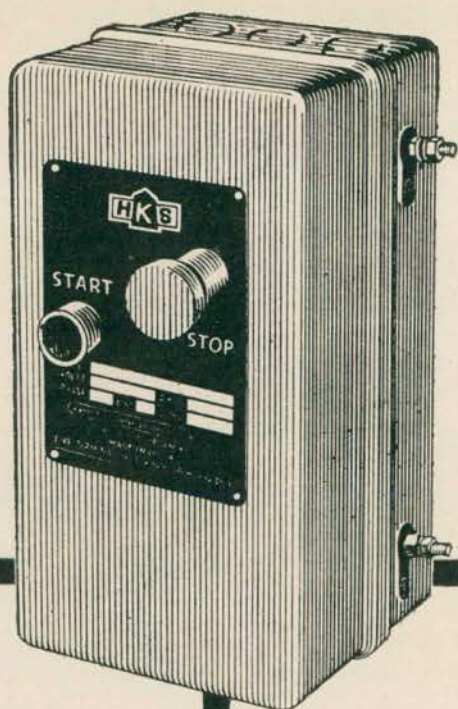
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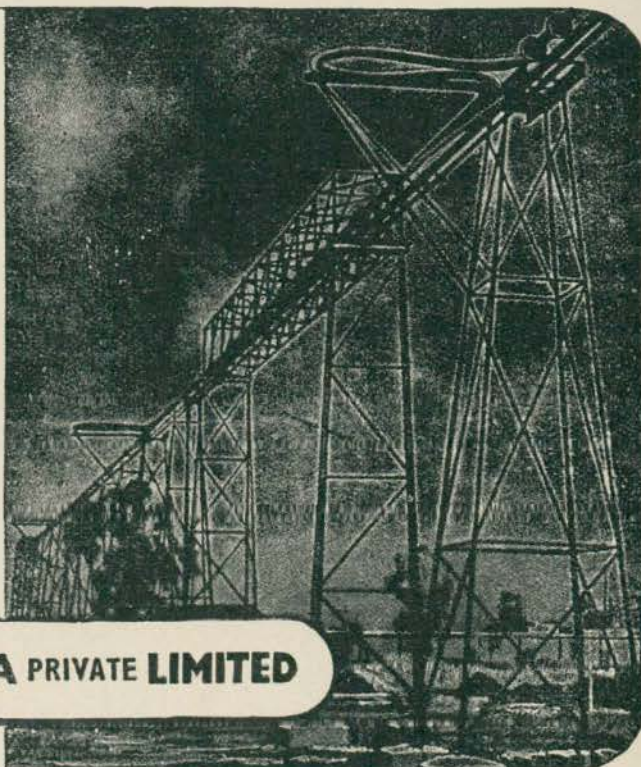
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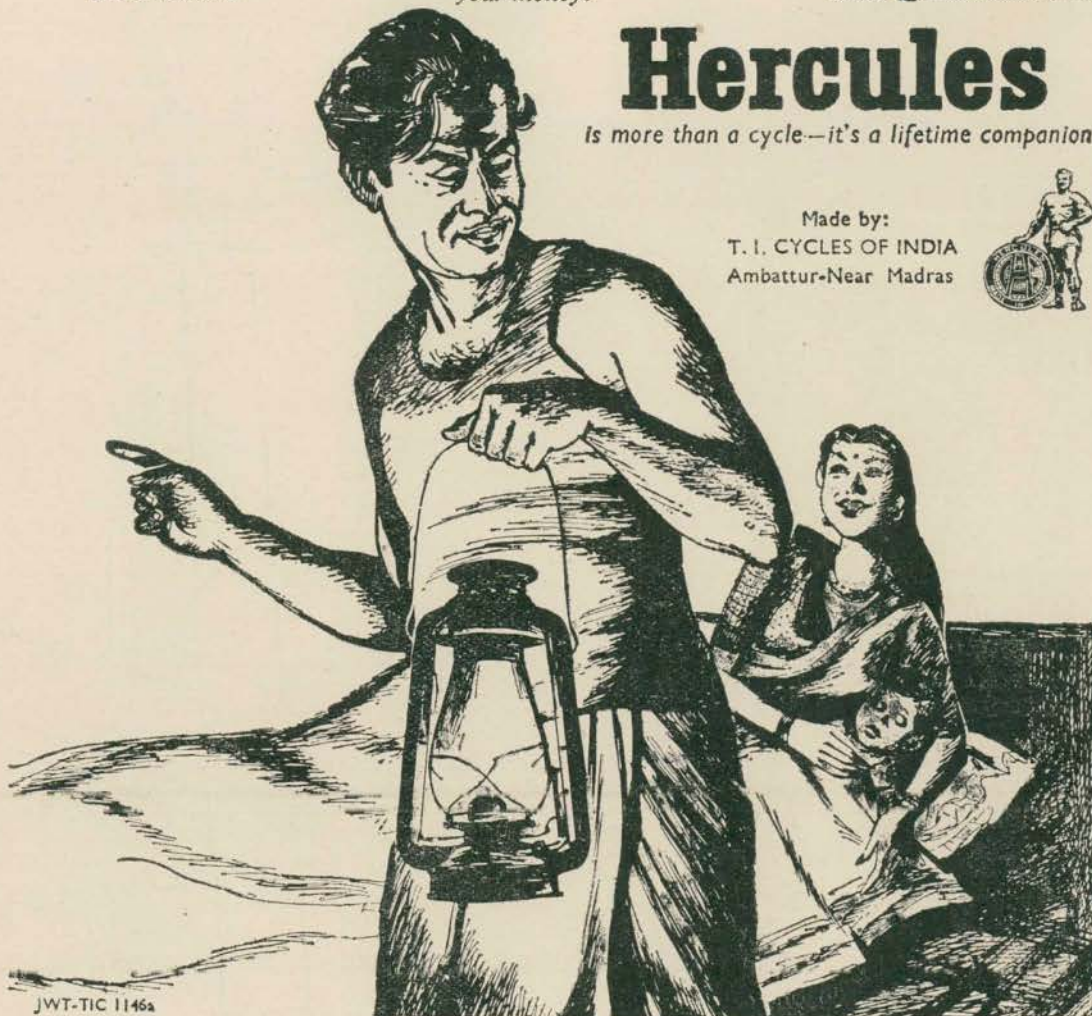
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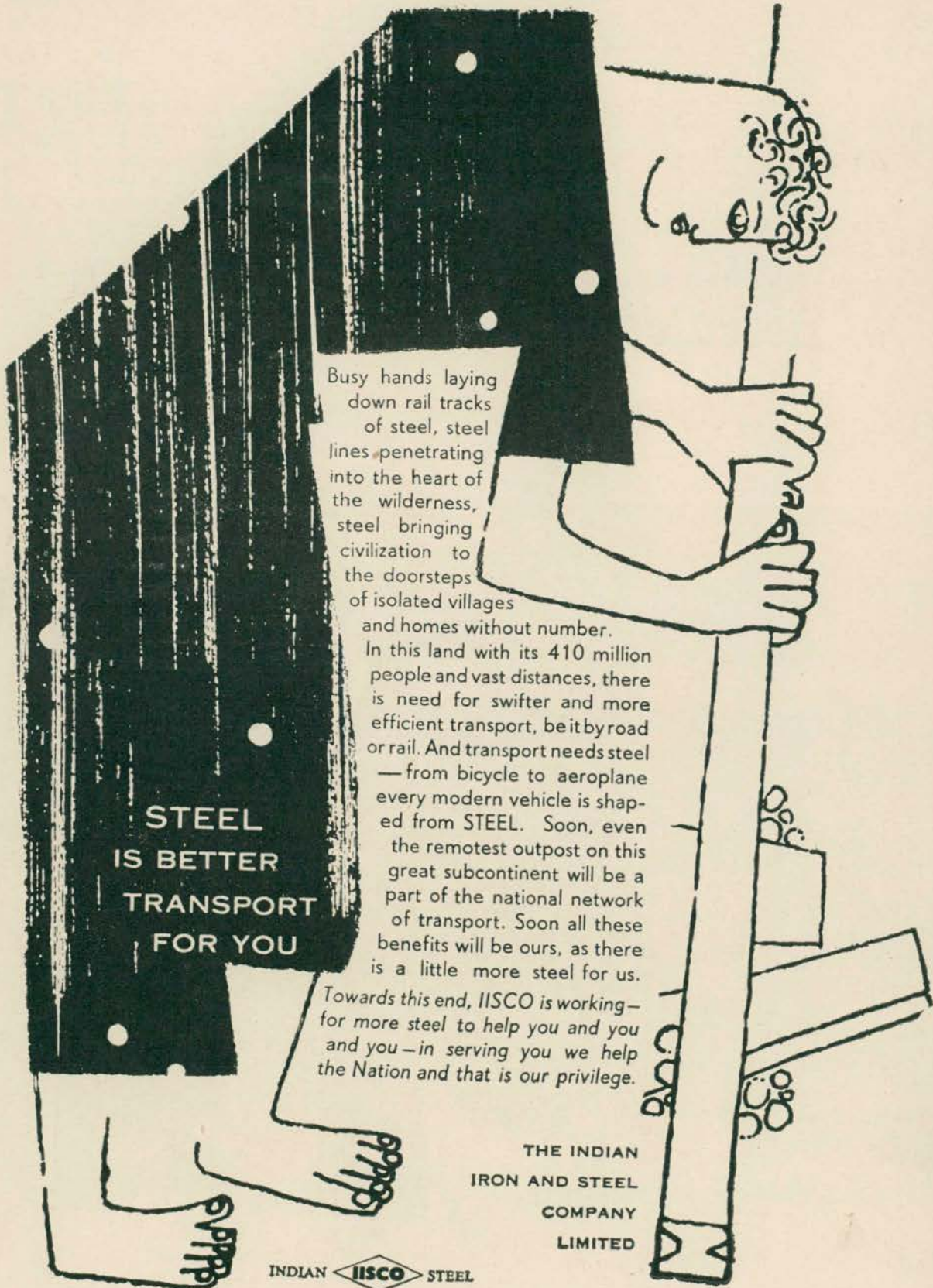
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Vol 13 No. 5 Sep-Oct 1961



IN THIS ISSUE

- What the IEC Means to the Developing Countries? ▪ Problems of International Standardization
- Furnace and Tests of Fire-Resisting Composition for Fire-Proof Safes ▪ Inter-Conversion and Co-ordination of Values in Metric and Inch Systems ▪ Conferences on Implementation of Indian Standards in Maharashtra and Mysore ▪ CAI to Hold Seminar on Consumer Problems ▪ Reviews

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Picture on Cover — Shri M. Hayath, Chairman, Electrotechnical Division Council of ISI, delivering the Seventh Charles le Maistre Memorial Lecture at Interlaken (Switzerland) on the occasion of the twenty-sixth Annual General Meeting of the International Electrotechnical Commission, IEC, the monogram of which appears on the right. The title of his lecture was 'What the IEC Means to the Developing Countries?', and its full text appears on p. 213.

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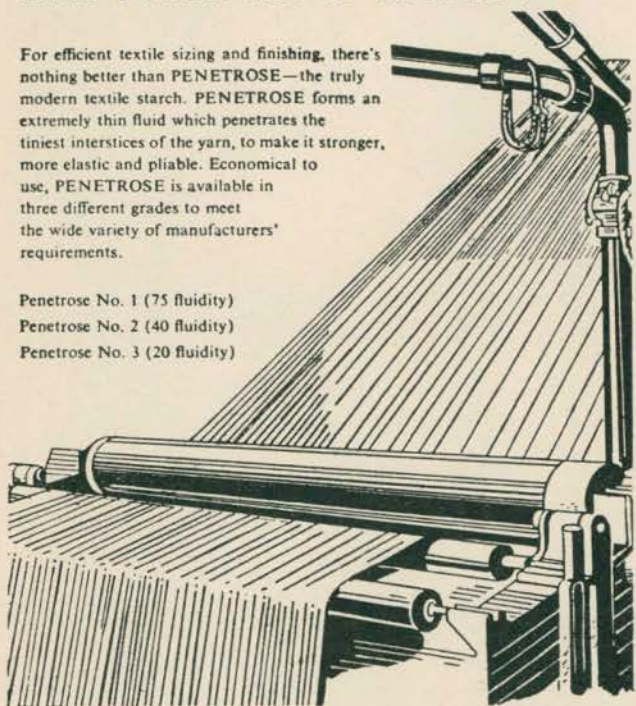
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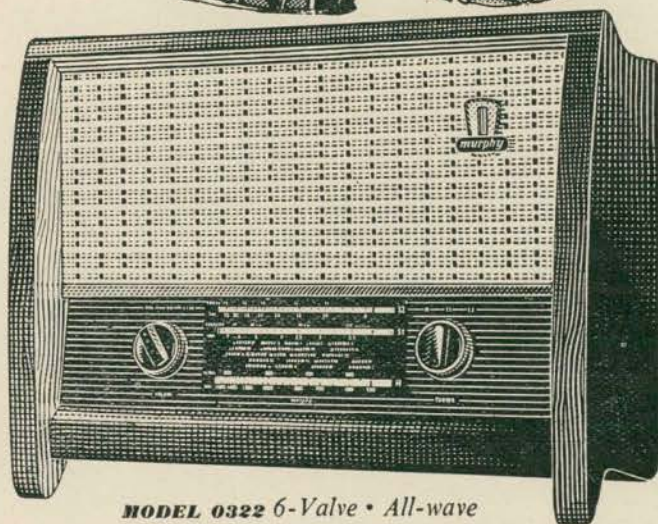
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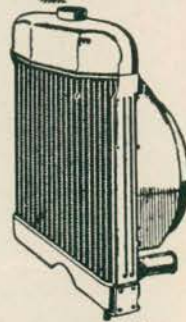
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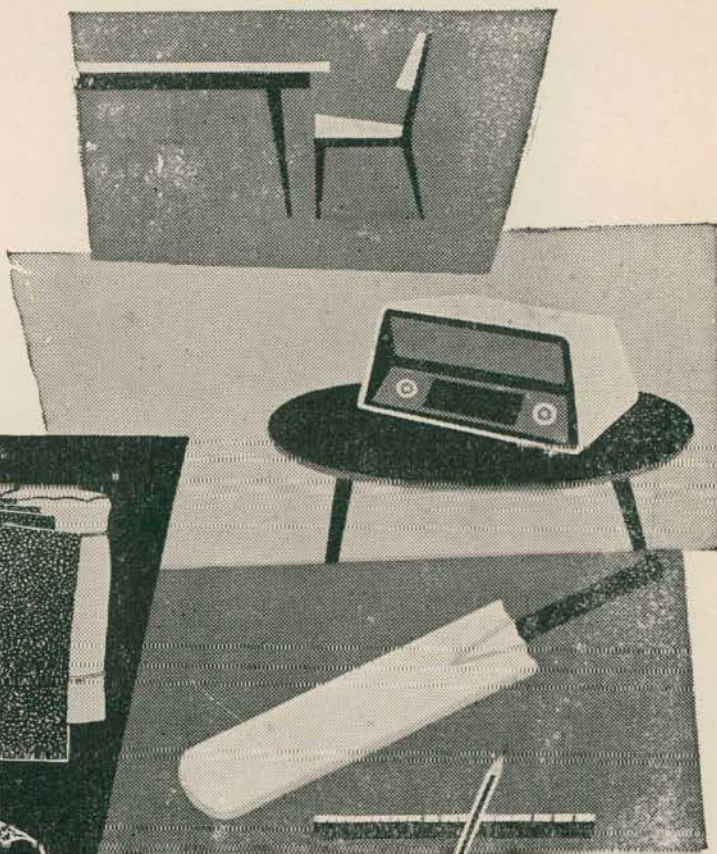
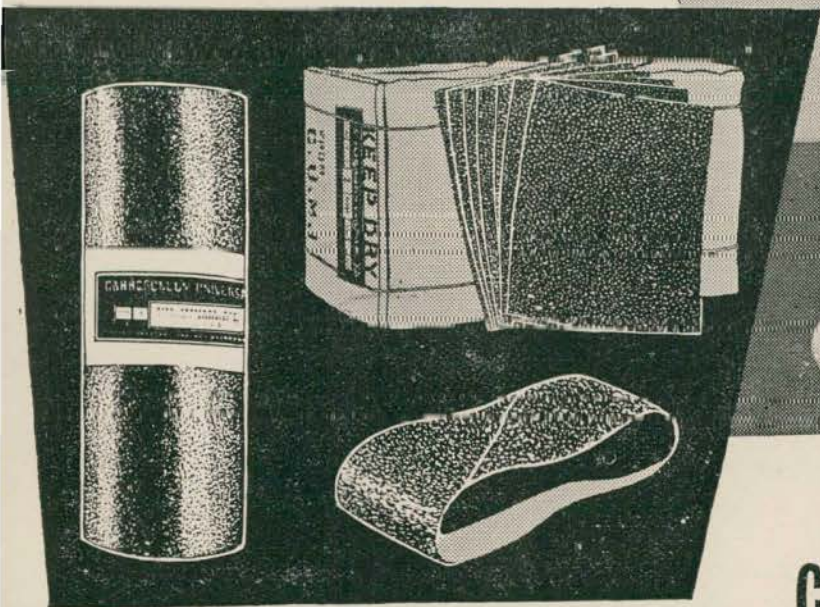
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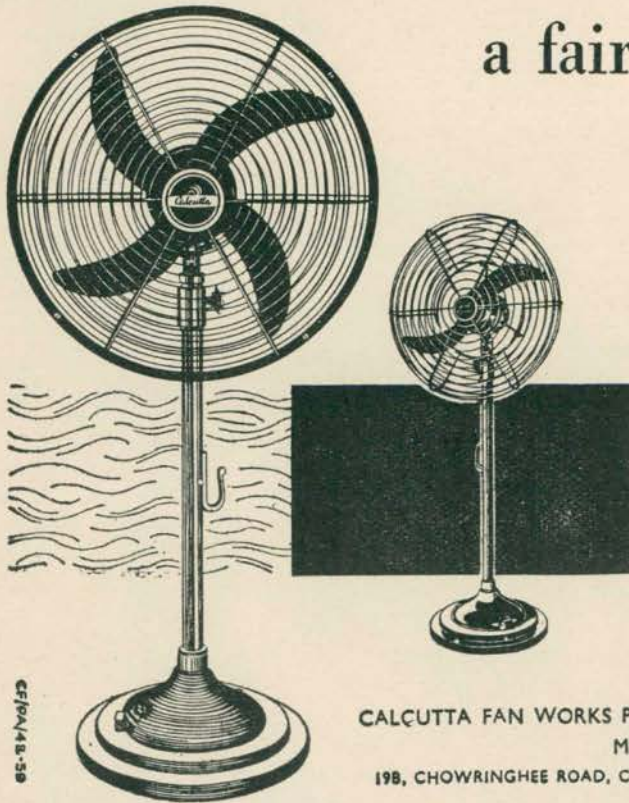
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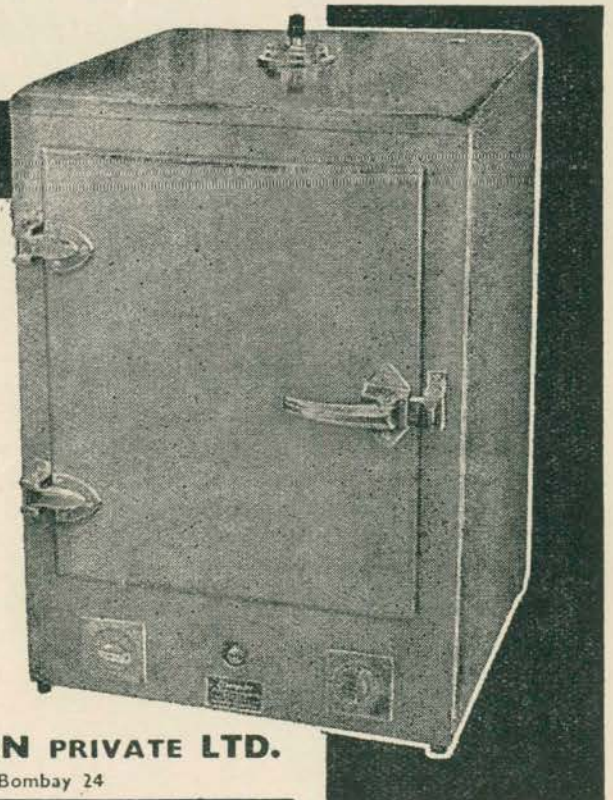
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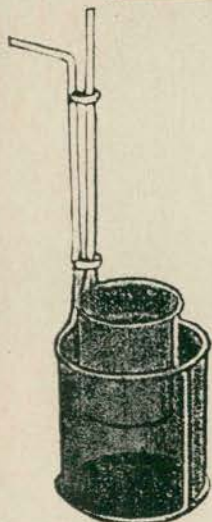
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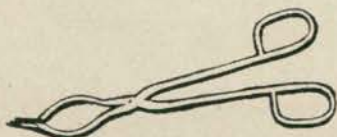
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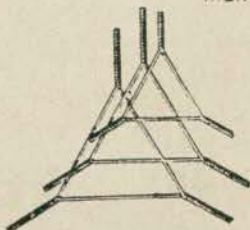


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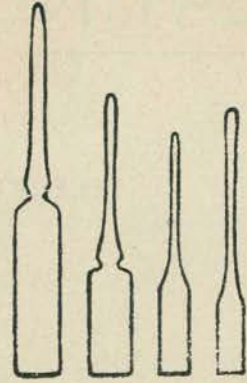
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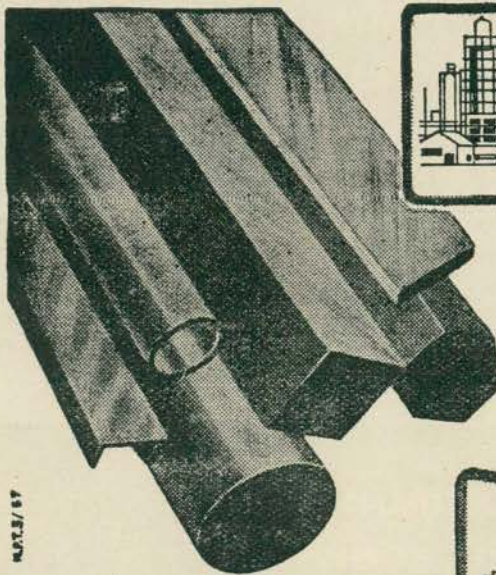
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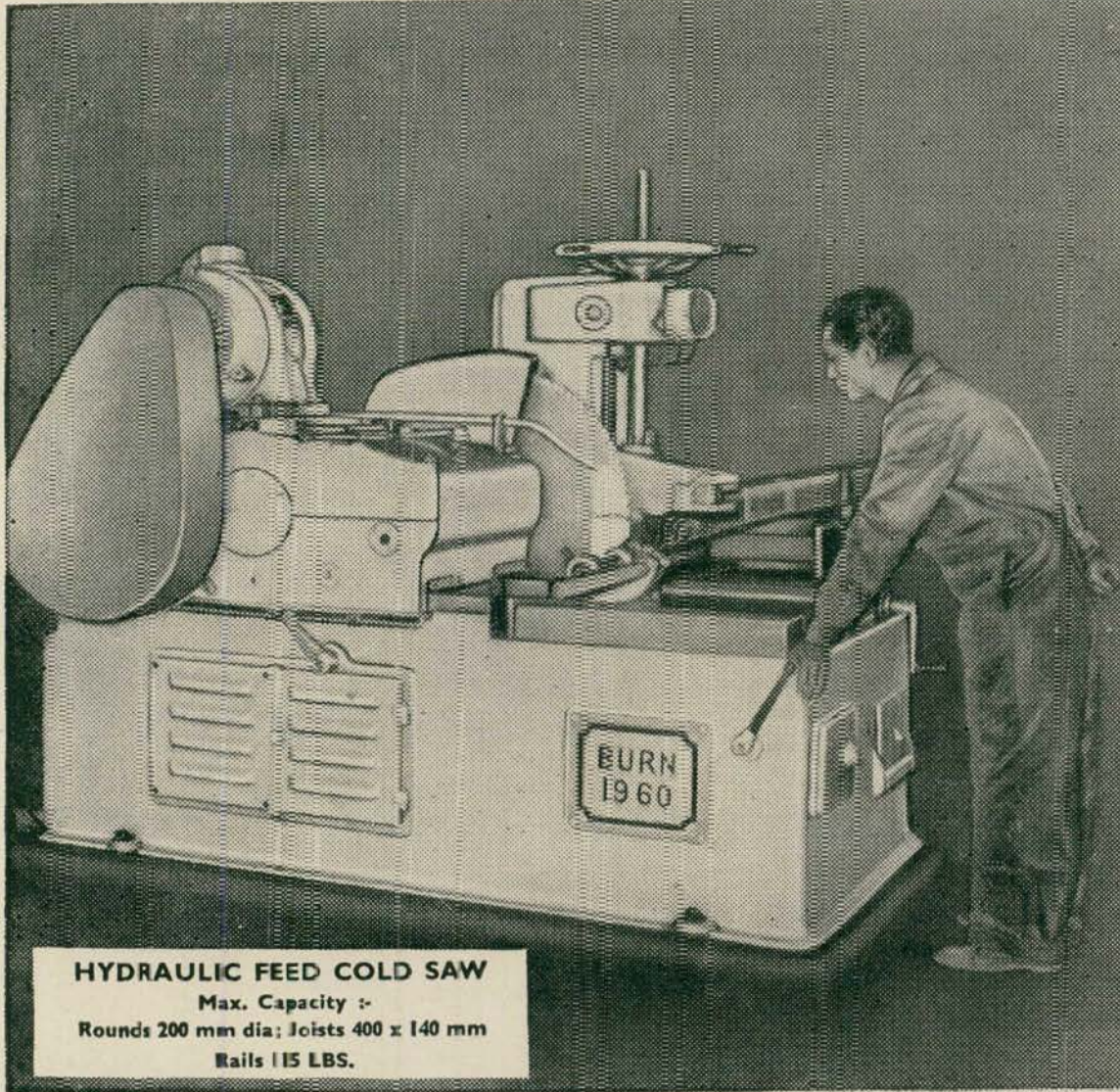
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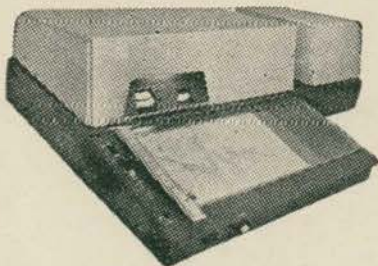
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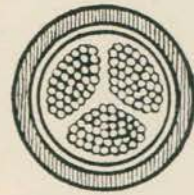
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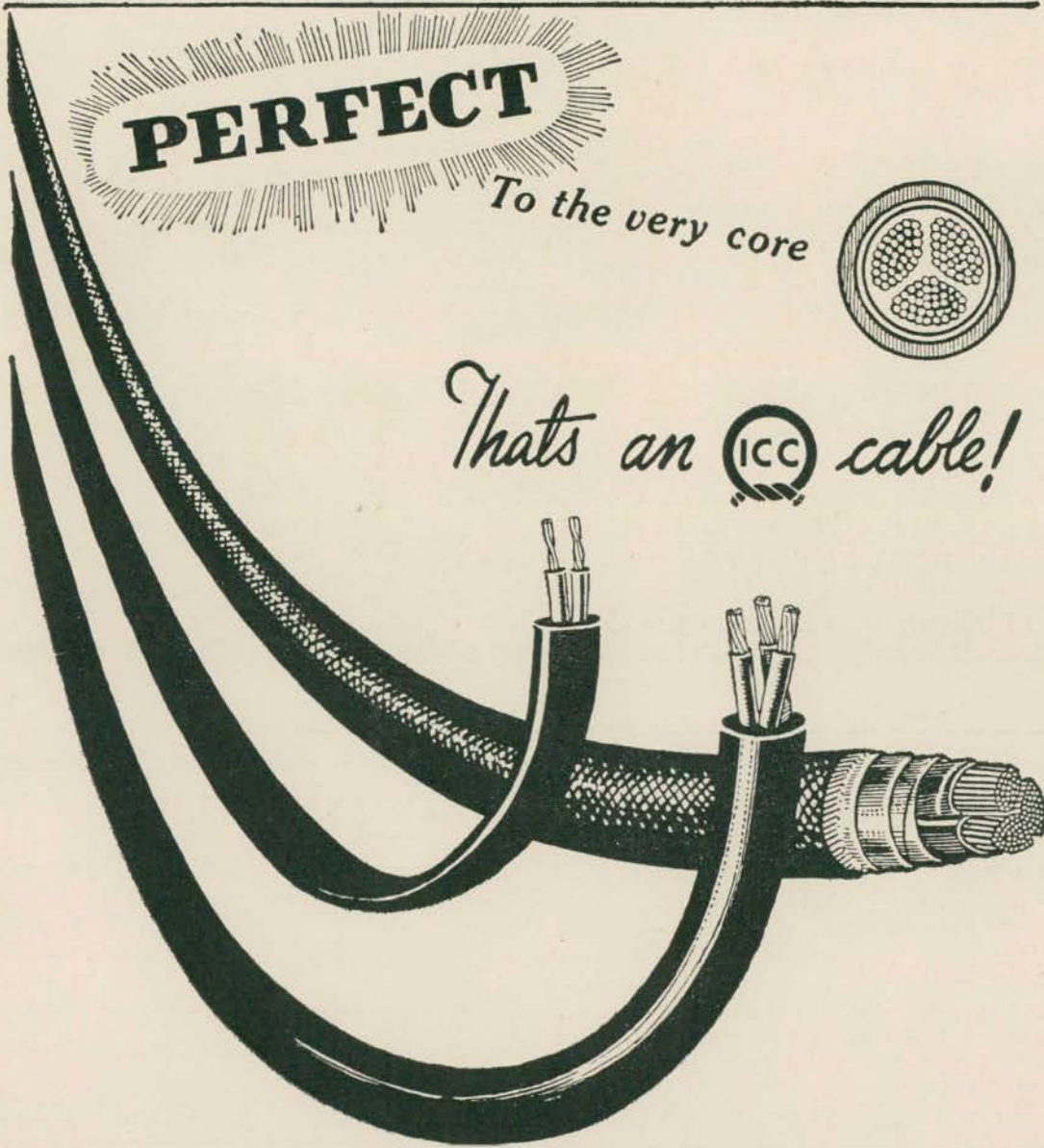
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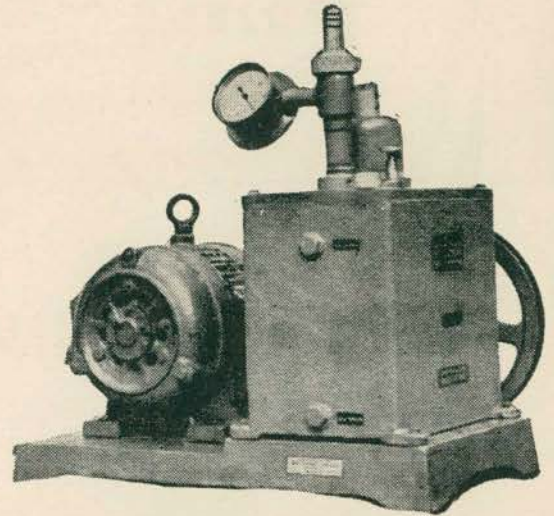
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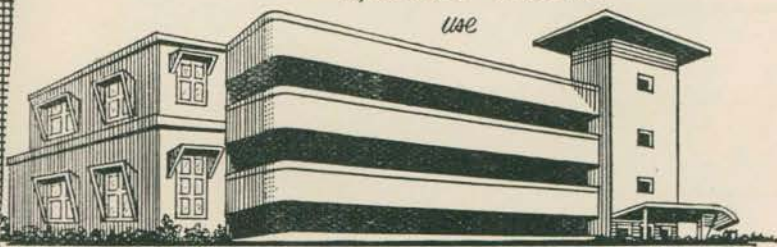
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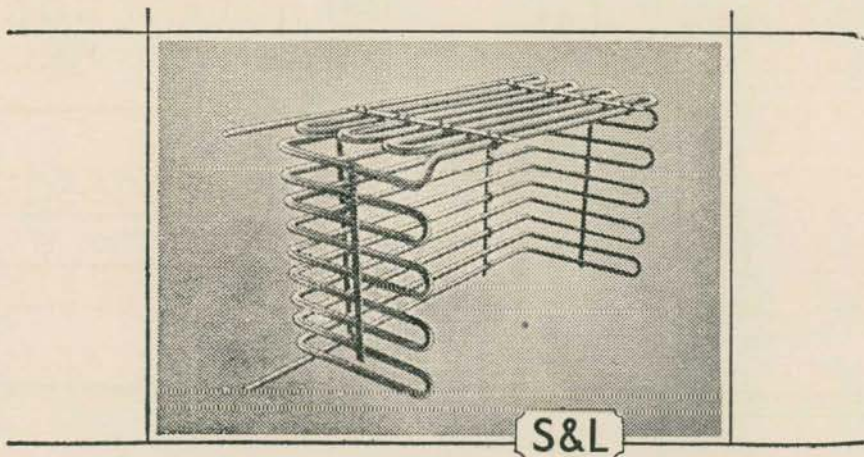
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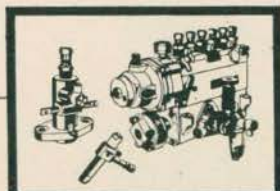
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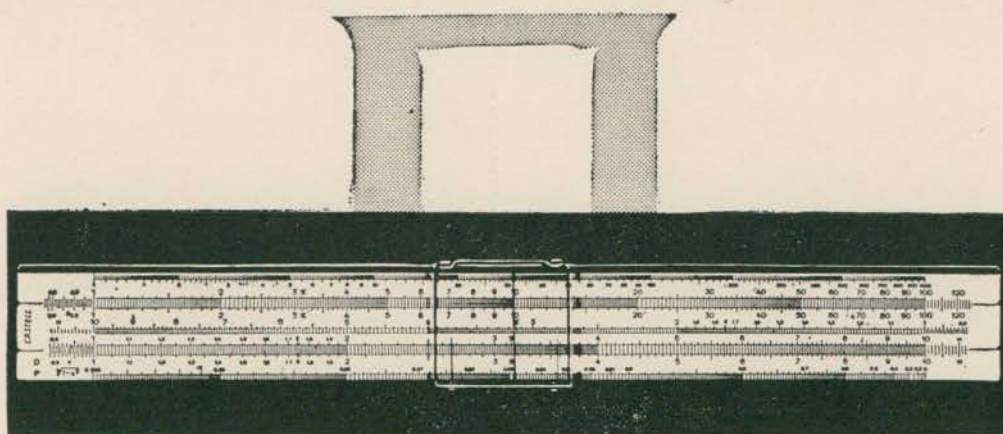


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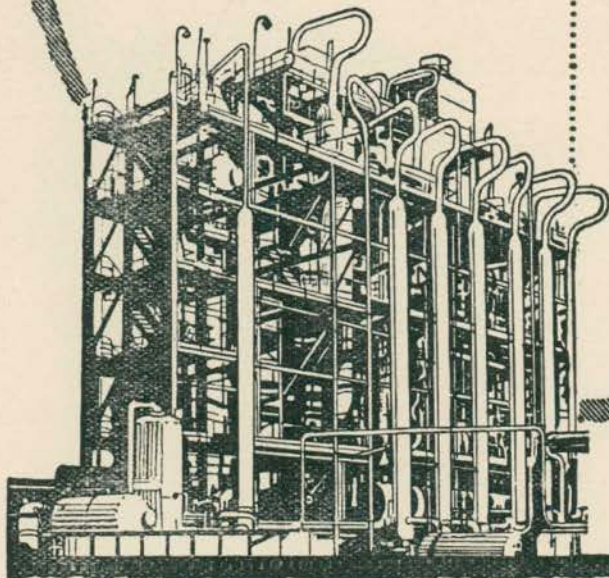
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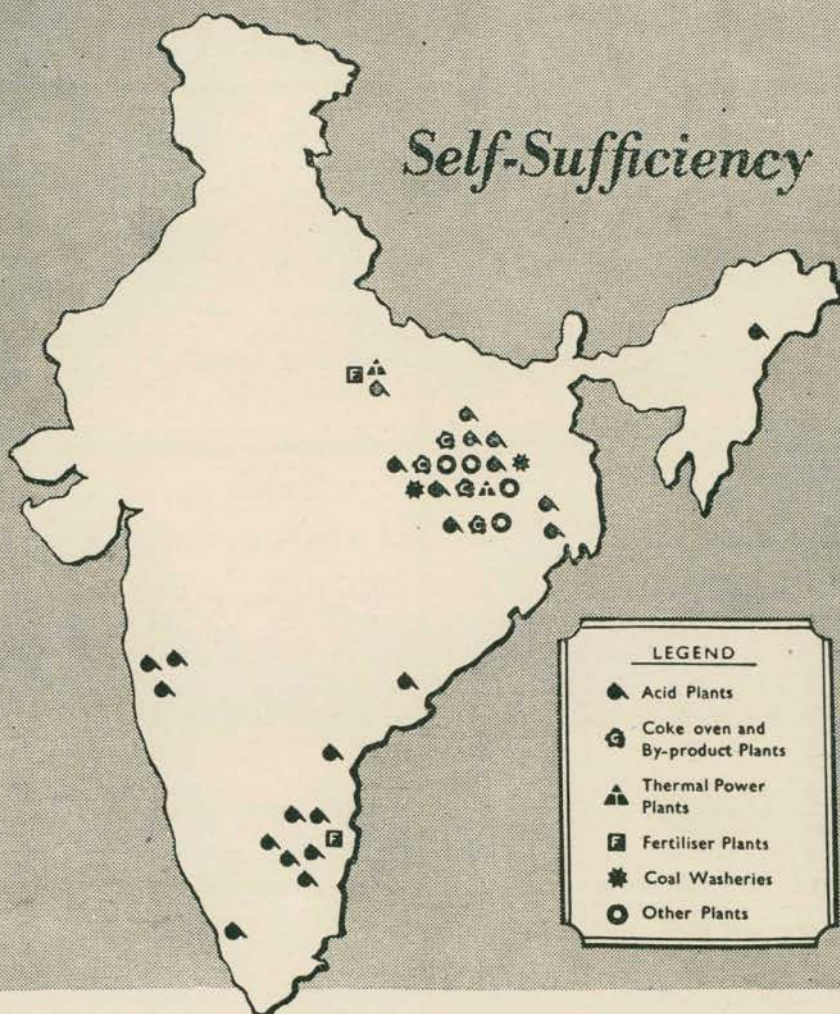
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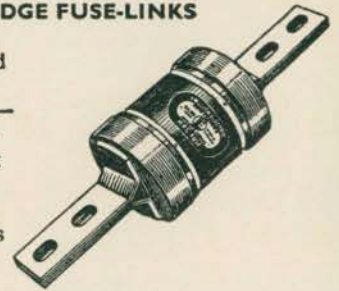
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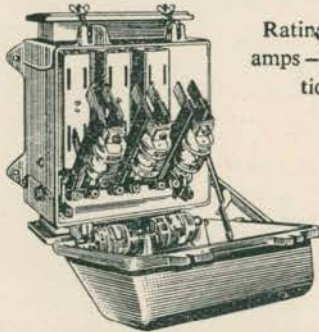
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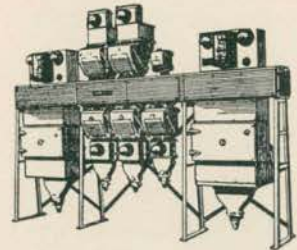
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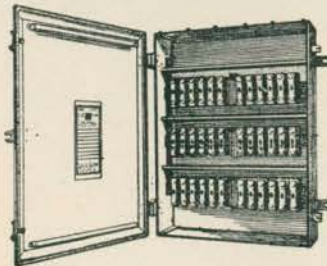
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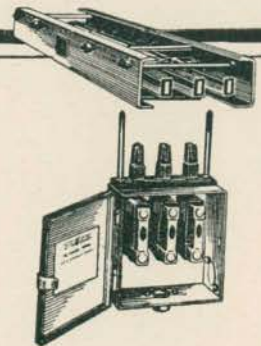


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EEC-71



What the IEC Means to the Developing Countries?

M. HAYATH

CHAIRMAN, ELECTROTECHNICAL DIVISION COUNCIL, ISI

THE last Annual General Meeting of the IEC was held in New Delhi in November 1960, which the Indian people considered a privilege. Following that meeting, the President of the IEC kindly extended to me an invitation to deliver the Seventh le Maistre Memorial Lecture at the opening of this General Meeting in Switzerland. This is not only a great personal honour to me, but also to my National Committee and to my country. I wish to express my deep appreciation and sense of gratitude for the distinction bestowed upon me to address this assembly of distinguished engineers and scientists of the world.

We are, of course, familiar with many international bodies serving diverse causes and varied fields of activity, both in the economic and political spheres. I must say definitely that the achievement of the IEC, which started functioning at the beginning of this century in its field of specialization, namely electrical technology, is in no sense slower than the achievements of other world organizations. In fact, it goes to the credit of the specialists serving the field of electrical technology that their achievements have been very substantial indeed, particularly during recent years. What is more important is that a stage has now been reached when a very rapid rate of progress in IEC work is clearly discernible. It is with this background that I had to choose the subject for today's address.

Developing and Developed Countries

During the last few years, it has been universally accepted that it

We reproduce here the text of the 'Seventh Charles le Maistre Memorial Lecture' delivered at Interlaken (Switzerland) on 19 June 1961 on the occasion of the twenty-sixth Annual General Meeting of IEC. Shri Hayath, who was specially invited by IEC to deliver this lecture, has pointed out that although the broad objectives of IEC are universally accepted as good and useful, yet there are some special considerations relating to developing countries, which he has defined as those countries 'in which modern technology and industry have yet to be cultivated and promoted in a large way so as to improve the economic conditions of their people to a reasonable standard'.

One such consideration, Shri Hayath mentions, is that the pace of development in developing countries is comparatively bigger. This necessitates a great deal of technological effort, which, in turn, requires the taking of fullest advantage by the developing countries of the knowledge and experience available in IEC. A second consideration is that the developing countries require technological collaboration from developed countries. And, since this collaboration may be coming forth from more than one source, it is very necessary from the viewpoint of developing countries that international standards should be fully accepted and implemented in national standards of the developed countries. Another important consideration is that developing countries are situated in severe climatic conditions of tropics. An understanding of the correct requirements of the tropical countries would help electrical manufacturers to design and export the most suitable machines for users in developing countries, and derive strength from the resulting consumer satisfaction — Ed.

would be good for all of us to work for, and move towards, the concept of one world. If this aim is to be

realized, it is of utmost importance that adequate ways and means for the economic development of all the countries of the world should be provided and that there should be a concerted effort by every one in all directions for the achievement of this goal. The IEC, which is one of the practical instruments for international co-operation, has begun to achieve this objective in its own comparatively limited but important sphere of activity, and I venture to say, it has before it an increasing role to play. I could, therefore, think of no better subject than dealing with the broad aspects of the problems of certain countries in which the realization of economic development has started recently. The term 'developing countries' has, therefore, to be understood as referring to countries in which modern technology and industry have yet to be cultivated and promoted in a large way so as to improve the economic conditions of their people to a reasonable standard, if not to the same high levels which are prevailing in those countries in which development has already taken place. My own country, being one of the developing countries along with practically all countries of East Asia, with the possible exception of Japan, provides to some extent an example for discussing the problems usually confronted within the region. I must say that, though India may not be a typical example, it is nevertheless one with which I am familiar, and I would request you to grant me your indulgence for having prepared this address substantially around the problems and conditions of all the

developing countries on the basis of the data available for India.

The broad objectives of the IEC are universally accepted as good and useful. It may, therefore, be asked why these objectives should not mean the same thing for developing countries as much as for the developed countries. One can generally agree with this broad conclusion, as the difference really is one of emphasis on certain aspects, and my intention is to bring to light such special considerations relating to the developing countries which bear on the work of the IEC. It will, therefore, be my endeavour this morning to bring home to those who are concerned with standardization and the application of electrical technology in the developing countries, the great scope for taking advantage of the knowledge and experience available in the IEC, for their own work and also to bring out the need for reciprocal contribution which they should make to the present and future work of the IEC. I may also touch upon certain special problems of the developing countries which may justifiably claim the serious and earnest consideration of the advanced countries in their approach to the work of standardization which is being done continually within the framework of the IEC. I may add that a proper understanding by them of the problems of the developing countries would, in the long run, prove to be of immense mutual advantage.

Previous le Maistre Memorial Lectures

The various aspects of standardization and its international application have been dealt with extensively in the six previous le Maistre Memorial Lectures*. The increasing attendance at the IEC meetings and the keen interest evinced by the delegates from various countries bear strong testimony to the growing importance and appreciation of IEC work. There can be no greater tribute to Charles le Maistre and his life work than this healthy growth of the seedling which he planted and nurtured over a lifetime of dedicated service to this cause. In this lecture, which is intended to commemorate his work, it is most appropriate that we affirm our loyalty and deep interest in the cause so firmly established by le Maistre so that the benefits flowing from the enlarging and enduring work of the

*See ISI Bull. Vol 12, No. 6, p. 303 (1960); and Vol 13, No. 1, p. 14 (1961).

IEC may reach all parts of the world and be of particular benefit to developing countries.

Before passing on to the subject of the lecture, it would perhaps be helpful for us to remember that the objectives of Charles le Maistre Memorial Lectures are:

- a) perpetuating the memory of the outstanding services of over 49 years rendered by Charles le Maistre, and
- b) contributing to the progress of electrical standardization through IEC's activities.

The first lecture was delivered by Mr. André Lange of France in July 1955, in London, on the very appropriate subject, 'Charles le Maistre: His work, the IEC'; the second was delivered in Munich in June 1956, by Mr. Clarence H. Linder of the USA on 'Standardization — Virtue and Necessity'; and the third in Moscow in July 1957, by Prof R. O. Kapp of the UK under the title 'The National Acceptance of International Standards'. Dr. Richard Vieweg of Germany gave the fourth lecture on 'Measuring, Standardizing, Producing' in Stockholm in July 1958, followed by a lecture at Madrid in June 1959, by Mr. A. M. Nekrassov's of the USSR, on 'International Standards and the Development of Economic Relations between Countries'. The sixth lecture was delivered at New Delhi in October 1960, by Prof G. de Zoeten of Netherlands on 'IEC' in an Expanding Electrical Technology and Contracting World'. These distinguished men from six different countries have each made a notable contribution to the cause for which Charles le Maistre toiled ceaselessly. To the profound thoughts and suggestions expressed by them in their lectures, it will be my endeavour to add my humble contribution through a subject which, I hope, will evoke a new thinking and call for action in the IEC concerning the problems of a large segment of the world which has yet to go a long way in the field of electrical development and standardization.

IEC's Role in Industrialization

In the countries of East Asia, which includes India, development in any real sense of the word started only very recently. In certain fields like the development of power resources, industries or mining, some beginning has been made, but the total volume of planned development is far too small having regard to the area and the population of the countries

concerned. Admittedly, the growth of technology is really sustained by the growth of economic activity, mainly industrialization. It is, therefore, natural that the volume of industrialization being small, technology in all its essential characteristics, such as standardization, has been slow to grow. In this context, it may perhaps be said that in most of the developing countries, in the past, very little use was being made of the valuable work and experience of the IEC. Obviously, the contribution which they could make to the IEC has also been limited. Nevertheless, a totally different picture is emerging today with the new movement towards rapid industrialization gaining momentum. That is, when large-scale development is set forth as a national objective, it becomes necessary to mobilize all resources and the most important of them is the progress in modern technology. Accordingly, the IEC's work, knowledge and the experience of the large number of experts who work in its committees would be of greatest value to the developing countries at this stage.

Production of Electrical Energy

It is generally known that the growth of production of electrical energy in the world has been following a trend of doubling every ten years approximately, and this is applicable to most of the developed countries also. Against this, the rate of increase in the developing countries has been substantially higher in recent years, as may be seen from the data given in Tables I and II (see p. 215) on electricity production, taken from the Statistical Bulletin published by the United Nations.

It would be interesting to make a review of the development of the electric power supply industry and the manufacture of electrical equipment in the developing countries we have in mind. In the case of India, the real impetus for industrial development came with the ushering in of independence, fourteen years ago.

Taking the case of the electric supply industry in India, the position is as follows. At the beginning of the First Five-Year Plan, that is, April 1951, the installed capacity was 2.3 million kW. During the First Plan period, an addition of 1.1 million kW was made, bringing the total to 3.4 million kW. The Second Five-Year Plan contemplated doubling the installed capacity during the period 1956 to 1961, but due to certain difficulties, the

TABLE I ELECTRICITY PRODUCTION IN DEVELOPING COUNTRIES

COUNTRY	MONTHLY AVERAGE OF ELECTRICITY PRODUCTION IN MILLION kWh			AVERAGE PERCENTAGE INCREASE PER ANNUM		PER CAPITA PRO- DUCTION OF ENERGY DURING 1959
	1951	1954	1959	For the Period 1951-54	For the Period 1954-59	
	Ceylon	8	12	22	16	
China (Taiwan)	107	150	268	13	16	315
Fed. of Malaya	52	73	77	13	1	138
Hongkong	35	41	79	6	18	332
India	488	627	1 215	10	18	36
Indonesia	51	67	120	10	16	16
Japan	3 453	5 006	8 260	15	13	1 065
Korea (Rep of)	26	75	141	63	17	71
Pakistan	25	42	100	23	28	14
Philippines	50	80	125	20	12	61
Thailand	9	19	27	37	8	15

TABLE II ELECTRICITY PRODUCTION IN DEVELOPED COUNTRIES

COUNTRY	MONTHLY AVERAGE OF ELECTRICITY PRODUCTION IN MILLION kWh			AVERAGE PERCENTAGE INCREASE PER ANNUM		PER CAPITA PRO- DUCTION OF ENERGY DURING 1959
	1951	1954	1959	For the Period 1951-54	For the Period 1954-59	
	USSR	—	12 558	22 083	—	
USA	—	45 387	66 210	—	9	4 460
UK	—	5 075	8 764	—	8	2 030
France	—	3 798	5 376	—	8	1 432
Germany (Fed. Rep)	—	5 710	8 488	—	10	1 950
Canada	—	6 150	8 654	—	8	5 950

Other Selected Countries

actual plant addition has been such as to bring the installed capacity by the end of March 1961 to 5.7 million kW. In the Third Five-Year Plan, the programme is to achieve an addition of 7.7 million kW, during the five-year period ending March 1966. A nation-wide load survey was conducted and the most conservative estimate made indicated that the requirement of installed capacity in the country by the end of the Third Five-Year Plan, would be of the order of 13.8 million kW. This survey was conducted in the course of the last two years and instances have already come to notice that the anticipated demand is likely to be in excess of the assessment made. Thus, it will be seen that India is at the threshold of a very large industrial expansion.

In the case of **Ceylon**, the installed capacity in 1951 was 52 700 kW and it rose to 61 500 kW in 1956, and to 93 300 kW at the end of 1958.

In the **Federation of Malaya**, the installed capacity in 1951 was 132 800 kW and it rose to 186 400 kW in 1954, and to 294 700 kW at the end of 1958.

In **Indonesia**, the installed capacity in 1951 was 178 600 kW and it increased to 216 600 kW in 1954, and to 262 500 kW in 1958.

In **Pakistan**, the installed capacity in 1951 stood at 116 800 kW and rose to 176 700 kW in 1954, whereas by 1957, it rose to 267 300 kW.

In **Thailand**, the installed capacity in 1951 was 42 700 kW and in 1954 it rose to 81 500 kW and in 1958, it came up to 150 400 kW.

A review of these figures readily indicates that, even though the development of the electric power supply industry, which is an index of the industrial development of a country, was slow during the first few years of the past decade, it has been gathering momentum during the last few years. From the above statistical data, one can say that the developing countries are now going through a crucial stage of development, and it needs all the efforts of the engineers engaged in the developmental activities in these countries to ensure that these big expansions are carried out on sound lines so that industrial growth is placed on firm foundations. At this stage, it is

most desirable that the developing countries should adopt standard practices in respect of both electricity supply and manufacture of electrical equipment, and they should draw upon the rich experience of the IEC.

Transmission Voltages

My learned friend Prof de Zoeten, in his lecture at New Delhi gave some interesting figures on the time interval for a doubling of the maximum voltage of the transmission system. He showed that the system voltage in the United Kingdom and Germany had a tendency to double in a period of 20 years. This is true in the case of India too. We had our 110 kV and 132 kV systems introduced over 25 years ago and we started constructing our first 220 kV lines about 3 or 4 years ago. However, we expect that a change from 220 kV to 380 kV, for which initial planning studies are currently in progress, may take place in about 10 years. In Pakistan, Burma and a few other countries, transmission systems of 220 kV are being commissioned. Thus, in countries where the pace of development is comparatively large, a great deal of technological effort is obviously necessary, not to say of similar efforts in other fields, such as finance and organization. It is in this context that the contribution which the IEC could make would be of immense value to the developing countries.

Electrical Manufacturing Industry

The production and distribution of electrical energy alone do not present the whole picture of a country's state of development in electrical technology or economic progress. By that I mean that the growth of the electrical manufacturing industry is equally important, because large-scale developments of the power supply industry can only be sustained by corresponding development of the electrical manufacturing industry. In the initial stages of building up the economy, the developing countries go forward up to a point by importing equipment from other countries, and by exchanging raw materials and semi-processed goods. As electrical energy is the basic need of industry and is also required for other purposes, such as domestic use, public lighting, water supply, sewage pumping and the like, it is obvious that the power equipment has initially to be imported. As the country's own economy gains a foothold through the establishment

of certain basic industries, the time comes for more and more machinery and equipment to be made within the country. In the highly technical field of electrical equipment, the first phase of manufacture will naturally be limited to simple power consuming and distributing equipment, namely, lamps, cables, small transformers, motors, domestic appliances and the like. Even during this period of initial development, electrical energy is required in increasing quantities, and for this purpose, large boilers, generating plants, and transformation equipment will necessarily have to be imported. Then a start will have to be made for manufacturing the larger and heavier equipment progressively within the country and thus move towards self-sufficiency. Even in this process, there are certain relative priorities before a country can go all out for the manufacture of large electrical equipment. For example, I may state that the steel industry, the machine tool industry and other similar industries will have to be established first, based on some sort of a balance in the magnitude of the various industries. This approach has been followed successfully in the case of India during the last 10 years. Some notable progress has been made in the manufacture of light electrical equipment, and very recently, a start has been made in the manufacture of heavy electrical equipment, such as large transformers and switchgear. From this, we shall move on to larger sizes and voltage ratings and then to the manufacture of rotating machines, large boilers and allied equipment. It has to be noted that it has taken us nearly 10 to 15 years to reach this stage. Although progress will be more rapid during the next few years, the fact remains that, at the rate at which power demand in the country is growing, it is not likely that the internal manufacturing capacity will catch up with our total needs for a long time. All that can be expected is that the volume of manufacture of small and medium items will progressively reach self-sufficiency, but some of the larger size of machines and more complicated equipment may still have to be imported for quite some time yet.

When to evolve Standards?

Having given a brief review of the stage of development in India in these two related fields, which more or less come within the field of activity of the IEC, I should like to deal

with the extent of standardization work that is being attempted in India. The need for this work has been emphasized because industrial development in India is proceeding on a planned basis, and as in the words of our great leader, Prime Minister Jawaharlal Nehru, it is an essential element of planning to have standards. There is no doubt that the IEC is a great storehouse of knowledge and experience in the matter of standardization in the electrical field, but it has been emphasized and clearly explained by some of my predecessors and also by authorities on IEC matters, that standardization at the national level has certain distinct objectives to reach and that a mere adoption of an IEC recommendation may not fully serve the need of any particular country. By and large, this view is shared by me as one representing a developing country, where activity in the sphere of standardization is comparatively of recent origin. While we have taken liberally of the knowledge and experience available in the IEC, it has become necessary to evolve national standards which are distinct in character and suitable for application to local conditions. One of the fundamental questions that we come across in evolving electrical standards is the much discussed question whether standards for a particular product must come first or whether the setting up of that industry should take precedence. One cannot afford to be dogmatic on this point, but it seems to me that, for a developing country with targets set for rapid progress, it will be more advantageous, by and large, to evolve standards even in advance of the establishment of an industry. In other words, it is not always necessary to wait for an industry to be established before a standard with reasonable possibility of acceptance can be framed, and this will prove to be of help to entrepreneurs to set about establishing that industry on right lines.

The amount of work which can be carried out in this direction, will depend upon the availability of technical personnel for the purpose. With the rapid industrial advancement of a country, a rational deployment of technical personnel is very essential. Therefore, the preparation of national standards, while receiving due attention, has to be restricted to the limited personnel that can be allotted for this work, from the industry, consuming organizations and the national standardization body.

Foreign Collaboration

A common feature for the promotion of industries in developing countries is their dependence on foreign collaboration, both for finance and for technical know-how. This necessarily brings with it certain incidental difficulties in respect of the problem of standardization, and it calls for a judicious approach if the economic production of the goods concerned is to be safeguarded. In this connection, we have come across certain problems when a product is made by different industrial plants, each with the collaboration of a different foreign country. More often than not, there are wide variations in the different national standards of the collaborating foreign countries to which the products conform. In the process of framing a national standard, it becomes a matter of compromising among the standards which several manufacturers seek to follow. Sometimes, a difficult situation arises, but then it is not far different from those often faced by the IEC, when a large number of countries endeavours to arrive at a common IEC standard seeking to provide for a large measure of acceptance. In such instances, it would be of great advantage to us if the IEC Recommendations for those products had already been fully accepted and implemented in the national standards of the technologically advanced countries with whose collaboration industrial plants are set up in developing countries. At the same time, it would neither be right nor practicable to select one of the standards in preference to others as it would in effect rule out the assistance to be received from other sources. So we are faced with this problem of adjusting differences in other national standards on the one hand, and trying to avert on the other, an otherwise chaotic situation even in a new industry to be established for the first time. However, through persistent efforts and in a spirit of compromise, we have succeeded in evolving standards having reasonably general acceptance in India. I may also record my appreciation of the fact that some of our overseas friends have shown a willingness to compromise and agree on a common national standard for India, although for historical reasons they may find it more difficult to deviate from their established practices in their own countries. I am touching on this point in some detail because this kind of problem is likely to be

met with in other countries in Asia or Africa, which, in future, will be moving towards the manufacture of electrical equipment. I may add here that, where financial and technical assistance is received from other countries, there may sometimes be a tendency for particular national influences to make themselves felt in decisions on matters relating to technology and standardization. I am glad to say that the engineers and scientists in India have taken particular care to eschew such influence and keep themselves free to maintain a correct technical attitude in arriving at solutions to problems of this nature in the context of our country's needs.

A large heavy electrical equipment manufacturing plant is being established in India in collaboration with a leading firm of the United Kingdom. An important problem connected with it arose at the outset and that was about the metric system to which India has started changing over. It was decided that, even initially, the designs and drawings licensed by the United Kingdom firm should give equivalent metric dimensions and the change-over would be effected progressively. A large number of other electrical manufacturing industries is being set up rapidly in collaboration with a number of firms from countries in North America, Europe and Japan, and efforts are being made to keep a careful watch on the standards they follow and on the extent to which they will work around Indian Standards or IEC Recommendations. It is for this reason that, in the last few years, a fairly large number of Indian Standards has been published.

Climatic Conditions of Tropics

An essential requirement in framing standards for India is the provision for meeting the effects of the severe climatic conditions of the tropics, and this applies to a number of countries in South East Asia and the African continent. This is one of the chief reasons which warrant certain departures from the IEC Recommendations in adapting them for the developing countries. The various factors are high temperature, high humidity, fungi, vermin, rodents, sunlight, salt and dust. Based on some records maintained in India, the maximum ambient temperatures in many parts of the country are known to be from 45°C to 56°C, while the maximum 24-hour mean is from 35°C to 52°C. The humidity

in some parts of India goes up to 95 percent during some parts of the year. It is well known that ratings of electrical equipment have a bearing on the ambient temperatures in which they are expected to work. This again influences the permissible temperature rise in the equipment, depending on the type of insulating materials employed in its construction. If the actual temperature under service conditions is higher, it will result in rapid deterioration of the insulation, and if this has to be obviated, the machine or equipment has to be derated so as to bring down the working temperature. Variations in temperature cause a cycle of expansion and contraction. In designing sensitive equipment, such as relays, meters and other similar instruments, the effect of heat and humidity has to be carefully studied. Thus, unless they are specifically made for operation in tropical climates, continuously rated machines will not be satisfactory in their performance or alternatively purchasers will have to specify larger ratings and more severe duty cycles for imported equipment. Similarly, protection against high humidity is very important in high voltage equipment, and special precautions, such as fitting of heating elements in enclosed chambers may be necessary to prevent condensation. In the same way, measures for protection against dust accumulation is also necessary. These are some of the special difficulties of tropical countries and the Indian Standards Institution has been studying this subject in some detail and has formulated certain standard atmospheric conditions for testing. As delegates here are aware, India has been advocating the need for making adequate provision in the IEC Recommendations for the variations that exist between the conditions in tropical and sub-tropical climates on the one hand and temperate climates on the other. As a first step, a standard reference temperature of 27°C for tropical climates has been adopted by the IEC and we are also happy to see the increased attention, the several Technical Committees are giving to this aspect. However, I hope I will not be mistaken if I say that we have still a long way to go towards implementing the Opatija resolution. I am, therefore, taking this opportunity to emphasize and plead for the unreserved acceptance of the needs of the tropical countries as one of the basic tenets of IEC work in order to make it truly international. Perhaps, one way of

achieving this may be to ask every Technical Committee to cater definitely for the severe atmospheric conditions of the tropics, even from the preliminary stages. This, I feel, is all the more important as most of the developing countries happen to be in the tropical or sub-tropical regions.

As already stated, the developing countries will provide a continuing market for heavy electrical equipment manufacturers in the developed countries for a long time. An understanding and adoption of the correct requirements of the tropical countries would, therefore, help such electrical manufacturers to design and supply the most suitable machines for various users, and this in turn would help the purchasing countries to get satisfactory performance and service from the equipment.

Indian Standards

Ever since it was established in 1947, the Indian Standards Institution has been taking quite an active interest in IEC work. I am glad to say that this interest will be growing at a much faster rate hereafter because of the impetus given by the last general meeting held in New Delhi. During the comparatively short period of its activity, a large number of Indian Standards has been formulated, by and large, following the lead of the IEC. In a number of cases, the broad Recommendations of the IEC have been largely incorporated in Indian Standards with the minimum necessary deviations to take care of special tropical conditions. I may here illustrate my point taking the particular case of electric motors. The Indian Standard Specification for Three-Phase Induction Motors for Industrial Use was first published in 1951 and revised in 1959 to incorporate Class B insulation in addition to Class A to bring it in line with the latest practice. This standard (IS: 325-1959) broadly follows the corresponding IEC Publication, except that the permissible limits of temperature in the Indian Standard are 5 deg C lower for slip-rings with Class A insulation and 15 deg C lower for slip-rings with Class B insulation. It will also be of interest to note that the Indian Standards Institution brought out in 1958 a standard for the Dimensions of Three-Phase Induction Motors (IS: 1231-1958). As you no doubt recollect, the IEC first published in 1954 a report recommending two series of dimensions for foot-mounted

motors, one based on millimetre dimensions and the other on inches. Consequent on India's decision to change over to the metric system, India prepared a draft in 1954 incorporating the salient dimensions from the two IEC series in a single series with a view to ensuring universal interchangeability. This proposal, I am glad to say, was discussed at several meetings of the IEC Subcommittee and subsequently resulted in the IEC Publication 72-1 (1959). The Indian Standards Institution has also covered a fairly good cross section of electrical equipment, such as transformers, cables, conductors, insulators, controlgear, batteries and light electrical and electronic equipment and components of different kinds.

Universally Acceptable Standards

It has been the constant endeavour of the Indian Standards Institution to contribute to the work of the IEC, even in a small measure right from the start. This, of course, will be true of any other Asian and African country, which will, in future, participate in the work of the IEC to an increasing extent. In view of the long-established practices and the historical growth of industries in many advanced countries, it is somewhat difficult for their representatives to accept deviations, and they, naturally, try to retain in the international standards a large quantum or share of national experience and standards. Fortunately, for developing countries, this bias is neither necessary nor has any justification, and I, therefore, look forward to some welcome changes in IEC decisions in future as more and more developing countries participate in their deliberations. I may also appeal to the members of the developed countries to adopt a sympathetic and understanding approach towards the problems of the developing countries and help in the formulation of standards which can be universally accepted. I would also like humbly to suggest to the engineers in the electrical field in the developing countries to have a dispassionate approach in the process of setting up their own national standards.

High Quality for Survival

It is generally understood that standards serve the purpose of a desired economic value with smaller expenditure. To this end, standardization is intended not merely for fixing an index of quality but it

should also formulate test methods and codes of practice covering various aspects of technology. Even within the IEC, it is often noticeable that the main lines of disagreement arise between manufacturers of equipment on the one hand and users on the other. The same problem exists in every National Committee and I dare say that it will arise hereafter in the Committees of the developing countries. The acute shortage of capital goods and the difficulties of foreign exchange resources for imports will encourage a tendency 'to make cheap and buy cheap'. If allowed to go unchecked, both these tendencies would be disastrous for the establishment of a healthy electrical manufacturing industry or for the establishment of a proper electricity supply industry in the country concerned. For electrical equipment, quality is the most vital ingredient next only to safety and any lowering of the standards would necessarily result in a sacrifice of efficiency and the life of the equipment, apart from endangering the lives of consumers of electricity. It is, therefore, necessary that the developing countries should not only aim at adopting or formulating reasonably good and effective standards for quality, but also support their standards organizations with adequate testing and research facilities. In India, a special enabling legislation exists for the issue of the ISI Certification Mark as a stamp of quality.

The history of electrical development in the world has shown that there is no place in this field for cheap goods. Manufacturers who at one time or other made goods of inferior quality soon came to grief and practically vanished from the field and only those who maintained a high standard of quality have survived. This, possibly, is the reason why certain manufacturers of international repute have been holding world-wide markets. This lesson should be of special value to the developing countries and should be learnt and practised almost with a religious fervour. These countries, on account of their late start, will have to put in a tremendous effort to build up their industries. It is no doubt an uphill task, but like the silver lining on a dark cloud, they have the advantage of the experience of others before them. If properly utilized, the great storehouse of experience and knowledge of institutions, such as the IEC will be of immense help and benefit to the

developing countries. It will also help in cutting short the time element in reaching a particular level of development. In other words, the developing countries at this crucial stage of their progressive growth should make an all-out effort to start on the right foot. Any errors of omission and commission at this stage are likely to prove to be most expensive in the long run.

Frequencies and Voltages of Electrical Networks

In his le Maistre Memorial Lecture last year, Prof de Zoeten referred to the need for greater achievement in the IEC's efforts towards standardization in respect of electric power systems, namely, frequency, and voltages of transmission and distribution networks. I am in full agreement with the need for greater uniformity, but it is generally felt that the stakes involved in any large scale conversion programme are too great. So far as the developing countries are concerned, I would like to plead with all the emphasis at my command that they should adopt by far the most commonly adopted set of system conditions within the scope of existing IEC Recommendations, which, as a measure of compromise, allow wide variations. Taking a long-term view, it would appear that the sacrifice that may be necessary today will be quite small as compared to the benefit which will accrue in the future. In India, for example, the frequency has been standardized at 50 Hertz (c/s) and certain small areas which were served with 60 or 25 Hertz (c/s) or with direct current were converted or were localized by supply through frequency convertors or rectifiers respectively. In regard to the supply voltage, the IEC standard series with 240/415 V for distribution below 1 000 V has been adopted, although practically, all existing systems had been functioning at a nominal voltage of 230/400 V. In the high voltage range, we have practically adopted the 11 kV, 33 kV, 132 kV, 220 kV series except in certain existing areas where 22 kV, 66 kV and 110 kV have been allowed to stay localized. As a power system engineer, I am fully aware of the difficulties involved in evolving a clear-cut set of operating voltages all over. At the same time, I am fully convinced that no sacrifice is too great to achieve this end and the sooner it is done, the better it will be, not only for the power supply utilities, but even more

Furnace and Tests of Fire-Resisting Composition for Fire-Proof Safes

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0. INTRODUCTION

0.1 Safes are made fire-resisting either by making them double walled and filling the cavity with a composition of low melting point and high latent heat; or, by embedding them in a material of low thermal diffusivity. A compact and portable safe can be made on the first principle using certain alums or recently developed compounds¹ of low melting point and high latent heat. Nowadays, vaults and large treasuries are made underground; the design for making them fire-resisting has been fully discussed by Ingersoll, Zobel and Ingersoll².

0.2 The method of testing portable fire-resisting safes followed in Scandinavian countries, Switzerland and UK is that the whole safe is packed with lumps of newspapers and it is then put in the hearth used for fire-tests of roofs and floors^{3,4,5}. The 'standard fire'^{6,7,8} is lit. The safe is removed from the standard fire after the number of hours for which it had been declared fire-proof. Then, the safe is cooled immediately by water jets and contents are qualitatively examined for deterioration. The safe is declared fire-proof for the said number of hours, if the 'deterioration of papers is not appreciable'. No attempt seems to have been made for standardizing this test.

1. INDIAN STANDARD METHOD OF TEST

1.1 The Indian Standard Specification for Safes (IS : 550-1954) covers the fire-resisting and non-fire-resisting types of safes. The fire-resisting safe is described as one having double walls on the six faces, the space being filled with a fire-resisting composition.

1.2 The method of testing fire resisting composition is outlined in Appendix A of the standard. A cylindrical mild-steel vessel, called 'receptacle', of given dimensions is filled to the brim with the fire-resisting composition and inserted into a furnace maintained at 1100°F (or 593°C). The standard stipulates

that the temperature at the centre of the receptacle 'after four hours' be measured by a thermo-couple dipping in the specified pool of mercury and the recorded temperature should not exceed 300°F (or 148.9°C).

1.3 The Indian Standard does not sufficiently describe details of the furnace for testing the fire-resisting composition, the temperature distribution inside it and the location of the thermo-couple for measuring the furnace temperature.

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2. FURNACE CONSTRUCTED AT NPL

2.1 Sometime back, a furnace for testing the fire-resisting composition



Fig. 1 A General View of Test Equipment Constructed at NPL for Testing Fire-Resisting Composition

was constructed at NPL at a fraction of its import price following the diagram given in IS : 550-1954. Its general view is shown in Fig. 1 and its mechanical details are given in Fig. 2 to 5. In all these figures, like numbers refer to the same parts, names and details of which are listed in Table I. These numbers have been given in brackets in the following text also.

2.2 The furnace is of the nickel-chrome resistance type, for a maximum temperature of 800°C in a vertical hot space of 32-cm diameter and 37 cm depth; it is provided with forced air circulation free from cooling draughts. It is manually controlled and is continuously and finely adjustable from 0 to 20 kW on 400-V, 50-cycles, 3-phase, 4-wire AC supply. A calibrated thermo-

couple is welded to the wall of its hot chamber near its top for indicating its temperature. The electromagnetic induction between the thermo-couple and power circuits has been reduced to a minimum and means have been provided for quick detection of faults. It does not allow power to be suddenly switched on after supply break-downs.

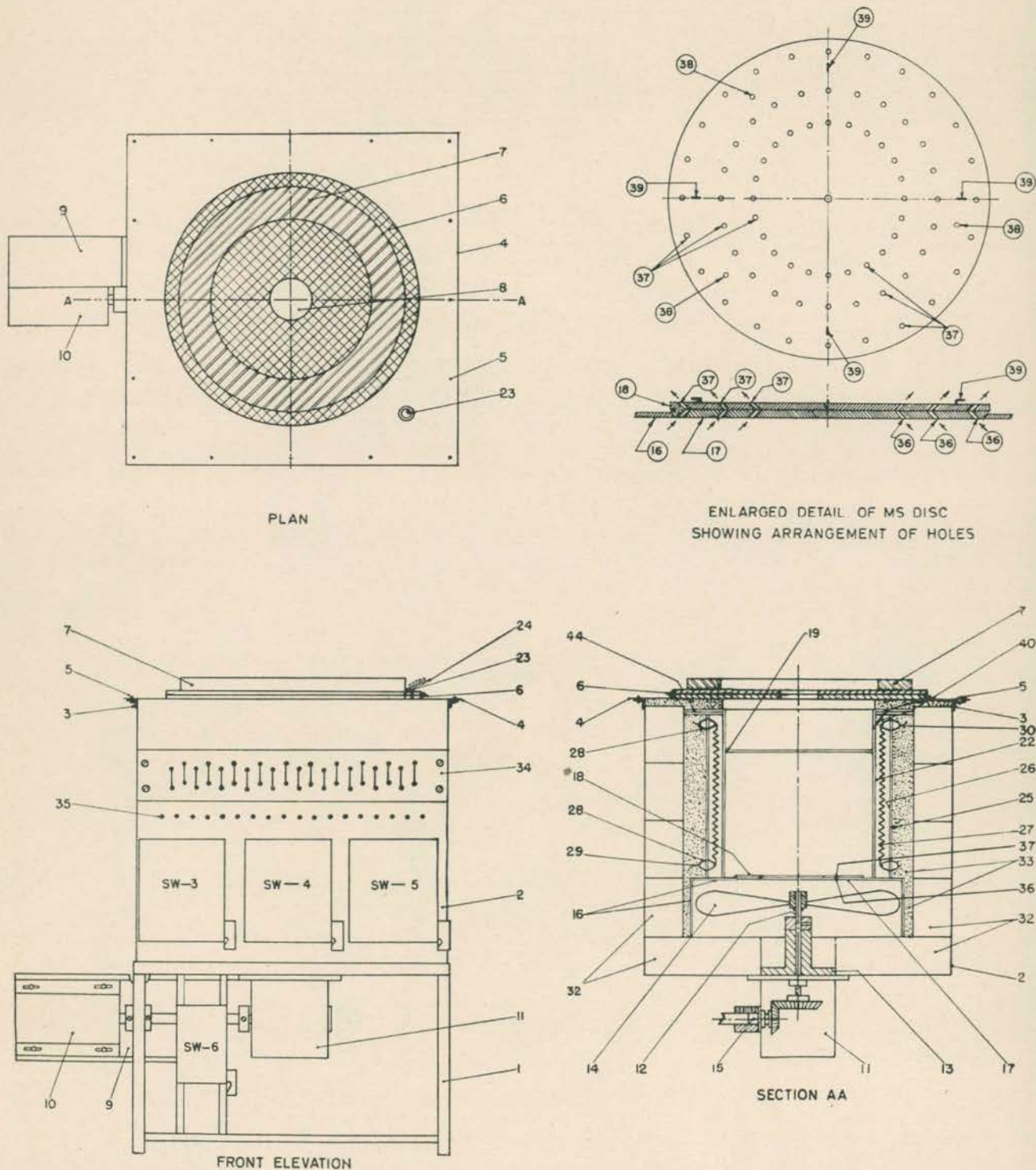


Fig. 2 Assembly and Details of Furnace (For Description of Parts, see Table I)

TABLE I COMPONENTS OF FURNACE CONSTRUCTED AT NPL

NOTE — The numbers, letter symbols and their combinations given in this table are the same as indicated in Fig. 2 to 5. These numbers have been referred to in the text also.

1. Angle iron stand, 35 cm high.
2. MS Box, 61 × 61 × 53.5 cm high, 1.59 mm (or $\frac{1}{16}$ in.) thick.
3. Angle iron flange.
4. MS Cover Plate, 1.59 mm (or $\frac{1}{16}$ in.), with a hole of 30-cm dia.
5. Bolts.
6. Asbestos board discs, 50-cm dia, 6.35 mm (or $\frac{1}{4}$ in.) thick.
7. Weight, cast iron ring; internal dia 31 cm, outer dia 44 cm; 2.5 cm thick.
8. Hole of 7.5 cm dia in board (6).
9. Bracket for motor (10).
10. Electric induction motor — $\frac{1}{4}$ hp, 400 V, 3 phase, 50 cycle, 1450 rpm.
11. Bevel gear box, 2:1 ratio.
12. Driven shaft of gear box.
13. Long brass bush.
14. MS fan blade, 1.59 mm (or $\frac{1}{16}$ in.) thick.
15. Coupling sockets.
16. MS box of dimensions 41.5 × 41.5 × 11.5 cm; 3.18 mm (or $\frac{1}{8}$ in.) thick; on top plate it has a 25-cm-dia hole with bevelled edges.
17. MS disc with slant edges to fit part (16); it is 6.35 mm (or $\frac{1}{4}$ in.) thick and machined all over.
18. MS disc, 25-cm dia, machined all over, 6.35 mm (or $\frac{1}{4}$ in.) thick.
19. MS ridge welded inside part 22.
20. Hot Chamber — welded type; 3.18 mm (or $\frac{1}{8}$ in.) thick MS cylinder, 30-cm dia, 34 cm deep.
21. Ceramic sleeve for thermo-couple leads.
22. Figure of eight weaving of 1.59 mm (or $\frac{1}{16}$ in.) asbestos rope.
23. Heating cylinder — welded type; 1.59 mm (or $\frac{1}{16}$ in.) thick, MS, 35-cm dia and 32.5 cm high.
24. Asbestos Board, 6.35 mm (or $\frac{1}{4}$ in.) thick.
25. Nine helical heaters, each of 0.711 mm (22 SWG), nickel-chrome, cold resistance 20 ohm, spread out on parts (29) and (30) in the shape of square Ws.
26. Porcelain bushes.
27. Steel bolts of 4.76-mm (or $\frac{3}{16}$ -in.) dia for: (a) fastening parts (25), (26) and (28) in place; (b) supporting part (27); and (c) acting as electrical terminals of the heaters.
28. Outer ends of part (29) which act as terminals.
29. Nickel steel washers.
30. Fire-bricks, 7.6 cm (or 3 in.).
31. Fire-clay up to the top level of part 30.
32. Terminal strip for heater connections.
33. Holes for heater leads.
34. 72 holes in 3 circles at 45° to large face of part 17.
35. 72 holes in 3 circles at 45° to large face of part 18.
36. Three dowels pinned in part (17) for aligning holes (36) and (37).
37. Four hooks for lifting part (18).
38. T₁-T₂ Thermo-couple of 1.219 mm (or 18 SWG), calibrated and welded after peening at 4 to 5 cm from top of part (22).
39. Iron washers.
40. Copper washers.
41. Iron nuts.
42. Asbestos board.
- A₁ Ammeter.
- C₁, C₂ Minimum contacts on auto-transformer T₁.
- C₃, C₄ Auxiliary contacts on SW-7.
- L₁, L₂, L₃ Pilot lamps.
- P, Q, R, N The three-phase wires and neutral line.
- P₁, P₂, and P₃ Three heaters in phase P in parallel.
- Q₁, Q₂, Q₃ Three heaters in phase Q in parallel.
- R₁, R₂, R₃ Three heaters in phase R in parallel.
- SW-1 Iron-clad main switch.
- SW-2 Oil-immersed circuit breaker with three over-load time-delay relays and a no-volt relay.
- SW-3 } Three, 3-pole iron clad switches, one for each star arrangement of heaters.
- SW-4 }
- SW-5 }
- SW-6 Switch for air circulation motor.
- SW-7 Safety relay to avoid power being put on at a high voltage after a shut down.
- SW-8 Starting switch.
- SW-9 Remote control relay for manual control of furnace.
- SW-10 Tumbler Switch for remote control.
- SW-11 Multi-throw switch for quick fault detection.
- T₁ 3-phase auto-transformer for power control.
- V₁, V₂ Voltmeters.

2.3 Other important details regarding the construction and operation of the furnace are given below.

2.3.1 The furnace essentially consists of an insulated cylinder (25), lined with asbestos (26) and provided with nine nickel-chrome heaters (27) which hang freely in the space between parts (22) and (26). Air circulation is provided by a fan (14), which blows air on the lower one-third portion of this cylinder through holes (36, 37). The ridge (19) acts as a baffle and helps in keeping air circulating on the sides of the receptacle during tests.

2.3.2 Three-phase, four-wire, 50-cycle, 400-V AC is fed to the furnace through adequate switchgear (SW-1, SW-2) incorporating a circuit breaker. One of the circuits feeds the air-circulator motor (10) through a switch (SW-6), while the other feeds the heaters through a continuously variable auto-transformer (T₁) provided with minimum

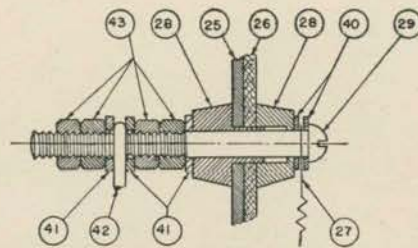


Fig. 3 Details of the Method of Supporting the Heaters on Asbestos Board (For Description of Parts, see Table I)

contacts (C₁, C₂) and a tripping relay (SW-7) so that power may not be put on suddenly after a shut down. The heater circuits comprise three parallel stars, operated through 3-pole switches (SW-3, SW-4, SW-5). One of these stars can also be remote-controlled through the contactor (SW-9). The phase voltage in each output lead of the auto-transformer (Dimmerstat) as well as the voltage across each heater, can be checked up instantaneously

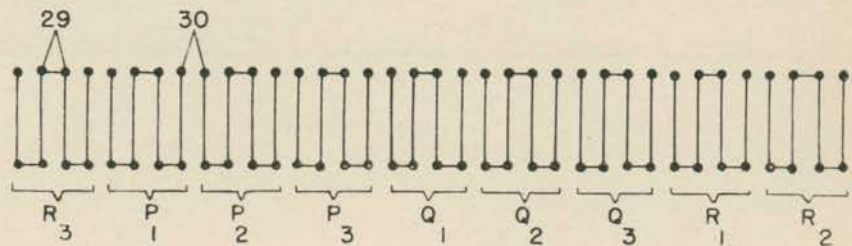


Fig. 4 Opened-Out Diagram of Heater Arrangement Fitted on the Inside of Asbestos Board (For Description of Parts, see Table I)

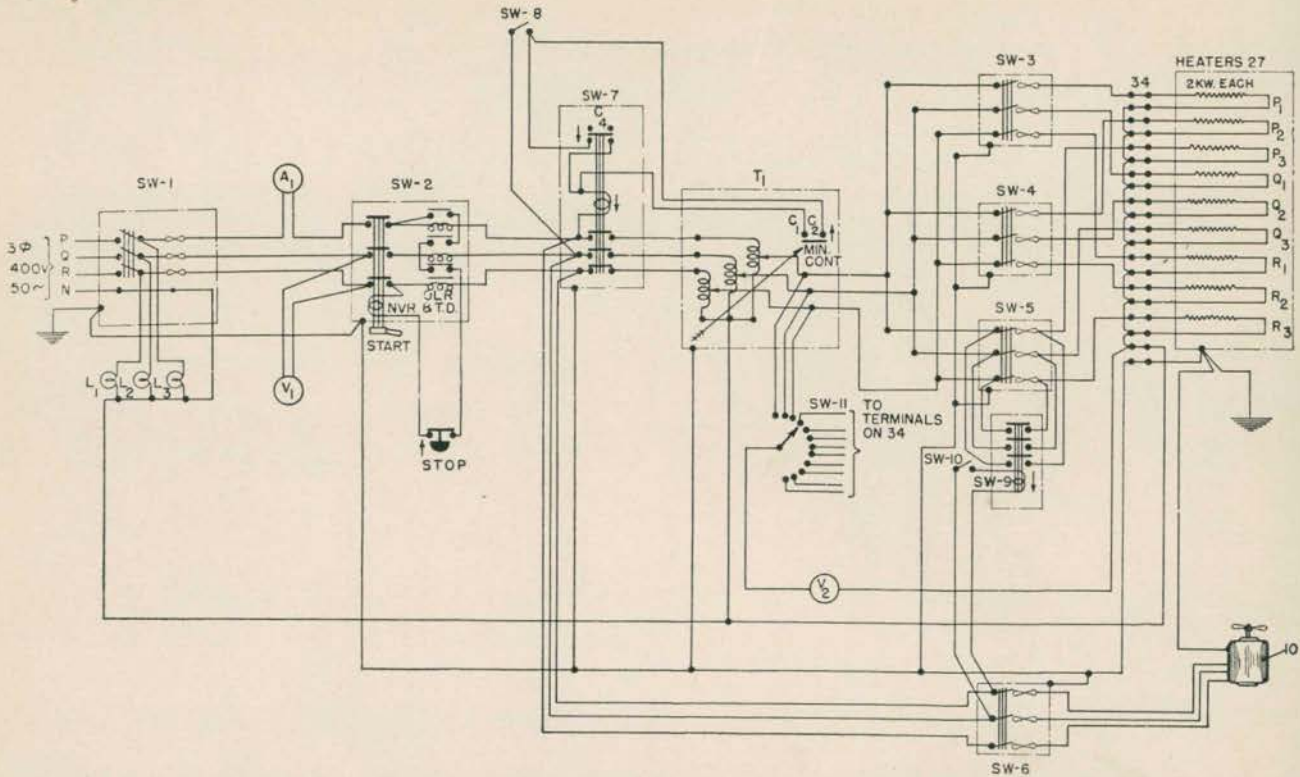


Fig. 5 Electrical Circuit of the Furnace (For Description of Parts, see Table I)

through a twelve-throw switch (SW-11) in the voltmeter circuit. This provides a method of quick fault detection. Electromagnetic induction from power circuits is avoided on thermo-couple by providing the iron cylinder (22) inside the heater assembly, and earthing it thoroughly.

2.3.3 The MS box (2) was lined with fire-bricks (32) to a thickness of 7.5 cm (3 in.). Asbestos board (26) with heaters was placed in position and the space was filled with fire-clay (33) up to the terminals (30). Lower strata of the clay were applied wet to avoid fire-clay seeping into the cylinder (25). The terminals were then connected up to the terminal strip (34) using ceramic sleeves. Mortar of fire-clay and brickbats from fire-bricks was then filled up to the top of cylinder (25). Hot chamber (22) was located by asbestos board (44) and the space above it plastered with fire-clay or fire-proof cement. This was allowed to set for one or two days. The power was then switched on to get a temperature of 80°C or less in hot space. The insulation started steaming after sometime. When steaming stopped, the cement solution was repeatedly brushed into the crevices while the furnace was cooling down. The furnace was then switched on with a higher input than

before till steaming started and stopped. It was then cooled down allowing thick cement solution to be sucked in through the crevices. This process was repeated till the insulation showed no cracks and steaming did not take place at full power and a little beyond it. The cover-plate (4) was then fitted into place. In actual use of the furnace, it is worthwhile checking up against this steaming in the first two heat cycles.

2.3.4 Figure 6 shows the characteristics of the unloaded furnace. A rough estimate of the auto-transformer position can be made from this diagram. The power requirement of the furnace for a requisite temperature is first determined from curve (a), and then the phase voltage (or, auto-transformer position) is read off for that power from curves (b), (c) or (d) depending on the number of heaters in use. The actual setting would obviously be somewhat higher when the furnace is on load. It is suggested that the starting voltage should not exceed 80 volts per phase. When the furnace temperature tends to stabilize, the voltage should be gradually increased to the required value. This reduces thermal shock to the insulation of the furnace and increases its life considerably. A similar treatment is desirable while putting off the furnace.

2.4 On a typical loading of the furnace for testing the fire-resisting composition for fire-proof safes, the performance was as follows:

- Number of heaters in use: 6;
- Phase volts: 150°C;
- Ambient temperature: 32°C;
- Furnace temperature (inside): 595°C;
- Temperature of the outer wall of the furnace: 56°C; and
- Temperature of the cast iron ring: 60°C.

3. TESTS AND RESULTS

3.1 During the last six years, ten samples of such compositions were tested at NPL according to Appendix A of IS: 550-1954. In one case only two tests were performed. In all other cases, three to five tests were performed on each sample before submitting the report. The details of procedure, which are not included in the standard, had to be tentatively filled in as follows.

3.1.1 The furnace temperature was measured on its walls at a height of 32.5 cm from bottom of hot chamber by welding a calibrated thermo-couple (T_1 - T_2) of 1.219 mm (18 SWG) and leading it out as shown in Fig. 2. The T_1 - T_2 wires were long enough to reach the measuring equipment.

3.1.2 The furnace temperature was kept at $595^{\circ} \pm 5^{\circ}\text{C}$ as a matter of convenience, instead of the prescribed temperature of 1100°F (593°C). A tolerance of 5°C became necessary since exothermic and endothermic reactions normally take place in the fire-resistance composition.

3.1.3 The temperature at the centre of the receptacle was measured by a calibrated, 0.457-mm (26-SWG) thermo-couple (T_1-T_2) and potentiometer after locating it exactly as mentioned in IS: 550-1954. From this, a time-temperature graph was drawn for each test.

3.1.4 Large amount of heat absorption took place when the charged receptacle was first introduced into the furnace. For the first 15 minutes or so, a tolerance of 50°C was found practicable. It was found more convenient to raise the furnace-temperature to 645° or 650°C before introducing the receptacle. After a few minutes of rapid thermal exchange, the auto-transformer of the furnace was adjusted to get the correct temperature. It took 10 to 25 minutes before the temperature could be maintained at $595^{\circ} \pm 5^{\circ}\text{C}$.

3.2 Some manufacturers insisted that their composition should not be exposed to atmosphere till the experiment was conducted. It was observed that the material as received was not dry. The standard requires that the composition should be non-hygroscopic although no test has been given for this purpose. In order to avoid moisture-exchange between the material and the atmosphere, NPL now accepts the samples for testing only in hermetically sealed mild-steel boxes. The box is not opened till required for test.

3.3 The samples received were, in most cases, mixtures of large crystals and a fine powder. The former usually had a low melting point while the latter was of refractory nature. In transit, these heterogeneous mixtures, tended to sort out according to grain size. An experiment was performed to compare two extreme possibilities of this heterogeneity. In one case, the receptacle was packed with crystals in the inner half portion and the powder in the outer half portion of the receptacle. The temperature remained within safe-limit which has been prescribed as 300°F (148.9°C) in IS: 550-1954. In the second experiment, the material was thoroughly mixed and tested. The temperature far exceeded the prescribed one. Therefore, it was considered necessary to mix the whole material before charging the receptacle. For the same

reason, the practice now is to mix the material thoroughly and ram it in the receptacle as uniformly as possible; the packing density is also recorded before the test.

3.4 Typical time-temperature curves obtained during these tests are shown in Fig. 7 to 9. The star in these diagrams indicates the 'safe-limit' of 300°F (148.9°C) just after 4 hours.

3.4.1 Curves (a), (b) and (c) of Fig. 7 refer to the 3 tests on a material taken from the same packing. It will be observed that the tests are far from reproducible. The temperature after 4 hours differs considerably from one experiment to another. Moreover, the humps in the curve occur at different times and to different extents showing thereby that one cannot be sure of the time when the internal chemical reactions in the material might start. It is quite possible that these uncertainties may be due to chemical as well as grain-size heterogeneity of the composition.

3.4.2 It appears from curves (b) and (c) of Fig. 7 that exothermic reactions may start and subside before the 4-hour period. In other words, the hazard might even occur within the 4 hours of fire break. In one case (not shown), one of the humps of these curves rose to 165°C during the test and then before the end of the fourth hour it came down

to 130°C . According to IS: 550-1954, the material had passed the test although it was more hazardous

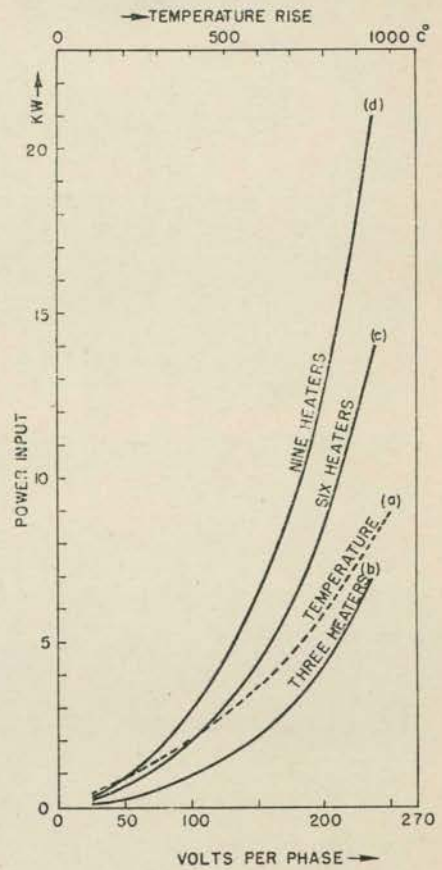


Fig. 6 Characteristics of Unloaded Furnace

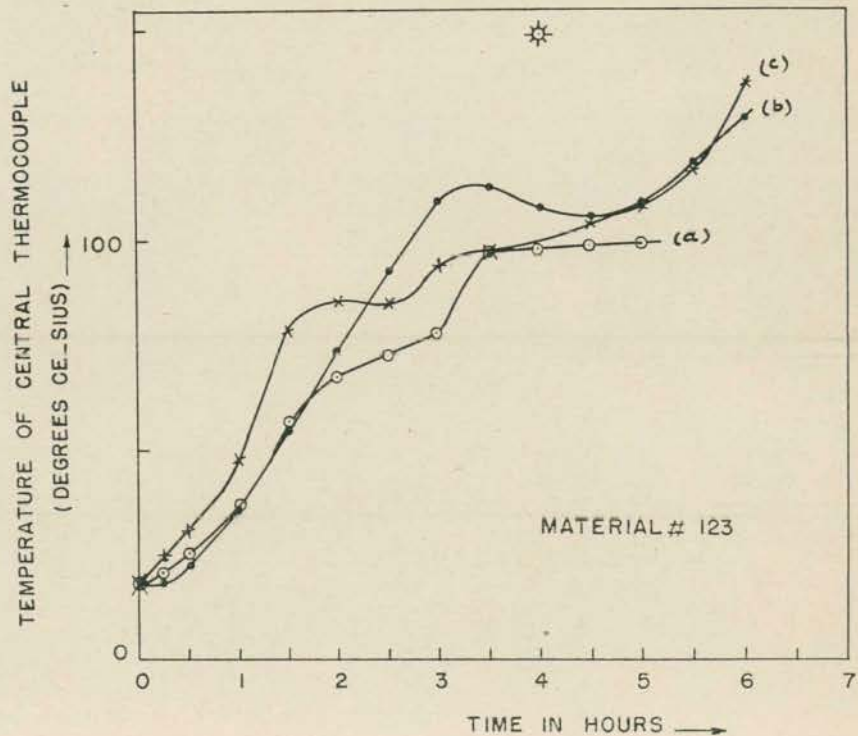


Fig. 7 Time-Temperature Curve for Material 123

than desired. The practice current at NPL has, therefore, been to perform a number of tests using fresh material each time. If the curves are very similar in 3 to 5 tests, the curve showing maximum fire hazard 'during' the 4 hours is reported in full. If the curves are quite different, the most hazardous result is reported. The material is considered to have passed the test only if it has not exceeded the specified 'safe-limit' at any time during 4 hours in any of these tests.

3.4.3 Three tests on another material are shown in Fig. 8. It will be observed that curve (c) is remarkably different from the other two curves. It is difficult to assess whether such a material should be considered to have passed the test or not. In all such cases, the practice reported in 3.4.2 is followed.

3.4.4 Temperature-time curves of maximum fire hazard for a number of fire-resisting compositions for fire-proof safes have been shown in

Fig. 9. It also shows the results obtained by using cow-dung ash (material 156).

4. CONCLUSIONS AND SUGGESTIONS

4.1 From the observations made under 3, the following conclusions can be drawn:

- a) Hermetic sealing of samples and mixing of the material before test should be prescribed.
- b) It should be made compulsory to ram the material in the receptacle before test and to mention the packing density in the test report.
- c) Tolerance of furnace temperature should be specified. A suitable tolerance would be 50°C during the first 15 minutes and 5°C during the remaining period.
- d) The standard method should prescribe that 5 tests should be performed on every sample out

of which at least three should be completely reported by half-hourly observations. The three reported experiments should be those of greatest fire hazard 'during' 4 hours.

- e) If the material reaches the specified 'safe-limit' at any time during the 4 hours of test in any of the 5 experiments it should be considered as below the standard.
- f) It will not matter much if the 'safe-limit' and 'furnace-temperature' are converted to the nearest rounded off values in Celsius temperatures.

4.2 On the basis of this study, the following suggestions can also be given:

- a) Since the fire-resisting materials are generally heterogeneous, they should be referred to as 'composition' rather than as 'compound'. The standard uses these words as synonyms.

(Continued on p. 229)

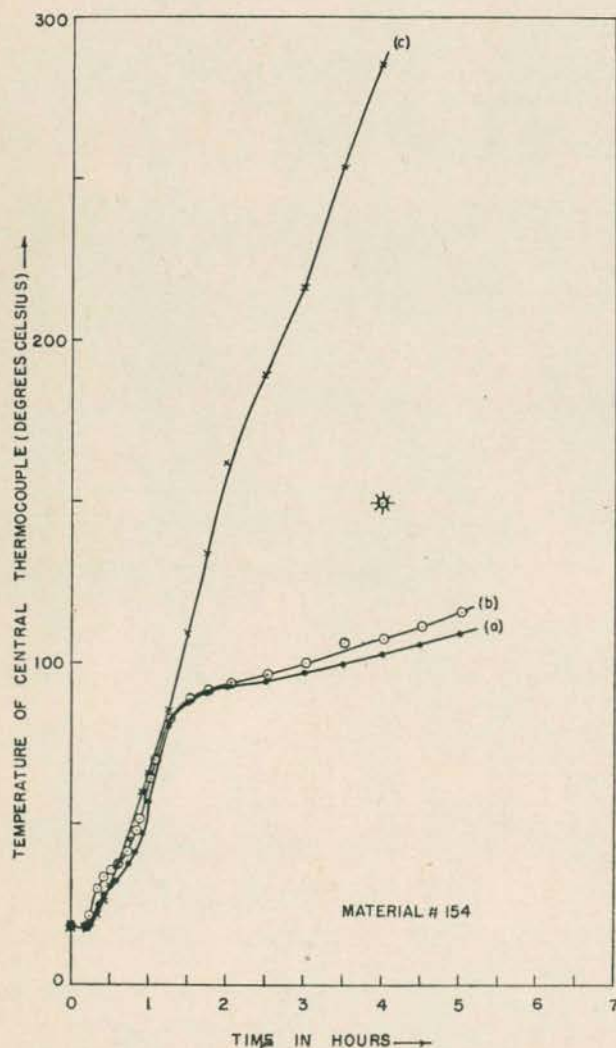


Fig. 8 Time-Temperature Curves for Material 154

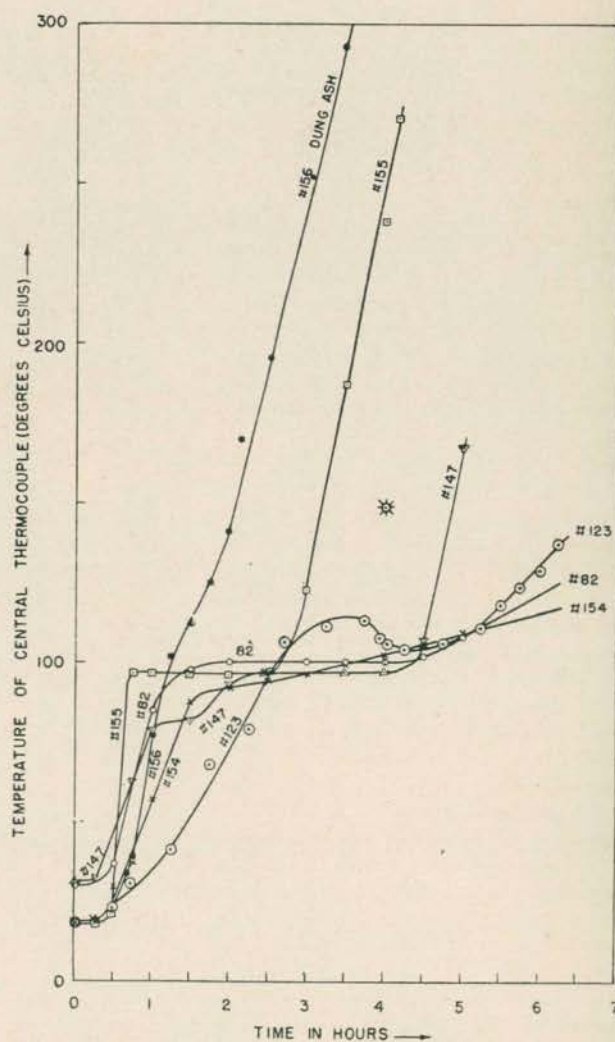


Fig. 9 Time-Temperature Curve Showing Maximum Fire Hazard for Various Materials

Inter-Conversion and Co-ordination of Values in Metric and Inch Systems

BY an Act of the Parliament, passed in December 1956, India decided to adopt metric system of weights and measures in preference to the multitude of British and indigenous systems, some of which are in existence even today. The Act provides a total transition period of ten years, after which the metric system of weights and measures will be the only legal system in India.

This decision has brought in a great responsibility on the Indian Standards Institution. Not only all the values in the existing Indian Standards have to be specified in the metric system but also a large number of new standards has to be formulated which the industry and trade must have before they can adopt the new system. The Indian Standards Institution is also looked upon as a technical consultant in many matters relating to the process of changeover in different spheres.

One of the earliest problems which we had to solve in carrying out this responsibility was to formulate rules for inter-conversion and co-ordination of values in different systems. The problem may be stated in the following manner:

What is the proper significance of the adoption of metric system? Is it adequate to convert an existing value and then round it off to some extent? Or, the value to be adopted in metric system must be a rational value in metric units.

The problem has naturally been visualized in the context of our need for revising a large number of existing Indian Standards but it has a general bearing in the larger sphere of changeover in industry and trade.

It is evident that there cannot be a single solution applying equally in all cases. We, therefore, set ourselves to formulating some guiding principles. It was soon realized that there were several aspects of the problem requiring separate treatment. To decide whether a rational metric value or a converted metric value should be adopted is one issue.

In pursuance of the decision of the Government of India to change over to the metric system of weights and measures in India by 1966, ISI has formulated some guiding rules for inter-conversion and co-ordination of values in metric and inch systems. These rules, though evolved in the context of the need for revising Indian Standards from inch to metric system and writing new standards in metric system, have a wider application for the changeover in industry and trade.

It was found that three separate issues were involved in the conversion of values. The first was to decide whether a value should be only converted or, instead of converting, a rational value in the new system should be adopted. The second was how to convert when conversion was called for, and the third was the question of co-ordination with existing inch values when an entirely new and rational metric value is adopted. Three Indian Standard Guides have been prepared to deal with the above questions and this paper discusses them in some detail.

This is a slightly modified version of a paper presented at the Second Middle East Standardization Conference reported in May-June issue of this Bulletin — Ed.

If a decision is taken in favour of the former, the question of co-ordination with existing inch values immediately arises. In case the latter value, that is, a converted metric value, is considered adequate, we have to set a procedure for converting existing values to their metric counterparts. I would discuss this last issue first, for the reason that it, being amenable to mathematical treatment, has been dealt with in a more satisfactory manner than the questions of rationalization of metric values and co-ordination with inch values.

Inter-Conversion of Values

Conversion of values from one system of units to another involves two operations. The first is the mathematical conversion with the help of conversion factor and the second is the rounding-off of the

converted value obtained in the first operation. Before the converted value can be rounded, we have to decide:

- a) at what place the rounding should be done, and
- b) how the rounding should be done.

To illustrate by an example, let us take the simple case of converting a linear dimension, say $4\frac{1}{2}$ in. to mm. The conversion factor is 25.4 and the mathematically converted value is 114.30 mm which contains five significant figures. If it is decided to round off this converted value to four significant figures, the result will be 114.3 mm. If, however, three significant figures should serve the purpose, the converted value will be 114 mm, but how is one to decide what is the minimum number of significant figures which must be retained in the converted value?

The answer will depend on the precision required or implied in the given value. Now, what is the precision of $4\frac{1}{2}$ in. or for that matter of 4.5 in.? Different persons may give different answers to this question, thus leading to more than one converted value. To avoid such multiplicity of interpretation, it is necessary to lay down rules for:

- a) determining the significance or precision of a given value, if such precision is not already contained in the value as stated;
- b) stating values in a manner so that their significance is self-contained; and
- c) converting given values in such a manner that the precision or significance of the original value is faithfully carried over to the converted value.

We have attempted to establish such generalized rules in IS : 787-1956 Guide for Inter-Conversion of Values from One System of Units to Another. Our approach has been to explain what significance should be attached to the stated values, how values should be stated for a given significance and then to codify in a set of rules the procedure to be

followed in ascertaining the fineness of rounding to which converted values should be rounded off to maintain the precision of the original value.

Apart from the generalized set of rules contained in IS:787-1956, we have also prepared a specialized set of rules in a simpler form for inch-millimetre conversion. These are contained in IS:1105-1957 Method for Precise Conversion of Inch and Metric Dimensions to Ensure Inter-changeability, which corresponds to a British Standard on the same subject, namely B.S. 2856: 1957 Precise Conversion of Inch and Metric Sizes on Engineering Drawings.

Guide for Adoption of Rational Metric Values

In the preceding paragraphs, I have discussed the procedure we have laid down for conversion of values. We have also formulated a Guide for Specifying Metric Values in Standards (IS:1722-1960) for deciding where we should adopt a converted metric value and where we should change over to a rational metric value.

It is difficult to define the concept of rationality. Nevertheless, we have laid down the following three criteria to ascertain if a value is rational or not:

- a) Whether the value is one of the Preferred Numbers;
- b) Whether it conforms to the international usage in the matter; and
- c) Whether it is dimensionally correlated with its components, raw materials, other sizes of the series to which it may belong and items with which it should fit or be interchangeably used.

Having thus defined a rational value, we have recommended in the Guide the adoption of rational metric values in all cases except where some positive reasons exist against their adoption. Such reasons may arise from one or more of the following situations:

- a) The question of interchangeability with existing products, and of fit in case of assembly components;
- b) Possible effects on production if re-designing, re-tooling, etc, should be called for; and
- c) The need of correlation between interdependent and inter-related industries.

Since such situations cannot altogether be avoided, we have been

led to a number of preferences in specifying values in metric systems. They are:

- a) First preference — rationalized metric value;
- b) Second preference — rounded converted value in metric system; and
- c) Third preference — values converted according to IS:787-1956 and IS:1105-1957.

Co-ordination Between Metric and Inch Values

The second and third preferences, we have allowed in our Guide permitting the adoption of converted values in metric system, take care of the question of co-ordination between metric and inch values so far as the industry and trade within the country are concerned. The problem, however, assumes a different

TABLE I CORRESPONDING SIZES IN MILLIMETRES AND INCHES COVERING THE RANGE 10 TO 1 000 mm (0.4 TO 40 in.) FOR PRODUCTS WHICH CAN ACCOMMODATE WIDE TOLERANCES

R 20 SERIES FOR COMPARISON WITH INCH SIZES GIVEN IN COLUMN (2)	CORRESPONDING SIZE			R 20 SERIES FOR COMPARISON WITH MILLIMETRE SIZES GIVEN IN COLUMN (4)	ERROR
	Inches		Milli-metres		
	Decimal Values	Approximate Fraction Equivalents			
(1)	(2)	(3)	(4)	(5)	(6)
0.4	0.4	—	10	10	—
0.45	0.44	$\frac{1}{2}$	11	11.2	—
0.5	0.5	$\frac{1}{2}$	12.5	12.5	—
0.56	0.56	$\frac{9}{16}$	14	14	2 percent
0.63	0.63	$\frac{5}{8}$	16	16	—
0.71	0.7	—	18	18	—
0.8	0.8	—	20	20	—
0.9	0.9	$\frac{7}{8}$	22	22.4	—
1.0	1.0	1	25	25	—
1.12	1.12	$1\frac{1}{8}$	28	28	2 percent
1.25	1.25	$1\frac{1}{4}$	32	31.5	—
—	(1.38)	($1\frac{3}{8}$)	(35)	—	—
1.4	1.4	—	36	35.5	—
1.6	1.5	—	40	40	4.8 percent
1.8	1.75	—	45	45	—
2.0	2.0	—	50	50	—
2.24	2.25	—	56	56	2 percent
2.5	2.5	—	63	63	—
2.8	2.75	—	70	71	—
—	(3.0)	—	(75)	—	—
3.15	3.15	—	80	80	—
3.55	3.5	—	90	90	—
4.0	4.0	—	100	100	—
4.5	4.5	—	112	112	2 percent
5.0	5	—	125	125	—
5.6	6	—	150	{ 140	—
6.3	7	—	175	{ 160	—
7.1	8	—	200	{ 180	—
8	8	—	200	{ 200	—
9	9	—	225	224	—
10	10	—	250	250	—
11.2	12	—	300	{ 280	—
12.5	14	—	350	{ 315	—
14	16	—	400	{ 355	—
16	18	—	450	{ 400	—
18	20	—	500	{ 450	—
20	20	—	500	{ 500	—
22.4	22	—	560	560	—
—	(24)	—	(600)	—	—
25	25	—	630	630	—
28	28	—	700	710	—
31.5	32	—	800	800	—
35.5	36	—	900	900	—
40	40	—	1 000	1 000	—

proportion at the international level. It arises from the fact that exactly translated values are not considered as equally acceptable as nominal values in the different systems. For example, one inch is an acceptable nominal value in the inch system but not 25.4 mm in the metric system. The nearest acceptable value may be 25 mm or some other value. The question, therefore, arises whether one inch and 25 mm are interchangeable or not. Depending on the tolerances which may be permitted, they may or may not be interchangeable and when they are not, it often happens that both the inch countries and the metric countries are equally reluctant to change their nominal value to bring about the correspondence. The problem has been accentuated by the growing use of preferred numbers which is otherwise a perfectly commendable trend.

The Standing Committee of ISO for the Study of Scientific Principles of Standardization (STACO), which has recently made a thorough study of the problem, has proposed a compromise in the form of corresponding millimetre and inch sizes which are based on the preferred numbers but are not exactly the same all through. The differences appear both in the inch and the metric series in such a manner that almost equal sacrifice is required from both groups. Table I, reproduced from the Document ISO/STACO (WG 2-1) 184 E, illustrates proposal of STACO for products which can accommodate wide tolerances. This table covers the range 10 to 1 000 mm (0.4 to 40 in.) and follows the R 20 series as nearly as practicable. Here certain sizes have been indicated in brackets. These are alternative sizes which have been added because they represent such wide current practice in both systems.

Certain sizes representing wide current practice in one system only call for a concession from countries using the other system; for example, metric countries are asked to adopt 12.5 mm instead of 12.0 mm and inch countries are asked to adopt 0.8 inch instead of 0.75 inch. In most cases the error of conversion lies within 1.6 percent which is the degree of error involved in treating the value 25.4 as 25. Where the error exceeds this figure it is stated in the table.

It should, however, be understood that this recommendation is still at the stage of discussion and the final shape of the recommendation cannot be foretold now. However, it would certainly appear that some sort of a compromise formula as the one being discussed by STACO is necessary to solve this problem of co-ordination between inch and metric values at the international level.

FURNACE AND TESTS OF FIRE-RESISTING COMPOSITION FOR FIRE-PROOF SAFES—Continued from p. 226

- b) Clause 6.1 of IS : 550-1954 prescribes that the fire-resisting composition shall generate water copiously when subjected to heat; shall not contain earth, sand, asbestos or similar material; shall be non-corrosive to metals; and shall be non-hygroscopic. No tests have been prescribed for these characteristics in the Indian Standard which requires to be suitably amended in this regard.
- c) It would perhaps be more logical to declare the safe fire-proof for that period for which its fire-resisting composition does not exceed the 'safe-limit'. It is suggested that fire-proof safes be categorized into at least 3 classes:
- i) Two hours;
 - ii) Four hours; and
 - iii) Ten hours.
- d) Tolerance limits of temperature distribution inside the hot space of the furnace should be defined.
- e) A fixed temperature of 593°C has been specified for the test. It might be better to refer all tests to standard fire^{6,7,8} which is universally accepted as representing the actual hazard

- conditions during large fires of buildings.
- f) Very little work has been done on the maximum 'safe-limit' for document papers and currency notes. It is suggested that this should be studied for Indian legal document papers, currency notes, jewellery, etc, which are normally kept in safes. The 'safe-limit' prescribed in IS : 550-1954 may require to be amended in the light of this study.
- g) It is well known that unless a box containing combustible and inflammable material is hermetically sealed, the fire-proofing of its six sides is not enough for saving its contents in a real fire hazard. It is known that the crevices in the joints and between door and body of a safe play a very prominent part in igniting the contents. Although great care has been taken in the standard for prescribing the design of a fire-proof safe incorporating these precautions, yet it may be desirable to follow the foreign practice of testing the completed safe in the case of bulk orders.

5. ACKNOWLEDGEMENT

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Conferences on Implementation of Indian Standards in Maharashtra and Mysore

STATE conferences on implementation of Indian Standards, held in Orissa, Kerala, Punjab, West Bengal, Bihar and the Union territory of Himachal Pradesh, have been reported in earlier issues of this Bulletin. Recently, the States of Maharashtra and Mysore have also held similar conferences. Broadly speaking, the objects of these conferences are:

- a) to provide an opportunity to participants to intimately acquaint themselves with the work of ISI regarding the formulation of Indian Standards and its Certification Marks Scheme;
- b) to promote adoption of Indian Standards by all agencies of the State Government, such as purchasing departments, local self-government bodies, industrial undertakings both in the public and private sectors, etc;
- c) to propagate the need for reliance on goods bearing ISI Certification Mark and, therefore, indenting for ISI certified goods, wherever available, and thus dispensing with inspection;
- d) to encourage State Quality Marking Scheme for cottage and small-scale industries;
- e) to provide an opportunity for making suggestions for laying down Indian Standards for new subjects;
- f) to induce local bodies and others to join ISI as members and thereby extending the scope of standardization in the country and making it much more broad-based than it is today; and
- g) to set up a machinery for dissemination of information relating to Indian Standards and ISI Certification Marks Scheme for their wider implementation.

At all these conferences three recommendations concerning implementation of Indian Standards, recognition of ISI Certification Marks Scheme, and extension of the scope of standardization have been passed

with suitable amendments and modifications relating to each particular State. The full text of these recommendations has been published earlier*. In general, these recommendations point out the necessity of:

- a) adoption of Indian Standards by all departments of the state municipal committees and local self-government bodies for the purposes of store purchasing and guiding design and construction work in the public sector;
- b) according due recognition to the ISI Certification Mark by preferring to purchase only goods carrying ISI Certification Mark, and in cases where goods that could be similarly certified are not available by demanding them; and
- c) active participation by each local self-government body and municipal committee in the establishment of standards by becoming a member of ISI.

MAHARASHTRA CONFERENCE

The Maharashtra State Conference, held on 28 April 1961 at

*See ISI Bull., Vol 13, No. 3, p. 124 (1961).

Bombay, was inaugurated by Shri Y. B. Chavan, Chief Minister, and presided over by Shri T. S. Bharde, State Minister for Co-operation. The Conference was attended by some 300 delegates representing various government departments, statutory organizations, municipal committees, district boards, associations of industries, etc. Shri M. W. Desai, Additional Industries Commissioner, Bombay, acted as the Convener.

Inaugural Speech

Welcoming the delegates, Shri T. S. Bharde said that the Conference had been convened at the suggestion of Shri Lal Bahadur Shastri, former Union Minister for Commerce & Industry and *ex-officio* President of ISI, with a view to bringing home to the delegates the growing importance of standardization in the context of developing Indian economy.

Inaugurating the Conference, Shri Chavan asked the delegates to consider ways and means for promoting the cause of standardization and implementing Indian Standards in different spheres of industrial activity in the State.



Shri T. S. Bharde, State Minister for Co-operation Addressing the Maharashtra State Conference on Implementation of Indian Standards. Fourth from / is Shri Y. B. Chavan, the Chief Minister

Pointing out the importance of Indian Standards, Shri Chavan said that in the context of rapid industrial and economic development of the country through planned efforts, standardization has assumed a special significance. The adoption of uniform standards in all spheres of industrial activity was a necessity in the production of quality goods at cheaper price which could win confidence of consumers for our products both at home and abroad.

Shri Chavan said, 'Lack of proper appreciation of the value of standards both by producers and consumers in the country is hampering the development of our industry and trade. Here and there an impression has, unfortunately, been formed that our goods do not always come up to the required standard of quality and their performance is not uniform throughout. Unless, therefore, our industry adheres strictly to the standard of quality for export, it will not be possible for us to compete successfully with the industrially advanced countries of the world.'

Coming to the textile industry in particular, Shri Chavan said that this was the oldest and biggest industry in the country and it should give a lead to other industries by implementing standards and giving its unstinted support to the activities of ISI. He expressed the hope that the textile industry would, in the light of the country's needs, decide before long to adopt Indian Standards.

In conclusion, the Chief Minister urged upon all those concerned with the purchase of goods in the country as a whole and the Maharashtra State in particular, such as government departments, local bodies, state undertakings and industrial and commercial organizations in the private sector, 'to give their unqualified support to the promotion of Indian Standards by purchasing goods manufactured to standards only, in the larger interest of the nation'.

Shri Sukthankar's Remarks

Shri S. E. Sukthankar, Secretary, Industries & Labour Department, had sent a note for being read at the Conference as he could not be present. His remarks read by Dr. V. V. Kale, Assistant Director of Industries (Quality Control), touched upon the following two important points:

- a) Although Indian Standards are being implemented to some extent, a large field still remains to

be covered. Tender enquiries for purchases are still being made to specifications other than Indian Standards. In view of the specialized knowledge and experience available, it is desirable that concerted efforts be made to establish Indian Standards for state purchases.

- b) For a systematic and co-ordinated approach in giving due publicity to Indian Standards, it would be desirable to have this function centralized at one place which is directly connected with the standardization work. For this, a cell in the industries department under quality control may be found useful. In addition, use of state publications as a medium for giving publicity to Indian Standards would be desirable.

Dr. Verman's Address

Referring to the role of local bodies, Dr. Verman, Director, ISI, said that the Institution would welcome their co-operation in extending its activities. Municipalities and district boards scattered all over the country, he said, were large consumers of goods and they could implement Indian Standards for their own benefit as well as the general benefit of the country. He informed the conference that a large number of Indian Standards had been adopted by the purchasing departments of the Central and State Governments to form the basis of their purchases and suggested that similar action by local bodies would go a long way in popularizing Indian Standards.

Discussions

After these addresses were delivered, a lively discussion followed. One of the delegates referred to the practices followed by purchasing organizations in specifying quality on the basis of popular brands and said that such practices were coming in the way of implementation of Indian Standards. He was informed that several policy directives had been issued by the Central and State Governments to base all their purchases on Indian Standards, wherever available. It was hoped that as a result of these policy directives, use of Indian Standards for Government purchases would increase progressively.

A point was raised that unnecessary dimensions were specified in Indian Standards and these were coming in the way of supplying goods according to Indian Standards. The Conference was informed that it was the policy of ISI to specify in Indian Standards only those dimensions which had a functional role to play. It was, however, agreed that specific cases where the policy had not been followed in Indian Standards should be brought to the notice of ISI, so that they could be examined further.

The representative of Bombay Municipal Corporation stated that they were making purchases on the basis of Indian Standards and found this practice useful.

For popularizing the ISI Certification Mark, it was stated that Government departments may give price preference to the extent of 5 percent to ISI certified goods and also some rebate in sales tax and excise duty. It was explained to the Conference that since ISI certified



A View of the Assembly at the Maharashtra State Conference



Shri B. D. Jatti, Chief Minister, Being Garlanded by Shri C. Narasimha Murthy, Chairman, Stores Purchase Committee, at the Mysore State Conference on Implementation of Indian Standards to the Visible Pleasure of Shri J. H. Shamsuddin, Deputy Finance Minister

goods will not require the same degree of test and inspection before purchase as non-certified goods did, ISI had requested DGS & D to consider giving price preference to certified goods. It was suggested that when a large number of manufacturers became ISI licensees, they could themselves pursue the matter with the Government in an organized manner.

MYSORE CONFERENCE

The Mysore State Conference, held at Bangalore on 2 and 3 May 1961, was inaugurated by Shri B. D. Jatti, Chief Minister, and presided over by Shri J. H. Shamsuddin, Deputy Finance Minister. The Conference was attended by some 200 delegates representing various government departments, municipal committees, district boards, industries, etc. Shri Srinagabhushana, Principal, Sri Krishnarajendra Silver Jubilee Technological Institute, Bangalore, acted as the Convener of the Conference on behalf of the Government of Mysore.

Addresses

Shri C. Narasimha Murthy, Chairman, Stores Purchase Committee, while welcoming the delegates, said that it had been his very unpleasant experience to be told now and then that for purchases of stores, preference had to be given to foreign articles as Indian made articles were not durable and not reliable, the supplies did not conform to samples, quality was not consistent, etc. He hoped

that as a result of the Conference the situation would improve.

Inaugurating the Conference, the Chief Minister talked about the standards prevailing in India in the recent past and pointed out that we had been wedded to British Standards. He added that it was true that these standards were very good and set a pattern to our commerce. But our country in those days was exporting a very large quantity of industrial raw material. For these, there were not many standards, and this absence of standards created communities which, by their experience, had the monopoly of some types of business, for they knew what a foreign buyer wanted and what was available in the country, and this gave that business house a large volume of trade. He pointed

out that, with the introduction of Indian Standards for such commodities as are germane to our work, in our country, and our surpluses for export, there was good opportunity for all to do business abroad.

Referring to the availability of Indian Standards for a limited number of items only, Shri Jatti said that this vast subcontinent had many more items of goods and services that had not yet been standardized. He said that the field of work before ISI was big, and he was sure that ISI would produce a larger library of standards for the use of the Indian public.

In conclusion, the Chief Minister said, 'the extent to which we adopt standards in our industries will indicate our industrial efficiency. Its greater use in commerce will give confidence to one and all that what we want to sell is certified and may be bought.'

Referring to the points raised by Shri B. D. Jatti, Dr. Lal C. Verman, Director, ISI, said that many of our present-day practices had a British base and, therefore, British Standards had great influence on ISI work. But in a number of cases ISI had formulated its own standards which differed from the British Standards to meet peculiar Indian problems. In some cases, ISI had also been able to give lead to British Standards and he referred to Indian Standards on steel sections as an example. Referring to a large number of items for which no standards had yet been formulated, Dr. Verman said that ISI was quite conscious of the same and at the time of preparation of the Third Five-Year Plan he noticed that the Institution had enough projects pending to keep it busy, at the present rate of its working, for



The Mysore Conference Being Inaugurated by the Chief Minister

at least next six or seven years. He informed the conference of the steps taken by ISI in enlarging its activities and referred to the difficulties being experienced in securing the services of experienced and well-trained personnel.

Addressing the Conference, Shri J. H. Shamsuddin, Deputy Finance Minister, said that his experience was that in the absence of definite, approved and recognized standards which might serve them as guide, the selection of material and articles for Government use became cumbersome and was likely to result in wastage. The preparation of incidents with precise specifications of the articles became a different job. All these complications could be avoided if advantage was taken of the standards issued by ISI. This would not only simplify the procedure and expedite the purchase of articles by avoiding delay in the scrutiny of different types of articles, but would also guarantee purity and reliability of articles supplied. It would also simplify the procedure of inspection and tests during and after the supply.

Discussions

During discussions, a need was felt for setting up a proper machinery to keep various Government departments of Mysore informed about the existence of Indian Standards, so that they could be considered both for adoption and use in their tender enquiries. Establishment of 'Standards Cell' at the Stores Purchase Committee, and publication of information regarding Indian Standards and ISI Certification mark in Mysore State Information Bulletin and State Gazette, were suggested. The Conference was informed that the Government of Mysore was considering the proposal to set up a technical wing to deal, among other things, with standards at their Stores Purchase Organization and, it was hoped that this wing would soon be brought into being. Further, similar 'Standards Cells' might be created in other technical departments.

A suggestion was made by the representative of the Public Works Department to reduce the price of Indian Standards to assist their wider implementation. It was pointed out that ISI was not a profit-making body and the income derived from sale of standards went towards meeting a part of the expenditure incurred in running the Institution. Furthermore, Indian Standards were cheaper as compared to the standards of other countries; a rebate of 20 percent on the price of Indian Standards was allowed to all members of ISI and a rebate of 50 percent was given to purchasers of a complete set of Indian Standards. The government departments were also entitled to these concessions.

The representative of the Agricultural department referred to the practices being followed by the Government for accepting the lowest tender. He pointed out that this policy was relevant only when there was some guarantee from manufacturer that the quality of products supplied conformed to the standards requirements. The President of the Conference said that ISI Certification Marks Scheme would be an answer to the problem in due course. When more manufacturers joined this scheme, it would be comparatively easier to choose amongst them on the basis of their quotations.

The Director of Printing, Stationery & Publications referred to some Indian manufacturers of printing machinery who were bringing out machines which could not be economical for printing sheets of paper in A-series as recommended in the Indian Standards. He suggested that manufacturers of all printing machinery in the country should be instructed to manufacture machines suitable for printing sheets of paper in A-series and that the Government of India be requested to stipulate this as a condition before granting licence for manufacture of printing machines.

One of the delegates pointed out that attendance of consumer representatives on ISI technical committees was generally not very

satisfactory. It was suggested in the Conference that if the representatives of Government departments regularly attended ISI meetings, the problem of adoption of Indian Standards for Government purchases would create no serious difficulty. It was also suggested that local bodies should be requested to join ISI as members and effectively contribute to the work of formulation and implementation of Indian Standards.

For popularizing Indian Standards, a suggestion was made for standards to be issued in regional languages. It was pointed out that some Indian Standards had already been translated into Hindi, one into Kannada, and one into Tamil.

A number of delegates referred to the elaborate schemes of inspection and testing which manufacturers had to follow before licences were granted to them for use of ISI Certification Marks on their products. These elaborate schemes were considered to be good for quality goods but sometimes, manufacturers found it difficult to comply with the various details. Moreover, it was pointed out that the penalties under the ISI Certification Marks Act were so heavy that some manufacturers were hesitant to come forward to join the scheme. The Conference was informed that the schemes of inspection and testing were evolved in consultation with the manufacturers and always some solutions were found to overcome major difficulties. To give an indication of the fees charged, it was stated that for ordinary portland cement, the fee had been fixed at Rs 12-00 for one thousand tons, which could not be considered high.

A representative of a manufacturing firm felt that ISI mark on a product could not be considered as a hall-mark of quality, but it was only a guarantee of the minimum quality. Shri Narsimha Murthy said that if standards referred to optimum level, very few manufacturers would be able to attain that and the very purpose of standardization to improve the quality of indigenous manufacture would be defeated.

PROBLEMS OF INTERNATIONAL STANDARDIZATION — Continued from p. 220

To my mind the importance of our work even goes beyond the pure technical field. We learn in our work that we must seek the truth in cases where a real truth exists and compromise where several more or

less equal solutions exist but everybody must sacrifice something in the interest of unity. The success of our work cannot be enforced by violence or law but rests entirely upon its quality and our capability

of finding solutions satisfactory to as many as possible. If the world could solve its problems in the same spirit in which we have learnt to work, it would certainly be a good deal better than it is now.

CAI to Hold Seminar on Consumer Problems

THE rapid industrialization of India and the concomitant phenomenon of increasing urbanization have brought to the fore problems affecting the welfare of the consumer. Although increasing production of consumer goods is, no doubt, helping the consumer to get a greater variety and choice of articles for consumption, consumers' welfare will, in the ultimate analysis, be determined by the quality of goods which will be made available to them at reasonable prices. A pre-condition for achieving this state is the spread of consumer-consciousness through several methods, some of which are: creation of consumer organizations, wider and more effective checks over the quality of goods through legal and administrative forces, and standardization of consumer goods and services.

The Consumers' Association of India (CAI), a body which combines within itself different sectors of population in their role as consumers, has, therefore, decided to hold an All India Seminar on Consumer Problems from 10 to 13 October 1961. The broad purposes of the Seminar are summarized as follows:

- a) To bring together individuals and organizations who are particularly interested in these problems, for an objective discussion of some aspects of consumer welfare. It is hoped that the recommendations of the Seminar will provide a concrete framework for production of quality goods and welfare of the Indian consumer.
- b) To bring consumers throughout the country under the banner of an organization for making concerted efforts for the common welfare of the people at large.

Some 50 delegates are likely to attend the Seminar from all over the country. After the inaugural session, there will be 5 technical sessions which have been divided into two parts, namely, Part I The Problem, and Part II The Solution to the Problem. Papers contributed by different authorities will be presented before the delegates and specific issues will be formulated on the basis of these papers. These specific issues will then be studied by Working Groups which will be set up for the purpose. After having studied the specific issues both of Part I and Part II of the technical sessions, the delegates will meet in a plenary session to formulate and adopt their final recommendations as well as report of the Seminar.

PART I THE PROBLEM

Session 1 Consumer Consciousness, Protection and Welfare

The nature of modern economy and the risks to which the consumer is exposed in mass-production societies; the increasing distance between producer and consumer; lack of quality consciousness caused by wide spread poverty; absence of agencies for the dissemination of consumer information and descriptive labelling; and nutritional problems—these aspects will be discussed in the context of the present situation in India.

Session 2 Trading and Manufacturing Malpractices

Problem of wide spread adulteration, its nature and causes; lack of sustained relations between buyer

and seller; credit buying; absence of a code of competitive ethics among sellers; in many cases, the closed structure of retail trade causing absence of effective competition; and the problem of effective legislative enforcement.

PART II THE SOLUTION TO THE PROBLEM

Session 3 Institutional and Legal Approach

The need for a consumers' organization; the potential role of the Consumers' Association of India; its various lines of action, such as enquiring into genuine consumer complaints, issuing bulletins and periodic literature on relevant problems, providing a central platform from which a unified consumers' viewpoint could be projected on national policies; and role of consumers' co-operative movement in India and a brief discussion of its main problems. Also a survey of the existing legal framework and its weaknesses, particularly with regard to enforcement; and formulation of suggestions.

Session 4 Role of Standardization

The need for standardization and its methods; and the role of Indian Standards Institution.

Session 5 Role of Women

Some general remarks about the social position of women; their predominant role as house-wives and as caretakers of the consumption needs of the family; role of women's organizations; the possibility of linkage with CAI; kitchen associations; etc.

ICUMSA AND DR. D. V. KARMARKAR

The 13th Session of the International Commission for Uniform Methods of Sugar Analysis, ICUMSA, will be held during August-September 1962 in Berlin. It gives us pleasure to announce that Dr. D. V. Karmarkar, Deputy Director (Agri and Food) of ISI and a member of the Indian National Committee for ICUMSA, has been appointed as the Associate Referee for the study of the following subjects to be discussed at this session: (a) Weighing, taring and sampling of sugars; (b) Specification and tolerance for pure sucrose and reagents; and (c) Dry substance in sugar products.

REVIEWS

ISO Memento 1961. ISO General Secretariat, Geneva. 1961. Pp. 64.

On the occasion of the General Assembly meeting of the International Organization for Standardization (ISO) held in Helsinki in June 1961, the ISO General Secretariat brought out the first edition of ISO Memento. The Memento is divided into three parts. The first part contains general information, names and addresses of the 44 ISO Member Bodies and names of personalities connected with the administration of ISO. The second part gives lists of ISO Technical Committees in English, French and Russian; the participation table; and information about the proposals, co-ordinating committees and operation of the technical committees. The third part covers titles of ISO Recommendations and draft ISO Recommendations according to the UDC; alphabetical indexes in English and French together with the numerical lists of ISO Recommendations, and draft ISO Recommendations and a survey-table of the classification under 3 heads, namely UDC classes, UDC number, and number of relevant ISO Technical Committee.

Further editions of the ISO Memento are planned to be issued at the beginning of each year. Such changes as occur during the year in the information contained in ISO Memento, can be noted in periodic addenda, which can be kept in the special pocket provided for that purpose inside the cover of this Memento.

The publication is a useful reference material.

Specifications for Steel Piping Materials. American Society for Testing Materials, Philadelphia. 1960. Pp. xii + 524. Price \$ 7.00.

First published in 1942, the specifications in this compilation cover: (a) pipes used to convey liquids, vapours, and gases at normal and elevated temperatures; (b) still tubes for refinery service; (c) heat exchanger and condenser tubes; and (d) boiler, superheater, and economizer tubes. To make the volume complete there are also included specifications for castings, forgings, bolting, and welding fittings used in such installations.

Over half of the approximately 70 specifications included in the book have been revised since the 1959 edition was published. Many of the specifications for tubular products have been changed to include a more detailed description of the flattening test. Besides, provisions have been added for marking those tubular products which are not completely processed in accordance with the specification requirements. In the specifications for austenitic tubular products, marking requirements for various heat treatments have also been added.

Standards on Petroleum Products and Lubricants (With Related Information): Volume I Methods of Testing Specifications, Definitions, Charts and Tables. American Society for Testing Materials, Philadelphia. 1960. Pp. xxvi + 1130. Price \$ 9.50.

Petroleum chemists and technologists, engineers and purchasing agents will find the 1960 edition of this compact volume handy in their daily work. It contains most of the ASTM standards on petroleum including crude petroleum, butadiene, motor and aviation fuels, naphthas, diesel fuels, lubricating oils, industrial oils, cutting oils, turbine oils, greases, waxes, spray oils, and other related materials. The volume contains 11 extensive appendices containing proposed methods of test. Typical of some of the new standards included in the book are: (a) Water and sediment in fuel oils by centrifuge; (b) Luminometer numbers of aviation turbine fuels; (c) Refractive index of viscous materials; and (d) oil separation from lubricating grease during storage.

1959 Supplement to the Bibliography and Abstracts on Electrical Contacts. American Society for Testing Materials, Philadelphia. 1960. Pp. iv + 64. Price \$ 3.50.

The effects which take place in the operation of electrical contacts are very complicated. They involve the microphysics of the electric arc, the metallurgy of the contact materials, the mechanics of the operating mechanism, the physical and chemical properties of all materials, and the ambient conditions. To be practical, however, such a bibliography must limit the information on widely

scattered fields to that which is pertinent to the problem involved. The decisions limiting the ranges of titles and subject matter must be made carefully, since the value of this work will be determined by the number of people it will serve. Therefore, it has been considered desirable to include references which appear to have some reasonable connection with the problems involved in electrical contacts.

This supplement is divided into several sections which are designed to make it most convenient for those who use it. The Subject Index groups the bibliography according to separate problems and details involved in the subject of electrical contacts. The Author Index will be convenient for those who wish to follow the work of any particular individual. The bibliography and abstract list is placed in chronological order based on the year in which the article was published. The titles of these references are complete, and in some cases are given both in the original language and in English.

Symposium on Durability and Weathering of Structural Sandwich Constructions. American Society for Testing Materials, Philadelphia. 1960. Pp. vi + 72. Price \$ 3.00.

The aircraft and building construction industries are making widespread use of the structural sandwich panel, made possible through simultaneous developments in the structural adhesive and the light-weight core material fields. Considerable savings in weight, assembly time, and costs have been realized, with the added advantages of improved appearance and smoothness. This symposium, while not a complete study of durability and service experience, adds to the rather meagre published information. It is hoped that this publication will answer some questions concerning service performance in this relatively new field. The book is well illustrated and contains extensive references.

PUBLICATIONS RECEIVED

Regional Research Laboratory — Annual Report, 1959-60. RRL, Hyderabad. Pp. xiv + 217.

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STANDARDS NEWS

Hot Rolled Structural Steel Sections: ISI to Hold Secretariat of ISO Working Group

Following a proposal from India, the Technical Committee ISO/TC 17 Steel of the International Organization for Standardization, at its meeting held in London from 24 to 28 April 1961, decided to set up a new working group ISO/TC 17/WG 8 Hot Rolled Steel Sections to take up the work with regard to re-design and standardization of hot-rolled structural steel sections. India has also been entrusted with the secretariat responsibilities of this Working Group.

With the heavy programme of industrial development all over the world during the post-war period, shortage of steel is being experienced by a number of countries. Attempts are being made to develop specifications suitable to each country in order to enable available steel to be utilized to best advantage. Hot rolled structural steel sections happen to be one of the important items of steel products where conservation of steel has been attempted by trying to improve steel sections, and through the re-design of sections.

The Indian Standards Institution embarked on a steel economy programme in 1954 at the request of the Government of India. The only other organization which made such a study was the European Coal and Steel Community (CECA) in Europe. Although ISI and CECA were working on the same project simultaneously, they were not aware of it till 1955 when considerable progress had already been made by ISI.

As a result of the intensive study spread over a number of years, the following specifications have already been published by ISI:

- a) IS : 808-1957 Rolled Steel Beam, Channel and Angle Sections;
- b) IS : 1173-1957 Rolled Steel Sections, Tee Bars; and
- c) IS : 1252-1958 Rolled Steel Sections, Bulb Angles.

The subject of re-design and standardization of hot rolled structural steel sections has also been under the active consideration of the Commonwealth countries during the last four years. The subject was first discussed at the third Commonwealth Standards Conference held in

New Delhi in 1957 and subsequently again at the fourth Commonwealth Standards Conference held at Ottawa in August-September 1959.

The proposal that ISO/TC 17 should revise its scope to include specifications for steel on its programme of work and set up a new subcommittee for that purpose was first made by India in April 1958. The preparation of the international recommendations on the subject, it is expected, would facilitate international trade.

Quality Consciousness at IIF Convention, 1961

Great stress was laid on the need for manufacturers to raise the quality of their products at the Annual Convention of the Institute of Indian Foundrymen (IIF) held at Bombay

For You

The purpose of the 'Standards News' feature is to inform readers of this Bulletin about the various interesting developments related to standardization in India and abroad. In this context, the editor invites from individuals as well as organizations, contributions which could be included in this feature.

last April. As the foundry industry is a basic industry catering to the need of other engineering industries, it is necessary that high standards should be set up in foundry technology and practice. While the quality of raw materials would, by and large, determine the quality of finished product, in the foundry industry, in particular, the technique and method of production have a great deal to do with the quality of the cast product.

Sardar Swaran Singh, the Union Minister for Steel, Mines & Fuel, said, in his inaugural address, that the foundry industry had developed very well during the last year when the production of pig iron was at its peak, but the emphasis had now changed to quality. Consumers who were content to put up with rough castings three or four years ago,

have today, become increasingly quality conscious and desire greater control over dimensional tolerances. The concept of raw material was also greatly changing as product of one industry might eventually be a raw material for another industry. As long as there were adequate basic raw materials available in our country, the Minister stressed, that there should not be any difficulty in reaching our ultimate goal of quality production.

'In any sphere of activity', Sardar Swaran Singh said, 'productivity and production techniques cannot be improved unless the latest methods are employed. We should try to utilize all available means and latest technological know-how to raise the living standard of the crores of Indian people and as such all technical associations in the country should work basically for the advancement of the country'.

The Convention was presided over by Dr. B. R. Nijhawan, Director, National Metallurgical Laboratory, Jamshedpur, and President of the Institute. Fifteen technical papers on diverse aspects of foundry technology were presented and comprehensively discussed in four well-attended technical sessions.

The Institute of Indian Foundrymen collaborates actively with ISI and is represented on a number of ISI Sectional Committees pertaining to foundry industry.

Machine Tools Sectional Committee and Experts from Czechoslovakia

The Government of India, it would be recalled, is planning to set up in collaboration with the Government of Czechoslovakia a Central Machine Tool Institute (CMTI) to deal with the technical problems relating to design and manufacture of machine tools and training of design personnel. Recently, a team of Czechoslovakian machine tool experts, which is finalizing the proposal with the Government of India, attended the fourth meeting of the Machine Tools Sectional Committee, EDC 11, held in Bangalore.

In the course of a general discussion at the meeting, the Czech experts offered to assist ISI in formulating Indian Standards for machine tools and other items in

allied fields. The Chairman of the Sectional Committee explained that ISI would be glad to organize the receipt of such assistance in due course and that the Sectional Committee would give representation to CMTI on the Committees in the work of which CMTI could help.

One of the Czech specialists pointed out that it was their policy in Czechoslovakia to follow the Recommendations of ISO to the greatest extent possible while drawing up national standards, the use of which was obligatory in the country. He also explained that DNA standards were quite freely recognized in Czechoslovakia though in an indirect manner.

Shri J. P. Mehrotra, the Secretary of the Committee, explained that it was also the general policy of ISI to follow ISO Recommendations to the greatest extent possible. He explained that in India use of standards was so far voluntary but the various agencies of the Central and the State Governments, and other manufacturers in public and private sectors were accepting Indian Standards very freely. Mention was also made of the changeover to the metric system and the manner in which that was being effected in the field of standardization. Shri Mehrotra explained that ISI too was drawing considerable inspiration from DNA standards. It was realized that the Czech experts in CMTI would naturally do much of their thinking in terms of Czech standards and assured that those standards too would receive due consideration if their translations in English could be made available.

Standard Packets of Matches

Matches in India were being packed in boxes of 30s, 40s and 60s. In view, however, of the country's changeover to the metric system and to effect variety reduction, the Government of India decided to standardize the packing of matches in boxes of 50s, and introduced concessional rates of duty for matches packed in such boxes with effect from 1 March 1961. At the same time to facilitate an easy switch-over to the production of the new standard type of match boxes, the existing concessional rates for 40s and 60s were also allowed to continue for three months more, that is, till 1 June 1961.

Further, it may also be recalled that as a measure of encouragement to the cottage sector of the match industry which uses bamboo for

making splints, the concessional rates for matches of 50s were further liberalized. In view of the special circumstances pertaining to the marketing of such matches, the Government of India have decided to extend similar concession to the cottage sector in respect of matches of 40s produced from bamboo. This concession will be available up to 28 February 1962.

Protection to Ball Bearings Industry and Standardization

In pursuance of the recommendations of the Tariff Commission, the Government of India have been giving continuous protection to the ball bearings industry for the last ten years. In December 1960, the protection was extended for a further period of two years ending 31 December 1962 after another enquiry by the Commission (its third in the sequence) at the existing rates of duty. In its report, the Commission also recommended that ISI should expedite the work with regard to the formulation of Indian Standards for ball bearings.

Standardization of ball and roller bearings was, in the past, mainly a result of the demand for dimensionally interchangeable bearings from different manufacturers. Later on, it was realized that dimensional interchangeability did not cater for the running requirements unless a basic minimum running accuracy is established in addition to standardizing the sizes.

The task of preparing Indian Standards concerning ball bearings is assigned to the Ball and Roller Bearings Sectional Committee, EDC 39 of ISI. The work is well in hand and draft standards concerning the following subjects are under various stages of compilation:

- a) Boundary Dimensions for Ball and Roller Bearings for General Engineering Purposes,
- b) Glossary of Terms Relating to Ball and Roller Bearings,
- c) Identification Code for Ball and Roller Bearings,
- d) Methods of Test for Complete Bearings,
- e) Dimensions of Bearings (Including Tolerances), and
- f) Materials and Tests for Bearing Components.

Checking the Use of Sub-Standard Seeds

Widespread use of sub-standard seed has been adversely affecting Indian agriculture. The Government

of India is formulating a comprehensive programme in consultation with the US governmental and private agencies to check this practice.

An American seed improvement expert, Mr. Altice S. Carter, is already in India to help Indian agricultural officials to put a seed control programme into operation.

Under this plan, seed testing laboratories will be established in every state of India. Suitable legislation will be framed to prevent poor quality seed being sold to farmers, and agricultural graduates will be trained to work in seed laboratories and conduct field inspection. As a first step in this direction, a six-week training course has already been started at the Indian Agricultural Research Institute, New Delhi, which is being attended by a number of trainees from all over India.

The US Government through its Technical Co-operation Mission in India, will assist the Indian Government in setting up seed testing laboratories and conduct training courses. The Rockefeller Foundation and the Ford Foundation are also helping in equipping some of the laboratories. The American expert, Mr. Carter, who has had a long experience of seed control legislation in the United States, is also being consulted by the Indian authorities in drafting similar suitable legislation for India.

The first significant step in seed improvement in India was taken in 1955 when the setting up of a Central Seed Testing Laboratory in New Delhi was sanctioned and it was also decided to establish a chain of regional seed testing and certification laboratories.

Handicrafts Export

The Government of India is understood to be considering a suggestion to make it statutory for Indian handicraft exporters to submit their products for official inspection and approval before exporting them to foreign countries. Such a regulation it is felt, is necessary for improving the quality of exported handicrafts.

At present, only those exporters who operate through the Indian Handicrafts Development Corporation for contacting buyers have their products inspected before shipment but this is only voluntary. The corporation feels that inspection should be made compulsory for all handicrafts exporters.

(Continued on p. 241)

Implementation of Indian Standards

During the period 1 April to 31 May 1961, the following Government purchasing and consuming departments communicated to ISI that they had added to the list of Indian Standards, on the basis of which their purchases are made, the standards listed below under each. On 31 May 1961, 1 651 Indian Standards were in force, of which 1 408 had thus been adopted by various Government departments.

Directorate General of Supplies & Disposals

- IS : 1427-1959 Rayon Georgette
- IS : 1428-1959 Rayon Voils, Ninons and Plain Chiffons
- IS : 1462-1960 Talc for Cosmetic Industry
- IS : 1566-1960 Hard-Drawn Steel Wire Fabric for Concrete Reinforcement
- IS : 1573-1960 Zinc Plating
- IS : 1598-1960 Methods for Izod Impact Test for Steel
- IS : 1601-1960 Performance of Constant Speed Internal Combustion Engines for General Purposes
- IS : 1607-1960 Method for Dry Sieving
- IS : 1653-1960 Steel Conduits for Electrical Wiring
- IS : 1654-1960 Antimonial Lead for Storage Batteries
- IS : 1655-1960 Code of Practice for Manufacture of Zinc Alloy Pressure Die Castings
- IS : 1677-1960 Braided Spray Hose, High Pressure, for Agricultural Purposes
- IS : 1678-1960 Prestressed Concrete Poles for Overhead Power, Traction and Telecommunication Lines
- IS : 1716-1960 Method for Reverse Bend Testing of Steel Wire

Controller General of Defence Production

- IS : 2-1960 Rules for Rounding Off Numerical Values (*Revised*)
- IS : 190-1960 Coniferous Sawn Timber Intended for Further Conversion (*Second Revision*)
- IS : 306-1960 Tin Bronze Ingots and Castings (*Revised*)
- IS : 668-1955 Serge, Ordinary
- IS : 1146-1960 Hard Rubber Containers for Motor Vehicle Batteries

- IS : 1397-1960 Kraft Paper
- IS : 1398-1960 Packing Paper, Waterproof, Bitumen Laminated
- IS : 1435-1960 Platform Weighing Machines
- IS : 1573-1960 Zinc Plating
- IS : 1598-1960 Methods for Izod Impact Test for Steel
- IS : 1600-1960 Code for Type Testing of Constant Speed Internal Combustion Engines for General Purposes
- IS : 1602-1960 Code for Type Testing of Variable Speed Internal Combustion Engines for Automotive Purposes
- IS : 1604-1960 Aviation Gasoline
- IS : 1629-1960 Rules for Grading of Cut Sizes of Timber
- IS : 1660-1960 Wrought Aluminium Utensils

Research, Designs & Standards Organization

- IS : 178-1951 Cotton Twills
- IS : 854-1956 Handloom Cotton Turkish Towels, Bleached, Striped, Checked or Dyed
- IS : 1346-1959 Code of Practice for Waterproofing of Roofs with Bitumen Felts
- IS : 1391-1960 Room Air Conditioners
- IS : 1594-1960 Metric Sizes of Copper Wires and Conductors for Electrical Purposes

Posts & Telegraphs Department

- IS : 876-1957 Wood Poles for Overhead Power and Telecommunication Lines

Directorate General, Ordnance Factories

- IS : 1110-1957 Ferro-Silicon
- IS : 1170-1957 Ferro Chromium
- IS : 1171-1957 Ferro Manganese
- IS : 1466-1960 Ferro Vanadium
- IS : 1467-1960 Ferro Tungsten
- IS : 1468-1960 Ferro Titanium
- IS : 1469-1960 Ferro Molybdenum
- IS : 1471-1960 Ferro Phosphorus

RECOMMENDATIONS FOR IMPLEMENTATION

Chairman of production units in the public sector (Centre and States), and of river valley projects, and commissioners of municipal corporations have been requested to adopt Indian Standards and to give preference to ISI Certified goods in their purchases. The following have

responded favourably and issued instructions to all concerned subordinate offices accordingly :

- a) Bombay Municipal Corporation, Bombay;
- b) Hindustan Antibiotics Ltd., Pimpri;
- c) Government of India, Silver Refinery, Calcutta; and
- d) Hindustan Machine Tools (P) Ltd., Bangalore.

Others are expected to take similar action in the near future.

Besides, Indian Standards relating to the following items have been recommended for implementation, and also adopted in certain cases as detailed below.

Building Materials

In addition to the organizations reported in the last issue, the following have also issued instructions to their subordinate offices for adopting Indian Standards and giving preference to ISI Certified goods :

- a) Registrar, Co-operative Societies, Maharashtra, Bombay;
- b) Assistant Housing Commissioner (South) Maharashtra, Bombay;
- c) Public Health Engineering Department, Madhya Pradesh, Bhopal; and
- d) Chief Engineer (B & R), Punjab, Patiala.

Electrical Equipment and Accessories

About 100 Indian Standards have been published by the Institution on electrical equipment and accessories. The Electric Supply Companies/Undertakings and State Electricity Boards have been requested to adopt these Indian Standards and to give preference to ISI Certified goods in their purchases. The following have responded favourably and issued instructions to all concerned subordinate offices accordingly:









- a) The Karaikkal Electric Supply Co. Ltd., Tiruchrapalli;
- b) Delhi Electric Supply Undertaking, New Delhi;
- c) Bombay Suburban Electricity Supply Ltd., Bombay;
- d) Punjab State Electricity Board, Patiala;
- e) Mysore State Electricity Board, Bangalore; and
- f) Maharashtra State Electricity Board, Bombay.

ISI Certification Marks

New and Renewed Licences, and Marking Fees

During the two months ending 31 May 1961, ISI specified standard marks for 8 products, granted 21 new licences and renewed 23 for the use of standard marks; particulars of all these are given below.

STANDARD MARKS AND MARKING FEES

PRODUCT/CLASS OF PRODUCT	DESIGNS OF STANDARD MARK	NUMBER AND TITLE OF RELEVANT INDIAN STANDARD	UNIT	MARKING FEE PER UNIT
Trisodium Phosphate, Technical	IS:573 	IS: 573-1954 Specification for Trisodium Phosphate, Technical	One Tonne	Re 1.00
Copper Wire Nails	IS:725 	IS: 725-1956 Specification for Copper Wire Nails	One kg	4 nP
Gate Globe and Check Valves	IS:778 	IS: 778-1957 Specification for Gunmetal Gate, Globe and Check Valves and Water, Steam and Oil Only (Not Intended for Use in Petroleum Industry)	One lb	3 nP per unit with a minimum of Rs 1 500.00 for production during a calendar year
Small AC and Universal Electric Motors	IS:996 	IS: 996-1959 Specification for Small AC and Universal Electric Motors with Class 'A' Insulation	One Motor	25 nP per unit with a minimum of Rs 750.00 for production during a calendar year
Pearl Barley	IS:1156 	IS: 1156-1957 Specification for Pearl Barley	One kg	1 nP
Aldrin Emulsifiable Concentrates	IS:1307 	IS: 1307-1958 Specification for Aldrin Emulsifiable Concentrates	One Litre	3 nP per unit with a minimum of Rs 1 000.00 for production during a calendar year
Endrin Emulsifiable Concentrates	IS:1310 	IS: 1310-1958 Specification for Endrin Emulsifiable Concentrates	One Litre	3 nP per unit with a minimum of Rs 1 000.00 for production during a calendar year
Rolled Oats (Quick-Cooking Type)	IS:1484 	IS: 1484-1959 Specification for Rolled Oats (Quick-Cooking Type)	One kg	5 nP

NEW LICENCES GRANTED

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-290 28-4-1961	15-5-1961	14-5-1962	M/s Kirti Chemical Works, Bombay	Copper Oxochloride Dusting Powders (IS: 1506-1959)
CM/L-291 28-4-1961	15-5-1961	14-5-1962	do	Copper Oxochloride Water Dispersible Powder Concentrates (IS: 1507-1959)
CM/L-292 28-4-1961	15-5-1961	14-5-1962	M/s Burmah-Shell Oil Storage and Distributing Co. of India Ltd., Bombay	Aldrin Emulsifiable Concentrates (IS: 1307-1958)
CM/L-293 28-4-1961	15-5-1961	14-5-1962	do	Endrin Emulsifiable Concentrates (IS: 1310-1958)
CM/L-294 28-4-1961	15-5-1961	14-5-1962	M/s Devidayal (Sales) Pvt. Ltd., Bombay	do
CM/L-295 28-4-1961	15-5-1961	14-5-1962	M/s Bharat Pulverizing Mills Private Ltd., Bombay	do
CM/L-296 28-4-1961	15-5-1961	14-5-1962	M/s Indian Rare Earths Ltd., Alwaye	Trisodium Phosphate, Technical Dodecahydrate Grade (IS: 573-1954)
CM/L-297 28-4-1961	15-5-1961	14-5-1962	M/s P.S.G. & Sons Charity Industrial Institute, Coimbatore	Small AC and Universal Electrical Motors with Class 'A' Insulation (IS: 996-1959)
CM/L-298 28-4-1961	15-5-1961	14-5-1962	M/s Sri Shunmuga Metal Works, Tiruchirapalli	Wrought Aluminium and Aluminium Alloy Utensils (IS: 21-1959)
CM/L-299 28-4-1961	15-5-1961	14-5-1962	M/s J. B. Mangharam & Co., Gwalior	Biscuits (Excluding Wafer Biscuits) (IS: 1011-1957)
CM/L-300 28-4-1961	15-5-1961	14-5-1962	M/s New Digvijaysinhji Tin Factory, Jamnagar	18-Litre Square Tins (IS: 916-1958)
CM/L-301 17-5-1961	20-5-1961	19-5-1962	M/s National Saw and Plywood Works, Tinsukia	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-302 25-5-1961	1-6-1961	31-5-1962	M/s National Plywood Industries, Calcutta	do
CM/L-303 30-5-1961	15-6-1961	14-6-1962	M/s Tata-Fison Ltd., Agra	BHC Water Dispersible Powder Concentrates (IS: 562-1958)
CM/L-304 30-5-1961	15-6-1961	14-6-1962	do	DDT Water Dispersible Powder Concentrates (IS: 565-1955)
CM/L-305 30-5-1961	15-6-1961	14-6-1962	M/s India Supplies Engineering Works Ltd., Kanpur	Small AC and Universal Electrical Motors with Class 'A' Insulation (IS: 996-1959)
CM/L-306 30-5-1961	15-6-1961	14-6-1962	M/s Hindustan Breakfast Food Manufacturing Factory, New Delhi	Pearl Barley (IS: 1156-1957)
CM/L-307 30-5-1961	15-6-1961	14-6-1962	do	Rolled Oats (Quick-Cooking Type) (IS: 1484-1959)
CM/L-308 30-5-1961	15-6-1961	14-6-1962	M/s Devidayal (Sales) Private Ltd., Bombay	DDT Water Dispersible Powder Concentrates (IS: 565-1955)
CM/L-309 30-5-1961	1-7-1961	30-6-1962	M/s Jayant Metal Manufacturing Company, Bombay	Copper Wire Nails (IS: 725-1956)
CM/L-310 30-5-1961	15-6-1961	14-6-1962	M/s Aminchand Payarelal, Julundur City	Gunmetal Gate, Globe & Check Valves for Water, Steam and Oil Only (Not Intended for Use in Petroleum Industry) (IS: 778-1957)

LICENCES RENEWED

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-78 24-4-1958	1-5-1961	30-4-1962	M/s Crossley and Towers Pvt. Ltd., Calcutta	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-79 24-4-1958	1-5-1961	30-4-1962	M/s National Timber Industries, Calcutta	do
CM/L-80 24-4-1958	1-5-1961	30-4-1962	M/s Das and Company, Calcutta	do
CM/L-82 24-4-1958	1-5-1961	30-4-1962	M/s Dhubri Plywood Factory, Dhubri	do
CM/L-85 24-4-1958	1-5-1961	30-4-1962	M/s Hindusthan Timber Industries, Calcutta	do
CM/L-86 24-4-1958	1-5-1961	30-4-1962	The Surma Match and Industries (P) Ltd., Calcutta	do
CM/L-180 30-3-1960	15-4-1961	14-4-1962	M/s Shiv Scientifics & Chemicals, Agra	Nitric Acid, Pure & Analytical Reagent Grades (IS: 264-1950)
CM/L-181 30-3-1960	15-4-1961	14-4-1962	do	Hydrochloric Acid, Pure & Analytical Reagent Grades (IS: 265-1950)
CM/L-182 30-3-1960	15-4-1961	14-4-1962	do	Sulphuric Acid, Pure & Analytical Reagent Grades (IS: 266-1950)

(Continued)

LICENCES RENEWED — *Contd*

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-183 31-3-1960	15-4-1961	14-4-1962	M/s Flintrock Products Pvt. Ltd., Bombay	BHC Water Dispersible Powder Concentrates (IS: 562-1958)
CM/L-185 26-4-1960	1-5-1961	30-4-1962	M/s Shalimar Tar Products (1935) Ltd., Calcutta	Bitumen Felts for Waterproofing and Damp-Proofing (IS: 1322-1959)
CM/L-186 26-4-1960	1-5-1961	30-4-1962	M/s P.S.G. & Sons Charity Industrial Institute, Coimbatore	Three-Phase Induction Motors, from 1 HP to 10 HP (IS: 325-1959)
CM/L-187 26-4-1960	1-5-1961	30-4-1962	The Indian Cable Company Limited, Calcutta	Paper-Insulated Lead-Sheathed Cables for Electricity Supply (Working Voltage Up to and Including 11 kV) (IS: 692-1957)
CM/L-9 11-6-1956	14-6-1961	13-6-1964	M/s Jeewanlal (1929) Ltd., Madras	Wrought Aluminium Utensils (IS: 21-1959)
CM/L-10 11-6-1956	14-6-1961	13-6-1964	M/s Jeewanlal (1929) Ltd., Bombay	do
CM/L-11 11-6-1956	14-6-1961	13-6-1964	M/s Jeewanlal (1929) Ltd., Bellur Math (Howrah)	do
CM/L-27 20-5-1957	1-6-1961	31-5-1964	M/s Electrical Mfg. Co. Ltd., Calcutta	Hard-Drawn Stranded Aluminium and Steel Cored Aluminium Conductors for Overhead Power Transmission Purposes (IS: 398-1953)
CM/L-87 21-5-1958	2-6-1961	1-6-1962	M/s Bagdogra Plywood Factory, Bagdogra	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-123 21-5-1959	1-6-1961	31-5-1962	The Eastern Plywood Co. Pvt. Ltd., Pappinisseri	do
CM/L-124 21-5-1959	1-6-1961	31-5-1962	The Western India Plywoods Ltd., Baliapatam	do
CM/L-188 27-4-1960	15-5-1961	14-5-1962	M/s Bharat Starch & Chemicals Ltd., Yamuna Nagar	i) Maize Starch for Use in the Cotton Textile Industry (IS: 1184-1957) ii) Edible Maize Starch (Corn Flour) (IS: 1005-1957)
CM/L-189 27-4-1960	15-5-1961	14-5-1962	M/s Gautam Electric Motors Pvt. Ltd., New Delhi	Three-Phase Induction Motors from 1 HP to 5 HP (IS: 325-1959)
CM/L-190 25-5-1960	1-6-1961	31-5-1962	The Indian Turpentine & Rosin Co. Ltd., Bareilly	Rosin (Gum Rosin) (IS: 553-1955)

STANDARDS NEWS — *Continued from p. 237*

Meanwhile, arrangements have been completed by the Corporation for setting up of a Technical Assistance Centre in Moradabad. It will give advice and help to brassware artisans there. The corporation has also imported copper and zinc worth Rs 6 lakhs for use by these artisans; because of the difficulty in obtaining these metals, the artisans were prone to use scrap metal which resulted in shoddy products.

Two French experts are being sent here by the Ford Foundation to a handbag centre to be set up by the Corporation in Okhla, New Delhi. They will guide Indian craftsmen in improving the design of handbags made of Indian material — *The Sunday Statesman*, 18 June 1961.

Industrial Electroplating

Industrial Electroplating was the subject of a lecture by Mr. I. Sven

Nilsson, Expert of the United Nations Technical Assistance Operations, New Delhi, at a technical meeting of the India Section of the Electrochemical Society held on 28 February 1961 at Bangalore. It was brought out in the lecture that the quality of electroplating could be improved if industrial platers adopted standardized processes and effected control over the various steps in plating.

Mr. Nilsson pointed out that there was considerable difference between the electrodeposition usually carried out in the laboratory and that carried out for industrial production. He felt that, in India, the laboratory work on electrodeposition was very satisfactory. But in the field of industrial application much remained to be done. The scope for practical electroplating, he felt, was in a way linked up with the raising of the living standards in the country.

With the increase in the demand for consumer goods, good quality plating is necessary for the industrial platers in India.

Quality of plating was important both from the point of view of decoration and corrosion resistance of the article. In this connection he was glad to note that the Indian Standards Institution had formulated a number of standards for the guidance of platers and consumers. He felt that consistent with the economy to be achieved for industrial plating, the quality should be acceptable to some standard. Giving instances of quality of plating, he mentioned that the common complaint against industrial plating was poor adherence of the electroplate on the basis metal. He explained the mechanism of adherence to the metal deposited and how poor cleaning or lack of cleaning impaired the quality of plating.

REVIEWS — *Continued from p. 235*

Metric System, Conversion Factors and Tables — First Edition.

Engineering College Students' Co-operative Stores, Anantapur

(Andhra Pradesh), 1961. Pp. vii + 45. Price Rs 2.50.

ISI ACTIVITIES

EXECUTIVE COMMITTEE

The seventieth meeting of the Executive Committee was held at Manak Bhavan on 18 May 1961 under the chairmanship of Lala Shri Ram. Earlier, on the same day, the Finance Committee of the Institution held its fifty-seventh meeting with Shri E. A. Nadirshah in the chair.

The Executive Committee decided to give representation to the following 4 more organizations on the Industrial Safety Advisory Committee set up earlier* under the chairmanship of Shri N. S. Mankiker, Chief Adviser of Factories, for co-ordinating, executing and implementing the work of various technical divisions of ISI in the field of industrial safety:

- a) The Indian Cotton Mills Federation, Bombay;
- b) The Indian Roads Congress, New Delhi;
- c) Hindustan Steel Limited, New Delhi; and
- d) The Indian Jute Mills Association, Calcutta.

The Committee decided that the offer to hold the secretariat of the newly set up Working Group 8 for Hot-Rolled Steel Sections of ISO/TC 17 Steel be accepted by ISI. (Also see p. 236)

The Committee accorded its approval to the admission of 37 Sustaining Members, 24 Sustaining Members (Associates) and 14 Ordinary Members. The membership position as on 17 May 1961, after these admissions for these 3 categories of membership stood at 1395, 415 and 288 respectively making a total subscribing membership of 2098.

FIRST MEETINGS

Consequent upon the dissolution and re-organization of the Electrical Plant and Switchgear Sectional Committee, ETDC 4, two of the new sectional committees set up recently are:

ETDC 19 High Voltage Techniques; and

ETDC 21 Electrical Welding and Equipment.

The salient features of **first meetings** of these committees, held

*See ISI Bull., Vol 13, No. 3, p. 135 (1961).

during the period under report, are briefly described below.

High Voltage Techniques

Prof. C. S. Ghosh, Chairman of ETDC 19 and Head of the Department of Electrical Engineering, University of Roorkee, presiding over the meeting held at Bangalore on 11 and 12 May 1961 said that it was a happy augury that the Committee had before it four drafts for discussion at its very **first meeting**.

Of these, the draft Indian Standard relating to Voltage Measurement by Means of Sphere-Gaps (One Sphere-Earthed) was finalized for printing after waiving the usual circulation for 3 months, since the draft was in complete technical agreement with the relevant IEC Publication and had no controversial points. Besides, it was felt desirable that the standard be made available to laboratories as quickly as possible.

With regard to the draft Indian Standard Specification for Impulse Voltage Testing, the Committee decided that the draft be aligned with the relevant IEC Publication in all respects and a revised draft circulated to members before issuing it in wide circulation. The remaining two draft Recommendations for: (a) Insulation Co-ordination, and (b) High Voltage Test Techniques were approved for wide circulation.

The Committee felt that it would be useful to produce an Indian Standard relating to Application Guide for Equipment Located in Exposed Situations.

Electrical Welding Equipment

A draft Indian Standard Specification for Arc Welding Transformers: Part I Single-Operator Type, was finalized for publication and another draft for Arc Welding Transformers: Part II Multi-Operator Type, was approved for general circulation at the **first meeting** of the Electrical Welding Equipment Sectional Committee, ETDC 21, held at Manak Bhavan on 24 and 25 April 1961. Shri U. S. Savakoor, Director of Inspection, DGS&D, was in the chair.

In view of the differing manufacturing practices and testing facilities available in the country, the

Committee considered two methods of laying performance characteristics of welding transformers; one was on 55-percent-duty-cycle basis and the other on test-load-factor basis. Whereas the former was considered a more realistic simulation of actual working conditions, the latter was being commonly used in the country. It was finally decided to adopt 55-percent-duty-cycle as the basis; but it was also agreed to retain test-load-factor basis for the interim period, until a change-over to duty-cycle basis was completed.

New subjects proposed were: (a) Electrical Spot Welders, and (b) Rectifier Type Electrical Welding Equipment. The Committee decided to make preliminary study of the former and deferred the latter for the time being.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Dairy Industry

The ninth meeting of the Dairy Industry Sectional Committee, AFDC 12, was held on 12 and 13 April 1961 at Nagpur under the chairmanship of Dr. K. C. Sen of the Indian Dairy Science Association, Bangalore. The meeting was preceded by the meetings of the Dairy Utensils Subcommittee, AFDC 12:1, Methods of Test for Dairy Products Subcommittee, AFDC 12:4 and the Infant Foods Subcommittee, AFDC 12:5.

At this meeting, the draft Methods of Test for Dairy Industry: Part III Bacteriological Analysis of Milk, and the draft Specification for Malted Milk Powder were finalized for printing. The Committee also approved for wide circulation draft Indian Standards relating to the following:

- a) Cheese Vats;
- b) Insulated Stainless Steel Milk Storage Tank;
- c) Open Surface Milk Coolers;
- d) Batch Pasteurizer (Stainless Steel);
- e) Batch Pasteurizer (Aluminium);
- f) Hand-Operated Bottle Washer;
- g) Hand-Bottle Filler;
- h) Hand-Operated Cap Sealer for Milk;
- j) Methods of Test for Dairy Industry: Part V Methods for Dairy Plant Control;

the following were finalized for printing:

- a) Paving Bitumen;
- b) Cutback Bitumen;
- c) Digboi Type Cutback Bitumen;
- d) Industrial Bitumen;
- e) Crude Coal Tar for General Use;
- f) Road Tar; and
- g) Coal Tar Pitch.

The Committee agreed to co-opt M/s Burmah-Shell Oil Refinery and Indian Institute of Petroleum, New Delhi, on BCDC 2.

CHEMICAL DIVISION

Rubber Products

The eighth meeting of the Rubber Products Sectional Committee, CDC 6, was held from 10 to 12 April 1961 at Calcutta under the chairmanship of Dr. D. Banerjee of National Rubber Manufacturers Private Ltd. The Committee finalized for printing the draft Indian Standard Specification for Rubber Hot Water Bottles in the light of the comments received during wide circulation and discussions held at the meeting. Besides, the draft Indian Standard Specifications for: (a) Braided Petrol Hose; (b) Trailer Fire Pump Hose; and (c) Water Suction Rubber Hose, Light Duty were also reconsidered and approved for wide circulation.

In view of the adoption of metric system in the country, the Committee considered proposals for revising all the published standards formulated by the Committee. After careful consideration of the proposal, it was decided to adopt the nominal metric sizes and metric lengths of hoses. Arising out of this decision, the Committee authorized the Chairman and Shri Lalit Mohan Jannadas to scrutinize proposed draft Revision for Indian Standard Methods of Test for Hoses and proposed draft Revisions of Indian Standard Specifications for: (a) Water Delivery Hose; (b) Air Hose for Pneumatic Tools; (c) Welding Hose, Oxy-Acetylene; (d) Oil Resisting Hose; (e) Plain Rubber Tubing; and (f) Rubber and Insertion Jointing. Afterwards, these draft Revisions will be issued in wide circulation.

The Committee also considered the draft Revision of IS : 636-1958 Rubber Lined Woven Jacketed Hose for Use in General Fire Fighting Service and decided that the draft as amended by the Committee, after due editorial changes by the ISI Directorate, be circulated to all interests concerned for comments. In this revised draft, reinforced



Attending the Eleventh Meeting of the Essential Oils and Allied Products Sectional Committee, CDC 11, are (From l to r): Dr. (Miss) B. S. Khambata, Dr. Sadgopal (Secretary), Dr. G. S. Hattiangdi (Chairman) and Shri N. A. Nimbalkar

rubber lined type of fire hose has also been added since this type of fire hose is already being produced in the country.

Essential Oils and Allied Products

The eleventh meeting of the re-constituted Essential Oils and Allied Products Sectional Committee, CDC 11, was held on 14 and 15 April 1961 at Manak Bhavan under the chairmanship of Dr. G. S. Hattiangdi of Hindustan Lever Ltd., Bombay. It is gratifying to note that a large number of progressive organizations which have lately come into being in the field of essential oils and perfumery chemicals are represented on the re-constituted CDC 11.

At the outset, Dr. Hattiangdi referred to the commendable work accomplished by the Committee in the past as a result of which 18 Indian Standards relating to essential oils and allied products have already been published. While welcoming the new members of the Committee, he referred to the useful contributions made by a number of old members, and particularly by the retiring Chairman of the Committee, Dr. K. L. Moudgill. The Committee passed a resolution in appreciation of the valuable services rendered by Dr. Moudgill, in the cause of standardization of essential oils and aromatic chemicals during the period 1957 to 1960.

The Committee finalized for publication as Indian Standards draft Specifications for Citral, Geraniol, Citronellol, Ionones, Oil of Patchouli,

Oil of Dill, Oil of Celery-Seed, Oil of Citronella (*Revised*), Oil of East Indian Lemongrass (*Revised*), and Oil of Sandalwood (*Revised*). Besides, the Committee finalized amendments in respect of Rosin and Gum Spirit of Turpentine. Three draft standards in respect of oils of Bergamot, Rosemary and Pine were also approved for wide circulation. The revision of Indian Standard Methods of Test for Essential Oils including the consideration of Amendment No. 1, which had already been circulated, was referred to the Methods of Test Subcommittee, CDC 11:1.

An important draft in respect of Method of Olfactory Test, originally sponsored by the Hindustan Lever Ltd., was discussed in detail along with the latest information and data which have been received by the ISI Directorate on the desirability and feasibility of laying down a standard on this subject. It was felt that the final assessment of essential oils depended largely on their olfactory values for use as perfumery materials and, consequently, a simple physico-chemical assay of essential oils could not serve the consumers' interest adequately. Even to date, as things have been reported from within India and abroad, consumers of essential oils invariably apply the olfactory test according to their own experience and limitations before they decide upon the acceptance of any item for their specific needs. The consensus of opinion gathered from foreign experts in favour of laying down a Standard Method of

Olfactory Test for Essential Oils was generally appreciated by the Committee. It was decided that the draft standard in this regard, after proper editing with all the necessary information, should be put into wide circulation to elicit comments.

The committee noted with satisfaction the efforts of ISI Directorate to push forward India's interest at the international level by placing Indian Standard Specifications for: (a) Vetiver (*Khus*) Oil; (b) Oil of Vetiver Roots (Cultivated); and (c) Himalayan Cedarwood, with the Secretariat of ISO/TC 54 Essential Oils.

Adhesives

The Adhesives Sectional Committee, CDC 30, held its second meeting on 9 and 10 May 1961 at Calcutta. Dr. B. L. Manjunath, Director of Indian Shellac Bureau, presided.

The Committee approved for wide circulation draft specifications for the following:

- a) Rubber Base Adhesives for Tyres and Tubes (Patching and Repair), Type I—Non-Curing;
- b) Rubber Base Adhesives for Tyres and Tubes (Patching and Repair), Type II—Curing; and
- c) Paper Adhesives (Liquid Gum and Office Paste).

The Committee also decided to initiate the preparation of draft specifications for: (a) Adhesive Tapes, and (b) Machine Labelling Paste.

The Committee noted that draft standard specifications for: (a) Rubber Base Adhesives for Automobile Industry (Multipurpose), and (b) Adhesives for Leather Belting were already in advanced stage of preparation under two separate subcommittees, and these draft standards were expected to come up for consideration at the next meeting of CDC 30.

Lubricants

The fourteenth meeting of the Lubricants Sectional Committee, CEDC 1, was held at Digboi (Assam) from 27 to 29 March 1961 under the chairmanship of Shri J. J. Bagchi. This was the first meeting held at Digboi, which is the only refinery at present processing indigenous crude oils. The members of the Committee, therefore, took this opportunity to visit Digboi refinery and oil fields, Nahorkatiya oil fields and Tinsukia Installations.

Representatives of the Indian Institute of Petroleum, India, were specially invited to attend this meeting. It was learnt from these representatives that the Institute of Petroleum was making arrangements for providing all facilities for testing of lubricants, greases and other petroleum products. Members of the Committee, therefore, showed keen interest in the future plan of the Institute and requested to be posted with developments from time to time.

The Committee considered for finalization the draft Indian Standard Specification for Sulphurized Cutting Oil. It was learnt from one of the latest investigations on sulphurized cutting oils that the active sulphur content, much less than 0.6 percent (specified in the draft) sufficed to give the maximum benefit of a sulphurized cutting oil and the viscosity of the oil did not appear to have any effect on the life of the tool except for some special operations. In view of this information, the Committee deferred consideration of this draft and requested the ISI Directorate to collect as much data as possible regarding viscosity, active sulphur content, the fatty matter content and consumption of different grades of sulphurized cutting oils now being marketed in India.

The proposed draft Indian Standard Specification for Gear Lubricants, Premium, was approved for wide circulation at this meeting.

The Committee also considered a proposal to take up work on formulation of Indian Standard Specification for Heavy Duty Hydraulic Brake Fluids, but decided that before taking up, ISI may find out from the Development Wing of the Ministry of Commerce & Industry, Government of India, the present and future consumption figures of this type of material in the country. The Committee further resolved that work on Clock and Watch Oil for Milder Service Conditions should be expedited.

ELECTROTECHNICAL DIVISION

Electric Fans

The reconstituted Electric Fans Sectional Committee, ETDC 5, at its seventh meeting held on 1 and 2 May 1961 at Calcutta, approved for wide circulation the draft specification for Propeller Type Ventilating Fans. The Committee gave detailed thought to whether the draft should be confined to what could be termed as domestic fans

or whether the scope should be extended to cover industrial-type fans also. It was felt that in certain sizes quite a lot of overlap was possible in as much as some type of fans could be used for both domestic and industrial purposes. The Committee, therefore, decided to include fans up to 1500-mm size in the draft specification. Another important decision taken by the Committee was to specify a tolerance on blade sweep for all types of fans to take into account the slight variation in the blade size due to wearing off of die and punch.

Electrical Instruments and Meters

The seventh meeting of the Electrical Instruments and Meters Sectional Committee, ETDC 6, was held at Bombay on 7 April 1961 with Shri T. S. Rao in the chair. Earlier, the Subcommittees ETDC 6:1 Energy Meters, ETDC 6:2 Instruments, and ETDC 6:3 Rectifiers had met. Based on the recommendations of the Subcommittees, the Committee approved for wide circulation draft specifications for the following:

- a) AC Electricity Meters: Part I General Requirements;
- b) AC Electricity Meters: Part II Single-Phase, 2-Wire Meters;
- c) Polycrystalline Semi-Conductor Rectifiers; and
- d) Dimensions of Electrical Indicating Instruments.

There was a detailed discussion on the last draft, and dimensions given in it were decided after examining the relevant data available in India. It was made clear that these sizes would serve as the basis for standardization of dimensions of indicating instruments and that any additions which may be found absolutely necessary as a result of wide circulation of the draft would be made at the time of its finalization.

In addition, the Committee also decided to take up work on the following new subjects:

- a) General Requirements and Testing of Rectifier Equipment;
- b) Insulation Resistance Tester (Manual);
- c) Relays for Industrial and Power Distribution; and
- d) Var-hour Meters.

Primary Cells and Batteries

The Primary Cells and Batteries Sectional Committee, ETDC 10, held its sixth meeting at Calcutta on 10 May 1961 with Shri G. D. Joglekar

of National Physical Laboratory in the chair. The most important item on the agenda was a preliminary draft specification for Flash Light Torches. Accepting the recommendations of a panel which had met earlier, the Committee approved for wide circulation this draft specification which would cover both pre-focussing type as well as focussing type of torches.

Following the directives of the Electrotechnical Division Council, the minimum performance levels of various types of batteries were examined and in several cases the increase was approved. Suitable amendments will be issued to implement this decision.

The Committee also considered a preliminary draft on Terminals and Connectors for Batteries and set up a panel to examine this question in detail. High priority was allotted to the initiation of work on specification for Batteries for Transistorized Radio Receivers. The subjects of Batteries for Photo-Flash Lamps, and Batteries for Hearing Aids were deferred for consideration at the next meeting pending collection of more data on the manufacturing and user interests.

ENGINEERING DIVISION

Engineering Division Council

In the absence of the Chairman, Engineering Division Council, EDC, Dr. B. D. Kalelkar, Vice-Chairman, presided over its twelfth meeting held at Manak Bhavan on 6 May 1961. Emphasizing the need for standardization in the field of machine tools, he mentioned that in his last overseas tour he had noticed that automation had established itself in many countries. That, he said, had made a demand on the ingenuity of the designer on the one hand and on the thoughtfulness of the standards engineer on the other. He expressed the hope that in a few years time, automation would be commonly employed in India also. He added that standardization in machine tool components was a most vital factor in introducing automation without much of strain on the industrial economy of the country. He, therefore, pleaded for standardization right at the beginning so that our future developments be properly correlated.

The representatives of the industry and user organizations were requested for their co-operation in implementing Indian Standards for engineering items. The Council also

noted that the Governments of Uttar Pradesh, Madras, West Bengal, Himachal Pradesh, Punjab, Maharashtra, and the Andaman and Nicobar islands had issued policy directives in their departments to give preference to goods bearing ISI Certification Mark.

The progress of work made by the Division in the last year was reported. In particular, the Council noted the progress in the preparation of standards required in the introduction of metric system, namely, standards relating to bolts; screws and nuts; metric scales; weighing instruments; and code of practice for general engineering drawings. The Council placed on record appreciation of the work that had been done in this connection.

Bicycles

Two draft Revisions were finalized for printing at the eighth meeting of the Bicycles Sectional Committee, EDC 26, held at Calcutta on 28 April 1961 under the chairmanship of Shri Abhijit Sen of Sen Raleigh Industries of India Ltd. The titles of revised draft specifications are given below and the relevant Indian Standard is indicated against each:

- a) Bicycle Rims — IS : 624-1955; and
- b) Bicycle Spokes (Plain) and Nipples for Spokes — IS : 630-1955.

With regard to draft specifications for bicycle tyres and tubes, the Committee was of the view that these be finalized by the Rubber Products Sectional Committee, CDC 6, of ISI, and that EDC 26 will also examine these specifications later with special reference to dimensional and interchangeability requirements.

In view of the inadequate response shown by the replies received on an investigation conducted by ISI on standardization of tools for bicycle repair shops, the Committee decided not to take up this subject at this stage.

Screw Threads

The thirteenth meeting of the Screw Threads Sectional Committee, EDC 27, was held on 18 and 19 April 1961 at Manak Bhavan. Shri R. Krishnamurti of Research, Designs and Standards Organization and Chairman of EDC 42, presided over the meeting.

The Committee finalized for printing the following drafts:

- a) Specification for Precision Grade Studs;

- b) Specification for Split Cotter Pins (Revision of IS : 549-1954);
- c) Dimensions for Clearance Holes for Metric Bolts; and
- d) Technical Supply Conditions for Threaded Fasteners.

Pulleys and Belts

Shri S. S. Basu of the Directorate General of Ordnance Factories presided over the sixth meeting of the Pulleys and Belts Sectional Committee, EDC 42, held on 3 and 4 May 1961 at Manak Bhavan. The Committee finalized for printing the draft specification for Rubber and Canvas Conveyor and Elevator Belting. The Committee considered the draft Indian Standard Code of Practice for Installation and Maintenance of Belt Drives for Power Transmission along with the comments received during its wide circulation; a number of changes was suggested and it was decided that the revised draft code be circulated to members of the Committee before it was published as an Indian Standard.

The following two items were included in the future programme of work of EDC 42 :

- a) Cotton Ropes for Power Transmission; and
- b) Conveyor Belting for Underground Use.

TEXTILE DIVISION

Standing Working Committee

The Standing Working Committee of the Textile Division Council, SWCT, held its tenth meeting on 2 May 1961 at Manak Bhavan. Shri Bharat Ram, Chairman of the Committee, presided over the meeting. The Committee reviewed, among other things, the compositions of the Jute Sectional Committee, TDC 3; Knitting Machines and Their Parts Sectional Committee, TDC 31; and Tapes for Electrical Purposes Sectional Committee, TDC 35. It also appointed Shri A. K. Choudhuri as the Chairman of TDC 35, and gave representation to the Jute Commissioner, Calcutta, on the Jute Bags for Packing Sugar Sectional Committee, TDC 28.

The new subjects approved by the Committee for formulation of Indian Standards are listed on page 257.

Coir and Coir Products

The eighth meeting of the Coir and Coir Products Sectional Committee,

TDC 9, was held at Alleppey on 26 April 1961. Shri Revi Karuna Karan of the Travancore Coir Mats and Matting Manufacturers' Association, Chairman of TDC 9, presided.

The Committee considered the recommendations made by the Coir Products Subcommittee, TDC 9 : 1, at its meeting held on 25 April 1961 in respect of the draft Specification for Door Mats, Creel, Bit and Fibre, and finalized the draft for printing.

The Chairman expressed his satisfaction at the general progress made by the Coir Products Subcommittee, TDC 9 : 2, in formulating the draft Indian Standard Specification for Coir Matting, Mourzouks and Carpets.

With regard to the methods of test for coir fibre, it was pointed out that they were included in IS : 898-1957 Specification for Fibre. Hence, the Committee agreed that this item should be deleted from its programme of work.

The Committee felt that steps should be taken by the Coir Board; Travancore Coir Mats and Matting Manufacturers' Association; Shertalloy Cottage Industries Association; and other trade organizations dealing with coir and coir products to make Indian Standards popular.

Handloom Cloth

The Handloom Cloth Sectional Committee, TDC 13, held its eighteenth and nineteenth meetings on 29 and 30 March 1961 at Amritsar, an important centre of handloom industry, particularly in the field of handloom woollens.

The eighteenth meeting on 29 March 1961 was in joint session with the Handloom Wool Cloth Subcommittee, TDC 13 : 2; and the nineteenth meeting on 30 March 1961 was in joint session with the Handloom Cotton Cloth Subcommittee, TDC 13 : 1, and the Drafting Panel for Handloom Cotton Cloth, TDC 13 : 1 : 1. Shri C. S. Ramanathan, Chief Inspector, Cotton Textile Fund Committee, presided over these meetings.

The Committee finalized for publication the draft Indian Standard Specification for Handloom Cotton *Mootus*, Striped or Checked, and approved for general circulation draft Indian Standard Specifications for: (a) Handloom Cotton Handker-

chiefs, and (b) Handloom Cotton Bleeding Madras.

The Committee further decided to take up the work of formulation of Indian Standard Specification for Handloom Melton (Shoddy) Cloth.

Jute Mill Shuttles

The third meeting of the Jute Mill Shuttles Sectional Committee, TDC 18, was held at Calcutta on 7 April 1961. Mr. T. W. Scroggie of the Indian Jute Mills Association was in the chair.

The Committee considered the draft Indian Standard Specification for Shuttles for Automatic Jute Looms and decided that in view of new designs for shuttles for jute automatic looms being developed, it would be desirable to postpone its general circulation for the time being.

The Committee recommended for taking up the work of formulation of Indian Standard Specifications for:

- a) High Speed Jute Bobbins,
- b) Tagending Jute Bobbins,
- c) Conical Spools for Jute Pre-Beamers,
- d) Staves for Jute Cards, and
- e) Card and Gill Pins for Jute Industry.

Wire Healds

The Wire Healds Sectional Committee, TDC 23, which held its fifth meeting on 17 April 1961 at Ahmedabad, with Shri B. R. Ramaswamy of Ahmedabad Textile Industry's Research Association in the chair, approved for wide circulation the draft Indian Standard Specification for Inset Mail Wire Healds for Use in Cotton and Silk Weaving (Excluding Jacquard and Fancy Weaving).

MISCELLANEOUS

Advisory Committee of the Calcutta Branch Office

The seventh meeting of the Advisory Committee of the Calcutta Branch Office was held at Calcutta under the chairmanship of Shri L. P. Misra on 18 May 1961. The Committee noted the information regarding Consumers' Association of India and Company Standardization, and discussed ways and means of increasing the membership of ISI to enable

the Institution to serve industry and trade more effectively. It was pointed out that the Branch Office was prepared to render active assistance to such firms which may be interested in organizing a Standards Department.

Documentation

The Documentation Sectional Committee, EC 2, held its seventeenth meeting on 6 and 7 April 1961 at Manak Bhavan under the chairmanship of Dr. S. R. Ranganathan. It was the first meeting of the Committee after its composition had been reviewed recently by the Executive Committee. The Committee approved the following draft Indian Standards for wide circulation:

- a) Recommendations for Bibliographical References,
- b) Principles for Designing a Scheme of Library Classification, and
- c) Specification for Reinforced Library Binding.

The Committee also noted the progress made by the Library Technique Subcommittee, EC 2 : 8, for preparing the draft standard concerning Glossary of Classification Terms. The draft, which runs into some 135 pages, was nearing completion. The Committee authorized the Subcommittee to send the draft into wide circulation after getting it approved in circulation from the members of the Sectional Committee.

Another important decision taken by the Committee concerned the splitting up of EC 2 : 3 Subcommittee for Books and Periodicals into two subcommittees. The scope of EC 2 : 3 was vast and consequently, it was always overburdened. As a result of this splitting, the following two Subcommittees have emerged with their scopes as outlined below :

- a) *EC 2 : 3 Structure and Layout of Books and Periodicals Subcommittee* — The scope of this Subcommittee would cover preliminary and end-pages, running heads, proof corrections, layout of periodicals, etc.
- b) *EC 2 : 9 Presentation in Book and Periodicals* — The scope of this Subcommittee would cover indexes, style manual for books and periodicals, guide to authors for the preparation of manuscripts, etc.

NEW INDIAN STANDARDS

Indian Standards recently published are briefly described here.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Hive Stands

Bees like to have a well-ventilated hive, the dimensions of which should be such that they can maintain in it a certain optimum temperature and humidity. These dimensions have been specified in IS : 1515-1959 Specification for Beehives. The Indian Standard Specification for Hive Stands (IS : 1735-1960) lays down the requirements for two types, one made of timber and the other of reinforced concrete for beehives conforming to IS : 1515-1959. For each type two different board sizes have also been specified to fit the floorboards of the two types, namely Type A and Type B of beehives specified in IS : 1515-1959. However, these hive stands could also be used for other beehives whose floorboards could fit in the boards of the hive stands.

Aluminium Milk Strainers

Milking by hand is generally in vogue in India even in organized dairies at present. During hand milking, dust and other foreign matter get easy access into the milk, and the former need removal by straining through milk strainers. An Indian Standard Specification for Milk Strainers, Mild Steel, Tinned (IS : 1516-1959) has already been published. The purpose of the present Indian Standard Specification for Aluminium Milk Strainers (IS : 1733-1960) is to prescribe requirements for the fast filtering strainer made of aluminium which is easy to clean and sterilize. It covers the quality and dimensional requirements for the domed type aluminium milk strainer with lower and upper perforated plates with a textile pad as the filtering medium. An Indian Standard Specification for Milk Strainers Made of Stainless Steel is also being prepared.

Pork

The formulation of Indian Standards for meat and meat products has been undertaken by the Institution at the instance of the Ministry

of Health, Government of India, and IS : 1723-1960 Specification for Pork is one of the series of Indian Standards being prepared on this subject. Six types and two grades of pork have been specified in this standard together with their general and detailed requirements.

Methods of Sampling and Test for Coal Tar Food Colour

Methods specified in the Indian Standard Methods of Sampling and Test for Coal Tar Food Colours (IS : 1699-1960) are intended for application to all the food colours permitted under the Prevention of Food Adulteration Rules, 1955, and issued by the Ministry of Health, Government of India. In addition to detailed requirements of sampling, the standard prescribes methods of test for determining volatile matter at 135°C, water-insoluble matter, combined ether extracts, mixed oxides (aluminium, iron, calcium and magnesium oxides), arsenic and lead.

Underground Rural Foodgrain Storage Structures

The Indian Standard Code of Practice for Construction of Underground Rural Foodgrain Storage Structures (IS : 603-1960) is intended to assist in the construction of structures which would preclude, as far as possible, the chances of damage to them as well as to the foodgrains stored within. It lays down requirements for the site, capacities and dimensions of the storage structures, the specification of the materials used in their making and also the general instructions in regard to the construction of floor, walls and top of the structures. It is hoped that cultivators will be benefited as a result of construction of structures conforming to this standard, wherever applicable, according to geographical conditions.

BUILDING DIVISION

Drinking Fountains

Drinking fountains are commonly used in schools, parks and other

public places. There is a variety of designs of such fountains now in use, and with the increased attention now being paid to the amenities in public places, there has been recently an increasing demand for drinking fountains. The indigenous industry is also fast developing in this field.

The Indian Standard Specification for Drinking Fountains (IS : 1700-1960) Specifies material, construction, essential hygienic and performance requirements, and finish of drinking fountains. It is hoped that it would serve as a useful guide to manufacturers and enable users to procure satisfactory drinking fountains.

Self-Closing Taps

In order to minimize wastage of water in public places in growing cities and towns, taps have to be provided with a self-closing mechanism, that is, they should automatically close when not in use. The taps may be operated by push button or lever and depend for their automatic closing on reaction springs or other similar means. The Indian Standard Specification for Closing Taps (IS : 1711-1960) prescribes two nominal sizes, that is 15 mm and 20 mm, for such taps. Other requirements laid down in the standard relate to the material, manufacture and workmanship, design, construction, finish, testing and marking. With the growing demand in the country for such closing taps, it is hoped, that the standard will serve as a useful guide to both manufacturers and users.

Manhole Cover and Frames

The Indian Standard Specification for Manhole Covers and Frames Intended for Use in Drainage Works (IS : 1726-1960) specifies the following three grades and types.

- a) Heavy duty, double triangular, solid type, for use under heavy vehicular traffic conditions;
- b) Medium duty, circular or rectangular solid type, for use under light traffic conditions, such as in foot-paths, carriage drives and cycle tracks; and
- c) Light duty, rectangular, for use in domestic premises or

other places where they are not subjected to wheeled traffic loads.

For heavy duty manhole covers, circular solid type have also been recommended.

The standard prescribes the dimensional requirements with a view to simplifying the large variety of sizes in which they are being made in the country at present. Quality requirements and test procedure have also been specified with a view to ensuring satisfactory performance and preventing accidents.

Sheet Metal Rain-Water Pipes

A series of Indian Standards on rain-water pipes, gutters and fittings is being prepared by ISI. The latest addition to this series is IS : 1728-1960 Specification for Sheet Metal Rain-Water Pipes (Up to 100 mm Nominal Size), Gutters, Fittings and Accessories, which lays down requirements regarding material, shape and dimensions, workmanship, finish, sampling and testing.

Methods of Test for Plywood

A number of Indian Standard specifications for plywood has already been published. These standards also prescribe appropriate tests for evaluating the requirements of plywood for specific jobs. However, the tests specified in the Indian Standard Methods of Test for Plywood (IS : 1734-1960) are intended to provide a means for complete evaluation of physical and mechanical properties of plywood from the viewpoint of its use as an engineering material. Methods of test applicable to plywood for specific uses have also been included. In addition, information on the 'object' of the test and interpretation of test results have been included wherever necessary.

Blockboards

Blockboards are being used in increasing quantities in the construction of railway carriages, bus bodies, and marine and river craft; and for furniture-making, partitions, panelling, prefabricated house, etc. With a view to assuring the minimum performance requirements for such a variety of uses, IS : 1659-1960 Specification for Blockboards has been issued. This standard lays down the essential requirements of commercial and decorative blockboards meant for interior and exterior uses.

Specifications for other boards, such as chip boards, which may serve similar purposes are also under preparation.

Towing Tender for Trailer Pump for Fire Brigade Use

At the instance of the Ministry of Home Affairs, Government of India, a large number of specifications for fire fighting equipment and appliances has been prepared by ISI. The latest addition to this series is the Indian Standard Specification for Towing Tender for Trailer Pump for Fire Brigade Use (IS : 947-1960). This standard lays down the requirements regarding road performance, engine, pump, water tank and connecting pipe work, and tests of towing tender for trailer pump for fire brigade use.

Other standards in this series cover blower and exhauster, 275-1/min (or 60-gal/min) portable pump, 680-1/min (or 150-gal/min) trailer pump, 1 800-1/min (or 400-gal/min) motor fire engine, 3 200-1/min (or 700-gal/min) motor fire engine, emergency tender, crash tender, etc.

Soil-Cement Blocks

Developments during the last two decades in the use of soil-cement in different parts of the world and the experience which has been gained for nearly a decade in the field of soil-cement constructions in India hold out a great promise for the use of soil-cement in general building construction, particularly in low-cost structures. Experience shows that most soils can be satisfactorily stabilized with cement.

Consequently, IS : 1725-1960 Specification for Soil-Cement Blocks Used in General Building Construction has been issued. The standard includes clauses on materials; manufacture; sizes, dimensions and tolerances; physical requirements; sampling; tests; certificate; and marking.

CHEMICAL DIVISION

Nitrogen, Technical

A series of Indian Standards on compressed gases is being prepared by ISI. The Indian Standard Specification for Nitrogen, Technical (IS : 1747-1960) is the latest addition to this series. Other specifications so far published in the series are for carbon dioxide, industrial; dissolved acetylene (gas); compressed oxy-

gen gas, industrial; liquid chlorine, technical; anhydrous ammonia; and compressed hydrogen.

Iron Powder

Iron powder is used as a reducing agent in many organic reactions. At present, the requirements within the country are met almost entirely by imports. Indigenous manufacture of the material has, however, been started, and with the development of the chemical industry, it is expected that the demand for the material will increase considerably. The Indian Standard Specification for Iron Powder (Reduction Grade) (IS : 1612-1960) is intended to serve as a guide to the indigenous manufacturers of the material and also to assist the consumers in making purchases of the material of the requisite quality without imposing undue hardships on manufacturers.

Latex Foam Rubber Products

Eight grades of latex foam rubber products, based on their indentation hardness index, have been specified in IS : 1741-1960 Specification for Latex Foam Rubber Products. The standard also prescribes general requirements and methods of test. It does not cover articles made from shredded latex foam, or articles consisting of a cover enclosing loose pieces of latex foam products.

Black Japan for Hot Surfaces

Black Japans constitute a class of general-purpose, fast-drying bituminous and tar-base paints. The utility of black Japans depends largely on the ingredients used in their manufacture. The commercially known black Japan, type C, is specially intended for the protection and decoration of hot surfaces, such as those of locomotives, and for other general purposes, where a heat-resisting finish is required. The Indian Standard Specification for Black Japan for Hot Surfaces (IS : 1704-1960) is intended to assist manufacturers in turning out a heat-resisting black Japan of acceptable quality and consumers in making a choice of the correct material.

Shoe Polish

Of late, indigenous production of wax-solvent paste-type shoe polishes has developed rapidly. Realizing the unscrupulous competition that has beset this item of manufacture, basic requirements of the material

have been laid down in IS : 1746-1960 Specification for Shoe Polish in order to ensure a uniform quality in its supply, and also to serve as a quality guide to manufacturers of shoe polish in the country. The standard prescribes the requirements and methods of test for wax-solvent paste-type polishes of any colour suitable for general application to leather footwear.

Method for Gauging of Petroleum and Liquid Petroleum Products

Accurate gauging of bulk quantities of petroleum and liquid petroleum products is essential for stock accounting, loss control, custom and excise purposes and for blending and similar operations. Methods of measuring the quantity of the material received, stored, delivered or transferred vary with the type of product and construction of the container. The Indian Standard Method for Gauging of Petroleum and Liquid Petroleum Products (IS : 1518-1960), therefore, lays down the procedure to be adopted for determining the volume of the material in any of the different types of containers normally employed for the bulk storage of petroleum and liquid petroleum products. Whilst no brief set of standards can cover all conditions and requirements which may arise in practice, the various methods and procedures described therein are intended to provide a general standard of uniformity.

Stannic Chloride, Anhydrous, Technical

Stannic chloride is an important material for a number of industries and is being used in increasing quantities. It is used in textile industry for mordanting, weighting silk, brightening colour on wool, etc. It also finds application for making smoke screens in military operations. Considerable quantities of it go into the manufacture of fuchsin, colour lakes, ceramics, as a bleaching agent in the sugar industry; as stabilizer for certain resins; and in the manufacture of blue print and other sensitized papers.

It is hoped that IS : 1744-1960 Specification for Stannic Chloride, which prescribes the minimum percentage by weight of Stannic Chloride in the material at 99 percent and also limits the maximum percentage of free hydrochloric acid, sulphates, etc, will assist manufacturers in producing the quality material and

the consuming industries in procuring dependable material.

ELECTROTECHNICAL DIVISION

Fixed Capacitors for Fans

In the past, AC fans used in this country were largely of the non-capacitor type, but the present trend is towards the use of capacitor-type fans. This trend is largely influenced by the increased manufacture of paper capacitors in the country to cater to the needs of fan industry. Owing to the several manufacturers of capacitors following different practices, a considerable amount of variation in the characteristics and dimensions of capacitors can be expected. The Indian Standard Specification for Fixed Capacitors for Fans (IS : 1709-1960) has been prepared with a view to bringing about uniformity in the characteristics of fan capacitors in order to assist the fan industry.

The standard covers the basic mechanical and electrical requirements and methods of test for fixed capacitors for use in various types of fans. It also gives the preferred capacities and dimensions of the capacitors as used at present. The preferred dimensions of cylindrical containers for capacitors up to $4\mu\text{F}$ are also given.

Stationary Cells and Batteries, Lead-Acid Type

The Indian Standard Specification for Stationary Accumulators, Lead-Acid Type (IS : 541-1954) was published as a tentative standard in 1954. At the time of its revision, it was decided to issue two Indian Standard Specifications, and the following have superseded IS : 541-1954:

IS : 1651-1960 Stationary Cells and Batteries, Lead-Acid Type (with Tubular Positive Plates); and

IS : 1652-1960 Stationary Cells and Batteries, Lead-Acid Type (with Planté Positive Plates)

These two standards belong to a series of Indian Standards on secondary cells and batteries. Other standards in this series are:

IS : 395-1959 Specification for Lead-Acid Storage Batteries (Light Duty) for Motor Vehicles (*Revised*);

IS : 985-1958 Specification for Lead-Acid Storage Batteries (Heavy Duty) for Motor Vehicles;

IS : 1145-1957 Specification for Lead-Acid Storage Batteries for Motor Cycle; and

IS : 1147-1957 Glossary of Terms for Secondary Cells and Batteries.

ENGINEERING DIVISION

Performance of Variable Speed Internal Combustion Engines

The object of IS : 1603-1960 Specification for Performance of Variable Speed Internal Combustion Engines for Automotive Purposes is primarily to provide a referee method for evaluating the performance of those internal combustion engines, the design of which has already been type tested. This standard specifies the performance requirements and tests for normally aspirated variable speed internal combustion engines of the following types used for automotive purposes :

- a) Compression-ignition engines; and
- b) Carburettor-type engines.

The standard recommends that in addition to the individual normal production and routine inspection tests, the manufacturers may subject a suitably small percentage of their production to tests laid down in this specification for the sake of their own assurance and also for convenience in conveying that assurance to consumers.

Precision, and Turned Hexagonal Bolts with Nuts and Hexagonal Screws

Mechanical properties, grade, designation, dimensions, general requirements and tests have been covered in IS : 1364-1960 Specification for Precision, and Turned Hexagonal Bolts (6 to 39 mm) with Nuts and Hexagonal Screws (6 to 39 mm). This standard belongs to a series of Indian Standards on threaded fasteners, being prepared by ISI on the agreement reached by ISO/TC 2 Bolts, Nuts and Accessories.

STRUCTURAL AND METALS DIVISION

Cast Iron Fittings for Pressure Pipes for Water, Gas and Sewage

The Indian Standard Specification for Cast Iron Fittings for Pressure Pipes for Water, Gas and Sewage (IS : 1538-1960) covers requirements regarding supply of material, manufacture, tests, sizes, tolerances, weight, coating and marking of such

articles. This standard is applicable to fittings with sockets for lead joints or flanges, and it may also be made applicable to other types of joints, specially rubber joints (where over-all measurements shall be adhered to) for ensuring interchangeability.

Lead Sheet

The Indian Standard Specification for Lead Sheet which was first published as IS : 405-1952 in 1952 covered the requirements of lead sheets other than those used for chemical purposes. This standard has now been revised as IS : 405-1961. The revised standard incorporates the requirements for lead sheets for general and chemical purposes. It covers the requirements for lead sheets of thicknesses from 0.5 to 16 mm (or of weight per unit area from 1.0 to 32 lb/ft²). The lead sheets covered by this standard can be used for various purposes, such as damping vibrations in bridges and machinery foundations; flat roof covering; plumbing; water-proofing; X-Ray protection; lining to cisterns, sinks, etc; and in certain locations where resistance to chemicals is necessary.

Methods of Chemical Analysis of Manganese Ores

Methods for the determination of moisture, silica, barium oxide, manganese, manganese dioxide, iron, alumina, titania, calcium oxide, magnesium oxide, phosphorus, sulphur, lead, combined water, copper, arsenic and nickel in manganese ores have been prescribed in IS : 1473-1960 Methods of Chemical Analysis of Manganese Ores. Since the various laboratories dealing with the analysis of export consignments of this ore follow different methods, it is hoped that this standard would bring in uniformity in the reporting of results.

TEXTILE DIVISION

Ring Rabbeth Bobbins

The Indian Standard Methods of Specifying and Testing Varnished and Enamelled Ring Rabbeth Bobbins for Cotton Mills (IS : 1724-1960) is divided into two parts, one

of which gives metric-system version and the other fps-system version. The standard also includes four appendices two of which describe methods of test to find out whether or not the bobbins comply with the requirements specified by the purchaser. Another appendix gives a list of approved species of timber for the manufacture of ring rabbeth bobbins. In another appendix is given a short description of various species of timber which, it is hoped, would be useful information regarding physical and mechanical properties which may be used by the buyer in making his own choice of species of timber for bobbins.

Spring Buffers for Cotton Looms

A spring buffer is a V-shaped leather article used in overpick looms. It is mounted on the picker spindle to check the picker when the shuttle leaves the loom box. The 'working life' of a buffer is influenced by a large number of variables like the speed and width of the loom, and other working conditions.

The Indian Standard Specification for Small Size Spring Buffers for Cotton Looms (IS : 1737-1960) prescribes the requirements in metric and fps systems for spring buffers of small size, for use in overpick cotton looms.

Cotton Healds for Use in Cotton Looms

In weaving cotton fabrics, cotton healds are commonly employed.

They are knitted out of cotton twines on a heald knitting machine. Each leaf of the healds is knitted separately. In healds, the eyes are equally spaced.

The Indian Standard Specification for Cotton Healds for Use in Cotton Looms (IS : 1739-1960) prescribes the shape and dimensions (in metric and fps system) of cotton healds for use in cotton looms; it also includes provisions to regulate their quality and the level of workmanship to be used in the manufacture.

Flat Cotton Wicks for Hurricane Lanterns and Lamps

With a view to helping the Wick manufacturers in making wicks of acceptable quality and to consumers in acquiring dependable supplies, the Indian Standard Specification for Flat Cotton Wicks for Hurricane Lanterns and Lamps (IS : 1740-1960) has been issued. The Standard, which prescribes constructional details and other particulars of flat cotton wicks of 6 to 25 mm width, is divided into two parts — one dealing with metric version and the other with fps version. It includes clauses on terminology, method of sampling, atmospheric conditions for testing, conditioning of sample, general and specific requirements packing, and marking. Specific requirements cover width, length, weight, thickness, ends in full width and picks per cm (in.), oil absorption, scouring loss, and pH value.

AMENDMENT SLIPS

Amendment slips were issued during the period 1 April to 31 May 1961 to the following Indian Standards:

NO. AND DATE OF AMENDMENT	NO. AND TITLE OF INDIAN STANDARD
No. 1 March 1961	IS: 8-1958 Specification for High Heat Duty Fireclay Refractories (<i>Second Revision</i>)
No. 1 March 1961	IS: 813-1956 Scheme of Symbols for Welding
No. 1 March 1961	IS: 1483-1959 Specification for White Bread

DRAFT INDIAN STANDARDS

Brief reviews are given here of draft Indian Standards issued recently for wide circulation to elicit comments from interested parties in India and abroad. Comments are considered by the Sectional Committee concerned at the stage of finalization of the draft.

Titles of draft Indian Standards which are due to be issued in wide circulation in the near future are also given at the end; some of these might have been circulated while this issue was under print.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Paddy Weeder

Ever since the introduction in this country of the improved method of paddy cultivation, or what is popularly known as the Japanese method of cultivation of paddy, the rotary paddy weeder has become an important implement in the paddy growing regions of this country. The draft Indian Standard Specification for Paddy Weeder, Rotary Type, prescribes the requirements of manually operated paddy weeders of rotary type used for uprooting weeds and burrying them in puddles between rows of standing paddy crop.

Sugar-cane Crusher, Bullock-Driven Type

Sugar-cane crusher, bullock-driven type, may well claim to be one of the very few improved agricultural implements that have been accepted by a large number of farmers in India. There are about 10 lakhs of bullock driven sugar-cane crushers in use. There are also many other types of sugar-cane crushers used in various parts of India for extracting juice from sugar-cane, but their number is less when compared to the bullock-driven type. Considering these factors, it was found necessary to formulate a draft Indian Standard Specification for Sugar-Cane Crusher, Bullock-Driven Type. The draft includes clauses on capacity, description, materials, weight, frame, rollers, axles, bearings, gears, workmanship, finish, and marking.

Determination of the Freezing Point Depression of Milk

The freezing-point depression is the least variable characteristic of fresh milk and its determination provides the most reliable test for the presence or absence of added water. The draft Indian Standard Method for the Determination of the Freezing-Point Depression of Milk specifies the apparatus and method,

and recommends a procedure for the expression of results in terms of added water. This draft constitutes Part IV of the draft Indian Standard Methods of Test for Dairy Products.

BUILDING DIVISION

Structural Timber in Building

The Indian Standard Code of Practice for Use of Structural Timber in Building (Material, Grading and Design) was originally published as IS: 883-1957 with a view to providing basic information about timber and its behaviour when used in buildings and also to ensuring uniformity of practice in its use, and it was found acceptable in the building industry. However, in view of the decision of the Government of India to introduce metric system of weights and measures, this standard has been taken up for revision, and the draft revision with the same title gives all quantities and dimensions in the metric system. While revising the standard, opportunity has been taken to incorporate suitable modifications with regard to provisions for strength of columns, termite shield, etc.

Reinforced Concrete Dust Bins

To civic bodies and such other organizations, of which one of the primary duties is sanitation and hygiene, the draft Indian Standard Specification for Reinforced Concrete Bins should be welcome.

Hygienic requirements necessitate the collection of refuse in well-designed containers located at predetermined places for its subsequent disposal. The container or the bin should be such that the collected refuse neither leaks through nor is carried away by wind; it should also be such that it does not get damaged in any manner under the conditions normally met with in actual practice. Various municipalities and other organizations are already using dust bins on a large scale but there is no uniformity yet in their size and construction. The draft has, there-

fore, been prepared with a view to unifying the existing practices and guiding manufacturers with regard to sizes and constructional details.

Aseismic Design of Structures

For providing general guidance to civil engineers, town planners and others interested, and for rationalizing the aseismic design practice to suit Indian seismic conditions, the draft Indian Standard Code of Practice for Aseismic (Earthquake Resistant) Design of Structures has been issued. The draft code deals with aseismic design of structures and applies to buildings, elevated structures; bridges; concrete, masonry and earth dams; embankments and retaining walls. The draft code does not deal with the construction features relating to aseismic design in buildings and other structures, but some information regarding foundation ties and shear walls is included in the draft.

Wood Screws

The draft Revision of IS: 451-1953 Specification for Wood Screws covers mild-steel and brass-wood screws used in building and furniture, and for other general purposes. In the draft Revision, sizes of wood screws have been standardized in metric units. The standard shank sizes and lengths in metric units, included in the draft, have been decided upon while keeping in view the following two important requirements:

- The shank sizes of wood screws in metric units should be as close as possible to the sizes of screw-gauges.
- The shank sizes should be selected from the basic diameters of wire specified in IS: 1137-1959 Thicknesses of Sheet and Diameters of Wire.

Wire Nails

Two draft revisions of two Indian Standards published in 1956, namely, IS: 723-1956 Mild Steel Wire Nails and IS: 725-1956 Copper Wire Nails

have been prepared. Originally, these standards specified the shank sizes of nails in Standard Wire Gauge, lengths in inches and packing requirements in pounds. With a view to helping the manufacturers in smooth change-over to the metric system, the various dimensions of nails and packing requirements have now been specified in metric units. Advantage has also been taken of this opportunity to incorporate certain modifications in respect of tolerance on head diameters of copper wire nails.

High Tensile Steel Bars Used in Prestressed Concrete

With the development of the steel industry in the country and the increased interest of manufacturers in producing the type of steel required for prestressed concrete work, an urgent need has been felt for specifications which would guide consumers in deciding the quality of the steel they should order, and manufacturers in producing steels suitable for prestressed concrete. Also, there are a number of varieties of steels which are being currently used for prestressed concrete work and the requirements differ in each case. Consequently, the need for preparing an Indian Standard Specification for High Tensile Steel Bars Used in Prestressed Concrete was felt, and its draft has now been made available.

Parliament Hinges

An Indian Standard Specification for Parliament Hinges (IS:362-1951) was published in 1951. Originally, this standard covered only mild-steel and brass parliament hinges. Parliament hinges made of certain metals (for example extruded sections of brass, and aluminium alloy sheets) are also being offered and these are preferred by users for superior jobs. The standard has, therefore, been taken up for revision, and the draft Revision having the same title covers parliament hinges made from extruded sections of brass and aluminium alloy sheets in addition to those made from cold-rolled mild-steel sheets and cast brass. Opportunity has also been taken to replace fps units by metric units so as to enable manufacturers to change over smoothly to the metric system.

Selection, Installation and Maintenance of Sanitary Appliances

A well-designed installation of sanitary appliances in a water closet

suite, bath or kitchen should lead to a hygienic, convenient and economical arrangement for users, and it should facilitate removal of the waste quickly and to a safe distance so as not to endanger the health of the inmates. To fulfil these requirements a proper selection, location, etc., of sanitary appliances is necessitated. Guidance in these respects is provided by the draft Indian Standard Code of Practice for Selection, Installation and Maintenance of Sanitary Appliances. The recommendations made herein are intended to establish good practices and are such that they can be modified to suit individual requirements.

Load Bearing Hollow Concrete Blocks

The draft Indian Standard Specification for Load Bearing Hollow Concrete Blocks covers requirements for such blocks made from Portland cement and suitable aggregates to be used in the construction of concrete masonry walls. The draft has been prepared with a view to providing general guidance for manufacturers and building engineers. Though the hollow concrete block is of recent origin compared to other building components, such as stone and brick, the former has established for itself an important place in the modern building industry. Because of the good thermal insulation, small dead load and high speed of construction, hollow concrete blocks become, in many cases, a better alternative to stone and brick. Further, construction with these blocks provides facility for concealing electrical conduits, and water and soil pipes where so desired.

CHEMICAL DIVISION

Requirements for River Water

In recent years, there is a growing demand for abatement of river pollution. While it is difficult at the moment to prescribe standards of purity for effluents, it was decided to formulate standards of purity for river water with a view to defining and measuring the degree of river pollution. The draft Indian Standard on Requirements for River Water, therefore, prescribes requirements and methods of test for river water for: (a) raw water for public water supply, (b) bathing ghats, (c) fish culture, and (d) irrigation.

Hydrochloric Acid

The Indian Standard Specification for Hydrochloric Acid (IS:265-1950)

was published in 1950 and Amendment No. 1 to it was issued in 1956. Recently, some comments were received regarding the type of packing prescribed and some of the methods of test included in IS: 265-1950. Consequently, its draft Revision has been prepared keeping these comments in view. During revision, all fps values given in the standard have been dropped and metric values prescribed.

Superphosphate

The Indian Standard Specification for Superphosphate (IS: 294-1951) was first published in 1951 as a tentative standard and an amendment to this standard was issued in 1956 in which the limit for free phosphoric acid was reduced from 5 to 3 percent. It was then pointed out by manufacturers that it would not be possible to comply with the amended standard. The views of manufacturers, consumers and technologists were, therefore, invited and its draft revision with the same title has been prepared. In the draft revision the limit for free phosphoric acid has been raised to 4 percent and, at the suggestion of the Development Council for Heavy Chemicals, a new grade of material has been included.

Method of Test for Arsenic

The method of test for arsenic already prescribed in some Indian Standards is based on Gutzeit test. Recently, it was suggested that the use of zinc rod is preferable to granulated zinc for getting clearly well-marked stains and that filter paper strips treated with mercuric bromide give better results than mercuric chloride paper strips. The data collected by a number of analytical laboratories regarding the suitability of this modified method was considered and in its light a draft Indian Standard Method of Test for Arsenic has been prepared.

In most Indian Standards in the chemical field, the intention is to ascertain whether the arsenic content passes a prescribed limit rather than to determine the actual arsenic content. Therefore, the method of test prescribed lays down the comparison of colour stain with a single control standard stain instead of with a series of standard stains.

Sodium Bicarbonate

Two Indian Standards, namely, IS: 491-1954 Sodium Bicarbonate, Pure and Analytical Reagent and

IS: 492-1954 Sodium Bicarbonate Refined (*Tentative*), were published in 1954. After taking into account the quality of the product of the refined grade now being manufactured, it was decided that the two standards be amalgamated into one and the standard of product upgraded. These modifications have been incorporated into the draft Indian Standard Specification for Sodium Bicarbonate which, after being published, will supersede IS: 491-1954 and IS: 492-1954.

Activated Carbon for Respirators

The draft Indian Standard Specification for Activated Carbon for Respirators prescribes the requirements and the methods of sampling and test for activated carbon used as gas absorbent in respirators. Requirements have been specified in respect of volume activity, bulk density, moisture content, matter soluble in water, acidity, alkalinity, water soluble chlorides and softness of fines. Clauses on keeping quality, and packing and marking are also included in the draft.

Plaster of Paris

Four grades of Plaster of Paris have been specified in the draft Indian Standard Specification for Plaster of Paris. These grades are for: (a) general purposes; (b) model and orthopaedic purposes; (c) intra oral impressions; and (d) intra oral impressions, self-separating type. The draft also prescribes the methods of sampling and tests in respect of requirements regarding free moisture, carbonates, matter insoluble in hydrochloric acid, alkalinity or acidity, calcium sulphate by weight, fineness, mouldability, setting time, linear setting expansion, tensile and compressive strengths, and disintegration.

Mineral Gypsum, Surgical and Plaster Grade

The quality of mineral gypsum available in India is very inconsistent and the sulphate percentage in any single deposit varies. The ratio between the high grade gypsum above 80 percent sulphate content and the rest is generally 1:3. Consequently, a huge amount of low grade gypsum remains untapped causing considerable difficulty to the mining industry. To offset this huge national waste it is essential that a particular industry should derive its supply of the necessary quality of gypsum

and not of a higher or lower quality. The draft Indian Standard Specification for Mineral Gypsum, Surgical Plaster Grade, is intended to guide the trade about the right quality of gypsum for use in manufacture of plaster of paris for surgical plaster. Material for ammonium sulphate and cement industries is covered by IS: 1290-1960 Specification for Mineral Gypsum for Ammonium Sulphate and Cement Industries.

Letterpress Ink, Black, General Purposes

The rapid increase in the consumption of printing inks for all types of uses within the country during the last decade has provided a major impetus to the production of black letterpress ink for general purposes. In order to safeguard against unscrupulous competition and with the object of assisting both the manufacturers and consumers in manufacturing and selecting, respectively, material of acceptable quality, it was considered necessary to prepare the draft Indian Standard Specification for Letterpress Ink, Black, General Purposes, which prescribes the minimum quality requirements of the material for use in flat-bed letterpress printing machines.

ELECTROTECHNICAL DIVISION

Insulator Hardware

The draft Indian Standard Specification for Insulator Hardware for Overhead Lines with a Nominal Voltage of 3.3 kV and Above covers the characteristics, methods of test and acceptance criteria. The insulator hardware, specified in the title of the draft, are for: (a) pin insulators; (b) line post insulators; (c) string insulator units; (d) birdguard insulators; and (e) guy insulators. The dimensions of insulator pins suitable for different working loads have been given completely in metric system for the ball and socket couplings for disc insulators. However, in the case of threaded heads for insulator pins, inch values have been given in brackets along with metric values.

Codes of Practice for Electroplating

Two draft codes of practice for the following have been issued:

- a) Pre-treatment of Steel, Copper and Copper Base Alloys, Zinc and Zinc Base Alloys for Electroplating; and
- b) Hard Chromium Plating on Steel.

The purpose of the former draft code is to recommend the appropriate process of pre-treatment as applicable to steel, copper, copper-base alloys and zinc and zinc base alloys before electroplating. The actual process of plating can be varied, depending on many factors, and hence no details are given in the draft code except the more important points, which should serve as a guide, for deposition of specific metals on the appropriate bases, and these important points have been included in an appendix. Pre-treatment of aluminium and aluminium alloys have not been covered in this draft as this is a special process by itself and it is proposed to cover this in a separate code. Similarly, hard chromium plating on steel is also covered by a separate code in view of its being a specialized process.

AC Electricity Meters

With a view to bringing the existing Indian Standard for AC Electricity Meters (IS: 722-1955) in line with the latest developments in meter manufacture as well as effecting change-over to metric system, its draft revision has been circulated in two parts:

- a) Part I General Requirements; and
- b) Part II Single-Phase 2-Wire Meters.

Part I of the draft covers the general requirements of all types of AC electricity meters of induction type, and Part II relates to specific requirements applicable to single-phase 2-wire meters of rated current not exceeding 80 amperes. The second part also contains instructions for handling the meters to prevent damage to the working surfaces of pivots and jewels as well as for mounting the meter in an appropriate manner. These two parts, when finalized, will be published as two separate Indian Standards.

Dimensions of Electrical Indicating Instruments

After the publication of the Indian Standard Specification for Electrical Indicating Instruments (IS: 1248-1958), the indigenous industry has made rapid progress in this field. The requirements of instruments of switch gear industry have been considerable and an important aspect in this regard is the need for interchangeability of instruments supplied by different manufacturers. The draft Indian Standard Recommendations for Dimensions of Electrical

Indicating Instruments has, therefore, been drawn up to bring about uniformity in the essential dimensions, particularly the overall and fixing dimensions of instruments to achieve this end. The draft lays down the dimensions of flush-mounted, square, rectangular and round electrical indicating instruments.

Polycrystalline Semi-Conductor Rectifiers

The draft Indian Standard Specification for Polycrystalline Semi-Conductor Rectifiers, which are used for supplying DC power from AC sources at frequencies up to 2000 c/s, applies neither to telecommunication rectifiers other than those for power supplied to such apparatus, nor to rectifiers used as auxiliaries to measuring instruments. Further, the draft neither covers the main transformer or other associated transformers and apparatus, nor does it apply to rectifiers based on mono-crystalline semi-conductor materials.

The draft includes clauses on terminology; ratings; methods of connection; marking; voltage-current characteristic, curves, data, and power losses; performance requirements; and tests.

Call Bells and Buzzers

Call bells and buzzers are commonly used in private dwellings, hotels, schools, offices, factories, etc. The draft Indian Standard Specification for Call Bells and Buzzers has been prepared with a view to guiding manufacturers of these items in proper manner to ensure good quality and correct performance. The draft covers the mechanical, electrical and performance requirements and methods of test for electrically operated call bells and buzzers working on any voltage up to 250 volts DC or AC.

Lead Plating

The use of electroplated lead coating is increasing for protection of articles made of steel, copper and copper base alloys against certain acids, corrosive liquids and atmospheres, and as a substitute for the more expensive and less easily available metals. Lead-plated articles can be stamped and machined without distortion. The draft

Indian Standard Specification for Lead Plating covers the tests and requirements for electro-deposited lead coatings on steel, copper and copper-base alloys intended to withstand corrosion.

Automatic Electric Storage Water Heaters

With the increasing availability of electric power, the use of electrical appliances at home is on the increase. The safety of operation as well as safety to the equipment and personnel are of major importance to be taken into account while designing such appliances. Bearing these in mind the draft Indian Standard Specification for Automatic Electric Storage Water Heaters has been prepared. The draft covers thermostatically controlled storage type electric water heaters designed to provide a ready supply of hot water at a maximum temperature of 85°C having nominal capacities between 6 litres and 250 litres and having voltage ratings up to 250 volts.

ENGINEERING DIVISION

Dial Gauges

The draft Indian Standard Specification for Dial Gauges relates to two types (drawings given in the draft) of dial gauges for general engineering purposes manufactured in two grades with total plunger movements or 'lift' of 3, 5 and 10 mm. The draft recommends dimensions, methods of test and precautions for use of dial gauges. The dial gauges conforming to the standard, prescribed in the draft, should also be suitable for ordinary tests for machine tools.

STRUCTURAL AND METALS DIVISION

Nickel-Silver Sheet and Strip

The draft Indian Standard Specification for Nickel-Silver Sheet and Strip for General Purposes specifies the requirements for nickel-silver sheet and strip for general purposes, such as utensils, tableware, cutlery, camera parts, decorative trim, etc, as it combines a pleasing white colour with excellent corrosion resistance. For cutlery and tableware applications, nickel-silver is commonly plated with silver. The draft includes clauses on supply of mate-

rial, sampling and criteria for conformity, terminology, chemical composition, manufacture, physical properties, freedom from defects, and sizes and tolerances.

Copper Tubes for General Purposes

Requirements for solid drawn copper tubes for general purposes of outside diameter up to 160 mm have been prescribed in the draft Indian Standard Specification for Copper Tubes for General Purposes. The draft specifies the permitted tolerances on outside diameter, thickness and length for tubes within this range, and it covers two grades of copper used for manufacturing these tubes. It is stipulated in the draft that for each application, the user will have to select the composition grade required and specify: (a) Outside diameter, thickness of wall and length of tubes, and (b) condition.

TEXTILE DIVISION

Handloom Cotton Handkerchiefs and Bleeding Madras

An index of the progress of handloom industry, is the uniformity of quality of material that it can produce for internal consumption and for export. It is hoped that draft Indian Standard Specifications for the following, when finalized and issued, would be helpful in achieving that uniformity of quality:

- a) Handloom Cotton Handkerchiefs, Bleached, Striped or Checked; and
- b) Handloom Cotton, Bleeding Madras.

DRAFT INDIAN STANDARDS TO BE CIRCULATED

During the period under report draft Indian Standard Specifications for the following were being processed to be put into wide circulation in the near future:

- a) Magnesium Chloride, Technical and Pure;
- b) Common Salt for Hide-Curing and Fish-Curing;
- c) Thermocouple Pyrometers with Indicators;
- d) Rubber-Insulated Cables and Flexible Cords for Electric Power and Lighting; and
- e) Braided Cables with Copper Conductors for Overhead Transmission Lines.

STANDARDS ADDED TO ISI LIBRARY

The list includes standards received in ISI Library during 16 March to 15 May 1961. Full titles of only those standards are given which, besides being accessioned in the Library are also stocked by ISI for sale. Numbers of all other standards are listed under their respective general classification headings. Readers, who are interested in obtaining their titles or any other information concerning them, are requested to address the Librarian.

The standards are in the official language(s) of the country of origin.

001.4 Scientific Nomenclature. Terminology

Germany: DIN 5485

UK: BS 1523: Section 2: 1960 Glossary of Terms used in Automatic Controlling and Regulating Systems. Section 2: Process Control
BS 3323: 1960 Glossary of Coal Terms

389.17 Number Series, Preferred Numbers

Poland: PN N 02100

USA: ASA B 79.1: 1960 Number Designation of Refrigerants

389.6 Standardization

Germany: DIN 820 Bl. 2

526.9 Surveying Instruments

Austria: ONORM A 2201, 02

53 Physics and Mechanics

Czechoslovakia: CSN 270105; 385510

Egypt: EOS/S 28

Germany: DIN 6164 Beiblatt 1, 2, 3, 25

Switzerland: VSM 58060

UK: BS 354: 1961 Photometric Integrators

BS 718: 1960 Density Hydrometers and Specific Gravity Hydrometers

BS 3292: 1960 Direct Reading Hygrometers

BS 3318: 1961 Locating the Centre of Gravity of Heavy Objects

54 Chemistry

Czechoslovakia: CSN 687308

Germany: DIN 12036, 38, 39; 12490

India-Ministry of Defence: IND/GS/1009

UK: BS 1583: 1961 One-Mark Pipettes

USSR: GOST 1381

553 Minerals and Ores

Czechoslovakia: CSN 721220

614.8 Accident Prevention, Safety

Austria: ONORM F 5302

Belgium: NBN 375; 440; 548

Czechoslovakia: CSN 466019

Germany: DIN 14673

UK: BS 3326: 1960 Portable Carbon Dioxide Fire Extinguishers

615.47 Medical and Surgical Instruments

Czechoslovakia: CSN 705213

UK: BS 3316: 1960 Large Incinerators for the Destruction of Hospital Waste

616.314 Teeth, Dentistry

Australia: SAA T 17

620.1 Materials Testing

UK: BS 2634: Part 1: 1960 Roughness Comparison Specimens. Part 1: Ground Flat and Cylindrical Types

USSR: GOST 9450

621-1/-9 Machinery Details

France: PN M 87-185, -192, -194 to -197

Germany: DIN 332 Bl. 1; 4762 Bl. 1; 11747 Bl. 2

Poland: PN C 40006; E 08501; M 60601 to 603, 607; 61350; 84547

Switzerland: VSM 19331

USA: ASA B 71.1: 1960 Safety Specification for Power Lawn Mowers

USA-Department of Interior, Bureau of Reclamation: DS 6

USSR: GOST 9468

621.1 Steam Power, Engines

UK: BS 3285: 1960 Methods of Sampling Superheated Steam from Steam Generating Units

USA-National Electrical Manufacturers Association: SM 40

621.3 Electrical Engineering

Australia: SAA C 104; 145; 151; 163; CC1 Part 1

Austria: ONORM E 3803 Teil 2; 4343, 59, 60; 4767; M 5900

Belgium: NBN 474

Canada: CSA C 22.2 No. 122

Czechoslovakia: CSN 341060, 3210, 5352, 6610, 6641; 368410 to 8413; 370200 to 0204, 0207, 0208, 0211, 0212, 0215 to 0217, 0222, 0224, 0230 to 0233, 0236, 0238, 0239, 0740

Egypt: EOS/S 11; 21; 27; 29; 61; 62

France: NF C 26-220; 32-500; 52-052, -053, -057, -058; 61-300; 63-600; 64-210; 74-300

India-Ministry of Defence: ILE Report No. 22/60

New Zealand: NZSS 1379 Part 1, 2

Poland: PN E 04408; 90160; T 55004; 82102, 133

South Africa: SABS 042-15

Rhodesia and Nyasaland: RNS C 2

UK: BS 137: 1960 Porcelain and Toughened Glass Insulators for Overhead Power Lines (3.3kV and upwards)

BS 162: 1961 Electric Power Switchgear and Associated Apparatus

BS 469: 1960 Electric Lamps for Railway Signalling

BS 2818: Part 2: 1961 Auxiliaries for Operation of Fluorescent Lamps. Part 2: Capacitors

BS 3297: 1960 High Voltage Post Insulators

UK-Ministry of Aviation: SSM(L) 9-49/1, 50/1; 10-18/2

UK-Ministry of Defence: DEF 20A; 25; 5322

UK-Electrical Research Association: ERA Z/T 107, 113, 130

USA: ASA C 78.701: 1959 Dimensional and Electrical Characteristics of 72-Inch (800- and 1 000 Milliampere) T-12 Rapid Start Fluorescent Lamp

USA-Electrical Industries Association: EIA RS-237; -238; -239

USA-National Electrical Manufacturers Association: MW 5, 7, 8, 10

USSR: GOST 2319; 5574; 6570; 8038; 9435, 43, 44

621.43 Internal Combustion Engines

USA-Federal Supply Service: Fed. Std. 143

USSR: GOST 2829; 9427

621.5 Pneumatic Machines, Refrigeration Technology

Czechoslovakia: CSN 105031, 5041; 140110

Poland: PN M 41206, 207, 250, 301

USA: ASA Z21.19: 1960 Refrigerators, Using Gas Fuel

621.6 Storage Containers, Pipes, Flanges, etc

Australia: SAA B 113; 114

Belgium: NBN 22; 327; 530; 532

Canada: CSA Z 87

Canadian Government Specification Board: 56 GP 10

Czechoslovakia: CSN 111572; 134120, 4121, 4124, 4125, 4128, 4129, 4134, 4135, 4138, 4142, 4143, 4150, 4151, 4154, 4166, 4167, 4170, 4171, 4175, 4178, 4179

Germany: DIN 1567 to 69; 1708; 3502 to 04; 4810; 4669; 8061, 62; 8072 to 75; 19053, 23269, 274

Switzerland: VSM 18425, 426, 435, 436

UK: BS 3293: 1960 Carbon Steel Pipe Flanges

UK-Ministry of Defence: DEF 1225, 26, 29 to 31

USA-Instrument Society of America: ISA RP 20.1

621.65 Pumps

Czechoslovakia: CSN 113035, 3036

Germany: DIN 24250, 251

621.74 Foundry Work

Poland: PN H 11001
Switzerland: VSM 16501
USSR: GOST 6271; 9451

621.753 Gauging, Tolerance

UK: BS 919: Part 1: 1960 Screw Gauge Limits and Tolerances. Part 1: Gauges for Screw Threads of Unified Form
UK-Ministry of Defence: DL 11A
USA: ASA B 36.35: 1960 Copper Brazed Steel Tubing
USSR: GOST 9459

621.791 Welding

Canadian Government Specifications Board: 48-GP-2, -3
Germany: DIN 1912 Bl. 1; 4760 to 63
Switzerland: VSM 16500
UK: BS 693: 1960 General Requirements for Oxy-Acetylene Welding of Mild Steel
USSR: GOST 9466, 67

621.798 Packing and Dispatch

Australia: SAA K 84, 87
Czechoslovakia: CSN 493330 to 3332, 3341, 3351, 3391, 3392
Germany: DIN 2043; 6075
Poland: PN D 79616
UK: BS 814: 1961 Mild Steel Drums
USSR: GOST 9449

621.8 Machine Parts

Czechoslovakia: CSN 029266, 9267, 9281

621.82 Shafting, Bearings

Czechoslovakia: CSN 350040
USA: ASA B 3.7: 1960 Ball and Roller Bearing and Parts
ASA B3.12: 1960 Metal Balls

621.833 Gears

Germany: DIN 3960, 75

621.86 Mechanical Handling and Hoisting Equipment

Czechoslovakia: CSN 260021
UK: BS 3317: 1960 Triangular Lifting Eyes

621.873 Crane

India-Directorate General Supplies & Disposals: B 53 E
UK: BS 466: 1960 Electric Overhead Travelling Cranes for General Use in Factories, Workshops and Warehouses
BS 2573: Part 1: 1960 Permissible Stress in Cranes, Part 1: Structures

621.876 Lifts, Elevators

USA: ASA A 17.2: 1960 Practice for the Inspection of Elevators: Inspectors' Manual
ASA B 77.1: 1960 Safety Code for Aerial Passenger Tramways

621.88 Means of Attachment, Fastenings

Austria: ONORM M 1516, 17; 1806
Australia: SAA B 157
Germany: DIN 13 Bl. 30; 562; 728 Bl. 2; 985 to 87; 6645; 7346
India-Directorate General of Supplies & Disposals: G/Misc 86D
Poland: PN M 1203, 225 to 228
UK: BS 3294: Part 1: 1960 Use of High Strength Friction Grip Bolts in Structural Steelwork
USSR: GOST 2128; 3129; 9464

621.89 Lubrication

Canadian Government Specification Board: 3-GP-606, -682a, -883b

UK-Ministry of Aviation: DTD 822 A
UK-Ministry of Defence: DL 2 A
USSR: GOST 9436

621.9 Machine Tools

Austria: ONORM B 8201; M 4390
Czechoslovakia: CSN 225003; 343880
Germany: DIN 3968; 8410; 8301, 42
India-Ministry of Defence: IND/GS/360a
Poland: PN D 54350, 351; 56105; M 02043; 54050; 61003
UK: BS 2062: Part 2: 1960 Gear Hobs. Part 2: Hobs for Gears for Turbine Reduction and Similar Drives
BS 3295: 1960 Units Heads (Slide Type)
BS 3329: 1961 Gear Planning and Shaping Machines
USSR: GOST 370; 886 to 88; 2090, 92; 5349; 6647; 8027; 8506; 9431

622 Mining

Germany: DIN 4118; 20377, 379; 22266
USA: ASA M13.1: 1960 Rockdusting Underground Bituminous-Coal and Lignite Mines to Prevent Coal-Dust Explosions

624 Civil Engineering

Belgium: NBN 1f; 460.01f; to 460.03f
Czechoslovakia: CSN 738141
Germany: DIN 4225
Rhodesia and Nyasaland: RNS CA 2

625.1/6 Railway Engineering

Germany: DIN 5904
Poland: PN K 91030
UK: BS 3117: Part 3: 1961 Wheel Pairs for Locomotives and Rolling Stock (Dimensions). Part 3: Tyres

625.8 Paving of Roads

UK: BS 1242: 1960 Tarmacadam 'Tarpaving' for Footpaths, Playgrounds and Similar Works
BS 1621: 1961 Bitumen Macadam with Crushed Rock or Slag Aggregate
BS 2542: 1960 Recommendations for the Use of Bitumen Emulsion (Anionic) for Roads

626/627 Hydraulic Engineering

Germany: DIN 19702

628.1 Water Supply

Austria: ONORM B 2531
Germany: DIN 1239 Bl. 1 to 5; 1260
South Africa: SABS 045

628.9 Illumination

Belgium: NBN 531
Czechoslovakia: CSN 340170

629.11 Transport Engineering

Czechoslovakia: CSN 169028; 307010
Germany: DIN 7800, 04 Bl. 1, 2; 7809, 11, 15; 9621; 11743

629.12 Shipbuilding

Italy: UNI 4552 to 4588

629.13 Aeronautical Engineering

Poland: PN L 02010; 04003; 36006, 008; 76102, 104
UK: BS C 15: 1960 Coupling Dimensions for Aircraft to Tractor Tow Bar Connections

631.3 Agricultural Tools and Machinery

Germany: DIN 9676; 11172; 11367 Bl. 1, 2

Poland: PN R 58001, 003
USSR: GOST 158; 3496

631.53 Seed

East Germany: TGL 6779
Poland: PN R 71605

635 Horticulture

Czechoslovakia: CSN 464750
Poland: PN R 74455

64 Domestic Science, Catering

Australia: SAA Z. 15
Canada: CSA B 150.1, .2
Canadian Government Specification Board: 9-GP-11
India-Ministry of Defence: IND/GS/1004
South Africa: SABS 550
UK: BS 3296: 1960 Safety Requirements for Domestic Electric Hair Dryers

651.71 Office Equipment

Belgium: NBN 18
UK: BS 3327: 1961 Stationery for Quantity Surveying

654.9 Signalling

Germany: DIN 14620 Bl. 1, 2
USA-National Electrical Manufacturers Association: SB 6

655 Printing

UK: BS 3319: 1960 Type-High Numbering Boxes

656.7 Air Transport

UK: BS 3149 Part 2: 1961 Carriage of Live Animals by Air. Part 2: Small & Medium-Sized Seed-Eating Birds

661 Chemicals (Fine, Heavy, etc)

Canadian Government Specification Board: 2-GP-141
Czechoslovakia: CSN 684476, 4525, 4537, 4538, 4554, 4861
India-Directorate General of Supplies & Disposals: G/Chemicals 31 A
Iran: SOI-Kh-101
Israel: SI 364
Poland: PN C 84126, 187; 88000
UK: BS 3324: 1961 Determination of Vapour Pressure of Liquefied Petroleum Gases
USSR: GOST 646

662.6/9 Fuels, Heating, Combustion

Austria: ONORM C 1103
Czechoslovakia: CSN 656506
Egypt: EOS/S 14 to 18
Germany: DIN 23203
UK: BS 1016: Part 10: 1960 Analysis and Testing of Coal and Coke. Part 10: Arsenic in Coal and Coke

663.4 Beer

Poland: PN A 79098

664 Food Industries, Preservation

South Africa: SABS 655; 656

665.3 Vegetable Oils

Egypt: EOS/S 19; 20; 25

665.5 Petroleum Industry

Belgium: NBN 52.019; 52.077
Canadian Government Specifications Board: 3-GP-975
Czechoslovakia: CSN 656846
Egypt: EOS/S 24
Poland: PN C 04086, 106; 96120
UK: BS 3325: 1961 Determination of Reid Vapour Pressure of Petroleum Products

USA-American Petroleum Institute: API/
Bull. 120

666.29 Enamel, Glazes

UK: BS 1344: Part A1: 1960 Vitreous Enamel Finishes, Group A. Kitchen Equipment. Part A1: Resistance to Thermal Shock
BS 1344: Part A2: 1960 Vitreous Enamel Finishes, Group A. Kitchen Equipment. Part A2: Resistance to Culinary Acids

666.7 Refractory Material

Belgium: NBN 476
Egypt: EOS/S 41 to 48; 52 to 54; 58
Poland: PN H 12000

666.8/9 Gypsum, Lime, Cement, etc

France: PN P 15-401 to -403, -432, -433, -451
USA: ASA K 67.4: 1960 Quicklime and Hydrated Lime for Cooking of Rags in Paper Manufacture
ASA K 67.5: 1960 Quicklime for Sulfite Pulp Manufacture
ASA K 67.6: 1960 Quicklime and Hydrated Lime for Silica Brick Manufacture
ASA K 67.7: 1960 Sampling, Inspection, Packing, and Marking of Lime and Limestone Products
ASA K 67.8: 1960 Terms Relating to Lime
ASA K 67.9: 1960 Quicklime and Hydrated Lime for Water Treatment
ASA K 67.10: 1960 Physical Testing of Quicklime and Hydrated Lime
ASA K 67.14: 1960 Quicklime for Calcium Carbide Manufacture
ASA K 67.15: 1960 Hydrated Lime for Grease Manufacture
ASA K 67.16: 1960 Fly Ash for Use as a Pozzolanic Material with Lime
ASA K 67.17: 1960 Testing Quicklime and Hydrated Lime for Neutralization of Waste Acid
ASA K 67.18: 1960 Quicklime and Hydrated Lime for Sand-Lime Products
ASA K 67.19: 1960 Pozzolans for Use with Lime
ASA K 67.20: 1960 Quicklime and Hydrated Lime for Hypochlorite Bleach Manufacture
USSR: GOST 7

667 Dyeing and Bleaching

Czechoslovakia: CSN 794451; 802220

667.5 Ink, Crayon, Chalk

Canadian Government Specifications Board: 53-GP-61, -62, -66

667.6 Paint and Varnish Industry

Australia: SAA K 122
Canadian Government Specifications Board: 1-GP-15, 77a, 149
Czechoslovakia: CSN 673090, 3091, 3094, to 3099, 3214, 3219, 3419, 3828, 3903, 3917, 3923, 3959, 4254, 4263, 4358, 4363, 5150
Egypt: EOS/S 26
UK-Ministry of Defence: DEF 1035C; 1149B

668.1 Soap

India-Directorate General of Supplies & Disposals: G/O.P 61E

668.48 Turpentine

Egypt: EOS/S 22, 23

668.5 Essential Oil

Belgium: NBN 414

669.1 Ferrous Metallurgy

Belgium: NBN 561f; 562f; 565f
Czechoslovakia: 417252, 7341, 7344, 7346, 7536, 7618; 426403
Germany: DIN 16748
Poland: PN H 04015; 74209; 84029, 034; 93209, 213, 214, 408, 423, 428
UK: BS 601: Part 2: 1961 Steel Sheets for Magnetic Circuits of Power Electrical Apparatus. Part 2: Oriented Steel
BS 1121: Part 42: 1961 Methods for the Analysis of Iron and Steel. Part 42: Cobalt in Iron and Steel
BS 3335: 1961 Wire for Automatic Twisting Balers
UK-Ministry of Aviation: DTD 4B; 189A
USSR: GOST 9454 to 56, 58

669.2/8 Non-Ferrous Metallurgy

Czechoslovakia: CSN 420680
Egypt: EOS/S 57
Germany: DIN 1747, 87; 17007
Poland: PN H 01013; 87025; 92137; 93668, 832, 834, 836, 920
UK: BS 250: 1960 Wrought High Tensile Brass Rods and Sections (Other than Forging Stock)
BS 443: 1961 Galvanized Coatings on Wire
BS 1001: 1960 High Tensile Brass Forging Stock and Forgings
BS 1748: Parts 1-5: 1961 Methods for the Analysis of Copper Alloys. Parts 1-5: Copper, Lead, Iron, Aluminium and Nickel
BS 3332: 1961 White Metal Bearing Alloy Ingots
UK-Ministry of Aviation: DTD 298B; 304B; 361B; 722A; 727A; 735; 741A; 931; 5008A
USSR: GOST 193

674 Wood Industry

Australia: SAA 0-66-69
Belgium: NBN 544
Canada: CSA O 118
Czechoslovakia: CSN 490141 to 0145, 0150 to 0156
India-Ministry of Defence: IND/GS/1001
South Africa: SABS 553
UK: BS 3322: 1960 Carpenters' Squares and Bevels
USSR: GOST 9462, 63

676 Paper and Pulp Industries

Czechoslovakia: CSN 503175 to 3179, 3437
Egypt: EOS/S 13
Poland: PN P 97006
UK-Ministry of Defence: DEF 128
USSR: GOST 34; 1341; 9422

677 Textile Industry

Belgium: NBN 330
Canadian Government Specifications Board: 4-GP-80; 40-GP-10, -11
Czechoslovakia: CSN 800301
Egypt: EOS/S 30 to 40
Poland: PN P 82033
South Africa: SABS 267; 576
UK: BS 3320: 1960 Method for the Determination of Seam Slippage of Woven Fabrics
BS 3321: 1960 Method for the Measurement of the Equivalent Pore Size of Fabrics
BS 3331: 1961 Loom Pirn Trays
BS 3334: 1961 Quantitative Chemical Analysis of Mixtures of Cellulose Triacetate and Secondary Cellulose Acetate Fibres
BS 3336: 1961 Ternary Mixtures of Protein Fibres Polyamides and Certain Other Fibres

UK-Ministry of Defence: DEF 1173

USSR: GOST 9448

678 Rubber and Plastic

Australia: SAA K 118
Germany: DIN 7708; 16926
Israel: SI 363
Switzerland: VSM 77200 F 1 to F 8
USA: ASA A 116.1: 1960 Polysulfide Base Sealing Compounds for the Building Trade
USA-National Electrical Manufacturers Association: Pub. 240

681.26 Weighing Instrument

Czechoslovakia: CSN 250992
Poland: PN M 54824 to 826, 901 to 905
UK: BS 3315: 1960 Watch Case Finishes in Gold Alloys

683 Ironmongery, Hardware

Austria: ONORM M 7520
Czechoslovakia: CSN 166143; 6221, 6269 to 6273
UK: BS 3328: 1961 Domestic Gas Pokers and Portable Underbar Ignition Burners
USA: ASA Z 21.10.3: 1960 Approval Requirement for Gas Water Heaters Vol III Circulating Rank, Instantaneous and Large Automatic Storage Type Water Heaters

685 Footwear and Sports Equipment

Germany: DIN 7909, 10, 12
UK: BS 3299: 1960 Industrial Rubber Boots

687.1 Clothing, Ready Wear

Australia: SAA L 14; 17
UK: BS 3314: 1960 Protective Aprons (Chloroprenecoated)

687.9 Brush

India-Ministry of Defence: IND/GS/999; 1000, 02, 03, 05, 06

69 Building Industry, Materials, Trades, Construction

Australia: SAA A 2.2; 41.2; K 67.1 to 67.3; 67.11 to 67.13; Z 21.24
Austria: ONORM B 2221, 29, 32; 3323
Canada: CSA O 132.2
Czechoslovakia: CSN 060312, 738401, 8411 to 8414
Germany: DIN 1946 Bl. 1, 2; 4063; 4471, 73 to 76; 18167
India-Ministry of Defence: IND/GS/1010
Rhodesia and Nyasaland: RNS A 8 to 10
South Africa: SABS 622
UK: BS 1142: 1961 Fibre Building Boards
BS 1181: 1961 Clay Flue Linings and Chimney Pots
BS 1251: Part 4: 1960 Open Fireplace Components. Part 4: Lintels
BS 1811: 1961 Wood Chipboards and other Particle Boards
USSR: GOST 9460

744 Technical Drawing

Belgium: NBN 516 to 518

77 Photography and Cinematography

Austria: ONORM O 1500
Germany: DIN 15506 Bl.1; 16545, 548 Bl.1
India-Ministry of Defence: IND/GS/990
Poland: PN C 99001
UK: BS 1075: 1961 Studio Spotlight Lamps

New ISI Members

Enrolled during the period 1-4-61 to 31-5-61

Sustaining Members

For 1960

Gujarat Government, Director of Industries, Ahmedabad

For 1961

All India Bee-Keepers' Association, Nainital
Asian Cables Corporation Ltd., Bombay
Asiatic Plywood Industries, Calcutta
Bharat Starch & Chemicals Ltd., Yamuna Nagar, Distt. Ambala
Calcutta Wire Works, Calcutta
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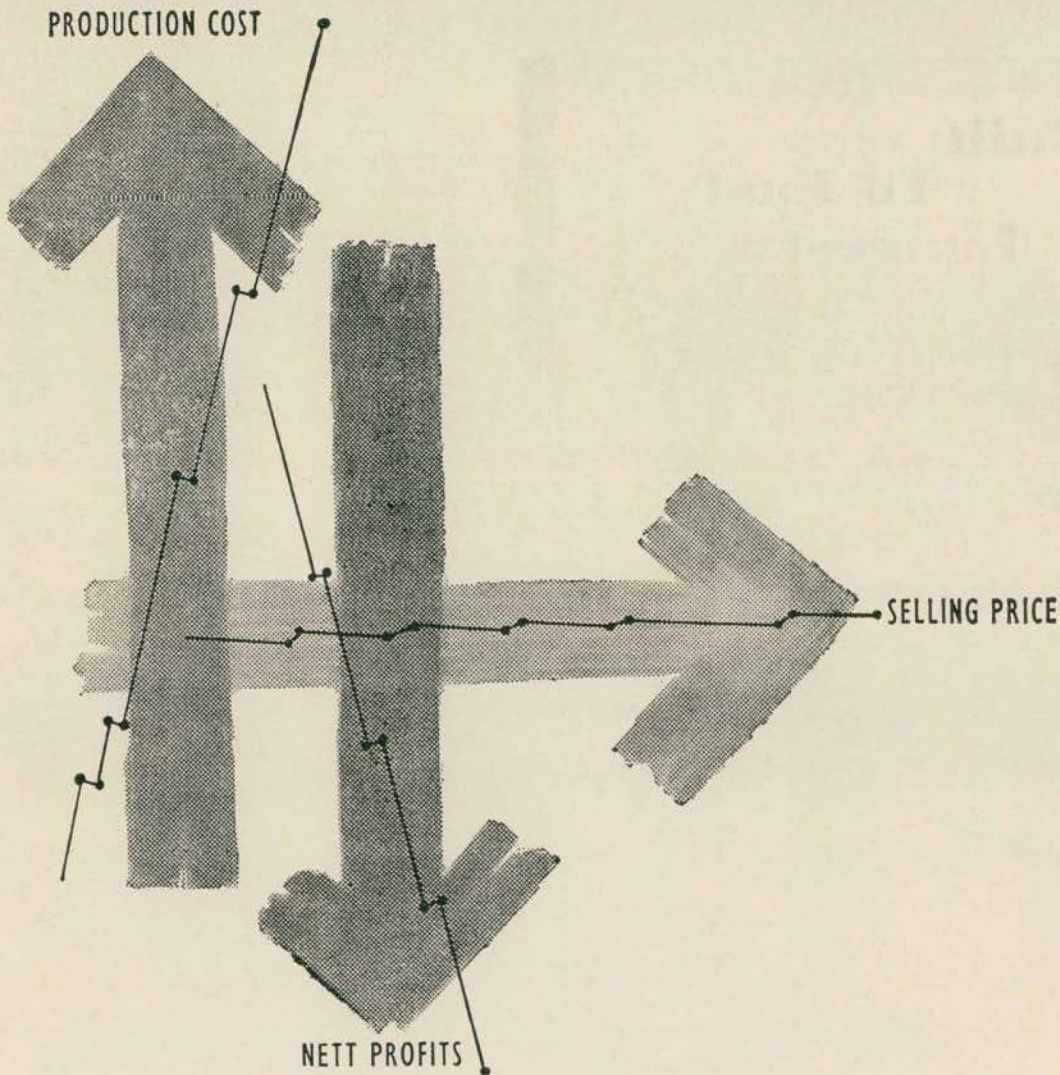
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The services of **Shri J. P. Mehrotra**, Deputy Director (Engineering), have been loaned by ISI to the Indian Investment Centre (IIC), New Delhi. He will be Technical Adviser (Engineering Industries) in IIC.

Shri B. N. Singh, Assistant Director (Statistics) is one of the twelve members of the Productivity Team on Quality Control which left India on 26 July 1961 to visit Japan (27 July to 3 August), USA (3 August to 2 September) and UK (3 September to 14 September) for studying the various latest aspects of quality control. The team, which has gone abroad after an in-country tour, will cover the following broad fields in its study: (a) Management concept, organization and evaluation; (b) Tools and techniques; (c) Inspection in industry; (d) Quality control and standardization; (e) Training, research and promotional activities; and (f) Quality control in small industries.

Dr. Sushil Chandra Gupta, a pool Officer of the Council of Scientific & Industrial Research, New Delhi, has been attached to ISI in the Chemical Division since 7 June 1961. The pool Scheme of CSIR has been evolved with a view to providing Indian Scientists and experts trained abroad with an immediate appointment on their return to India. They are retained in the Pool, till they are absorbed in suitable regular appointments.



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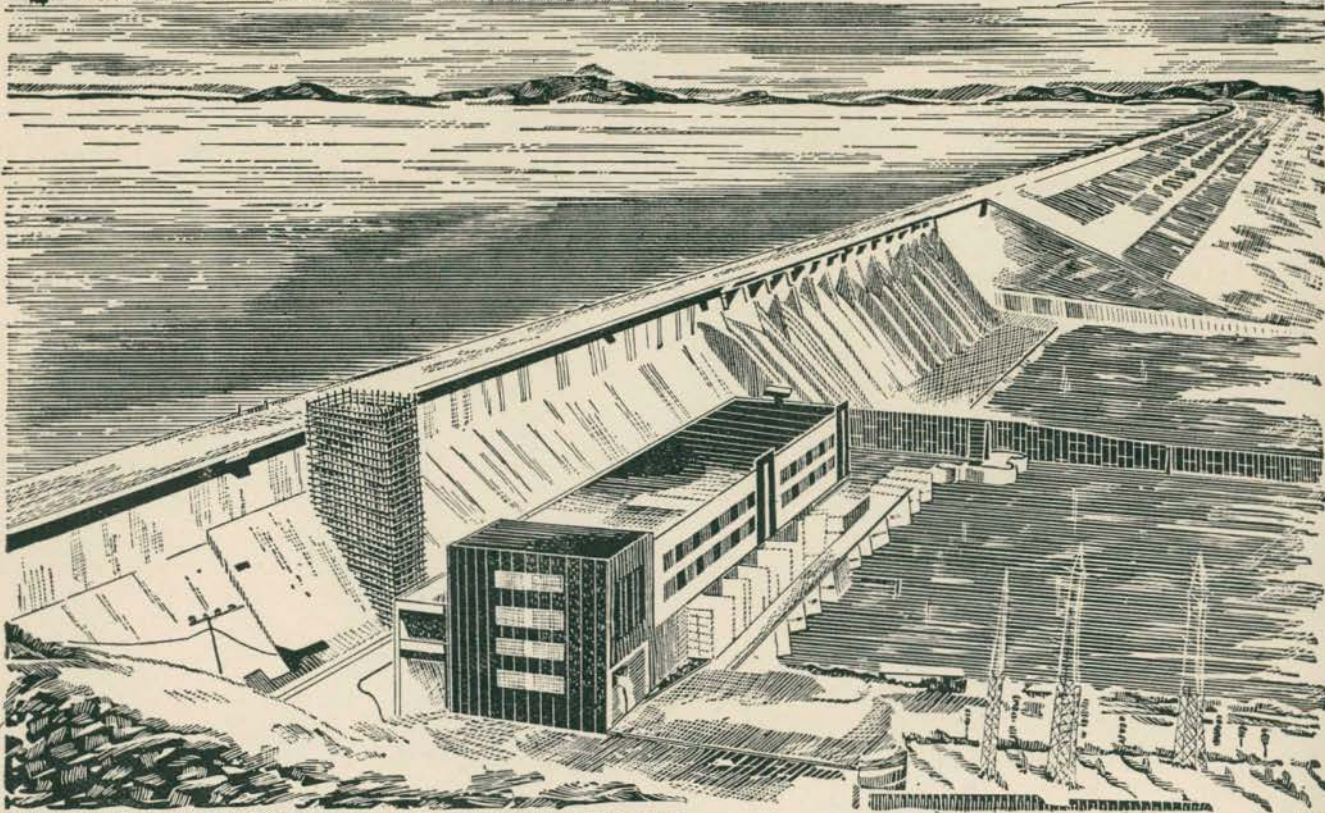


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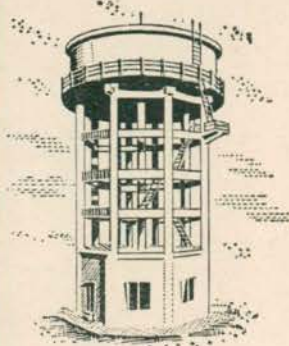
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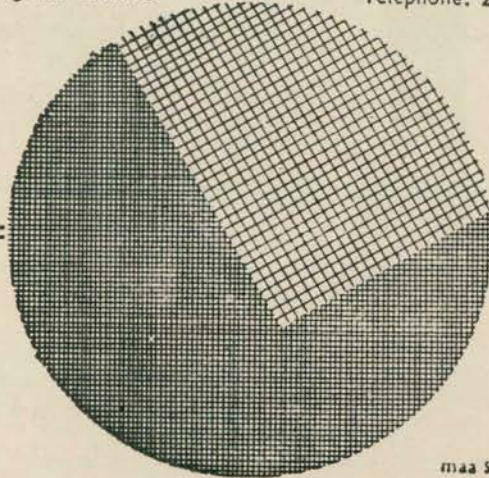
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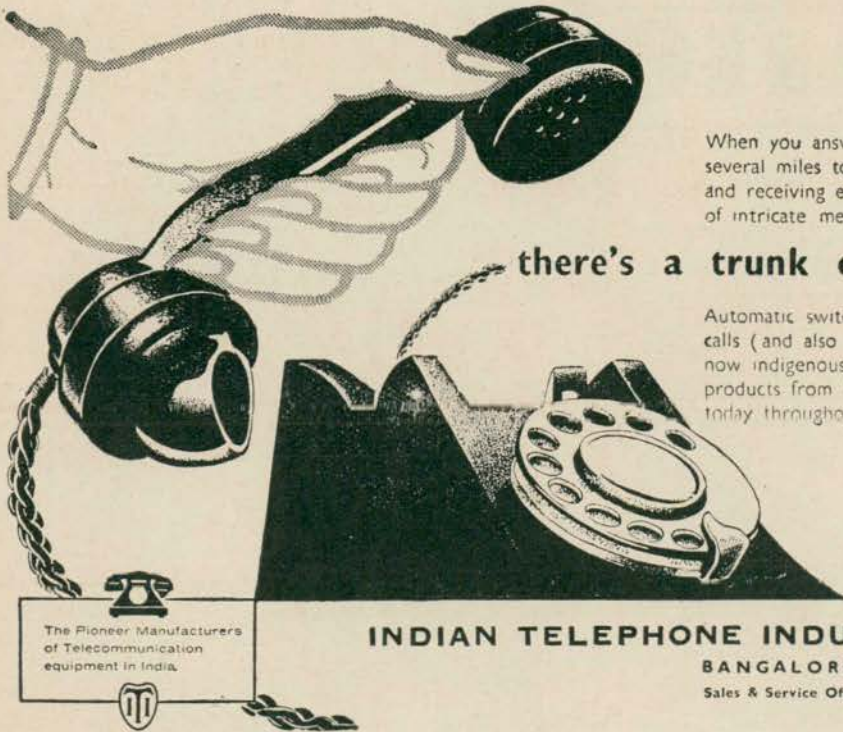
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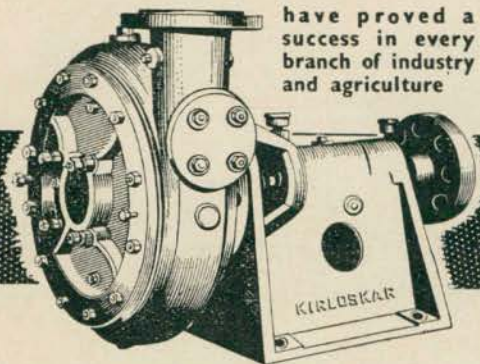
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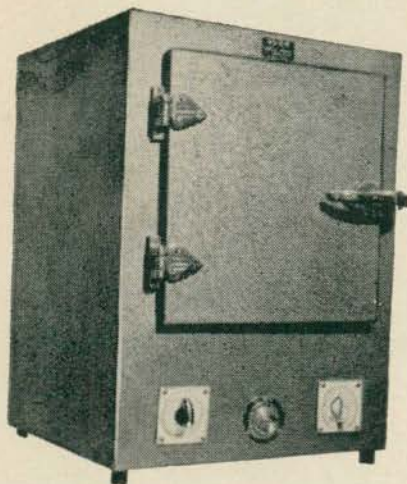
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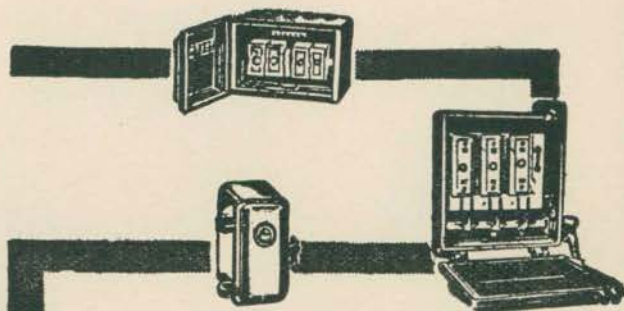
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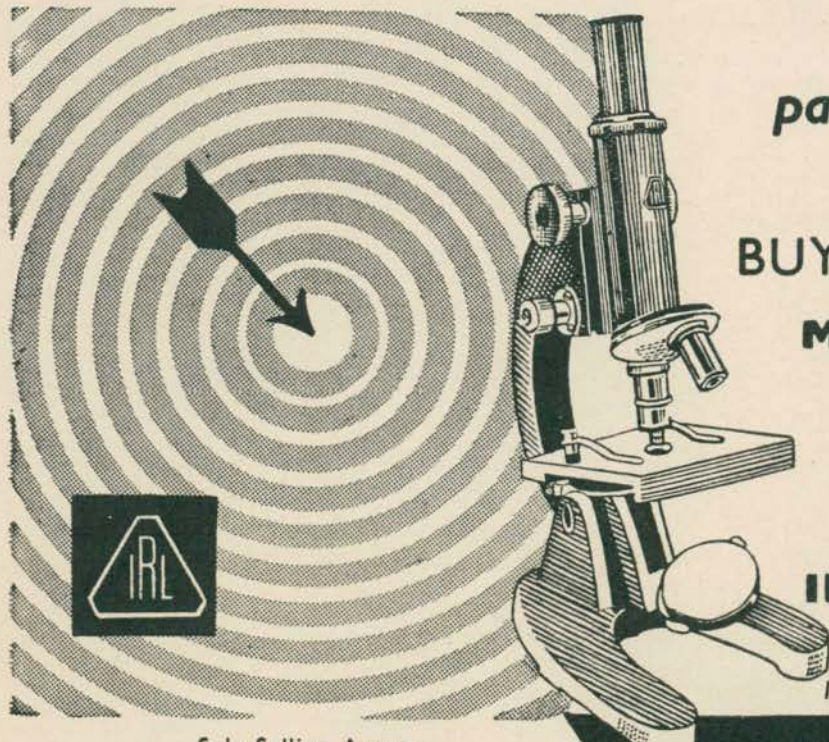
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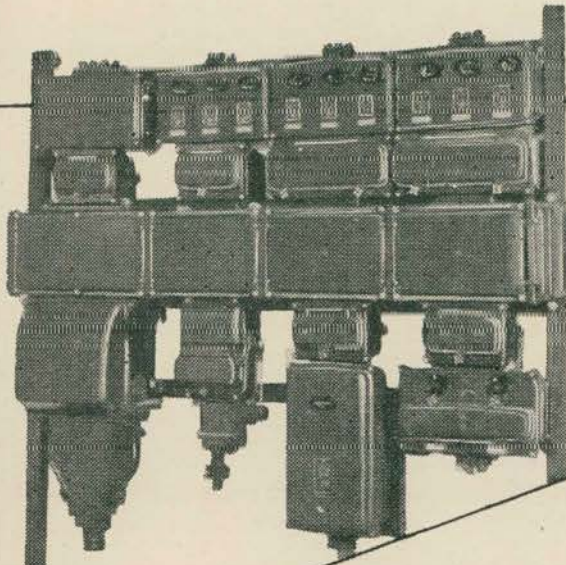
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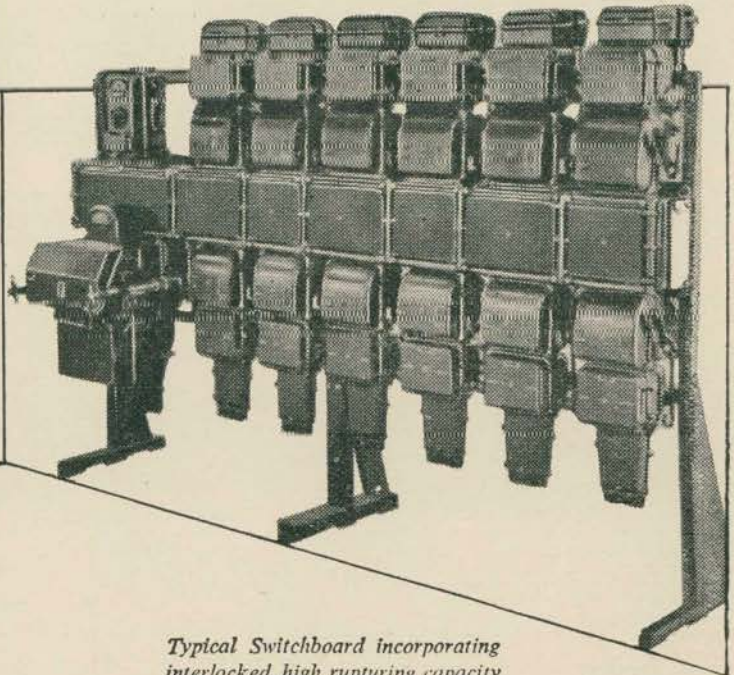
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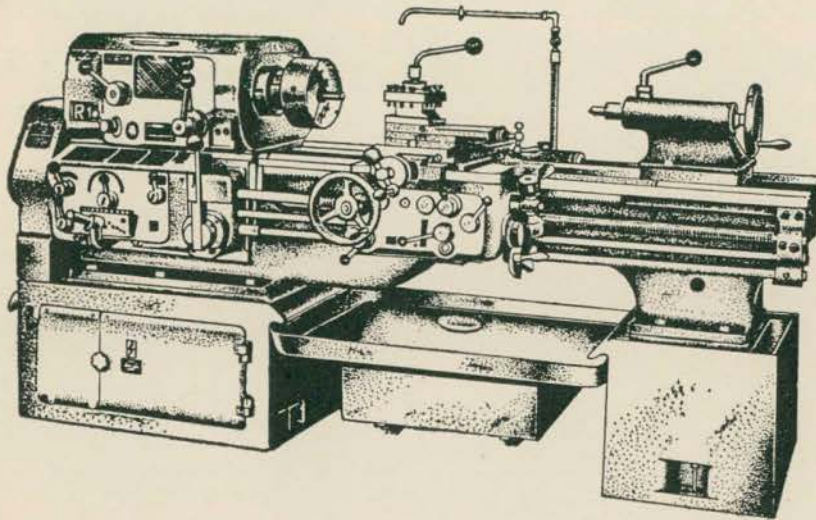
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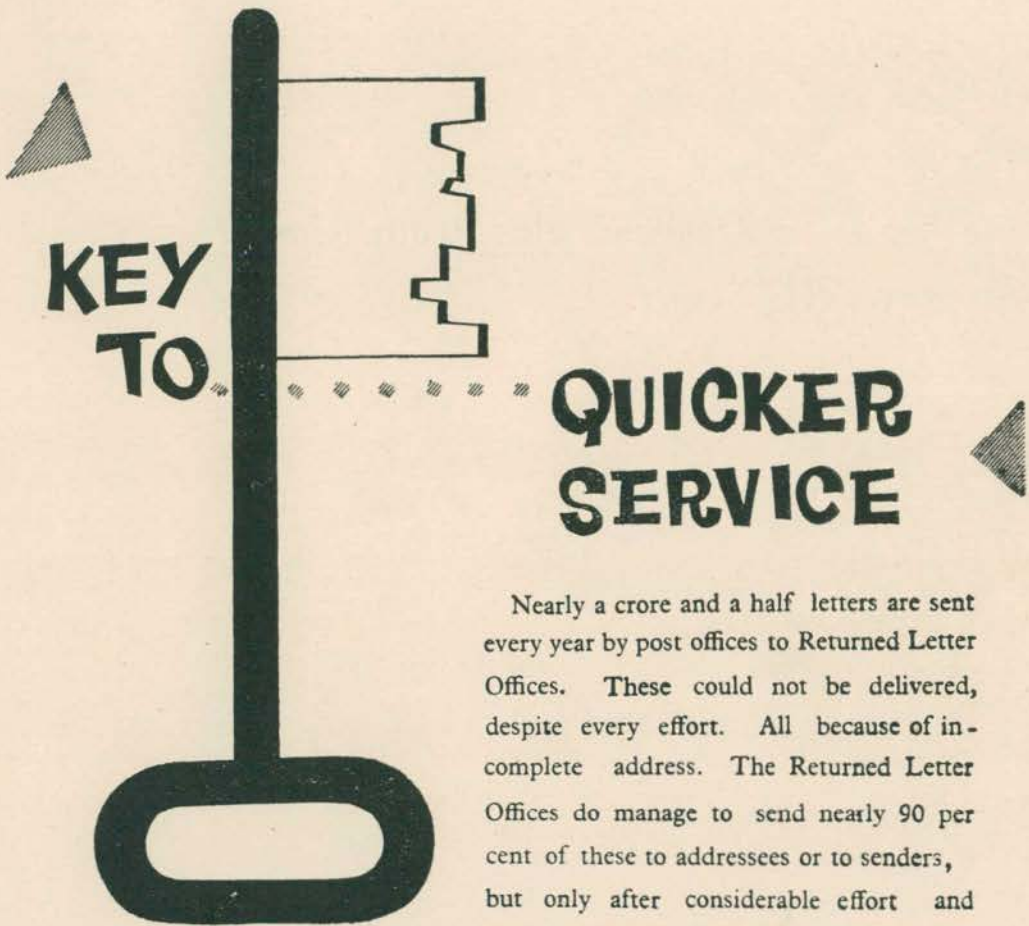
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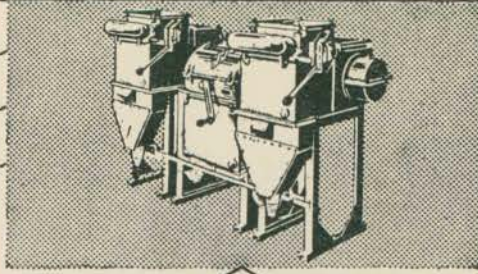


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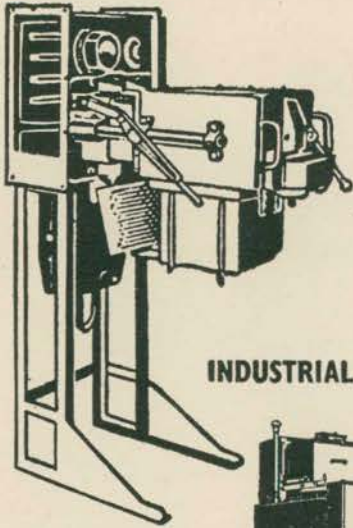


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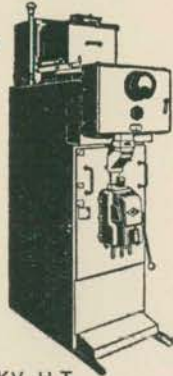
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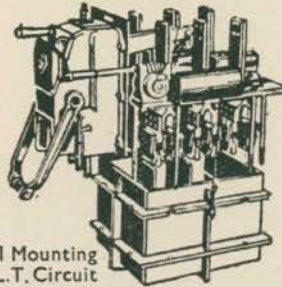
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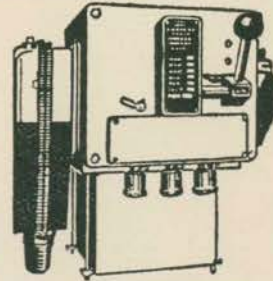
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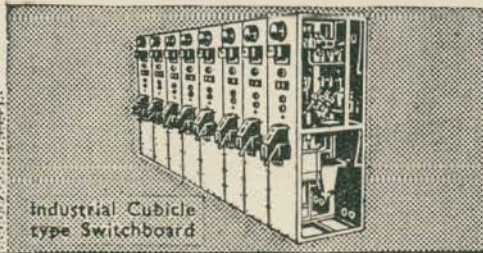
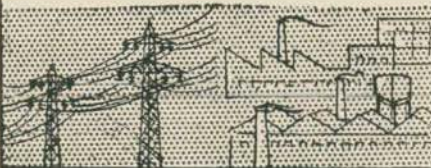


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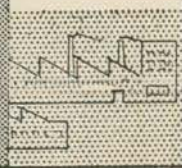


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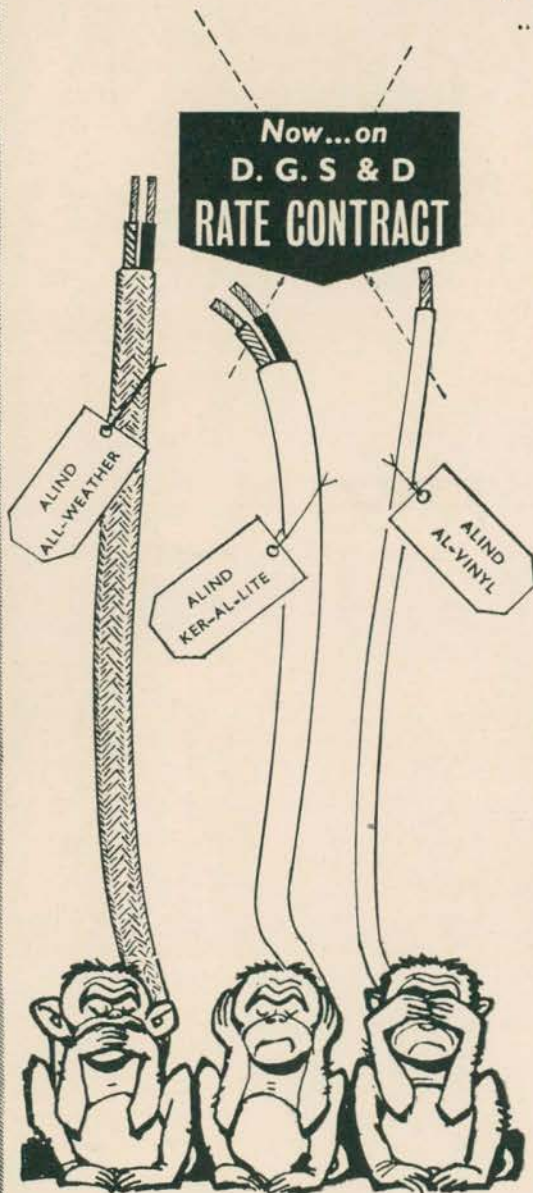


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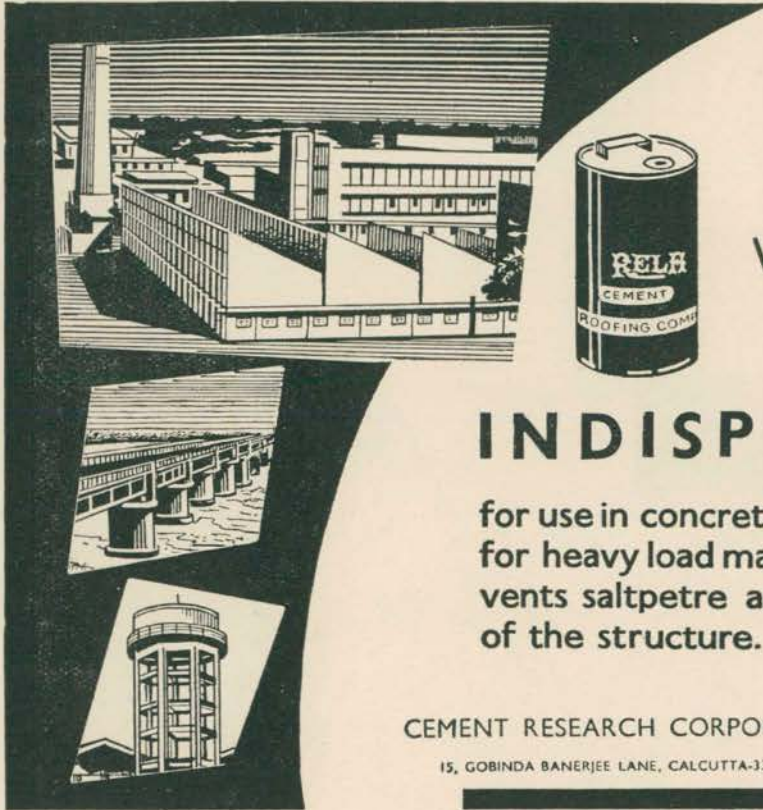


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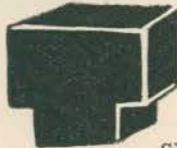
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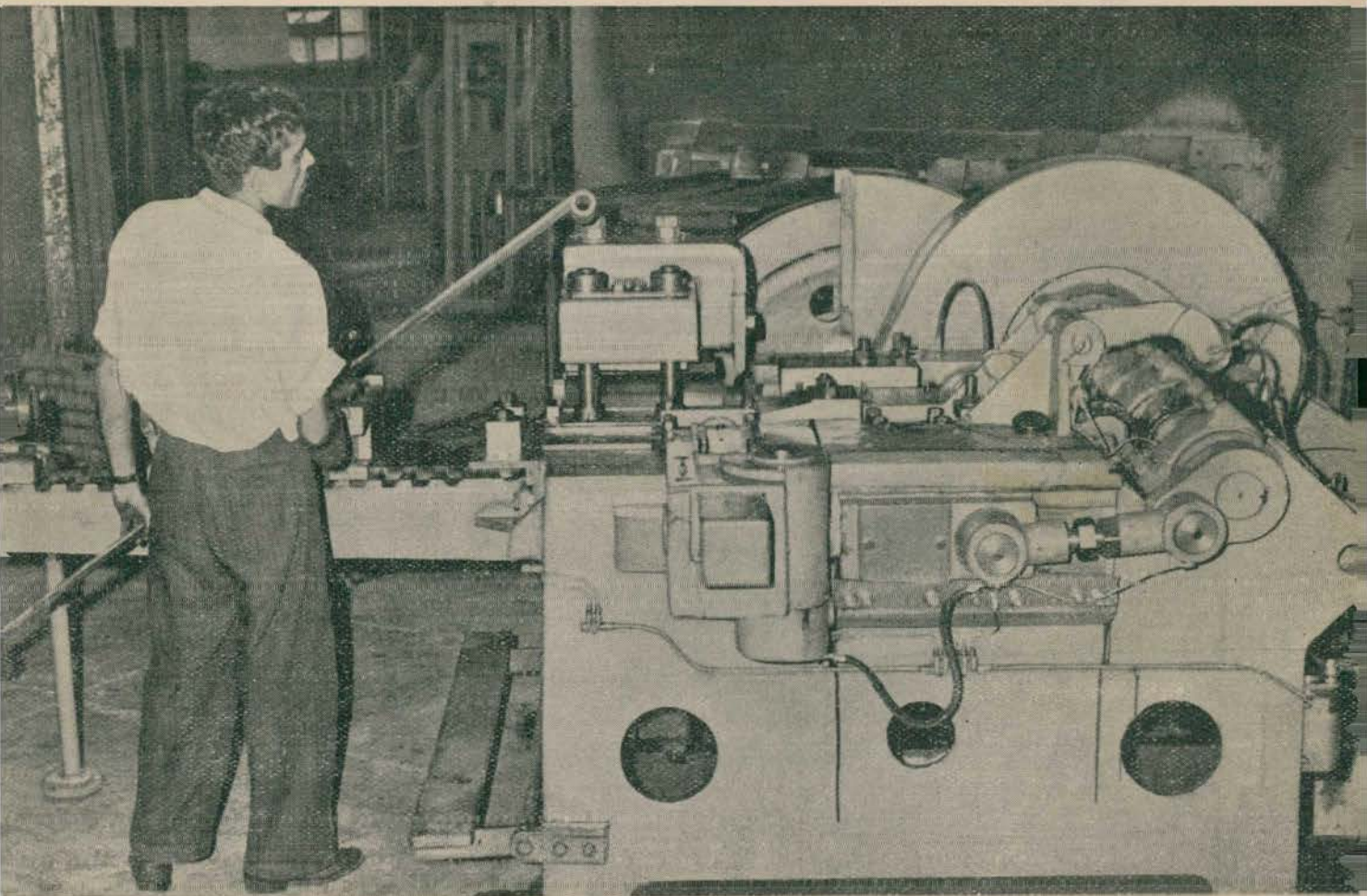
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Vol 13 No. 6 Nov-Dec 1961



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- Making Spring Leaves to Indian Standard ▪ Kanpur Branch Office Inaugurated
- Meetings of ISO/TC 17 and ISO/TC 92 ▪ Reviews

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Picture on Cover — A workman operating the eye-rolling machine at a plant manufacturing spring leaves to IS: 1135-1957 Specification for General Requirements for Leaf Springs for Automobile Suspension. The leaf is heated in a furnace seen in the background and then introduced in the machine in which it is cut at a slant, pre-rolled, eye completed and calibrated in a series of automatic operations. The picture shows the leaf being pulled out from the machine after these operations.

An article describing the production of spring leaves carrying ISI mark appears on p. 286.

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Invitations for the inaugural function will be issued by the Reception Committee to all delegates, and Subscribing and Committee members of ISI resident in Uttar Pradesh, in due course. It is, however, the desire of the Reception Committee that the inaugural ceremony should be attended by as large a number as possible of the members of the General Council and Subscribing and Committee members of ISI. Members are, therefore, requested to inform the Organizing Secretary of the Convention whether they would find it convenient to attend the inaugural function. The formal invitation cards will be extended to all members who intimate their decision to the Organizing Secretary at Manak Bhavan, 9 Mathura Road, New Delhi 1, before 17 December 1961 or at ISI Branch Office, 14/69 Civil Lines, Kanpur, after that date.

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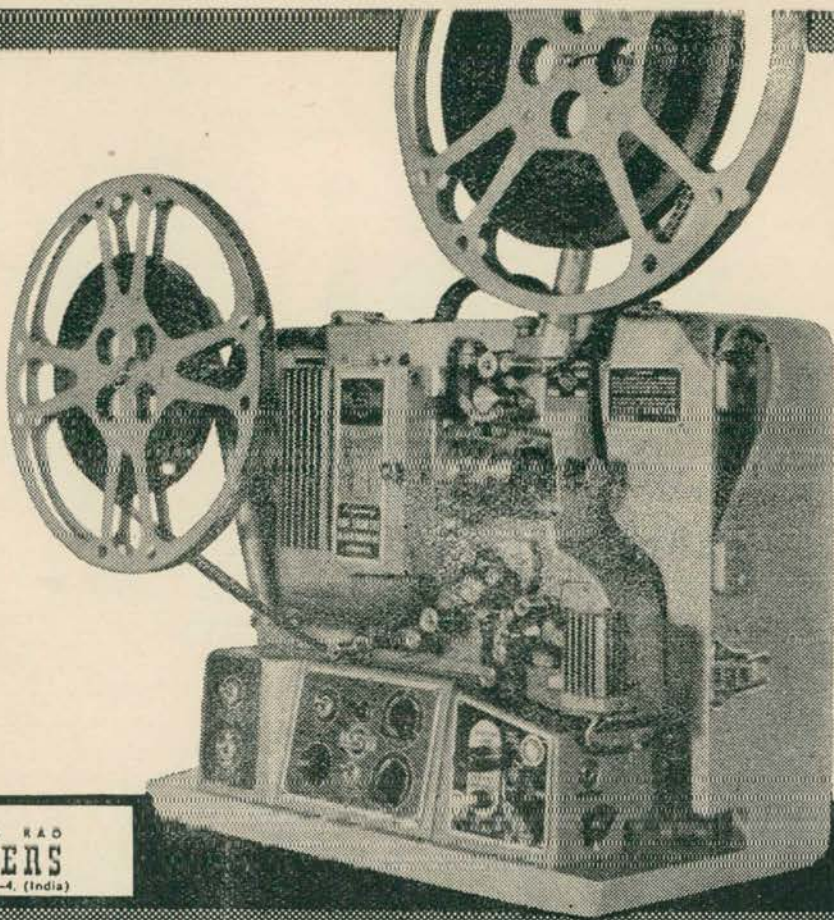
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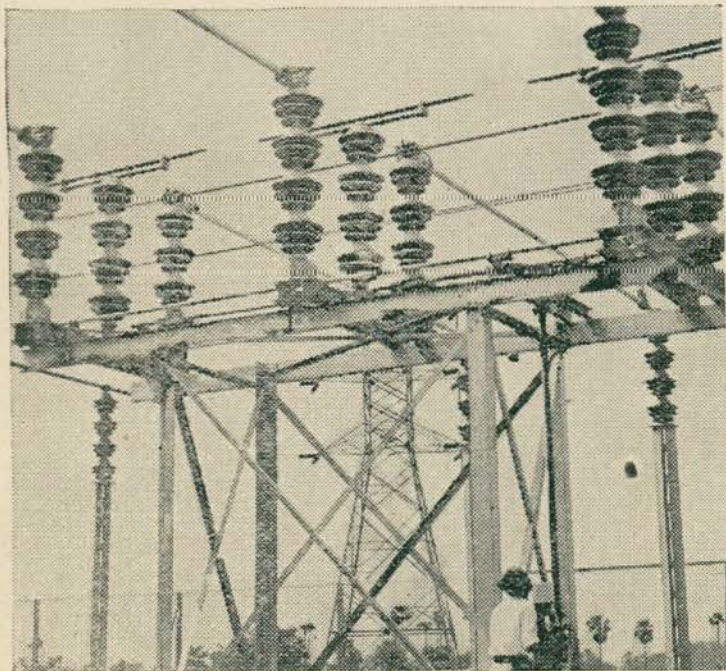


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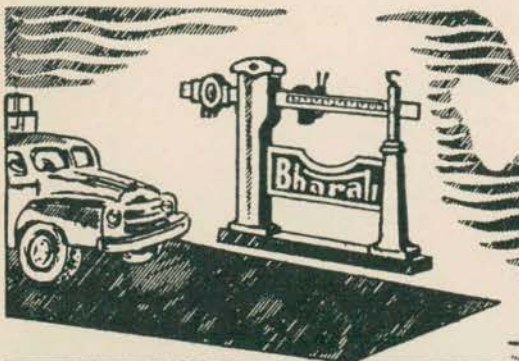
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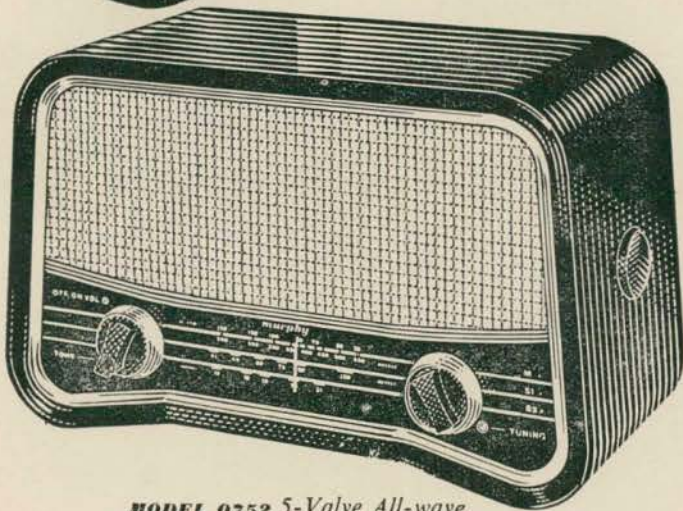
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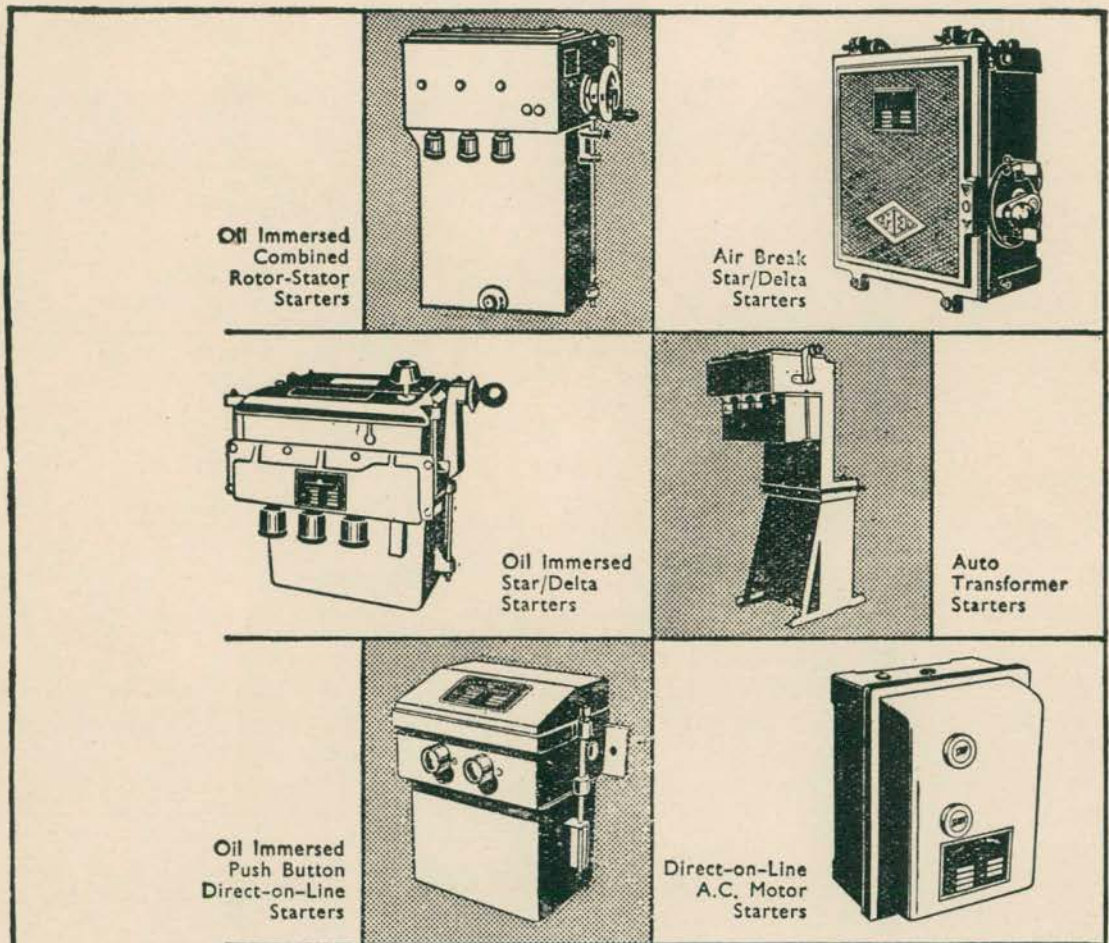
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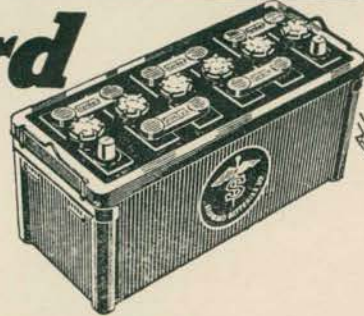
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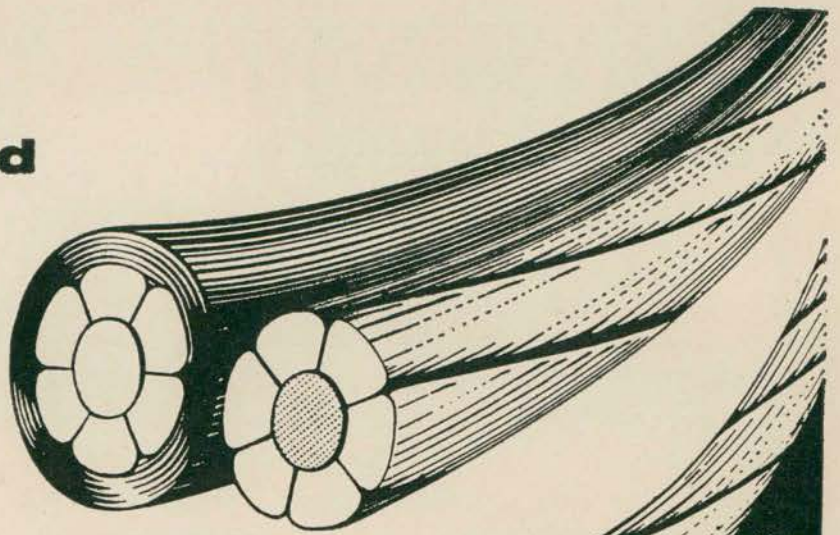
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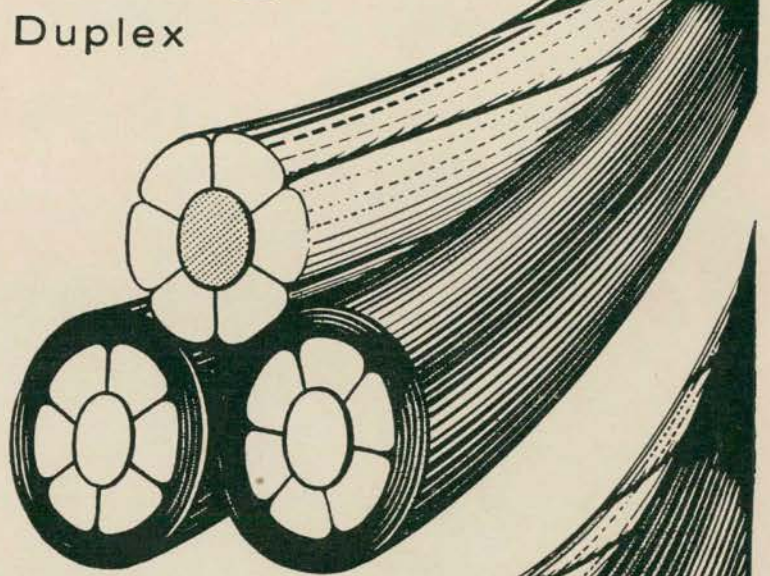
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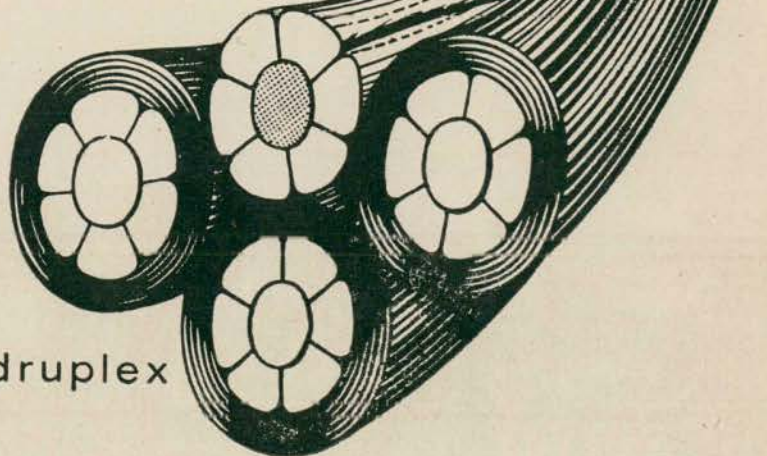
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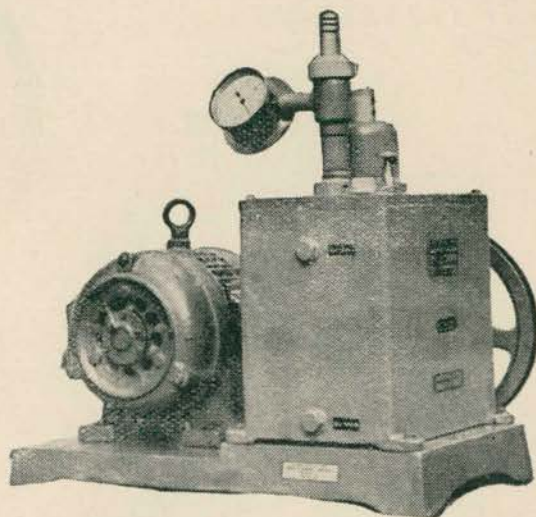
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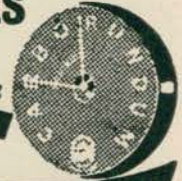
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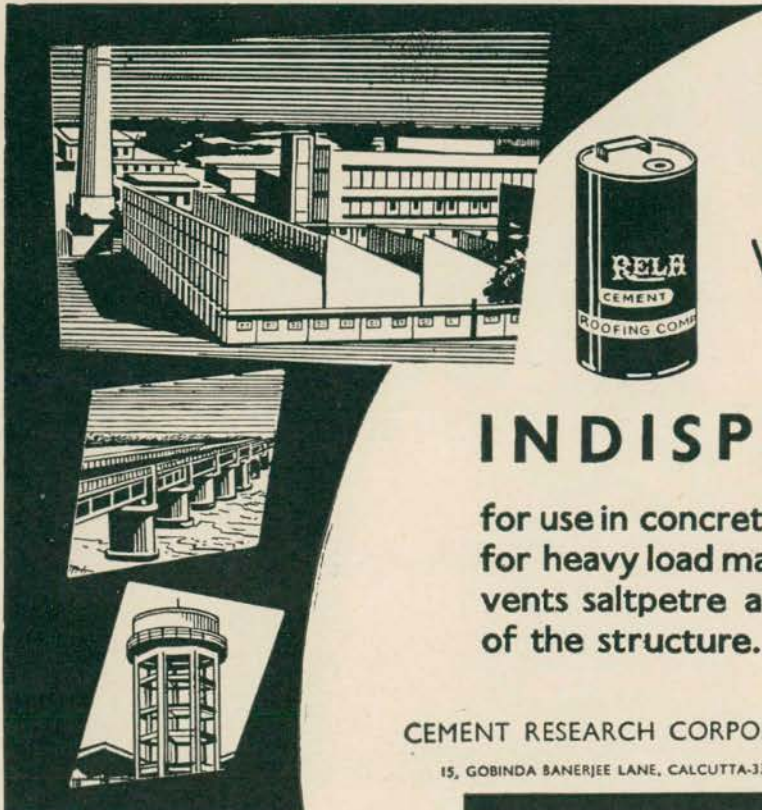
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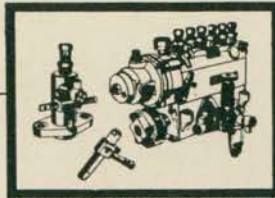
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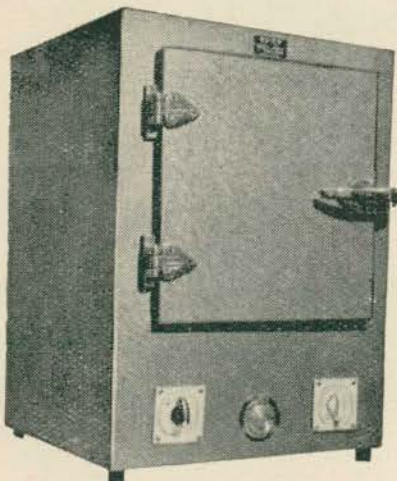
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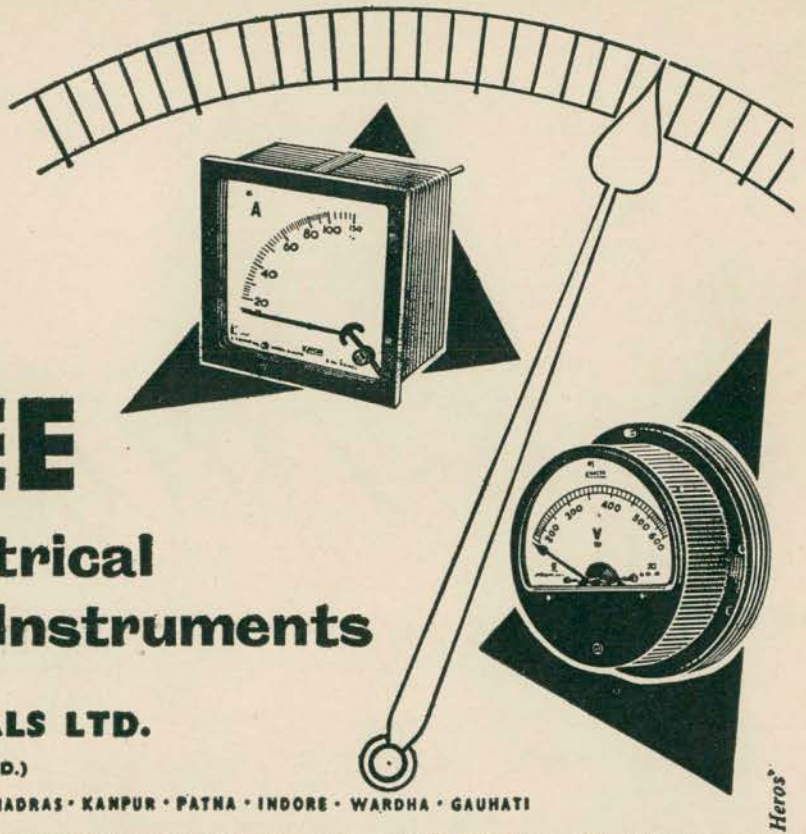
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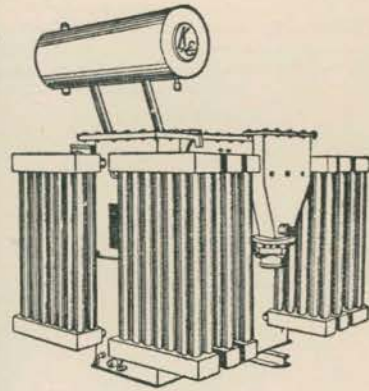
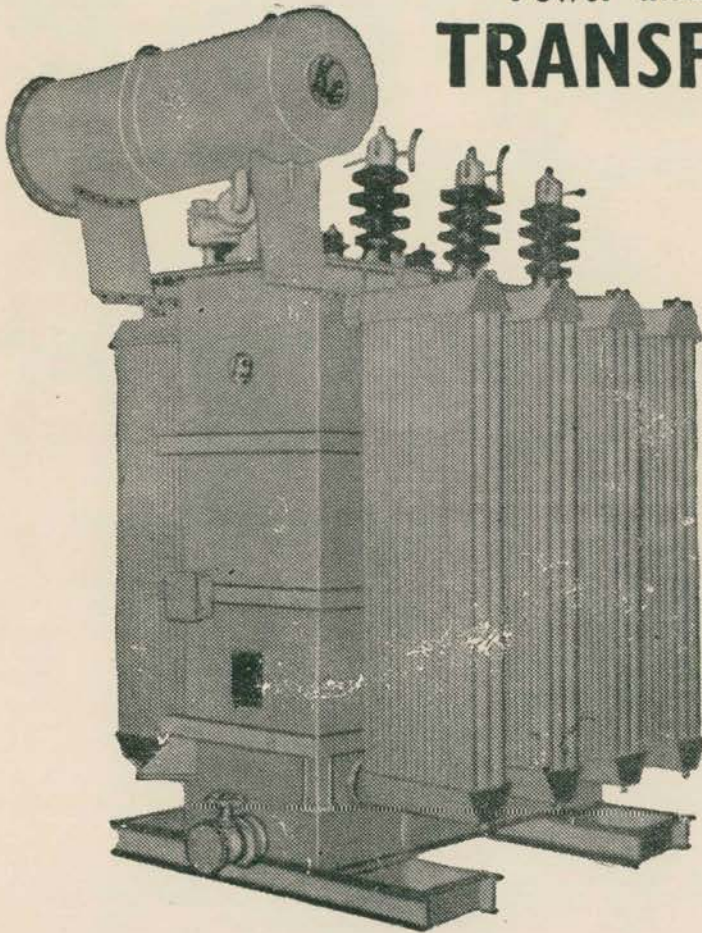
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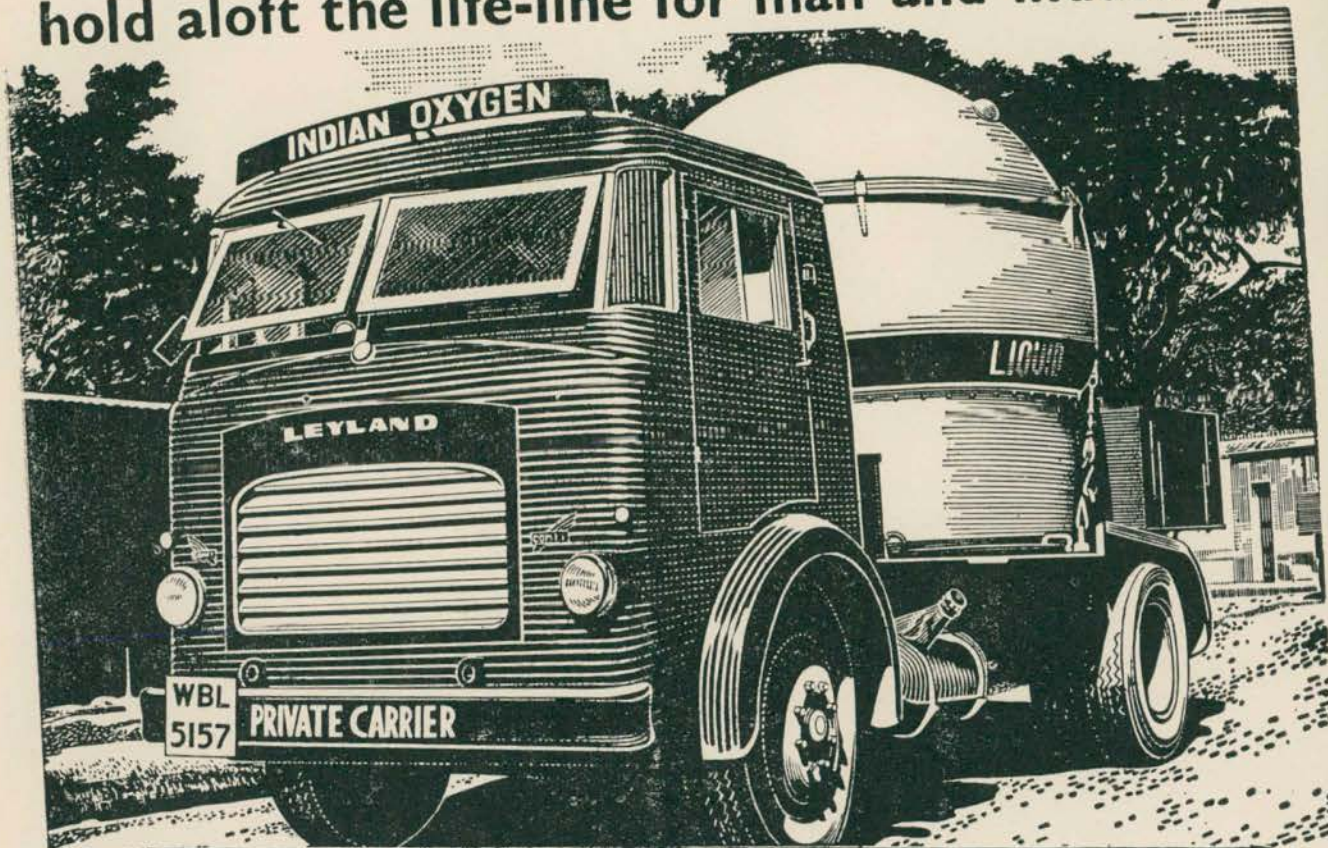
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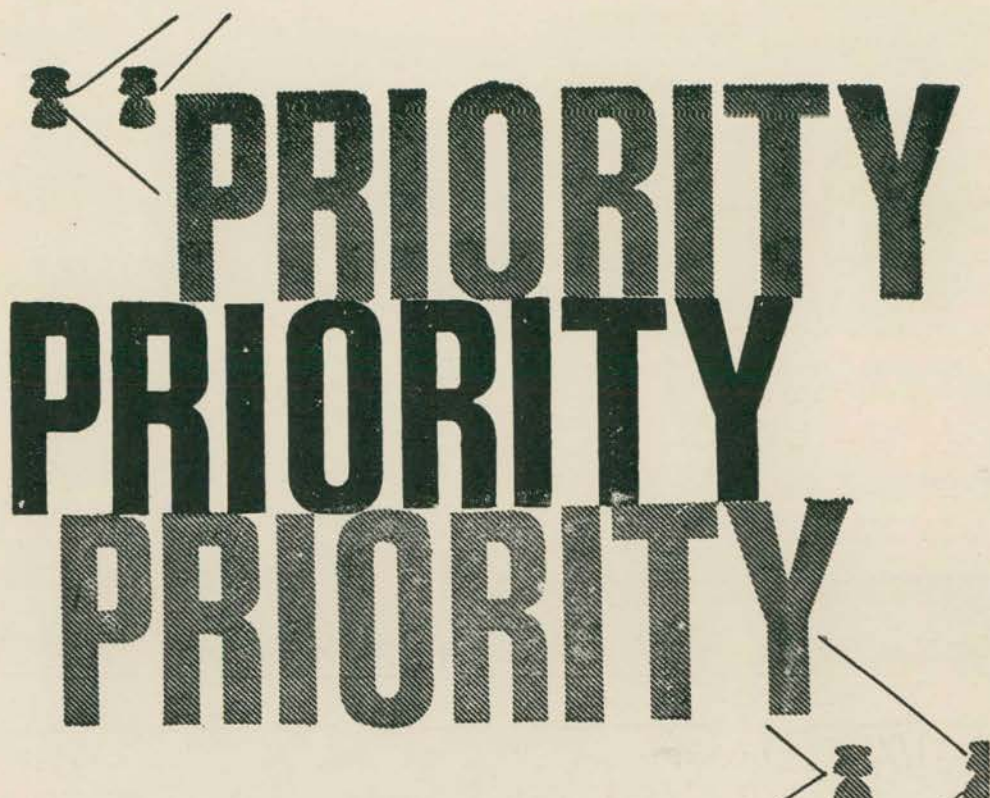
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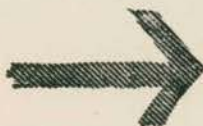
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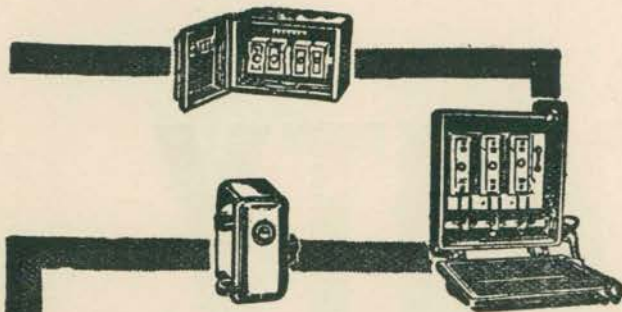
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Quality Control and Pre-Shipment Inspection—Report of *ad hoc* Committee

V. M. SRIKUMARAN NAYAR

MEMBER-SECRETARY, AD HOC COMMITTEE & JOINT DIRECTOR,
EXPORT PROMOTION DIRECTORATE

THE *ad hoc* Committee on Quality Control and Pre-shipment Inspection was appointed by the Union Government to make recommendations relating to imposition of quality control on various goods exported from India in order to find ways and means to eliminate complaints from overseas buyers about the quality of goods exported from India and their packing, to maintain enduring trade connections and to popularize Indian goods in foreign markets. The Committee did not issue any questionnaire but obtained the required information by visiting important centres of trade and industry and meeting various export promotion councils, commodity boards, the Jute Commissioner, the Directorate General of Commercial Intelligence and Statistics, chambers of commerce, etc, and discussing with them points regarding quality control. The Committee also visited some of the centres where typical quality control and pre-shipment inspection operations were being undertaken. The Committee attempted to obtain information specifically on the frequency of complaints received from overseas parties, the views of the representatives of the Indian Government on such complaints, the experience of commercial organizations in India in settling through arbitration or otherwise disputes arising on questions of quality of goods exported and the existence of facilities for surveys and pre-shipment inspection amongst the private agencies. The pre-shipment inspection scheme organized in Japan since the last war and their export

An *ad hoc* Committee on Quality Control and Pre-shipment Inspection under the chairmanship of Dr. Lal C. Verma, Director, ISI, was set up* in November 1960 by the Union Ministry of Commerce and Industry. The Committee was required to suggest measures which should be adopted to improve the quality of goods exported from the country and their packing, and to build up good reputation for Indian goods in foreign markets. The Committee completed the task towards the end of May 1961 and submitted a report which has been published recently. The report which consists of over 50 000 words and runs into 100 pages contains 71 recommendations. We publish here a summary of this report compiled by the Member-Secretary of the Committee.

A reference to the Committee and its Report was made at the last meeting of the Export Promotion Advisory Council held on 12 September 1961 by Shri K. C. Reddy, Union Minister for Commerce & Industry in the following words: 'The Committee has done excellent work and prepared a valuable report. The report has since been examined in my Ministry, and the important recommendations made by the Committee relating to separate enactment for empowering the Government to impose quality control and pre-shipment inspection on exported goods and setting up of an Export Inspection Advisory Council for formulation of guiding policies on matters concerning quality control have been accepted and steps to implement them are in progress. The other recommendations made by the Committee relating to imposition of compulsory quality control on specific exported goods have also been examined and steps are being taken to implement the same' — Ed.

*See ISI Bull., Vol 13, No. 1, p. 40 (1961).

quality control legislation was also studied by the Committee.

Exports and Trade Disputes

The Committee has made a general study of the pattern of India's export trade with particular reference to the effect of historical developments on the pattern of trade. For instance, UK is still our principal consumer, with USA following a close second. Exports of items, like cotton textiles, aluminium utensils, art silk fabrics, etc, are directed towards countries like Malaya, Ceylon, British East Africa, Aden, Mauritius, etc, where there is a large number of persons of Indian origin. Some of the commodities exported are still sent on consignment basis or for auction in UK. The Committee has, therefore, felt that the Union Government should keep a constant vigilance on the changing pattern and do whatever it can to accelerate the movement towards discouraging overseas auction of Indian products and eliminating shipments on consignment basis. The Committee has also recommended that from the point of view of ensuring that the ultimate consumer gets his goods in proper shape, it would be advantageous to extend the responsibility of exporter up to the time of landing goods in the receiving countries; in other words, something should be done to encourage the sale of goods on CIF basis.

The Committee has noted that India has reached a stage of development where she is now in a position to export not only primary products to the industrially advanced countries, as used to be the pattern until recently, but also manufactured items. The special payment agreements with certain

overseas countries has also enabled India to trade on the basis of rupee payments. The Committee has, therefore, pointed out that the stage has now been set for a big effort to increase substantially the country's exports. The diversification of exports in commodities and countries, which the above development envisages, would naturally involve catering to new requirements and new specifications, and the time is, therefore, opportune to organize maximum possible control of quality of the export products, taking into consideration not only the needs of the old markets, but also of the new developing ones.

The Committee has gone into the question of complaints regarding quality and steps are already in vogue to deal with such complaints and to prevent their recurrence. There are various trade organizations in India who undertake to conduct arbitration in trade disputes. In fact, the Federation of Indian Chambers of Commerce & Industry had entered into agreements with their counterparts in USA and Japan to recommend the use of certain arbitration clauses in the contracts entered into by the nationals of the above countries with Indian traders. The Federation had recommended that it should be made compulsory for every exporter to have an arbitration clause included in their export contracts. The Committee has commended this step and suggested that this could best be done under the enrolment scheme notified by the Government. The Committee has also advised that the Federation should be encouraged to enter into arbitration agreements with more and more countries.

Incidentally, while considering the matter of settlement of commercial disputes, it had been brought to the notice of the Committee that the Export Risks Insurance Corporation would be in a position to act as a debt collecting agency on behalf of Indian exporters and importers and overseas importers for collecting the just claims of exporters and others concerned. The Committee has recommended that Government should authorize this Corporation to undertake this activity.

Terminology

Before proceeding to examine the various aspects of the problems referred to it, the Committee had felt it necessary to mention clearly their understanding of some of the expressions generally used in considering

MEMBERSHIP OF AD HOC COMMITTEE

The eleven-man *ad hoc* Committee on Quality Control and Pre-shipment Inspection consisted of the following:

- Dr. Lal C. Verman,
Director, ISI (Chairman).
Shri N. P. Chatterjee,
Agricultural Marketing Adviser to the
Government of India (Member).
Shri S. K. Borkar,
Drugs Controller (India),
Union Ministry of Health (Member).
Dr. A. Seetharamiah,
Industrial Adviser,
Development Wing (Member).
Shri S. C. Nundy,
Development Officer,
Development Wing (Member).
Shri R. N. Sarma,
Deputy Director General
(Inspection),
Directorate General of Supplies &
Disposals (Member).
Shri R. V. Ramiah,
Director,
Office of the Development
Commissioner,
Small Scale Industries (Member).
Shri C. S. Ramanathan,
Chief Inspecting Officer,
Cotton Textiles Fund Committee
(Member).
Shri V. M. Srikumaran Nayar,
Joint Director of Export Promotion,
Ministry of Commerce & Industry
(Member Secretary).
Shri K. K. Nasta,
Divisional Manager,
State Trading Corporation of India
(Co-opted Member).
Shri C. N. Modawal,
Deputy Director, ISI (Co-opted
Member).

aspects of quality control which have a technical connotation. These expressions together with their meaning as understood by the Committee are given below:

- a) *Quality control* is a deliberate and planned activity having for its object the determination of the quality of a product with a view to accepting it as such in case it satisfies the stipulated requirements, or in case it does not satisfy these requirements to take necessary measures to correct the quality appropriately.

Control of quality (which includes statistical quality control) is best exercised during the course of production of an article, actually starting with the raw materials, going through the various processing stages and ending up with the final product paying due attention to packing, storage and transport.

- b) *Inspection* is the process of determining the compliance of a

batch of goods offered for the purpose to a given set of requirements or to a specified standard, for which purpose resort is generally made to inspecting a selected sample which purports to represent the whole batch.

It will thus be seen that quality control generally covers the whole of the production of a given unit, while inspection generally relates to a part or a batch of products which may have been derived from the production of one or more production units.

- c) *Factual Inspection* is the process of inspection which does not attempt to determine compliance of the goods with a given set of requirements or a standard, but merely has for its aim the determination and reporting of the quality and quantity characteristics of the goods, as factually existing in the batch offered for the purpose.
- d) *Pre-shipment Inspection* is the process of inspecting a batch of goods just prior to shipment to determine whether it satisfies the conditions for shipment, which may be concerned either with quality or weight, packing or contraband character, etc.

Pre-shipment inspection is invariably exercised by Customs authorities with a view to determining the quantities and values and the nature of goods so that contrabands may be avoided.

- e) *Standardization* is a process for establishing a level of comparison (a standard) with reference to which the quality or suitability of an article for a purpose may be judged.

Standardization, besides defining quality of material and products, also concerns itself with dimensional and functional interchangeability, simplification and safety requirements, the ultimate aim always being to ensure the largest possible overall measure of economy and efficacy.

- f) *Certification* is an activity by which a third party, not directly concerned with the purchase or sale of an article, may be called upon to vouchsafe the quality of that article.

This is often done through the agency of a certification mark, such as the ISI Mark, the

AGMARK, the ITEX Mark, etc.

- g) *Grading* is a process particularly applicable to natural produce under which a given produce may be classified into different grades in accordance with agreed standard specifications for the grades. Grading is almost invariably linked with the AGMARK grading schemes which deal mainly with agriculture, live-stock and horticultural products.

Standards

The Committee has examined the question of standards very critically and has traced the history of standardization in India over a very long period and the benefits accruing on account of standardization. Recommendations of the Committee relating to standards may be summed up as follows:

- a) The standards to be adopted for the purpose of quality control and pre-shipment inspection of export goods should be the national Indian Standards processed through the agency of ISI and these standards should be used as such wherever they are available.
- b) International effort at standardization is an activity which should be encouraged and developed from the point of view of our export drive.
- c) Government should take steps to force the pace of standardization when it is called for in the interest of export trade and should acquire powers to lay down temporary standards which may be effective for a stipulated period of time.
- d) While laying down standards for an important export commodity, endeavour should be to specify also the seaworthy packing standards for the commodity.
- e) The adoption of metric system of weights and measures and its effect on export is a concern of standardization and problems which arise in this regard should be solved in consultation with the Metric Cell of ISI and the Standing Metric Committee of the Union Ministry of Commerce & Industry.

Export Inspection Law of Japan and Its Impact on Indian Export

The Committee has examined the Export Inspection Law of Japan and recognized the success which has

followed the introduction of this measure in Japan's export trade. The salient features of the Japanese system are as follows:

- a) Export inspection is classified into three categories, namely:
 - 1) Inspection of quality,
 - 2) Inspection of packing conditions, and
 - 3) Inspection of materials and manufacturing processes.

The particular type and extent of inspection, out of the above, which would be applicable to a particular commodity is determined with reference to the nature of the commodity, its end use and other factors.

- b) The inspection is conducted by certain specified agencies, which include 6 government and 39 private organs. These bodies are subject to the Government supervision from its formation to liquidation and Government authorities are empowered to inspect the operation of their business and their financial condition, at any time. Their business rules, business plans, receipts and expenditure budget and rules relating to election and dismissal of officials and inspectors are subject to the sanction of Government.
- c) Standards of quality, such as appearance, structure, size, function, etc, of the commodities as well as the method of inspection of these commodities are laid down by the Government. The export inspection organs conduct their inspection by adopting either 100 percent inspection method or the random sampling method. Where the goods have been found to be up to the standards prescribed, they are marked as 'Passed'. In certain cases where it has been found necessary to grade the goods, the different grades and marks denoting the conformity of these particular grades with the relevant quality standards are made on the goods. No export of the specified commodities can take place unless they have been inspected and passed by the appropriate organ.
- d) In respect of certain commodities which are not found fit for compulsory export inspection on the above basis, provision has been made to entrust exporters and manufacturers themselves with the task of indicating that the goods satisfy the export qualifica-

tions. In these cases, manufacturers and exporters themselves inspect the quality of the commodities and indicate on the commodities 'Export Standards' so as to denote that they conform to the inspection standards laid down. There is also a provision for spot inspection by Government agencies of goods inspected by the private organs or by the individual manufacturers or exporters.

- e) Persons who export any of the specified commodities in violation of the provisions of the Law are punished by fine or imprisonment up to a period of three years.

After studying the Japanese system of quality control, the Committee has made a categorical recommendation that in order to enable India to face competition in the world markets, it would be necessary for her to take some similar steps to create confidence in overseas customers and give them an assurance that they would receive goods of quality not below specified standards. Bearing in mind this recommendation, the Committee has categorized the following types of control which should be exercised on goods exported from the country:

- a) There should be a prohibition on the export of articles intended for human consumption or application as well as those affecting the health and safety of persons unless they conform to rigid quality standards.
- b) When a buyer stipulates in the contract, certain specifications for goods, provision should be made to prevent the export of articles which are not certified by an expert agency as conforming to the specifications.
- c) In respect of items where standard specifications have been or could be laid down and which are considered important for export markets, it should be required that they be inspected and certified before export.
- d) In other cases, it would be useful to introduce factual inspection of goods before export and issue of a report regarding the actual condition of the goods.
- e) The enrolment scheme for exporters should be applied in all cases where compulsory inspection or certification is not applied.
- f) Instead of trying to set up a new inspection organization, endeavour should be to make use of existing facilities already

available in the country. No violent changes need be attempted in the operations which are going on at present.

- g) An appellate procedure should form part of the overall scheme for quality control and pre-shipment inspection; where there is no appellate authority designated under the scheme, the central co-ordinating authority for quality control may have the power to hear appeals.
- h) The Customs authorities should, in order to avoid undue delay in shipments, restrict their inspection only to instances where a *prima facie* case exists to doubt the genuineness of the original inspection and marking.

Import and Export Commodities

In addition to reviewing generally the existing facilities for quality control and pre-shipment inspection of all commodities exported, the Committee has also looked into the special problems relating to quality control and pre-shipment inspection of a few of the export commodities. The Committee's recommendations in brief on these commodities are given below:

- a) There is need for formulating Indian Standards for *jute manufactures* and for prescribing a procedure for inspection within the mills at the stage of production in accordance with the ISI Certification Marks Scheme.
- b) Arrangements should be made to have *raw jute* sold only through regulated markets after it has been graded by the Directorate of Marketing & Inspection according to the available Indian Standards.
- c) Schemes similar to the ITEX Scheme which is at present in force regarding cotton textiles should be adopted for *art silk textiles, silk textiles* and *woollen textiles*.
- d) Indian Standards should be adopted for the purpose of *wool* grading scheme.
- e) Indian Standards should be laid down to cover the whole range of *coir products* specifying definite grades, where necessary, to enable all levels of production to be conveniently graded into one or the other in the specified grades. No compulsory pre-shipment inspection need be provided but the rules under the Coir Industry Act for registration of

exporters may provide for giving powers to the Chairman of the Coir Board to compel any particular manufacturer or exporter to have all his exports inspected before shipment, in case he considers such steps necessary.

- f) In regard to *carpets*, ISI should amplify the Indian Standard including grades for different qualities of carpets and carpets produced at all regions of India other than Mirzapur and Bhadoi that are now covered. Thereafter, it should be provided that the export of carpets be permitted only if they are marked with the ISI Mark and/or a quality mark of a State Government with a label, giving factual data, securely affixed thereon.
- g) In the case of *brassware*, the All India Handicrafts Board (AIHB) should bring out specifications (the specification would cover the gauge of the metal sheet) and thereafter, exports of these goods should be permitted only if they are certified under the AIHB's Scheme by a State Government. Furthermore, consistent with the general practice recommended by the Committee, the specifications should in due course be processed through ISI.
- h) Though the *tea* trade is being fairly looked after so far as the maintenance of quality is concerned, the present system of quality control is based on the approval of advance samples. It might be advantageous if a basis of reference could also be provided in the form of standard specifications. The Indian Standards Institution and the Tea Board should jointly endeavour to evolve Indian Standard Specification for Tea.
- j) *Coffee* Board is at present taking adequate steps to maintain the quality of the product exported and no further steps are immediately necessary beyond what has already been taken in hand by the Board for improving the storage facility.
- k) *Cashew kernels* shipped from India should be compulsorily graded by the Cashew Export Promotion Council under the supervision of the Agricultural Marketing Adviser.
- m) Quality Control under AGMARK should be undertaken through the agency of

the Spices Export Promotion Council under the supervision of the Agricultural Marketing Adviser, in the case of *pepper, cardamom* and *chillies*.

- n) Compulsory grading under AGMARK should be introduced in the case of *groundnut oil, linseed oil, castor oil* and *expeller variety of oilcakes*.
- p) The question of introducing compulsory grading under AGMARK for *walnuts* should be examined. In the case of fruit products, the procedure for inspection should be suitably amended to provide for a more vigorous and continuous check of the products manufactured.
- q) The scheme for enrolment of exporters should be made compulsory for export purposes in respect of dried *prawns*. In the case of meat products, Government should lay down rules and regulations for controlling and inspecting slaughter houses and processing plants where animals are slaughtered and meat products prepared for export. The rules should also provide for issue of ante- and post-mortem certificates in respect of animals slaughtered for this purpose.
- r) In regard to *East India Tanned Hides and Skins*, the various types of hides and skins exported should be classified into 20 or 30 grades, into one or other of which should be fitted the brand marks of the various exporters. Standard samples of each grade could be kept in the custody of the Leather Export Promotion Council or the Central Leather Research Institute. Each exporter may be given the opportunity to examine these samples in order to determine as to which grade his own brand corresponds. The Indian Standards Institution in collaboration with the Agricultural Marketing Adviser and in consultation with the Indian exporters' and overseas importers' organizations should draw up specifications for the grades in question, on the basis of which physical grade sample should be prepared. Samples, compulsorily taken from each consignment and offered for export under a given brand name of the exporter, should then be compared with the declared standard grade and the result of such inspection

reported to the exporter and the overseas buyer. This task of pre-shipment inspection may be entrusted to the Leather Export Promotion Council under the supervision of the Central Leather Research Institute, duly authorized by the Directorate of Marketing & Inspection. This provision may later be amplified, if considered necessary, to ban the export of goods which did not conform to the grade originally declared, although such goods may be allowed to be exported under the correct grade to which the commodity belongs.

The Committee has further recommended that pending the implementation of this scheme, the present scheme of the Leather Export Promotion Council may be made compulsory on the basis of the relevant Indian Standard. This could be done by stipulating that only those exporters who agree to have all their consignments inspected before export would be enrolled under the Enrolment Scheme.

s) *Myrobalans* should be compulsorily inspected and graded before export under AGMARK.

There are certain important export commodities, such as manganese ore, iron ore, cement, steel and scrap, leather goods and shoes, etc, which have not been covered by these recommendations. Their exports are either channelled through organizations like the State Trading Corporation or the National Small Industries Corporation or otherwise co-ordinated or controlled by governmental agencies. On the assumption that care will be taken in regard to maintaining the quality of these goods by State organizations, the Committee has not touched upon these items.

Proposals for Legislation

By far the most important recommendation of the Committee is that apart from adopting individual quality control schemes, the country should have a well co-ordinated and centrally guided system of quality control and pre-shipment inspection for export goods so as to instill the necessary confidence in the overseas buyers. The system should be comprehensive enough to embrace the various individual schemes and should be capable of being expanded to cover more and more export

commodities as circumstances warrant. As a corollary to this, the Committee has recommended certain administrative and legislative measures to be taken by the Government.

The legislation envisaged by the Committee would give power to the Central Government:

- a) To designate commodities to be taken up for compulsory quality control and/or pre-shipment inspection prior to export as and when adequate preparations have been made and conditions created for introducing such controls;
- b) To declare, establish, adopt and/or recognize standard specifications for the purpose of quality control and/or pre-shipment inspection of export goods;
- c) To create, to promote the creation of, to license and designate agencies including certifying authorities, surveying authorities, testing laboratories and firms of surveyors both in the public and private sectors for carrying out quality control and/or pre-shipment inspection in respect of commodities covered under (a) above;
- d) To prescribe rules and regulations for the enrolment of exporters, including provisions for codes of business ethics, standard contract forms, arbitration agreements, etc;
- e) To designate, create and/or recognize agencies for enrolment of exporters; and
- f) To prescribe rules and regulations regarding all other provisions of the Act including procedures for quality control and pre-shipment inspection; conduct of certifying, surveying and inspection agencies; delegation of powers to agencies and authorities entrusted with certain responsibilities under the Act; designation of arbitration panels; designation of appellate authorities for hearing appeals of persons aggrieved under certain provisions of the legislation; calling for information and reports from exporters, etc.

The legislation should also provide adequate penalties both fine and imprisonment, for infringement of such provisions of the Act as warrant such penalties. The Committee has felt that these penalties should be made severe enough so as to

discourage positively wilful infringement and yet be not of such a severe nature as to discourage legitimate export activity.

The legislation should also provide that any prescribed or recognized marks or seals, such as a certification mark/or a surveyors' seal applied to the goods or packages under the provisions of this Act should be deemed by the Customs and Excise authorities as evidence of goods being in conformity with the rules and regulations of this legislation and, therefore, to be taken as such for Customs and Excise purposes, unless there exists a *prima facie* case to doubt the genuineness of such marks or seals.

The administrative changes envisaged by the Committee include the setting up of an **Export Inspection Advisory Council** consisting of:

- a) The Honorary Adviser on Standardization to the Government of India and Director of Indian Standards Institution;
- b) Agricultural Marketing Adviser to the Government of India;
- c) Head of the Inspection Wing of the Directorate General of Supplies & Disposals;
- d) Head of the Export Division of the State Trading Corporation;
- e) Head of the Inspection Wing of the Office of the Textile Commissioner;
- f) Director General of Commercial Intelligence & Statistics;
- g) The Managing Director of the Export Risks Insurance Corporation;
- h) } Three members nominated by the Government of India
- j) } from private inspection agencies
- k) } recognized under the new Act and other related interests; and
- m) Director of Export Promotion.

This is proposed to be the apex advisory body to guide all quality control operations in regard to export commodities. The main functions of this body should be to formulate guiding policies on all matters coming under the purview of the export inspection legislation to be enacted.

Conclusion

In conclusion, the Committee has pointed out that this is the most opportune time to launch upon a comprehensive plan for checking the quality of goods exported from the country as the stage is set for a rapid expansion and diversification of the country's exports.

ISO—1961—Helsinki

THE triennial General Assembly meeting of the International Organization for Standardization (ISO) was held at Helsinki this year from 5 to 16 June. Its proceedings showed that ISI continues to make useful contributions to both the technical and administrative work of ISO. This was evident, among other things, from the fifth re-election of India since 1946 to the membership of ISO Council for a period of three years after an interruption of one year; the understanding reached on holding the 1964 ISO General Assembly Meeting in India; and continuation of Dr. Lal C. Verman as the Chairman of the Planning Committee (PLACO) of ISO.

The programme at Helsinki was crowded. The meeting of PLACO was held on 5 and 6 June, of ISO Council from 9 to 13 June and of General Assembly (GA) on 15 and 16 June. Of these, the Council and PLACO meet every year, whereas GA holds its session once in three years. The triennial meeting of GA this year was planned in such a manner that nine ISO technical committees and one subcommittee also met at Helsinki. At all these meetings encouraging progress towards further international agreement on standards was reported.

The meetings were attended by 592 delegates representing 36 of the 44 member countries of ISO; moreover, 122 ladies accompanying delegates registered themselves. The meetings, held in the pleasant surroundings of the Helsinki School of Economics, were arranged remarkably well by the Finnish Standards Organization, who proved both extremely courteous and efficient hosts.

The Indian delegation at Helsinki consisted of Shri P. R. Kondangekar of Dunlop Rubber Co. (India) Ltd.; Shri P. S. Visvanath of J. B. Advani-Oerlikon Electrodes (P) Ltd.; Shri T. P. L. Sinha of Indian Oxygen Ltd.; and Dr. Lal C. Verman, Director, ISI.

Important business transacted at these meetings is briefly reported below.

GENERAL ASSEMBLY

The General Assembly meeting was opened by Prof. Dr. E. Wegelius

(Finland), ISO President, who welcomed the delegates warmly. Extending the welcome on behalf of the Finnish Government, Dr. Ahti Karjalainen, Minister of Commerce & Industry, referred to the rapid pace of technical development as a result of which developing countries were becoming industrialized. Emphasizing the role of standardization in this growth, he said: 'This work of yours helps to lead the development in the right direction, to choose technical solutions which already have proved to be the best, the most appropriate ones. It is not enough any more that different countries standardize in their own way. The barriers to technical co-operation should be abolished more and more, and as this happens the international co-operation in the field of standardization will also become more and more important'.

Mentioning the achievements of ISO in the field of international co-operation and standardization, he said: 'This co-operation is apt to contribute to the understanding between the nations even in general respects. We have every reason to say that the promotion of mutual understanding and co-operation between the peoples actually do form the basis for a happy future of the population of our globe'.

In a subsequent speech made by Dr. I. Herlitz, the text of which was reported in the last issue of this Bulletin, it was pointed out that if one looked back to the history of standardization, one found more examples of neglect than of too rapid or too extensive standardization.

After these speeches were delivered, reports from the ISO President and the General Secretary on the technical work, finances and general activities of ISO were presented. Subsequently, the Assembly debated the Indian proposal regarding grouped meetings of ISO. It was suggested that, in order to assist the more distant countries, grouped meetings of technical committees might be held. This need not necessarily be a simultaneous group of meetings such as accompanying GA, but perhaps a series of meetings in neighbouring countries. The proposal was accepted and commended to member bodies.

In the election of five Council Members to take their seats from January 1962, USSR and Germany were re-elected; India, New Zealand and Czechoslovakia replaced Israel, Netherlands and Roumania. It may be recalled that India had been a member of the ISO Council since its inception; only in 1961 India could not be re-elected.



Entrance to Helsinki School of Economics, the Venue of ISO 1961 Session

PRESIDENT-ELECT, ISO



MR. A. Y. VIATKINE

We extend our greetings and best wishes to Mr. Andrei Yeropheevich Viatkine, the President-Elect of the International Organization for Standardization. He will succeed Professor E. A. Wegelius, the present President, on the expiry of his three-year term of office at the end of 1961. Mr. Viatkine is at present the President of Komitet Standartov, which represents USSR on ISO.

Born in 1903, Mr. Viatkine has been a leading figure in the field of standardization and metrology. Achievements and distinctions of his life are many. Some of the important ones include Chairmanship of the Technical Council on the Mechanization of Labour-Consuming and Hard-Work Processes; Chairmanship of the State Committee of the Council of Ministers of USSR on the Introduction of Advanced Technique; Chairmanship of the Committee of Standards, Measures and Measuring Instruments under the Council of Ministers; and Managership of the Metrological service of USSR. Besides, Mr. Viatkine has written and published many works in the sphere of science, technology and standardization. He is the editor-in-chief of one of the most prominent technical magazines of USSR, namely, 'Machine Building Industry Herald'.

Mr. Viatkine has been a very popular and respected delegate of his country at the many meetings of the ISO General Assembly, Council and Technical Committees.



following new technical committees be created, and their secretariat held by the countries indicated against each:

- ISO/TC 101 Conveyors, Vertical Hoists and Bucket Elevators — Germany;
- ISO/TC 102 Iron Ores — Japan;
- ISO/TC 103 Packing Dimensions — Secretariat yet to be decided; and
- ISO/TC 104 Freight Containers — United States of America.

The British proposal for inclusion in the ISO programme the work on

a range of equipment concerned with personal safety was accepted and this work was assigned to ISO/TC 94 with its title revised as Personal Safety: Protective Clothing and Equipment. The United Kingdom will continue to hold its secretariat.

The Committee considered another British proposal to establish an authority at the international level for the co-ordination of standards relating to colour fastness. After a review of the factors involved, it was considered that establishment of such an authority would be premature and the question was deferred for review later.

On the question of co-ordination of the work of the ISO technical committees relating to Rivets (TC 7), Shipbuilding Details (TC 8) and Aircraft (TC 20) in regard to rivet diameters, PLACO noted with satisfaction that TC 8 and TC 20 had made definite progress towards specifying diameters of rivets in relation to shipbuilding and aircraft industry. It is hoped that in due course the work of TC 7 will offer help towards a greater harmonization of rivet diameters generally.

A preliminary draft which brought together in one document all the ISO Council resolutions on the co-ordination of ISO technical work was discussed in detail. The Committee felt that the draft required deeper study and desired that the work on this subject be continued.

COUNCIL

The ISO Council composed of representatives from Austria, France, Germany, Israel, Italy, Netherlands, Norway, Poland, Roumania, Switzerland, UK, USA, USSR and Yugoslavia, was presided over by Prof. Dr. E. Wegelius. He was assisted by the newly elected Vice-President, M. Jean Birle' (France) and the re-elected Treasurer, M. Jacques de Saugy (Switzerland).

The Council noted with satisfaction that 35 new ISO Recommendations had been approved since its last meeting held in June 1960. The recommendations covered important matters in the field of cinematography; light metals and their alloys; steel; stretchers and stretcher carriers; documentation; shipbuilding details; plastic; cast iron; paper; rubber; marks indicating conformity to standards; and quantities, units, symbols, conversion factors and conversion tables.

The Council then adopted the recommendations of PLACO regarding the creation of four technical

For the period January 1962 to December 1964, Mr. A. Y. Viatkine, Head of the Russian Standards Organization, was unanimously elected as ISO President to succeed Prof. Dr. E. Wegelius. Although the general practice is that the triennial session of the ISO General Assembly is held in the home country of the ISO President, USSR has acceded to India's request for holding the 1964 triennial session in India.

PLANNING COMMITTEE

This is one of the Standing Committees of the Council having Dr. Verman as Chairman and representatives of France, UK and USA as members. Its function is to advise the Council on the planning and co-ordination of technical work of ISO. All proposals for new work to be undertaken and for modifying and establishing scopes of existing and new technical committees are put up to PLACO for consideration before they go to the Council.

The most important work before PLACO this year was the consideration of a document containing revised scopes of all ISO technical committees. The task of preparing such a document after a review of existing scopes had been left last year to Admiral G. F. Hussey (USA). The revised document submitted by him had succeeded largely in eliminating unnecessary words in the scope and introducing a measure of uniformity in expression while at the same time retaining the original meanings.

The document was finalized by PLACO, and on its recommendations, the Council decided that:

- a) technical committees be requested to adopt the revised versions of the scopes for their work;
- b) if any of the technical committees desired any essential changes in the re-drafted scope, they may be forwarded to the Council; and
- c) the ISO Committee on Directives be requested to propose an appropriate paragraph to be added to the directives for technical work of ISO indicating how future scopes of technical committees and sub-committees may be drafted.

The other important issue before PLACO was the consideration of various proposals for the creation of new technical committees. In this regard, the Committee recommended, and the Council later agreed, that the

committees and the extension of scope of ISO/TC 94.

On hearing the report made on the ISO-IEC liaison by Dr. I. Herlitz, the Council recognized that advances in science and technology constantly bring some ISO Committees more closely to the domain of IEC Committees. The Council, therefore, recommended that to meet such a situation, ISO Committees should have standing permission to establish with the IEC Committee concerned a Joint Co-ordinating Committee through which problems of cognizance and of joint action can be solved and arrangements for adequate liaison in both directions established and supervised.

The Council noted with satisfaction the creation of a division of technical sciences in the department of exact and natural sciences of UNESCO and urged that this new division should maintain particularly close contact with ISO so that UNESCO should undertake among newly developing countries a drive in favour of standardization.

The Council noted that Albania had discontinued the membership of ISO, and decided that its next meeting be held in Geneva either in the last week of June or first week of July 1962.

TECHNICAL COMMITTEES

Brief reports of the meetings of the nine technical committees and one subcommittee, which were held at Helsinki during the period 5 to 16 June are given below:

ISO/TC 1 Screw Threads (Secretariat: Sweden)—Statements were made by 22 ISO Member Bodies regarding the introduction of the ISO Screw Threads in their countries. The position as indicated by representatives is as follows:

Austria is formulating a general plan for the introduction of the ISO profile and metric thread series. *Bulgaria* has published two national standards dealing with the ISO profile and metric thread series. Commercial nuts are already made with the ISO profile and this will be introduced on bolts at the beginning of 1962. According to a survey made in 1957 in *Canada*, about 98 percent production of all threaded fasteners was in accordance with the ISO Recommendations. *Czechoslovakia* has introduced the ISO profile and during 1959-61 a tolerance system based on the ISO limits and fits system has been developed. *Denmark* has published draft standards relating to the ISO profile and the ISO metric and

inch thread series but the rate of introduction is slow at present. In *Finland* ISO profile has already been introduced for commercial nuts. The ISO profile has been readily accepted in *France* due to the increased ease of manufacture and no difficulties have resulted from the reduced depth of engagement. Doubts have been expressed in *Germany* by industry about the ISO profile in view of the reduced depth of engagement it provides and in view of the results of stripping tests. *Holland* has published national standards for the ISO profile, the ISO metric threads, and the UNC and UNF series of ISO inch threads. *Hungary* is manufacturing commercial nuts with the ISO profile and the new profile will be introduced on bolts in the end of 1962. *India* has officially adopted the ISO profile and the ISO metric thread series and a number of Indian Standards has been published in this field. In *Ireland*, it is the practice to use the standards of other countries—in particular those of UK. In *Italy*, reactions have been good from the mechanical engineering and shipbuilding industries and a part of the automobile industry has now accepted the ISO profile for bolts as well as nuts. *Japan* intends to adopt ISO/R 68 and ISO metric thread series. Standards have been published in *Poland* for the ISO profile and the ISO metric pitch/diameter series. Studies are being made in *Portugal* for bringing national standards in conformity with ISO Recommendations. *Spain* has published national standards for the ISO profile and metric thread series. In *Sweden*, the change to ISO profile, introduced in 1957, was now being accepted and implemented; commercial nuts have long been made with the ISO profile. *Switzerland* accepted the ISO profile in 1949. The watch making industry published in 1957 a standard for the miniature screw threads and has now introduced them. In *UK*, the extensive introduction of the ISO inch thread commenced in about 1950 and usage is now very large. The ISO profile has been applied in *USA* since 1949. The ISO metric thread series have been published for information. Since 1958, three GOST standards have been published by *USSR* for ISO metric threads. The ISO profile has been introduced for nuts, and will be introduced for bolt threads in January 1962.

Summing up the discussions, the Chairman hoped that the German delegation, after having heard the favourable statements of various

representatives, would discuss the matter once again with their national organization.

The Committee discussed the subject of screw thread tolerances and the revised proposals in this regard were accepted. This international screw thread tolerance system would be applicable to all threads with the ISO profile, both metric and inch.

The Committee set up two working groups—one for studying both in metric and inch systems trapezoidal screw threads including nominal sizes, tolerances and gauges; and the other to deal with verification principles and gauges for ISO screw threads. The Committee requested its members to study the document relating to terminology and give their comments to the secretariat as soon as possible.

ISO/TC 6/SC 5 Raw Materials Used in Paper Manufacturing (Secretariat: Finland)—The Subcommittee felt that its responsibility should be extended to include quality specifications for pulp but decided that it would initially confine its attention to test methods.

Two methods of test received detailed consideration. General agreement was reached on the test for determining the Kappa number of pulp, which provides an index of the cooking to which chemical pulps have been subjected. With regard to the other test for determining the total dry weight in consignments of pulp, it was ultimately decided that the matter should receive further consideration in the light of alternative proposals made at the meeting; a working group was set up for this purpose.

ISO/TC 19 Preferred Numbers (Secretariat: France)—The principal subjects discussed were: (a) More rounded values of preferred numbers; (b) Series with close ranges and fine roundings, and (c) Application of preferred numbers to nominal linear dimensions for mechanics.

On (a), the proposals discussed at the last meeting (Warsaw) were approved. With regard to (b), although some contrary opinions were expressed as to the usefulness of publishing a finer series than R80, the balance of opinion was definitely in favour. On (c), discussion centred round the question of whether ISO/TC 19 should or should not undertake this extension to its earlier work; eventually an affirmative decision was reached.

ISO/TC 41 Pulleys and Belts (Including Vee-Belts) (Secretariat: France)—The Committee

took the following decisions in regard to the wedge (narrow vee) belts:

- a) The lengths of wedge belt sections VZ, VA and VB of pitch length 8.5 mm, 11 mm and 14 mm respectively should be selected from R20 series of preferred numbers.
- b) Interchangeability should be established between the grooves for conventional V-belts and wedge belts.
- c) The horse power ratings for conventional V-belts as given in the latest specifications of the Rubber Manufacturers' Association, USA, should be circulated as draft ISO Proposals.
- d) The values for the lengths of section 'Y' of conventional V-belts were agreed on the basis of R20 series of preferred numbers. Conditions for measuring these lengths were also agreed.
- e) Revision of ISO/R52 Grooved Pulleys for V-Belts was taken up in principle.

ISO/TC 43 Acoustics (Secretariat: UK) — This Committee has been considering means of measuring and of expressing noise with specific aspects of the problem concerning noise from motor vehicles and industrial machinery.

One important matter discussed was the rating numbers of noise from the aspect of damage to hearing and interference with speech, while another was the normal threshold of hearing by bone conduction. These are of particular interest to the medical profession and are basic to assessing the biological effects of noise.

Good progress was made on a method of measuring reverberation coefficients of materials, a matter of considerable importance in designing buildings and enabling the selection of suitable materials for the treatment of walls and ceilings.

Consideration was completed on a method for measuring noise made by motor vehicles. It will be of great value in enabling tests made in different countries to be compared. It should be of help in fixing permissible limits of automobile noise.

ISO/TC 44 Welding (Secretariat: France) — Some of the important documents considered by the Committee related to the following:

- a) Specification of ore welding equipment;

- b) Resistance welding equipment;
- c) Dimensions of straight spot welding electrodes;
- d) Methods of test for deep-penetration electrodes;
- e) Filler rods for braze welding;
- f) Dimensions and pitching of the slots in the platters;
- g) Strength calculation of butt-welded joints;
- h) Calculation of rectangular fillet welds; and
- j) Filler rods for gas welding.

Of these, only documents (d) and (e) were finalized for being sent to the ISO General Secretariat for further processing as ISO Recommendations. Documents (a), (b), (c) and (j) will be circulated by the Secretariat of ISO/TC 44 to interested members for obtaining their views. The controversial nature of documents (g) and (h) was decided to be transmitted to the ISO General Secretariat and document (f) was referred back to the Subcommittee.

ISO/TC 55 Hewn, Sawn and Planed Timber (Secretariat: USSR) — The draft ISO Recommendation relating to definitions, sizes and defects of coniferous sawn timber was discussed at length especially in regard to sizes since the draft did not include the inch series of sizes. The Committee decided that only the metric sizes should be shown in the draft which will now be submitted to the member countries of this Technical Committee for voting by correspondence.

The other document concerning Values of Shrinkage and Deviations was entrusted to the secretariat for introducing modifications agreed to at the meeting and for subsequent submission to the member countries for voting by correspondence.

ISO/TC 58 Gas Cylinders (Secretariat: UK) — This Committee has been considering various features of gas cylinders used for medical and industrial purposes, and in particular those aimed at ensuring safety in storage, transport and use. With increasing international trade in this sphere, the Committee's work is of great importance.

At the Helsinki meeting, the Committee discussed the identification of content; design of cylinders; valve outlets; periodic inspection, maintenance procedures of cylinders in service before filling; and extra high pressure cylinders.

ISO/TC 59 Building Construction (Secretariat: France) — Two new working groups were decided to be set up for the following:

- (a) Making theoretical studies with a view to effecting liaison with consultants and organizations concerned with modular co-ordination and in particular with the International Modular Group; and
- (b) Preparing recommendations for building drawings.

A long discussion of a draft for the handling of doors, windows and hardware resulted in its being approved for wide circulation. It was agreed to eliminate proposals for graphical representation of windows and to refer this matter to the new working group on Building Drawings.

ISO/TC 73 Marks Indicating Conformity with Standards

(Secretariat: France) — The Committee noted that ISO Council had approved the document on Rules Applicable to the Operation of Marks indicating conformity with standards and that it would soon be published as an ISO Recommendation. This should help to ensure that the increasing number of national certifying marks, now becoming established throughout the world, will be based on common principles and worthy of the confidence of users.

The Committee examined the question of informative labelling and reached an agreement on the broad principles on which informative labelling should be based. A draft ISO Recommendation on this subject for final examination by all ISO Member Bodies was adopted.

The Committee had conducted an enquiry among the countries represented on ISO/TC 73 regarding the possibility for the product made in a specific country to bear the standard marks of other countries. Information thus collected will be included in a new edition, which is now to be published, of the handbook on the national standard marks of ISO members.

Finally, the Committee undertook the examination of the assurance which purchasers may expect from standard marks in relation to characteristics certified by these marks. It was decided to draw up precise rules for the guidance of standards bodies on this subject in order that standard marks should have complete confidence of users.

STACO Meets at Stockholm

THE ninth meeting of the Standing Committee for the Study of Scientific Principles of Standardization (STACO), was held at Stockholm from 31 May to 3 June 1961. M. A. Caquot (France) presided. The Committee took important decisions with regard to the basic document on Aims of Standardization prepared by Dr. Lal C. Verman, ISI Director; co-ordination of inch and metric standards; identification and designation of products by means of a code; and sequence in the standardization of products.

It may be recalled that the ISI Director had prepared a basic document on Aims of Standardization* in 1958 which had been under consideration of STACO since then. This document had been available in revised form last year, but was finally adopted in this meeting when ISI Director could participate personally in the discussion.

The Committee had over many years past been considering the question of co-ordination of inch and metric standards. There has been a tendency among ISO technical committees to prepare for one and the same item completely separate ISO Recommendations — one in millimetres and the other in inches — quite often unnecessary from the functional

point of view. In the seventh meeting of STACO (1959) it had been decided that STACO should prepare one mixed series of standard dimensions by the use of which needs of both the inch and the metric countries could be satisfied. In pursuance of this decision, a document† containing a unitary series of recommended dimensions associated with wide tolerances was prepared last year. The Committee unanimously approved this document and recommended to the ISO Council to bring it to the attention of ISO/TC 19 Preferred Numbers, to other technical committees, which are dealing with dimensions, and to the notice of the member bodies of ISO.

A question about identifying and designating products by means of a code, which could be recognized all over the world, was discussed. The idea was that STACO should try to develop some proposition for an international system of designation to identify a given product, irrespective of the system of measurement in use in a particular country. A note by the UK representative on this question formed the basis of discussion. One suggestion made in the note was to make use of a module as a common basis for this purpose, such as the 4-in. or 100-mm module which had

been selected for international work on 'modular co-ordination' in building. Dr. Verman demonstrated to the meeting the use which could be made of the module for designating nominal sizes. There were other suggestions also, such as making use of decimal figures as in Russia or making reference to an ISO Recommendation. Finally, a Working Group was appointed to study this question with Mr. T. R. B. Sanders (UK) as Chairman, the other members being Messrs. J. Birlé (France), O. Sturén (Sweden), V. Tkatchenko (USSR) and Dr. Lal C. Verman (India).

Under 'Sequence in the Standardization of Products' a revised document containing fundamental considerations was submitted on the subject of standardization of industrial products. While considering this draft, Dr. Verman pointed out that besides industrial products, standardization was applicable equally to agricultural products and to methods, procedures and processes, and it was necessary for them to be taken into account. This document was revised at the meeting and STACO decided to recommend to the ISO Council that the revised text be circulated to the member bodies and to relevant technical committees requesting them to forward their opinion. It was also decided to prepare an annexure to deal with agricultural products.

*See ISI Bull., Vol 10, No. 4, p. 151-154 (1958).

†See ISI Bull., Vol 13, No. 5, p. 228 (1961).

IEC AND ISO

At the Council meeting of the International Electrotechnical Commission (IEC), referred to on the next page, Prof. E. Wegelius, President, International Organization for Standardization (ISO), made the following interesting observations with regard to the functioning of IEC and ISO:

'Our two organizations are very similar. They work in the same way. They have the same difficulties, the same financial and technical problems. This leads me to think that we can both learn much one from the other. Sometimes it is said that our two organizations are so similar that the question arises whether it is necessary to have two organizations. As President of ISO, I find it both very useful and very necessary that we continue on the same path. The International Electrotechnical Commission deals with standardization in a very effective manner over a very wide field and ISO can congratulate itself on the good work carried out by IEC. I am sure that our co-operation will develop on the right lines and this is the hope which I want to express today, both for our two organizations as well as for the two Presidents who will follow after Dr. Herlitz and myself.'

IEC at Interlaken

THE twenty-sixth Annual Group Meetings of the International Electrotechnical Commission (IEC), held at Interlaken (Switzerland) from 18 to 30 June 1961, will always be remembered for the Seventh Charles le Maistre Memorial Lecture* in which a specialist from India pointedly drew IEC's attention to certain special considerations relating to developing countries where the pace of development is comparatively greater. The masterly survey of these problems by Shri M. Hayath, Chairman, Electrotechnical Division Council of ISI, in his lecture on 'What the IEC Means to Developing Countries?' which was very much appreciated, brought out facts and figures pertaining to this region with which IEC had not been well acquainted in the past.

Besides the opening session, at which this Lecture was delivered, the Annual Group Meetings comprised 265 half-day sessions of the Council, the Committee of Action, 22 technical committees and 24 subcommittees and working groups of IEC; sometimes as many as 15 sessions were held simultaneously. The delegates numbering about 950 represented 28 countries; the three largest delegations were sent by France (111), Germany (112), and UK (135). The nine-man Indian delegation consisted of the following:

- a) Shri D. U. Hattikudur, Associated Cement Companies Ltd.;
- b) Shri M. Hayath, Heavy Electricals Ltd.;
- c) Dr. M. D. Manohar, Parekh and Prabhoo (Pvt) Ltd.;
- d) Shri A. N. Nimkar, Jyoti Ltd.;
- e) Shri M. A. Pandit, Crompton Parkinson (Works) Ltd.;
- f) Shri P. Suryanarayana, National Ekco Radio & Engineering Co. Ltd.;
- g) Shri H. C. Verma, Associated Instrument Manufacturers India (Pvt) Ltd.;
- h) Shri J. S. Zaveri, Bharat Bijlee Ltd.; and
- j) Dr Ial C. Verman, ISI.

Brief reports of the meetings of the Council, Committee of Action and technical committees are given below.

*See ISI Bull., Vol 13, No. 5, p. 213 (1961).

COUNCIL

The IEC Council consists of representatives of all the member national committees. Its meeting was held on 30 June 1961 and was presided over by Dr. I. Herlitz. The Council:

- a) elected Professor G. de Zoeten (Netherlands) as its President for a term of three years;
- b) elected Greece and Venezuela as members, thus bringing the total membership of IEC to 36 countries;
- c) elected Japan, Roumania and UK on the Committee of Action for seats caused by the retirement, after serving a nine-year term, of India, Netherlands and Norway who were not eligible for re-election;
- d) set up a ten-man Working Group for studying and reporting on the revision of the 1949 IEC Statutes and Rules of Procedure; and
- e) noted that Dr. I. Herlitz had been invited to deliver the eighth le Maistre Memorial Lecture, which would be the last in the series.

COMMITTEE OF ACTION

The report on the previous year's work submitted by the IEC General

Secretary at the meeting of the Committee of Action held on 23 June revealed that 24 IEC Recommendations had been published, printing of another 26 publications had been started, 57 draft recommendations had been circulated for approval under the Six Months' Rule and 22 drafts had been circulated under the Two Months' Procedure. Besides, the preparatory work in connection with the numerous meetings of technical committees and subcommittees had involved the reproduction and distribution of more than 2 500 documents, most of them being in both of the official languages — English and French.

The Committee decided to set up a new technical committee to deal with Winding Wires in general and allotted its secretariat to Germany; Mr. L. Van Rooij was appointed as its Chairman. The secretariat for the technical committee on Computers and Data Processing Equipment, set up last year, was assigned to USA which also holds the secretariat of the corresponding technical committee of ISO covering the same general field (but excluding purely electrical aspects). In this connection, the Committee of Action noted with great pleasure that the ISO Council meeting at Helsinki earlier had passed a resolution authorizing



Shri M. Hayath, Chairman, Electrotechnical Division Council of ISI Being Welcomed by Mr. P. H. Waldvogel, President, Swiss National Committee of IEC, just before Delivering the Seventh Charles le Maistre Memorial Lecture. Joining in the Welcome are Dr. P. Dunsheath (l) and Dr. I. Herlitz (r), Past Presidents, IEC

NEW IEC PRESIDENT

any ISO technical committee to set up a Co-ordinating Committee with the corresponding IEC technical committee, whenever necessary.

In addition, the committee appointed the following as Chairmen of Technical Committees indicated against each:

- a) Mr. E. Maggi (Italy) — TC 17 Electric Switchgear and Controlgear;
- b) Dr. G. D. Reynolds (UK) — TC 40 Resistors and Capacitors;
- c) Mr. J. Auzouy (France) — TC 45 Electrical Measuring Instruments Used in connection with Ionizing Radiation;
- d) Mr. H. Mayr (Italy) — TC 48 Electromechanical Components for Electronic Equipment;
- e) Mr. W. J. Young (UK) — TC 49 Piezo-Electric Crystals and Associated Devices;
- f) Mr. E. F. Seaman (USA) — TC 50 Environmental Testing Procedure for Electronic Components and Equipment;
- g) Dr. K. H. von Klitzing (Germany) — TC 51 Ferro-magnetic Materials;
- h) Mr. L. van Rooij (Netherlands) — TC 52 Printed Circuits; and
- j) Dr. A. B. Credle (USA) — TC 53 Computers and Data Processing.

The Committee agreed that the IEC directives for the conduct of the work of the committees should be reviewed by a Working Group composed of secretaries of national committees and officers of the Central Office. The report of this working group would be submitted to the Committee of Action for consideration in 1962.

The next General Meeting of IEC will be held in Bucharest (Roumania) from 24 June to 7 July 1962.

TECHNICAL COMMITTEES

The following brief notes give an indication of the work accomplished by the various committees which met at Interlaken. For convenience they are grouped under the headings of the main Technical Committees, even though in some cases it was only one or more subcommittees which actually held meetings.

TC 3 Graphical Symbols (Secretariat: Switzerland) — This Committee is revising the two IEC lists of symbols which were published before the war and have been withdrawn. These lists, one covering symbols for heavy-current and the other, light-current installations, will



PROF. G. DE ZOETEN

We congratulate Professor Gijsbertus de Zoeten, Extraordinary Professor at the Technical University of Delft since 1947, on his recent election as President of the International Electrotechnical Commission (IEC). Prof. de Zoeten, who has succeeded Dr. Ivar Herlitz, on the expiry of his three-year term of office, is well-known in India because of the Sixth Charles le Maistre Memorial Lecture, which he delivered at New Delhi on 31 Oct 1960.

Born in 1901 in Amsterdam, Netherlands, Prof. de Zoeten graduated in electrical engineering at the Technical University of Delft in 1924. He started his career as an engineer at the Central Office of the Association of Directors of Electricity Supply Undertakings in the Netherlands (VDEN) and at the N. V. tot Keuring van Electrotechnische Materialen, Arnhem (KEMA). In 1947, he became Managing Director of the Central Office of the VDEN and in 1948 Managing Director of KEMA.

In addition to his multiple national activities, Prof. de Zoeten has been very active in the field of international standardization in the electrical field. He has been Honorary Secretary of the International Commission on Rules for the Approval of Electrical Equipment since 1927, and had been Chairman of the IEC Technical Committee on Switchgear and Controlgear since 1938 till he was elected as President IEC. He has represented the Netherlands Electrotechnical Committee, of which he became President in 1956, at meetings of many IEC Technical Committees.

Prof. de Zoeten has published many papers, mainly on measuring techniques, dielectrics, switchgear, cables, high-voltage generators and electric network systems.

eventually be replaced by a single volume of graphical symbols, though in the meantime the various sections will be published separately as and when they are ready. As a result of the meeting at Interlaken, the sections on electronic valves and rectifiers, switchgear, instruments, starters and relays, will now be published, while those on semiconductors and

architectural diagrams will be circulated under the Six Months' Rule. A revised draft of the section on generating stations and sub-stations will be circulated for final approval.

TC 4 Hydraulic Turbines (Secretariat: USA) — A comprehensive test code for hydraulic turbines is in an advanced stage of preparation, but as the draft is at present under the Six Months' Rule it was *sub-judice* at Interlaken, where the discussion was confined to a draft test code for storage pumps. This draft has now been completed to the stage when it can be sent out under the Six Months' Rule after scrutiny by an Editing Committee.

TC 8 Voltages, Current Ratings and Frequencies (Secretariat: Italy) — This Committee is revising the IEC List of Standard System Voltages which was last issued in 1954. It contains various tables, each dealing with a particular range of voltages, and in each table there are two series of voltage values, the intention being that in any one country either Series 1 or Series 2 values should be adopted for all the tables, and not one series for some of the tables and the other series for the remainder. The efforts of the Committee have been directed towards reducing the number of voltage values in each series in all the tables, the ultimate objective being to have for each table only one series containing the minimum practical number of voltage values. Good progress was made in this direction at Interlaken.

TC 9 Electric Traction Equipment (Secretariat: France) — This Committee works in parallel with the so-called Mixed Committee on Traction (CMT) composed of representatives of the IEC and of the International Union of Railways; meetings of both these Committees took place at Interlaken. The main subject of discussion was that of rules for the testing of electric rolling stock on completion of construction and before entry into service. A substantial measure of agreement was reached, but it was decided that the time was not yet ripe for the publication of an IEC Recommendation. It was, however, agreed that it would be useful to issue a 'Report' recording the agreements so far reached, in the hope that in a few years' time the area of agreement will become sufficiently large to enable a Recommendation to be issued. The 'Report' will now be circulated for approval under the Six Months' Rule.

TC 10 Insulating Oils (Secretariat: Belgium) — For very many



Concentration — the Most Prominent Feature at any Standards Meeting — IEC Meetings are No Exception

years this Committee, working through a group of experts, has been studying the question of the artificial ageing of insulating oil, and the stage has now been reached when a draft IEC method of test can be circulated under the Six Months' Rule.

The scope of the Committee has now been widened to enable it to deal with all the characteristics of insulating oils, but a proposal to extend the scope still further to embrace fluids other than oils will be considered by the Committee of Action at its meeting in 1962.

TC 12 Radio Communication (Secretariat: Netherlands) — There was a meeting of the Subcommittee on Radio Transmitters. A draft document on Safety Requirements for Radio Transmitters was reviewed and agreement on all outstanding technical points was reached, with the result that an Editing Committee will now be able to prepare a final document for submission to the main Committee for its circulation under the Six Months' Rule.

TC 13 Measuring Instruments (Secretariat: Hungary) — A draft recommendation relating to AC watt-hour meters of high precision (Class 1.0) was discussed, and it was decided to include both transformer-operated and direct-connected meters. A new draft will now be circulated under the Six Months' Rule. Recommendations for Class 2.0 meters have already been published by IEC. The Secretariat has been asked to proceed with the drafting

of a specification for Class 0.5 meters, these being intended only for accounting and statistical purposes.

TC 14 Power Transformer (Secretariat: United Kingdom) — This important Committee met for a whole week, and although no spectacular results can be reported, some solid progress was made on the revision of the IEC Recommendations for Transformers (Publication 76). At least one further meeting will be required before the draft revision can be circulated under the Six Months' Rule.

TC 20 Electric Cables (Secretariat: United Kingdom) — This was the first meeting of the Committee since its terms of reference had been widened beyond the field of the testing of high-voltage paper-insulated cables. To deal with its now almost unrestricted scope in the domain of cables (excluding conductors and wires used for telecommunication purposes), the Committee decided to set up, in the first instance, two subcommittees, one to carry on the work on paper-insulated cables and the other to deal with rubber- and pvc-insulated cables.

The two subcommittees met simultaneously at Interlaken, with the result that a draft Specification for the Testing of Fully-Impregnated Paper-Insulated Metal-Sheathed Cables (10 kV-66 kV) is now ready for circulation under the Six Months' Rule. This draft will not cover gas-pressure and oil-filled cables, as these are being dealt with in separate

documents. Working Groups were set up to assist the Secretariat in the drafting of recommendations on non-draining cables and on cable selection.

TC 22 Static Power Convertors (Secretariat: Switzerland) — Draft Recommendations for Mercury Arc Invertors were completed for circulation under the Six Months' Rule, and good progress was made on a draft on Convertors Supplying DC Reversible Motor Drives. This latter document will be considered further at the next meeting. New work will be started on convertors for single-phase traction vehicles and controlled semiconductor convertors. For the latter the term 'pylistor' was adopted.

TC 28 Insulation Co-ordination (Secretariat: France) — This Committee is engaged in the revision of Publication 71 Recommendations for Insulation Co-ordination. Several items were discussed at Interlaken, and it was left to the Secretariat to make specific proposals for consideration at the next meeting. To assist in this preparatory work, a group of experts was formed to consider the reduction of impulse test-voltages for well-protected equipment operating below 100 kV, and the Committee on Lightning Arresters is to be invited to collaborate in this work.

TC 30 Extra-High Voltages (Secretariat: Switzerland) — The result of the discussion at Interlaken represents a great achievement, for the system voltages in the upper range have now been 'boiled down' to the following values for the 'highest voltage': 300, 362, 420 and 525 kV. The 'nominal voltages' are about 5 percent below the standard 'highest' values. It was agreed that there shall be no nominal voltage intermediate between 500 and 700 kV.

TC 33 Power Capacitors (Secretariat: Netherlands) — A draft revision of Publication 70 Specification for Capacitors for Power Systems was approved for circulation under the Six Months' Rule.

TC 34 Lamps and Related Equipment (Secretariat: United Kingdom) — As the result of the Interlaken meetings, two documents were approved for publication: one regarding the second edition of the Specification for Ballasts for Fluorescent Lamps, and the other on a Set of Standard Sheets for Glassware for Lighting Fittings. In addition, eleven documents were approved for circulation under the Six Months' Rule, covering such subjects as starters for fluorescent lamps,

lighting fittings for fluorescent lamps, and standard sheets for various lamp-caps and holders and corresponding gauges.

TC 37 Lightning Arresters (Secretariat: USA) — The main items for discussion at Interlaken were appendices to Publication 99, Part 1 Specification for Non-Liner Resistor-Type Arresters. New drafts of these appendices will now be prepared by the Secretariat for consideration at the next meeting; the appendices in question relate to the application of arresters and graphical methods for determining maximum permissible separation of arresters and protected equipment for single-line effectively shielded stations, and the length of cable up to which no arresters are required at the station.

TC 38 Instrument Transformers (Secretariat: United Kingdom) — This Committee is engaged on the revision and extension of Publication 44 Specification for Instrument Transformers. The new edition will be issued in at least five parts dealing respectively with: (a) general requirements for current transformers, (b) additional requirements for measuring current transformers, (c) additional requirements for protective current transformers, (d) voltage transformers, and (e) capacitor voltage transformers.

The first two of these parts have already been circulated under the Six Months' Rule, and as a result of the meeting at Interlaken a document dealing with the requirements for protective current transformers will now be similarly circulated.

TC 39 Electronic Tubes and Valves (Secretariat: Netherlands) — This Committee is actively 'processing' a large number of documents, some of which are single sheets amending or supplementing the data given in Publication 67 Dimensions of Electronic Tubes and Valves. As a result of the Interlaken meeting, several of these sheets were approved for publication or for circulation under the Six Months' Rule. Other documents approved for publication deal with recommended practice for the preparation of drawings of tubes and

valves (including picture and oscilloscope tubes), and a revision of Publication 100 Methods for the Measurement of Direct Inter-Electrode Capacitances.

TC 40 Resistors and Capacitors (Secretariat: Netherlands) — This Committee met for a full week and completed nine documents for circulation under the Six Months' Rule, most of them being specifications for various types of resistors and capacitors. One of them relates to the method of carrying out the 'noise' test on fixed carbon resistors.

TC 41 Protective Relays (Secretariat: France) — Discussion centred on a Secretariat draft for a specification for protective relays. For controversial issues, it was decided that a Working Group be set up to prepare a test programme for relay contact performance; another Working Group was set up to draft definitions for such terms as operating range, effective range, reference range and nominal range of use.

TC 44 Electrical Equipment of Machine Tools (Secretariat: Switzerland) — A draft specification prepared by the Secretariat to take account of the discussion that took place at the first meeting of the Committee (in Madrid 1959) was reviewed and agreement was reached on various amendments. A section of the specification deals with cables for the internal wiring of machine tools, and this was provisionally agreed to in the absence of any recommendations as yet from TC 20.

TC 46 Cables, Wires and Waveguides for Telecommunication Equipment (Secretariat: Germany) — This was the first meeting of the Committee since the elevation of its status from that of a Subcommittee to that of a main Technical Committee*. As a result of the Interlaken meeting, a Specification for Connectors for TV Aerial Feeders will go forward for publication and seven drafts dealing with various kinds of cables and waveguides will be circulated under the Six Months' Rule.

A Working Group was set up to prepare proposals for a Specification

for High-Tension Cables for TV Receivers, and the Secretariat will collect information from the national committees on cables for use in TV bands IV and V.

Secretariat proposals will be circulated for comment on tests for screening efficiency and uniformity of impedance of radio-frequency cables on copper-clad steel wire and on a range of PTFE-insulated cables.

TC 47 Semiconductor Devices (Secretariat: France) — This was also the first meeting of the Committee since the elevation* of its status from that of a Subcommittee to a full Technical Committee, and it took over an extensive programme of work already in hand. Six documents will very shortly be ready for publication, dealing with essential ratings and characteristics of semiconductor diodes and transistors, general principles of methods of measurement, terminology and letter symbols.

Draft Recommendations for the Preparation of Drawings of Semiconductor Devices and for Dimensions have been approved for circulation under the Six Months' Rule.

TC 51 Ferromagnetic Materials (Secretariat: Netherlands) — Here again, this was the first meeting of a Committee recently elevated* to the status of a full technical Committee and which, therefore, had a legacy of a full programme of work started by another Committee. Since the scope of the Committee is broad, several Working Groups were set up to carry the work forward; in addition, 6 documents were approved for circulation under the Six Months' Rule, as follows: (a) Calculation of the effective parameters of magnetic piece parts; (b) Cores of broad-band transformers of ferromagnetic oxides; (c) The expression of losses for component parts; (d) Definition for tensor permeability; (e) Coefficients and symbols relating to dynamic magnetostriction; and (f) Dimensions of coil formers for pot cores of ferromagnetic oxides.

*See ISI Bull., Vol 13, No. 1, p. 6 (1961).

USE OF METRIC UNITS OF WEIGHT IN STATUTORY FORMS, ORDERS, NOTIFICATIONS, RULES, ETC

The use of metric commercial weights in trade transactions will become compulsory throughout the country on 1 April 1962. So far it is compulsory only in selected areas which include important cities like Bombay, Calcutta, Delhi and Madras. From 1 April 1962 other units of weight, such as the seer, the maund, the pound, the hundredweight and the ton, will cease to be standard weights recognized by law. It has, therefore, been suggested in an office memorandum sent to all the Union Ministries by the Secretary, Standing Metric Committee, that in all statutory forms (including forms of statistical returns), orders, notifications, rules, etc, and in official reports and correspondence, all weights and measures be expressed in metric units. Their equivalents in Imperial or Indian units may be given in brackets where it is considered absolutely necessary.

Specifications for Linseed Oil— Need for Revision of Requirements

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0. GENERAL

0.1 Raw linseed oil is extensively used in the manufacture of paints because of its excellent and controllable film-forming property. Linseed oil is a drying oil, that is, when exposed to air in a thin film, it gradually sets until it is dry to the touch. It contains both saturated and unsaturated fatty acids and small amounts of colouring matter, carbohydrates and unsaponifiable matter.

0.2 According to Walker¹, the proportions of the constituent fatty acids in linseed oil can vary widely according to the variety of seeds and the climatic environment of the flax plant. Colder climates yield larger proportion of unsaturated acids. Moreover, the longer the seed is matured, the higher is the saturation of fatty acids. Under extreme conditions, the unsaturation of the linseed oil measured by the iodine value can vary from 130 to 200.

0.3 It is, therefore, apparent that there is a wide range of variety of linseed seeds on which quality of the oil depends. Of course, during crushing operations, an assorted variety of seeds gets crushed together producing a mixed oil, which is more uniform than what the individual varieties suggest. A specification for linseed oil should, therefore, depend on the experience of users and manufacturers rather than on the theoretical range that is possible. Now, specifications may vary from country to country and there may be zonal variations within a country. But due to varieties of seed being superimposed and the further possibility of seeds from different zones getting mixed together in the commercial crushers, it is not desirable to have more than one standard for a country.

0.4 The characteristics of the raw linseed oil change slightly during its conversion into boiled oil. It has the

The quality of linseed oil is judged by its physical and chemical properties, such as specific gravity, and acid, iodine and saponification values. This paper reports the determination of these values in respect of a large number of samples of raw and boiled linseed oil collected from various parts of the country. On the basis of observations, the authors recommend revision of some requirements included in IS : 75-1950 Specification for Linseed Oil, Raw, for Paints and IS : 77-1950 Specification for Linseed Oil, Boiled, for Paints.

This paper will be considered by the Paints Sectional Committee in due course and comments on the paper are invited — Ed.

effect of increasing the specific gravity and acid value.

1. OBSERVATIONS

1.1 A large number of samples of raw and boiled linseed oil was tested in the Defence Research Laboratory (Stores), Kanpur, during 1952-1959. The areas from which samples were drawn have been classified here as: (a) UP area, (b) West Bengal area, and (c) Other areas. In Tables I and II are listed the range of values, the number of samples tested, average values and standard deviation in respect of various properties, such as, specific gravity, and acid, saponification and iodine values. Histograms of these values have been shown in Fig. 1, 2 and 3 which respectively show frequency distribution of: (a) Raw linseed oil of UP area; (b) Raw linseed oil of West Bengal area; and (c) Boiled linseed oil of UP area.

1.2 For comparing these values with those specified in IS: 75-1950 Specification for Linseed Oil, Raw, for Paints and IS: 77-1950 Specification for Linseed Oil, Boiled, for Paints, Table III is given.

1.3 The data on specific gravity in Tables IV and V have been further split into 'Before October 1954' and 'After October 1954', since it was

in October 1954 that the Ministry of Defence decided to adopt IS: 75-1950 and IS: 77-1950. This study has been helpful in knowing the trend of change of values of specific gravity with passage of time.

2. DISCUSSION

2.1 Linseed Oil, Raw

2.1.1 Specific Gravity — Histograms for the frequency distributions before and after October 1954 for the UP Area are given in Fig. 1. Both the histograms appear to be parts of regular distributions. The distributions of the values before October 1954 end abruptly and the left hand tail is missing, whereas the distributions of values after October 1954 end at 0.927 and the right hand tail is missing. These, therefore, indicate screening of the material which does not fall within the specified limits. It appears, for values before October 1954, that the left hand tail of the distribution was being screened out while after October 1954 the right hand tail was being screened out. Since the specified limits are strictly enforced in supplies to the Ministry of Defence and because they come from big concerns, it is felt that in order to avoid rejections, suppliers test the material before supply and screen out the material which does not fall within the specified limits. The screened out material is utilized elsewhere. It is clear, therefore, that a sizable part of genuine production in the country fails to conform to the relevant Indian Standard specifications. Unless other user evidence regarding the unsuitability of this genuine material exists, this specification needs review.

2.1.1.1 The two histograms of Fig. 1 relating to specific gravity also clearly indicate a shift in the average value of specific gravity after October 1954. This might be

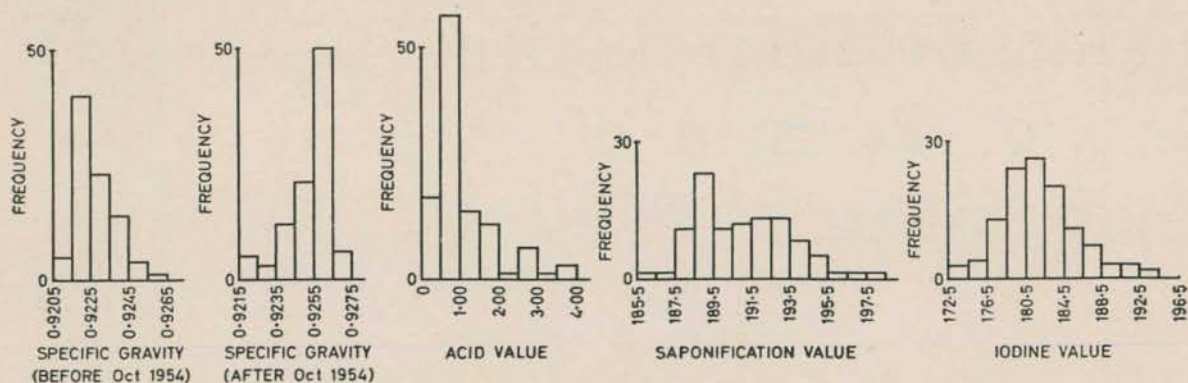


Fig. 1 Histograms of Values of Various Properties of Linseed Oil, Raw, of UP Area

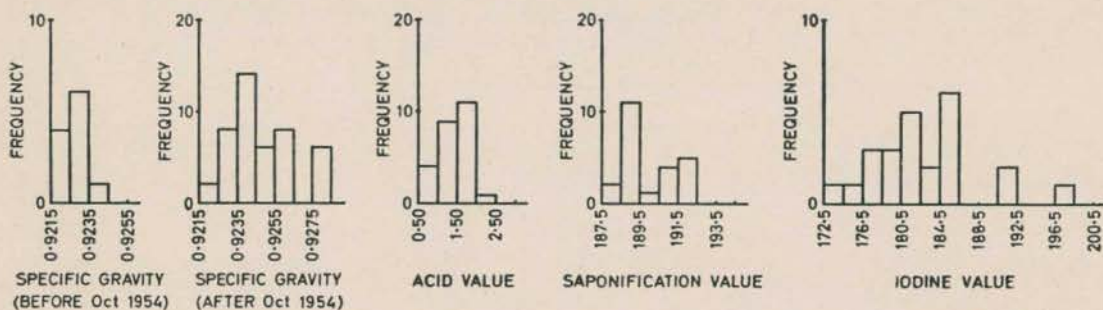


Fig. 2 Histograms of Values of Various Properties of Linseed Oil, Raw, of West Bengal Area

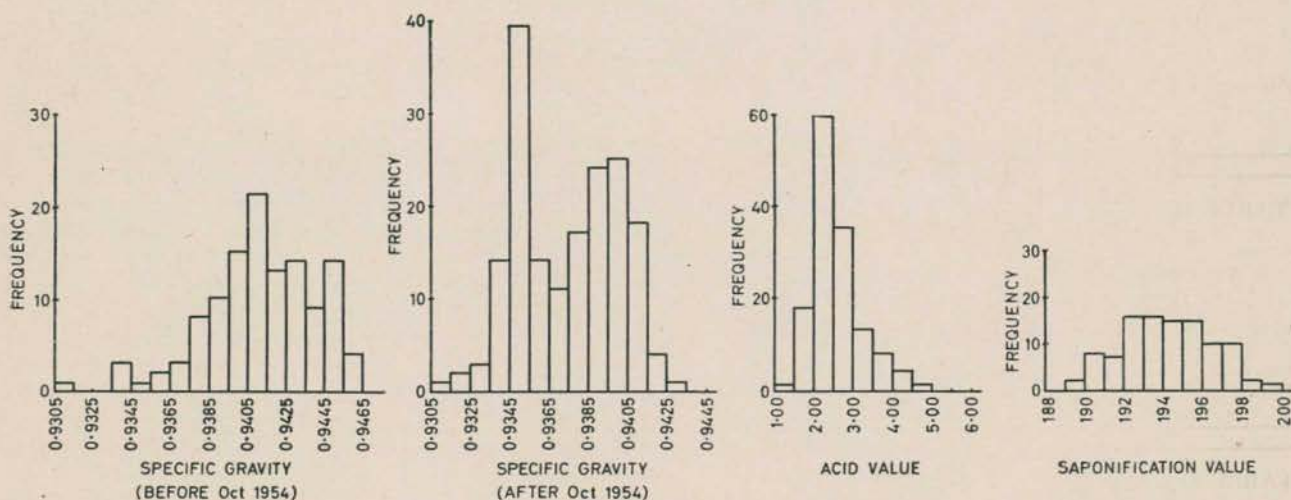


Fig. 3 Histograms of Values of Various Properties of Linseed Oil, Boiled, of UP Area

due to some changes or improvement in the variety of seeds or some manufacturing process.

2.1.1.2 The difference between the average specific gravity values for the samples from West Bengal before October 1954 and after October 1954 is found to be highly significant. This confirms the view that the specific gravity has increased in the later years. A detailed study of the two distributions could not be made since the number of samples was very small.

2.1.2 Acid Value—The acid values in all the samples are well within the specified maximum value

of 4. The distribution of acid values for West Bengal samples is found to be rectangular. Most of the values for the UP samples are contained in the first few classes of the histogram and only a small percentage of values tails towards the end. The period of storage between the crushing dates and the dates of the various deliveries may account for such rises in acid value. The over-all average acid value is 1.17 with a standard deviation of 0.71.

2.1.3 Saponification Value—All samples from West Bengal conform to the specified range. But 4 samples out of 94, that is, about 4 percent of

the samples from the UP area have saponification value beyond the specified range of 188 to 195. The over-all average saponification value is 190.89 with a standard deviation of 2.39.

2.1.4 Iodine Value—The over-all average iodine value is 181.54 with a standard deviation of 5.19. Only one value out of 24 from the West Bengal samples is below the specified minimum value of 175, whereas 3 out of 114 UP samples failed to reach the specified minimum value. The histogram for the UP area indicates a regular distribution.

TABLE I PROPERTIES OF RAW LINSEED OIL

AREA	PROPERTY	RANGE	NUMBER OF SAMPLES	AVERAGE	STANDARD DEVIATION
UP	Sp-gr at 30°C/30°C	0.921-0.928	184	0.924	0.002
	Acid value	0.330-3.900	114	1.11	0.76
	Saponification Value	186.2-197.5	98	191.05	2.58
West Bengal	Iodine Value	173.8-194.5	114	182.08	4.07
	Sp-gr at 30°C/30°C	0.922-0.928	33	0.925	0.002
	Acid Value	0.90-2.05	25	1.42	0.34
Others	Saponification Value	188.1-192.2	23	189.98	1.19
	Iodine Value	174.2-198.4	24	182.77	5.78
	Sp-gr at 30°C/30°C	0.923-0.926	4	0.925	0.001
Others	Acid Value	0.5-1.9	4	1.2	0.66
	Saponification Value	190.8-193.0	4	192.2	0.94
	Iodine Value	179.0-184.8	4	182.1	2.40

TABLE II PROPERTIES OF BOILED LINSEED OIL

AREA	PROPERTY	RANGE	NUMBER OF SAMPLES	AVERAGE	STANDARD DEVIATION
UP	Sp-gr at 30°C/30°C	0.931-0.946	291	0.939	0.003
	Acid Value	1.4-4.8	139	2.60	0.60
	Saponification Value	190.5-198.4	104	194.21	2.30
West Bengal	Sp-gr at 30°C/30°C	0.930-0.936	15	0.933	0.002
	Acid Value	2.1-4.3	14	3.24	0.59
	Saponification Value	191.2-196.5	13	194.32	1.62
Others	Sp-gr at 30°C/30°C	0.931-0.942	5	0.937	0.004
	Acid Value	1.6-5.2	5	3.1	1.32
	Saponification Value	194.2-204.6	5	197.2	4.40

TABLE III INDIAN STANDARD SPECIFICATION REQUIREMENTS FOR RAW AND BOILED LINSEED OIL

PROPERTY	LINSEED OIL, RAW	LINSEED OIL, BOILED
Sp-gr at 30°C/30°C	0.922 to 0.928	0.931 to 0.945
Acid Value, <i>Max</i>	4	8
Saponification Value	188 to 195	190 to 198
Iodine Value, <i>Min</i>	175	—

TABLE IV SPECIFIC GRAVITY DATA OF RAW LINSEED OIL BEFORE AND AFTER OCTOBER 1954

AREA	DATE	RANGE	NUMBER OF SAMPLES	AVERAGE	STANDARD DEVIATION
UP	Before Oct 1954	0.921-0.926	87	0.922	0.001
	After Oct 1954	0.922-0.927	97	0.925	0.001
West Bengal	Before Oct 1954	0.922-0.924	11	0.923	0.000 2
	After Oct 1954	0.922-0.928	22	0.925	0.002

TABLE V SPECIFIC GRAVITY DATA OF BOILED LINSEED OIL BEFORE AND AFTER OCTOBER 1954

AREA	DATE	RANGE	NUMBER OF SAMPLES	AVERAGE	STANDARD DEVIATION
UP	Before Oct 1954	0.932-0.943	173	0.937	0.003
	After Oct 1954	0.931-0.946	118	0.941	0.003
West Bengal	Before Oct 1954	0.930-0.934	4	0.933	0.001
	After Oct 1954	0.930-0.936	11	0.933	0.003

2.1.5 Testing for significance of the difference between UP and West Bengal areas by using t-test, it was found that only the difference in acid value was significant.

2.2 Linseed Oil, Boiled

2.2.1 *Specific Gravity* — The over-all average specific gravity is 0.940 with a standard deviation of 0.003. The samples from West Bengal in general show a tendency for low specific gravity in contrast to samples from UP which have a marked tendency towards higher specific gravity values. The samples from the West Bengal area are well within the specified limits except for 4 samples with a specific gravity of 0.930 which is below the specified range. The samples from the UP area are also within the specified values except for 4 samples with a specific gravity of 0.946 which is above the specified range. The difference between the average specific gravity values of the UP area and the West Bengal area is found to be highly significant.

2.2.1.1 The specific gravity determinations given in Table V were being carried out at 15°C/15°C till 1954 and these values have been converted to specific gravity at 30°C/30°C for consideration in this paper. From the data it is observed that the samples in recent years tend to have higher specific gravity values.

2.2.1.2 The histograms for the frequency distributions before and after 1954 for UP area are given in Fig. 3. The distribution of specific gravity values for the supplies before October 1954 appear to be bimodal and the distribution for the supplies after October 1954 appears to be regular. The right hand tail of the distribution of supplies after October 1954 appears to have been screened out which confirms the view held earlier that the specific gravity in the later years has increased.

2.2.2 *Acid Value* — The acid values from all the samples are found to be well within the specified limit. In no case the acid value from UP and West Bengal areas exceeds 5. The over-all average acid value is 2.67 with a standard deviation of 0.66.

2.2.3 *Saponification Value* — All the samples are well within the specified range except for one sample from UP area with saponification value of 198.4. The over-all average saponification value is 194.35 with a standard deviation of 2.4.

2.2.4 Testing for significance of the difference between UP and West

(Continued on p. 282)

Indian Standard Specification for Malleable Iron—Stipulation of Maximum Phosphorus Content

B. G. SASTRY & S. N. ANANT NARAYAN

NICKEL INFORMATION BUREAU PRIVATE LTD., BOMBAY

0. INTRODUCTION

0.1 The present Indian Standard Specification for Malleable Iron Castings (IS: 227-1954) does not give separately the requirements of blackheart and whiteheart malleable iron castings. The mechanical properties of the two types of malleable iron differ and a single standard to cover both the types will handicap producers of whiteheart malleable iron in the country. As such two separate standards for whiteheart malleable iron and blackheart malleable iron on similar lines to B.S. 309: 1958 Whiteheart Malleable Iron Castings, and B.S. 310: 1958 Blackheart Malleable Iron Castings will be needed. The Indian Standards Institution is already seized of this matter and it is expected that there will be two separate standards for malleable iron when the revision of IS: 227-1954 is taken up.

0.2 Blackheart malleable iron will, however, comprise the bulk of production and use in India, and this note deals specifically from the point of view of this type of malleable iron. The quality of blackheart malleable iron produced at present in this country can no doubt meet the mechanical property requirements laid down in the standards of several leading industrial countries. It is not common to specify an impact test in the various standards since the impact strength of malleable iron is adequately ensured by the manufacturing practice followed in the respective countries. However, the growing automobile industry in India where malleable iron finds extensive application and exacting requirements of this industry, call for a careful consideration of the effect of composition, and more particularly that of phosphorus on the impact properties of malleable iron. Considering the quality of pig irons generally available to the foundry industry in India and the present manufacturing practice, it is felt that

The authors suggest in this paper the need to revise IS: 227-1954 Specification for Malleable Iron Castings. They recommend two separate specifications, one for whiteheart malleable iron and the other for blackheart malleable iron, and a limit for the phosphorus content. It is pointed out that the exacting requirements of the growing automobile industry in India, where malleable iron finds extensive application, necessitate a careful consideration of the effect of composition and more particularly that of phosphorus on the impact properties of malleable iron. Suggestions have been made for a suitable revision of IS: 227-1954, the work on which is in progress in ISI—Ed.

the stipulation of a maximum phosphorus content is necessary in the revision of IS: 227-1954. A paper entitled 'Some Experiments on the Properties of Ferritic Blackheart Malleable Iron' by C. T. Moore¹ of the British Cast Iron Research Association, presented at the Annual Conference of the Institute of British Foundrymen held in June 1960, will provide a very useful reference in this regard.

1. EFFECT OF COMPOSITION ON IMPACT PROPERTIES

1.1 One of the most important and valuable characteristics of malleable cast iron is its ability to withstand shock loading, a property of particular importance to the automobile industry. It is well known that ferritic materials which may be ductile at room temperature behave in a brittle manner at lower temperatures. The notched-bar-impact values of all ferrous materials, except the austenitic steels drop suddenly at a certain temperature. Above this temperature the materials are considered ductile, while below this temperature they tend to be brittle. The temperature where the change from ductile to brittle behaviour

takes place is known as the 'transition temperature'. When this temperature occurs above the normal atmospheric temperature, the material tends to be brittle at room temperature. This brittleness can be detected only by the notched-bar impact test. The tensile, elongation and bend tests do not reveal fully the susceptibility to brittle failure under shock loading. The notched-bar impact test and the determination of transition temperature in particular are more discriminating tests.

1.2 The impact properties of samples of a material with different phosphorus and silicon contents will differ even though the tensile strength and elongation may be the same. A material with higher tensile strength can have lower impact properties if the phosphorus content is comparatively higher. Similarly, a material with a higher phosphorus content may pass the required bend test but might have poor impact strength. The bend test is more an indication of the skin quality of malleable iron and does not provide an effective indication of the shock resistance of the material.

1.3 Increasing the phosphorus and silicon contents will raise the impact transition temperature of normal malleable iron and impair its impact properties at room temperature. It is reported that the maximum phosphorus content that can be permitted for satisfactory ductility in the impact test at normal temperatures for blackheart malleable iron decreases from about 0.1 percent phosphorus at 1.1 percent silicon to 0.05 percent phosphorus at 1.6 percent silicon. The silicon content of malleable iron, however, is automatically controlled to attain the desired mechanical properties and ensure freedom from primary graphite. Hence, the effect of phosphorus on raising the impact-transition temperature is of greater importance in the commercial production of malleable iron. It will be pertinent in this connection to refer

TABLE I VARIATION OF BRINELL HARDNESS AND IMPACT TRANSITION TEMPERATURE WITH CHANGES IN SILICON AND PHOSPHORUS CONTENTS OF AS-ANNEALED FERRITIC BLACKHEART MALLEABLE IRON

CARBON PERCENT	PHOSPHORUS PERCENT	SILICON PERCENT	HB5/750	IMPACT TRANSITION TEMPERATURE IN DEG C
2.40	0.04	1.12	108 110	-48
	0.06	1.12	112 113	-24
	0.09	1.12	118 116	+3
	0.11	1.12	120 119	+17
	0.17	1.12	129 130	+72
	0.19	1.12	135 137	+101
2.44	0.03	1.44	117 117	-46
	0.07	1.44	121 123	-3
	0.09	1.44	126 127	+30
	0.14	1.44	131 130	+71
	0.18	1.44	132 133	+92
	0.22	1.44	139 137	+120
2.59	0.03	1.59	119 119	-72
	0.06	1.59	125 125	+4
	0.10	1.59	129 128	+40
	0.15	1.59	132 134	+68
	0.17	1.59	138 138	+88
	0.22	1.59	146 145	+128

to Table I taken from the paper by Moore¹.

2. FOREIGN SPECIFICATION AND MANUFACTURING PRACTICE

2.1 If we take into consideration actual industrial experience in the use of malleable iron produced in countries like Germany, UK and USA, it appears that the phosphorus content normally is well below 0.1 percent. The British Standards prior to the 1958 revision, namely B.S. 309: 1947 and B.S. 310: 1947, permitted phosphorus up to 0.1 percent maximum for whiteheart malleable iron and up to a maximum of 0.2 percent for blackheart malleable iron and stipulated that either a bend test or a certificate of the phosphorus content only need be complied with. In the 1958 revision of the specifications, the limit on the phosphorus content has been reduced to 0.12 percent from 0.2 percent in the case of blackheart malleable iron and both bend test and the phosphorus limit have to be complied with for both the types of malleable iron. In Germany, it is understood that special pig irons with a phosphorus content of about 0.06-0.08 percent are used by malleable iron foundries. In actual practice the phosphorus content rarely exceeds 0.1 percent in these countries. Hence, the stipulation of a higher phosphorus content in the earlier British Standards or the absence of any indication of the maximum phosphorus content in the

German specification, and the argument if any, that malleable iron has been produced to these specifications and the same has given effective and satisfactory service cannot have much significance under Indian conditions where the actual phosphorus content of malleable irons is likely to exceed even 0.2 percent in the normal course.

3. RECOMMENDATIONS FOR REVISION OF IS : 227-1954

3.1 As stated already, the only true index of the shock loading characteristic of malleable iron is the impact test. However, considering the fact that this property can be adequately ensured otherwise and in view of the facilities required and the cost involved in carrying out the impact test, it is the general feeling that inclusion of an impact test at this stage is not justified. Perhaps it may be necessary only for certain special applications. Normally, it is considered that limitations on the maximum hardness and phosphorus and a minimum elongation will adequately ensure that the material is not susceptible to failure under shock loading and thus render the impact test unnecessary for the time being.

3.2 If an impact test is not to be included in the specification, stipulation of the maximum phosphorus content in the specification acquires added significance under Indian conditions. As the phosphorus content of Indian malleable iron as produced at present is likely to be

about 0.2 percent or even more and in view of the data we now have regarding the effect of phosphorus on the impact transition temperature, it is necessary to stipulate in the specification a permissible maximum phosphorus content to ensure the standard of performance under shock loading that is generally expected of this material. The Indian automobile industry where this material finds an extensive application is tied up to a large extent in technical collaboration with the automobile industry in UK and Germany in particular. The design of the components to be made in malleable iron would, therefore, have been based on the quality and experience with the material produced in those countries. If the standard of performance of the concerned components is to be kept up, it is necessary that the quality of the malleable iron produced in India should also be of a comparable standard in all respects, unless there is adequate data to justify any deviation.

3.3 The harmful effect of phosphorus can, however, be overcome by a sub-critical heat-treatment. Such a heat-treatment would consist of heating the castings to 650°C, quenching in water from this temperature after holding for an hour, subsequently tempering them at 350°C for one hour and then slowly cooling in the furnace to room temperature. It must be realized that this heat-treatment would tend to restrict output, adds to the complexity of production of the material and considerably increases its cost. The suitability of the quenching treatment to castings of varieties of shapes and designs has also to be assessed. As such it is most unlikely to appeal to any manufacturer for adoption in regular commercial production. Further, while experimental investigation has shown the efficacy of this sub-critical heat-treatment in overcoming the deleterious effect of phosphorus on impact properties, its development is of very recent origin and does not seem to have found as yet much application in industry. Hence the same cannot be incorporated in a specification. It might perhaps serve at best as a salvage measure by mutual agreement between the supplier and the purchaser for batches of components that happen to deviate during production from the specified limit for phosphorus.

3.4 In the light of the above, the following limits of phosphorus contents are suggested for incorporation for the present while revising IS: 227-1954. The phosphorus content

of the two grades corresponding to B 20/10 and B 22/14 of B.S. 310:1958 should be limited to 0.12 percent maximum, with a provision that it may be relaxed to 0.2 percent maximum in the case of the grade corresponding to B 20/10 where the components are not required to withstand shock in service. The limit for the grade corresponding to B 18/6 may be kept at 0.2 percent maximum with a provision that it shall not exceed 0.12 percent maximum where the components are to withstand shock in service.

4. DIFFICULTIES IN COMPLYING WITH THE PHOSPHORUS LIMIT

4.1 In view of the lack of availability of special pig irons with low phosphorus contents and the relatively high phosphorus content (0.3-0.4 percent) of the pig irons generally available, there might be some difficulty on the part of some of the existing producers to be able to

comply with the proposed stipulation of 0.12 percent maximum phosphorus content. It is, however, possible to produce more easily malleable iron with phosphorus below 0.1 percent if due consideration is given to a suitable melting equipment, such as some type of an electric melting furnace which can melt the required percentage of steel scrap with a recarburizer. Stipulation of the limit of phosphorus in the specification at this stage would have the effect of directing attention to the choice of a suitable melting equipment right in the beginning on the part of new firms intending to take up manufacture of malleable iron. Perhaps some of the existing producers either already have or are contemplating to acquire suitable electric melting equipment. As such it is felt that no major difficulty will be experienced by principal producers of malleable iron in India in complying with the limitation on the phosphorus content necessary for important applications.

4.2 It will be of interest to note in this connection that in Europe where special pig irons suitable for the manufacture of malleable iron are readily available, increasing use is being made especially of electric induction furnaces. This is obviously due to the requirements of a more precise control of composition and a cleaner metal in the production of malleable iron to high quality standards.

5. REFERENCES

1. MOORE, C. T. Some Experiments on the Properties of Ferritic Blackheart Malleable Iron. *British Foundrymen*. Vol LIII, Part 3, p. 107-120 (1960).
2. ROESCH, K. Recent Developments in the Field of Malleable Cast Iron. *Foundry Trade Journal*. Vol 104, No. 2167, p. 479-483 (1958).
3. ROESCH, K. High Duty Malleable Iron. *Indian Construction News*. Vol 7, No. IX, p. 111-118 (1958).
4. THYBERG, BERTIL, Progress in the Development of High Duty Malleable Cast Iron. *Foundry Trade Journal*. Vol 103, No. 2132, p. 213-224 (1957).

SPECIFICATIONS FOR LINSEED OIL — NEED FOR REVISION OF REQUIREMENTS — Continued from p. 279

Bengal areas by using the t-test, it is found that only the difference in specific gravity is highly significant.

3. SUMMARY AND CONCLUSIONS

3.1 **Linseed Oil, Raw** — Histograms of specific gravity suggest that the manufacturers of linseed oil, raw, are supplying the oil after testing and screening. Hence, it can be said that some proportion of the raw linseed oil produced in the country is not covered by IS: 75-1950. Hence, a revision of the Indian Standard is felt necessary and the following requirements are recommended:

- a) Specific gravity at 30°C/30°C — 0.922-0.931 instead of the existing 0.922-0.928;
- b) Acid value, *Max* — 4 which is also specified at present; and
- c) Iodine value, *Min* — 174 instead of the existing 175.

3.2 **Linseed Oil, Boiled** — The present specified range for specific gravity does not include the right hand tail of the distribution. Moreover, 4 samples are found with specific gravity value of 0.946 which is beyond the upper limit of the

specified range. The present specification, therefore, requires a review in respect of specific gravity values. The specified acid and saponification values, however, do not require a review.

3.2.1 It is observed that whereas the specific gravity values in respect of UP and West Bengal areas do not differ for raw linseed oil, they do differ significantly for boiled linseed oil. It is possible that this difference is caused by differences in handling, storage of the seeds and processing of the oil, and this point calls for a technical investigation.

3.2.2 In view of the above, the following requirements are recommended for inclusion in the revision of IS: 77-1950:

- a) Specific gravity at 30°C/30°C — 0.933-0.947 instead of the existing 0.931-0.945;
- b) Acid value, *Max* — 8, as at present; and
- c) Saponification value — 190 to 198, as at present.

3.3 The suggested specification values for the various characteristics, however, do not ensure acceptance of all supplies of pure linseed oils. The theoretical ranges for the various

characteristics may be very large, for example, the iodine value for raw linseed oil in extreme cases may vary¹ between 130 and 200. It is not possible for the specification to cover such ranges on theoretical considerations alone. A large latitude on theoretical grounds will increase the chances of adulterated supplies being accepted under the specification, thereby increasing consumer risk. The specification has to guard against such risks. Hence, the emphasis should be on experience. The consumer should, however, be free to exercise his discretion based upon his experience and judgement as regards the suitability of the supply to his particular purpose.

4. ACKNOWLEDGEMENT

4.1 The authors wish to thank Dr. Kartar Singh, Director, Defence Research Laboratory (Stores), Kanpur, for his interest in the work.

5. REFERENCE

1. WALKER, F. T. The Segregation of Linseed Oil Glycerides by Chromatography. *Journal of the Oil and Colour Chemists' Association*, Vol 28, p. 119-131 (1945).

Bibliographical Sources of National Standards

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ISI LIBRARY

THE publication of national standards has increased considerably in almost all the countries. Bibliographical sources of national standards, such as catalogues, indexes, handbooks, lists of publications, etc. of 36 Member Bodies of the International Organization for Standardization (ISO) are given below. Such sources are not available for the other 8 Member Bodies of ISO, namely: Albania, Burma, Colombia, Greece, Indonesia, Iran, Turkey and Venezuela. It is hoped that this list, which includes the name of the organization, title, place of publication, latest year of availability, page numbers and language, will be helpful to persons engaged in standardization work all over the world.

The study of 36 catalogues revealed the following:

- a) In 28 catalogues, entries are given in classified form under various subject groups. Of these, subject groups are arranged in the UDC order in 8 and in the alphabetical order in 1; the classification in the remaining 19 is made according to the convenience of national standards bodies.
- b) In 7 catalogues (Egypt, India, Ireland, Israel, New Zealand, Pakistan and UK) entries are given in the numerical sequence of the designation number of each standard. In the catalogues of national standards bodies of India, Ireland, New Zealand and UK, however, alphabetical indexes are given at the end to assist the reader in locating a standard. Lists of national standards belonging to Egypt, Israel and Pakistan are not very big and standards can be located without any difficulty.
- c) In one catalogue (Portugal) entries are given in both these forms.

Brief reviews of standards are given only in 3 catalogues, namely those of India, Ireland and UK.

ARGENTINA

INSTITUTO ARGENTINO DE RACIONALIZACION DE MATERIALES. *Catalogo de Normas IRAM*. Buenos Aires, 1960, p. 207 (Spanish).

This catalogue is divided into two parts. The first part comprises the decimal classification of the approved IRAM Standards as well as those under study; principal subject headings of the standards are given in English, French and German, besides their original language. The second part consists of a numerical index in which standards are grouped according to their corresponding technical committees.

The catalogue includes as well a list, in alphabetical order, of the official and private institutions associated to IRAM.

AUSTRALIA

STANDARDS ASSOCIATION OF AUSTRALIA. *List of Publications and Subject Index of Australian Standards*. Sydney, 1961, p. 80 (English).

Main catalogue is divided into 18 technical groups representing various fields of industry. Each group lists standards in serial order. Also included in the catalogue are designation numbers and titles of: (a) interim specifications, which were prepared to cover an immediate need, by the SAA committees but are not endorsed as Australian standards; (b) commercial standards which do not fall into 18 technical groups; and (c) emergency standards prepared at the request of Commonwealth or State Departments for defence purposes. In addition, it has a list of ISO and IEC publications. Alphabetical index is given at the end.

AUSTRIA

OESTERREICHISCHER NORMENAUSSCHUSS. *Verzeichnis der Onormen*. Vienna, 1959, p. 31 (German). Supplement for 1961.

Catalogue is divided into subject groups under which entries are in

serial order. An alphabetical index is also given at the end.

BELGIUM

INSTITUT BELGE DE NORMALISATION. *Catalogue*. Brussels, 1961, p. 90 (French and Flemish).

The catalogue is divided into subject groups arranged in order of UDC. Numerical list, alphabetical index, and publications of ISO and IEC are also given.

BRAZIL

ASSOCIACAO BRASILEIRA DE NORMAS TECNICAS. *Lista de Normas Brasileiras*. Rio de Janeiro, 1960, p. 9 (Portuguese).

The catalogue is divided into 5 sections: Standards, Specifications, Methods of test, Standard Patterns and Terminologies; under each section, standards are listed in serial order of their designation numbers.

BULGARIA

COMITE SUPERIEUR DE NORMALISATION DE LA REPUBLIQUE POPULAIRE DE BULGARIE. *Catalogue of Standards*. Sofia, 1958, p. 325 (Bulgarian).

The catalogue is divided into subject headings and sub-headings. Under each sub-heading entries are given in alphabetical order with designation numbers. Alphabetical index and numerical list are also given at the end.

CANADA

CANADIAN STANDARDS ASSOCIATION. *List of Publications*. Ottawa, 1961, p. 24 (English).

Lists CSA publications under 9 subject groups in serial order. Also includes ISO and IEC publications, along with a brief description of CSA.

CHILE

INSTITUTO NACIONAL DE INVESTIGACIONES TECNOLOGICAS Y NORMA-

LIZACION. *Catalogo de Norman Inditecnor*. Santiago, 1959 (Spanish).

Entries are in numerical order under subject headings.

CZECHOSLOVAKIA

URAD PRO NORMALIZACI. *Seznam Platnych Ceskoslovenskych Statnich Norem*. Prague, 1960, p. 686 (Czech).

Lists standards in numerical order under subject headings, guide of which is given at the end. It also includes alphabetical index.

DENMARK

DANSK STANDARDISERINGSRAAD. *DS Katalog*. Copenhagen, 1959, p. 98 (Danish).

Catalogue is divided into subject headings arranged in the UDC order. Numerical list and alphabetical index are also included along with ISO, IEC and CEE publications. It also gives an illustrated list of standardized products including addresses where these products can be purchased. The main list of the catalogue is also available in English.

EGYPT

EGYPTIAN ORGANIZATION FOR STANDARDIZATION. *EOS Standards*. Cairo, 1961, p. 3 (English).

Lists Egyptian Standards in numerical sequence.

FINLAND

SUOMEN STANDARDISOIMISLIITTO. *Luettelo SFS-Standardeista ja TES-Metalliteollisuusstandardeista*. Helsinki, 1958 (p. 1-58 Finnish & p. 1-57 Swedish).

Lists standards in serial order under subject groups. Also includes an alphabetical index. Amended by a mimeographed list of new standards. English version of the catalogue (Dec 1960) is also available.

FRANCE

ASSOCIATION FRANCAISE DE NORMALISATION. *Catalogue des Normes Francaises*. Paris, 1961-62, p. 437 (French).

Entries are arranged in serial order under subject groups. An alphabetical index is also given at the end. The catalogue also contains advertisements.

GERMANY (West)

DEUTSCHER NORMENAUSSCHUSS. *DIN Normblatt-Verzeichnis*. Berlin, 1961, p. 480 (German).

The catalogue is divided into subject headings arranged in the order of UDC and under each subject heading standards are listed in numerical order. Also includes numerical list and alphabetical index. A separate list of German standards which have been translated into English is also available.

HUNGARY

MAGYAR SZABVANYUGYI HIVATAL. *A Magyar Nepkoztarsasagi Orszagos Szabvanyok-MSZ-teljes jegyzek*. Budapest, 1960, p. 768 (Magyar-Hungarian).

The catalogue is divided into 17 subject headings; each subject heading is further divided into sub-headings; guide of subject headings is given in the beginning. Under each subject heading titles of standards are given in numerical order. Numerical list and alphabetical index are also included.

INDIA

INDIAN STANDARDS INSTITUTION. *Handbook of ISI Publications*. New Delhi, 1959, p. 132 (English). Addendum 1960.

The catalogue is divided into four parts. Part I gives information about ISI publications and lists Indian Standards in numerical sequence along with short reviews of standards. Part II gives the classified list of manufacturers using ISI Certification Mark. Part III includes information about ISO and IEC and lists their publications. Part IV gives the alphabetical index including subjects covered by ISO Recommendations and IEC Publications.

IRELAND

INSTITUTE FOR INDUSTRIAL RESEARCH AND STANDARDS. *Irish Standards Handbook*. Dublin, 1958, p. 54 (English).

Lists standards in numerical sequence along with their brief reviews. Alphabetical index, information about IIRS, specifications under preparation, advisory committees and licences for using standard mark are also included. Supplementary lists are provided by information-leaflets published quarterly.

ISRAEL

THE STANDARDS INSTITUTION OF ISRAEL. *Numerical List of Israel Standards and Draft Standards issued up to 31 May 1960*. Tel Aviv, 1960, p. 16 (English).

Titles of standards along with their designation numbers are given in numerical sequence.

ITALY

ENTE NAZIONALE ITALIANO DI UNIFICAZIONE. *Elenco delle Pubblicazioni UNI*. Milan, 1960, p. 363 (Italian).

The catalogue is divided into subject headings arranged in UDC order. Under each heading titles of standards are given in numerical sequence by their designation numbers. Numerical list and alphabetical index are also given. Also lists ISO publications.

JAPAN

JAPANESE INDUSTRIAL STANDARDS COMMITTEE. *List of Japanese Industrial Standards JIS*. Tokyo, 1960, p. 153 (English).

Lists standards under 17 subject groups each of which includes titles and designation numbers in serial order. Also includes a list of JIS designated commodities. A separate list of JIS Standards which have been translated into English is also available.

MEXICO

DIRECCION GENERAL DE NORMAS. *Catalogo de las Normas Oficiales*. Mexico, 1960, p. 21 (Spanish).

Catalogue is divided into 16 subject groups. Under each group entries are in serial order.

NETHERLANDS

STICHTING NEDERLANDS NORMALISATIE-INSTITUUT. *Catalogus van Normen*. The Hague, 1961, p. 192 (Dutch).

Catalogue is divided into subject headings which are arranged in classified order of UDC. Alphabetical index, numerical list, ISO and IEC publications and Euronormen are also given.

NEW ZEALAND

NEW ZEALAND STANDARDS INSTITUTE. *New Zealand Standards Numerical and Subject Index*. Wellington, 1959, p. 87 (English).

Titles of standards are given in numerical order of designation numbers. It also includes lists of codes of recommended practice, government purchasing standards, miscellaneous publications, emergency standards, etc, along with alphabetical index.

NORWAY

NORGES STANDARDISERINGS-FORBUND. *Fortegnelse over Standardblad*. Oslo, 1961, p. 45 (Norwegian).

The catalogue is divided into subject headings arranged in UDC order. Numerical list and alphabetical index are also given.

PAKISTAN

PAKISTAN STANDARDS INSTITUTION. *List of Pakistan Standards Published Under Print. First Annual Report 21 November 1959 to 31 December 1960*, p. 74-80 (English).

Lists standards in numerical sequence.

POLAND

POLSKI KOMITET NORMALIZACYJNY. *Katalog Polskich Norm*. Warsaw, 1960, p. 530 (Polish).

The catalogue is divided into subject headings and sub-headings, scheme of which is given in the beginning. Under each subject heading entries are given in serial order. Alphabetical index and numerical list are also included.

PORTUGAL

REPARTICAO DE NORMALIZACAO. *Catalogo das Normas Portuguesas*. Lisbon, 1960, p. 39 (Portuguese).

The catalogue is divided into three parts. Standards are listed in numerical sequence in the first part, under subject groups in the second part, and in classified order of UDC in the third part.

English and French versions of the catalogue are also available.

ROUMANIA

OFICIUL DE STAT PENTRU STANDARDARDE. *Indicatorul Standardelor de Stat*. Bucharest, 1960, p. 590 (Roumanian).

The catalogue is divided into 16 subject groups. Each group is divided into sub-headings under each of which are listed titles of standards. Numerical list and alphabetical index are also given at the end.

SOUTH AFRICA

SOUTH AFRICAN BUREAU OF STANDARDS. Specifications and Codes of Practice. *South African Standards Bulletin*. Vol 14, No. 7, p. 159-165 (1961) (English).

Alphabetical list of titles of standards along with designation numbers are given in subject groups. English and Afrikaans versions of the list are published alternately in the SABS Bulletin.

SPAIN

INSTITUTO NACIONAL DE RACIONALIZACION DEL TRABAJO. *Catalogue of UNE Standards*. Madrid, 1961, p. 158 (Spanish).

The catalogue is divided into three parts: (a) Index of UNE Standards by Technical Commissions, the titles of standards appearing in numerical sequence; (b) Alphabetical Index of UNE Standards, the titles grouped alphabetically by subject matter; and (c) Information of the Institute.

SWEDEN

SVERIGES STANDARDISERINGSKOMMISSION. *Svensk Standards*. Stockholm, 1957 (Swedish).

The catalogue is divided into subject groups arranged in the UDC order. Under each group are listed titles of standards in numerical sequence of their designation numbers.

SWITZERLAND

ASSOCIATION SUISSE DE NORMALISATION. *Repertoire des Normes SNV*. Zurich, 30 April 1961, p. 8 (German and French).

Under the subject headings, titles of standards of SNV series are given in the order of their designation number. Also there is a catalogue of the secretariat of SNV held by Normes de la Societe Suisse des Constructeurs de Machines, entitled *VSM Repertoire des Normes*. Zurich, 1961 (provisoire), p. 104 (German and French). This catalogue is divided into 23 subject groups under which titles of standards are listed in the order of their designation number.

It may be added that SNV is the National Standards Body and a member of ISO; its secretariat is held by Swiss Society of Machine

Constructors (VSM) which is the centre of Swiss standardization.

UNITED KINGDOM

BRITISH STANDARDS INSTITUTION. *British Standards Year Book*. London, 1961, p. 630 (English).

Standards are listed in the numerical sequence with brief summaries. ISO, IEC, and CEE publications along with an alphabetical index are also included.

USA

AMERICAN STANDARDS ASSOCIATION. *Catalog of American Standards*. New York, 1961, p. 72 (English).

The catalog is divided into 24 subject groups listed in the table of contents. Under each subject group, entries are in serial order. Lists titles of ISO Recommendations and IEC Publications; also provides an alphabetical index including subjects covered by ISO and IEC Publications. Cross references are given for ISO and IEC Publications that correspond to American Standards.

USSR

KOMITET STANDARTOV. *Index to State Standards (GOST)*. Moscow, 1961, p. 536 (Russian).

The catalogue is divided into 17 subject headings and sub-headings, a guide for which is given in the beginning. Under each subject heading are listed titles of standards along with their designation numbers. Also includes a numerical list and an alphabetical index.

YUGOSLAVIA

JUGOSLOVENSKI ZAVOD ZA STANDARDIZACIJU. *Katalog Jugoslovenskih Standarda JUS*. Pcograd, 1961, p. 180 (Yugoslav).

The catalogue is divided into 15 subject groups each of which lists titles of standards in serial order. Also includes information on functioning of the Yugoslav Institution for Standardization according to the new Law on Yugoslav Standards as well as lists titles of ISO Recommendations and IEC Publications. Catalogue of Yugoslav Standards in English listing only titles of standards is also available.

Making Spring Leaves to Indian Standard

SPRING leaves for railways, automobiles, and tractors are being manufactured by Messrs Murarka Engineering Works in the Industrial Area, Najafgarh Road, New Delhi. The factory, situated on a plot of nearly three acres, has a capacity of 2 400 tons of finished springs per year. The certification mark on the spring leaves, the licence for which was issued by ISI with effect from 15 August last — only a fortnight after the works started operating — indicates that they conform to the requirements of spring leaves covered by IS: 1135-1957 General Requirements for Leaf Springs for Automobile Suspension.

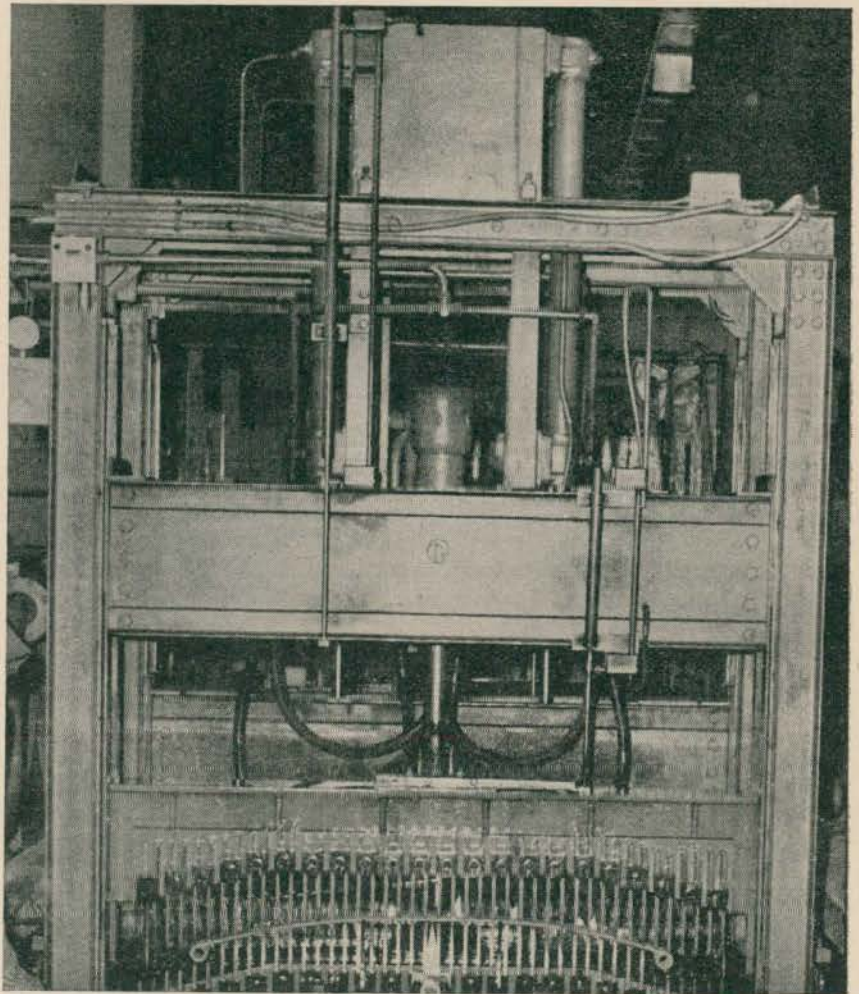
Manufacture

These standard spring leaves are made from silicomanganese steel, which is at present imported in the form of plates of specified width and thickness, in lengths of 3 to 6.1 metres (10 to 20 feet). The plates are cut to a suitable size in a shearing machine. The ends of main leaf are heated in a furnace to a temperature of 950° to 1 000°C. The hot end of the plate is then put in a horizontal forging press or forming a loop called the eye (*see picture on cover-page*). During this process, the plate is cut at a slant, pre-rolled and the eye completed and calibrated in respect of diameter and axes in a series of operations. Central holes are hot punched or drilled in the leaves depending upon their thickness and, subsequently, eyes are reamed by means of a reamer.

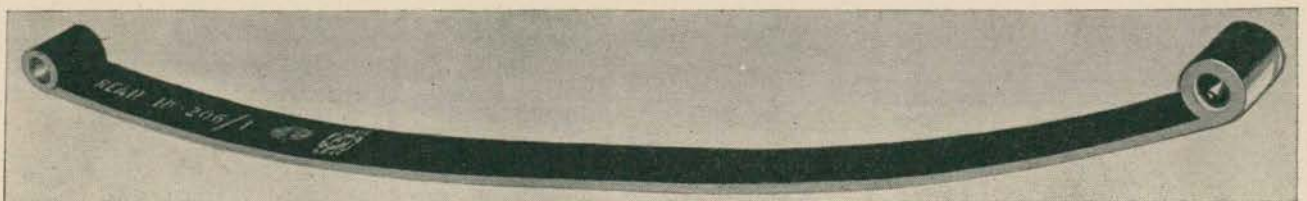
After eyes have been reamed at both ends of the plate, it is required to be cambered or bent to a suitable curvature. This is done by two automatically-operated hydraulic presses mounted on a conveyor-

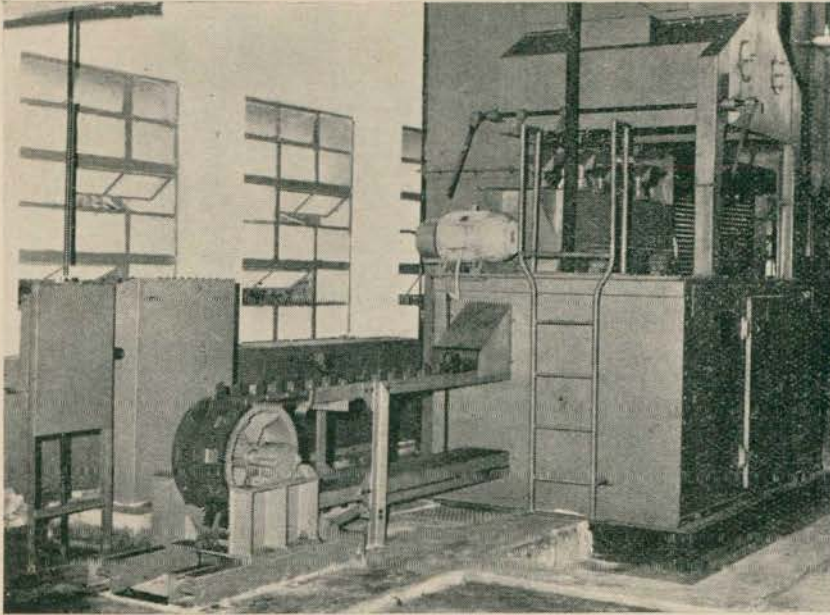
equipped, oil-quenching tank. The hot leaf is placed on the machine and is pressed in the die which descends into oil-quenching bath; the leaf is held until it sets and cools down, thus eliminating distortion. The die opens automatically, the leaf is

ejected and dropped on the conveyor which brings it out within the controlled time to allow the hardening process to act uniformly. The leaf is then tempered in a tempering furnace operating at a suitable temperature.



Cambering of Leaves After Eyes Have Been Made





Cambered and Heat-Treated Leaf Entering the Shot-Peening Equipment for Relieving Stresses and Increasing Fatigue Resistance

Afterwards, each leaf is carried to the shot-peening equipment in which iron shots are allowed to fall at a high speed on the tension surface of the leaf. In some cases the leaves are shot-peened on both the sides. During cambering and tempering, the surface skin becomes stiff and inelastic, and stresses are built up in the leaf. Under load, this type of surface starts developing hair-cracks which eventually lead to premature failure of springs. Shot-peening process relieves stresses and increases the fatigue resistance of the leaf during actual service. After the shot-peening process, leaves are ready to be assembled into springs.

Quality and Its Measurement

Some of the important clauses of the Indian Standard (IS: 1135-1957), according to which these leaves are being made, may be briefly described as under:

- a) Leaves shall be manufactured from molybdenum, chromium, chrome-vanadium or silico-manganese spring steel; chemical composition of all these steels has been prescribed.
- b) Leaf sections shall be substantially straight and free from lateral kinks, waves, twists, or other surface imperfections, such as splits, seams, flakes, pits, etc, which render them unsatisfactory for spring manufacturing purposes. The various widths and thicknesses of leaf sections are also prescribed

together with the rolling tolerance on width and thickness.

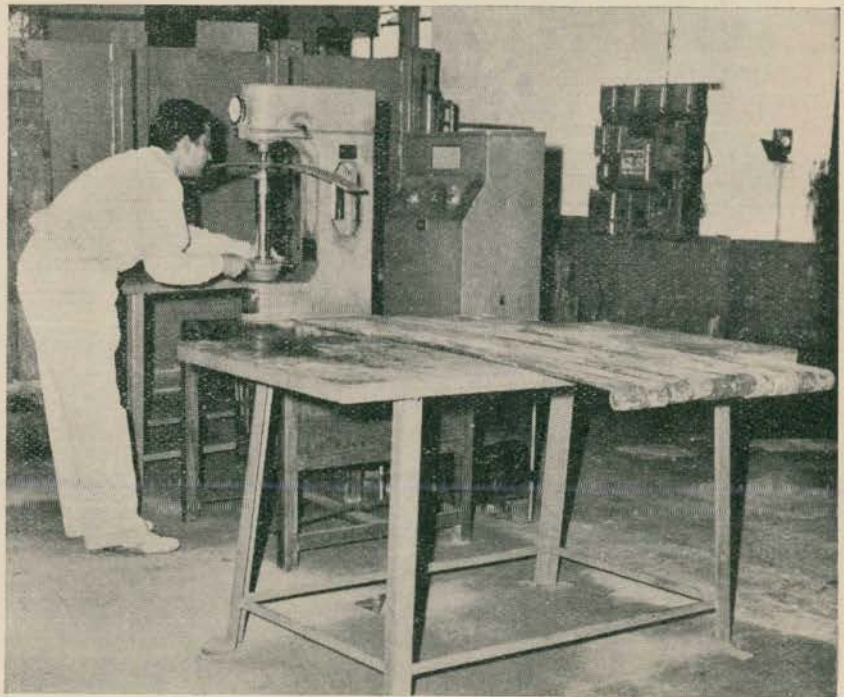
- c) Leaf sections shall be heat treated to give a hardness within the range of 388 to 461 Brinell or 410 to 500 DPN.
- d) Eyes of the main leaves shall be parallel to each other, parallel to the surface of the spring seat and square to the centre line of the main leaf.

The standard also prescribes clauses on leaf ends, centre bolts, centre holes and dimples, etc. It also includes various types of finishes and protective coatings which may be specified by the purchaser in his order.

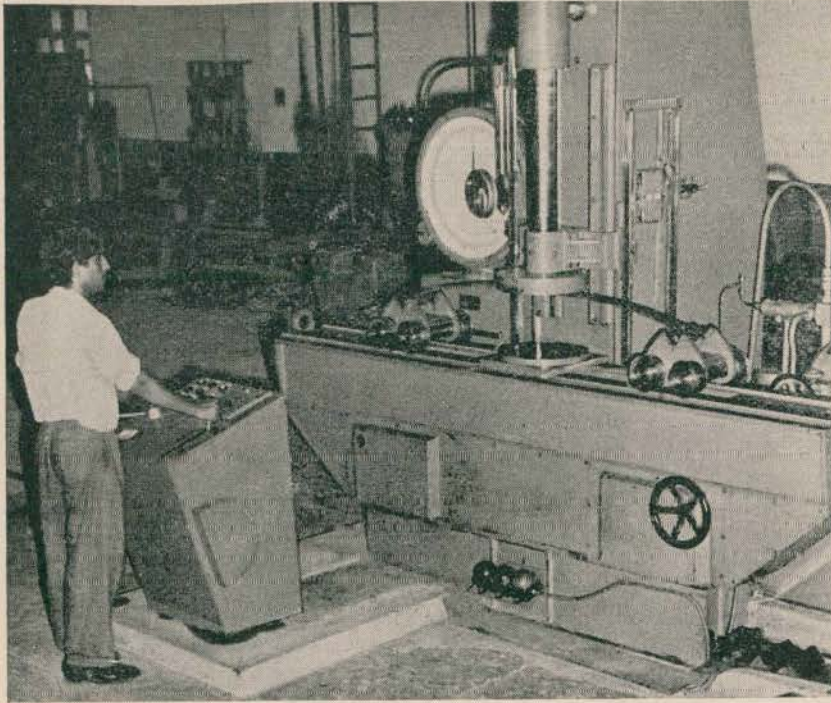
For ensuring conformity of spring leaves with these requirements, various tests are required to be conducted under the terms of the licence for fixing ISI Certification Mark on the finished leaves. Besides visual examination and accurate measurement of dimensions, they are subjected to hardness, scragging and load-deflection tests. Hardness test, carried on a Rockwell Hardness Tester, gives an indication of the correct heat-treatment — one of the important factors on which springing action of the leaf depends. In the scragging test, the leaf is compressed to the flat position and then released to the original position in quick succession for three times and the variation in chamber, technically known as permanent set in the free height, is recorded. The leaf is then subjected to the load-deflection test, and the load is recorded per inch of deflection during compression and release. This test gives an idea of the behaviour of the spring leaf in actual use.

Certification

In this connection, it would be worthwhile to review the procedure



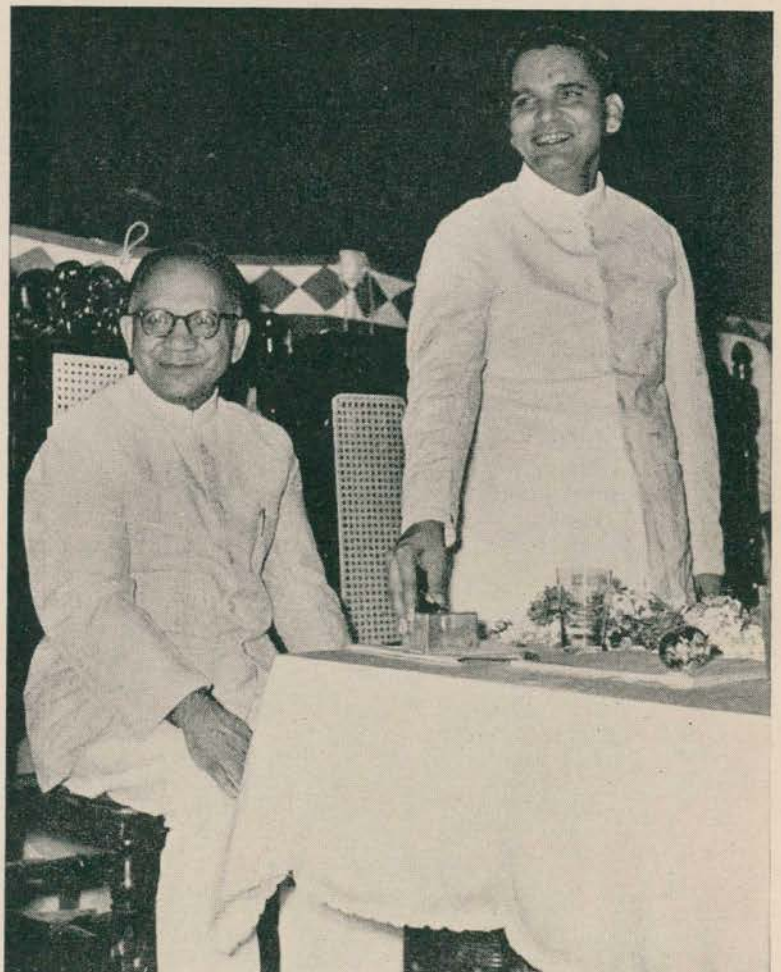
ISI Inspector Carrying Out Hardness Test of Leaves at the Factory



Spring Leaf Being Tested for Load Deflection

followed by ISI in granting licences to manufacturers for fixing ISI Certification Mark on their goods produced according to the relevant Indian Standards. To begin with, the Institution sends, on receiving an application for such a licence, its expert staff to the factory of applicant for inspection of the machinery, testing equipment, etc, in respect of that particular product for which licence is intended to be obtained. The inspector, after visiting the works, submits his observations on the capacity of the applicant to produce standard goods with the manufacturing technique, equipment, and the testing facilities available in the factory. After a thorough scrutiny of the inspection report and the relevant test data available with regard to the quality of goods being produced by the applicant, kept strictly confidential by ISI, the Institution draws up a scheme fixing the various levels of control at different stages of production, after giving due consideration to the statistical variations likely to occur during manufacture. This scheme, among other things, requires the manufacturer: (a) to maintain a system of works' inspection at such stages of manufacture which ISI prescribes; (b) to keep a record of inspection, physical tests and chemical analysis in suitable forms approved by the Institution; (c) to make available copies of records required by the inspecting officer at any time

on request; and (d) to get the testing equipment standardized and re-calibrated at periodic intervals. Furthermore, ISI inspectors draw samples at random, in their surprise visits, either from the factory or open market for carrying out independent tests themselves or by laboratories approved by ISI. The scheme is implemented in a manner that it is of greatest help to the manufacturer, but at no stage is any such relaxation made which may affect the quality of the product as defined in the relevant Indian Standard. It is after all these careful considerations that licences are granted under the ISI Certification Marks Scheme for affixing ISI Mark on goods produced by the licensee. And all these benefits to manufacturers and consumers are given by ISI by charging only a nominal marking fee which is normally at the rate of only 0.1 to 0.2 percent of the cost of goods manufactured.



Shri Manubhai Shah, Who Inaugurated the Plant for Manufacturing Leaf Springs and Dr. Lal C. Verma, Who Presided at the Function, Watch with Pleasure the Opening of the Curtain Marking the Inauguration of the Works as the Former Pushes the Switch Operating the Mechanism of the Remote Control

Kanpur Branch Office Inaugurated

A brief but august function, held on 26 September 1961 and attended by the elite of the town numbering about 200, marked the inauguration of the branch office of ISI at Kanpur. This branch office is the fourth in the series: the previous three have been functioning at Bombay, Calcutta and Madras since 1955, 1956 and 1957 respectively.

The Kanpur branch office like others is intended to serve the cause of standardization in the surrounding areas. It will provide up-to-date information about standardization activity in India and abroad, and the operation of the ISI Certification marks Scheme. In addition, Indian Standards and other publications of ISI will be stocked for sale. The branch office will also register orders for the supply of British, American and other foreign standards.

Welcome Address

While welcoming the opening of the branch office, Shri M. Samiuddin, Director of Industries, UP, mentioned that some of the industries of the State did not follow any uniform standards. He added: 'We need

these industries to be re-orientated so that whenever products are sent out they find a good export market and we do not have to face any embarrassing situation'. In this connection he remarked that the opening of the branch office of ISI in Kanpur, an industrial city, was of utmost importance. But, he said, 'Opening of the branch office would not serve the purpose unless we all co-operate and try to take advantage of the ISI activities. I would, therefore, appeal to those who are in industry to take the fullest advantage and to enlist themselves as active members'.

Inaugural Address

Delivering the inaugural address, Shri Padampat Singhania, the leading industrialist and the Chairman of the Reception Committee of the Indian Standards Convention to be held at Kanpur from 25 to 31 December 1961, said that the ultimate goal of standardization was national progress and a healthy national economy. He emphasized: 'To achieve this goal, the task of formulating standards by ISI is only half the job; the other half lies in the implementa-

tion of standards formulated'. Pointing out that this could be achieved only by closer and closer contacts and co-operation between industry and ISI, he remarked that while ISI was doing its part by establishing branch offices at all industrial centres, industry must do its part by posting itself with up-to-date information on standardization by trying to follow Indian Standards and by bringing to the notice of ISI the difficulties experienced in following any particular standard. He hoped that industries in UP, particularly in Kanpur, will derive much benefit by establishing contacts with the Kanpur branch office.

Vote of Thanks

Proposing a vote of thanks to Shri M. Samiuddin, Shri Padampat Singhania and all others concerned, Dr. A. N. Ghosh, Joint Director of ISI, pointed out that of over 2 000 subscribing members of ISI there were only 8 percent from UP and only 2 percent from Kanpur. He, therefore, expressed the hope that UP would not lag behind the other states of India so far as the membership of ISI was concerned.



Shri Padampat Singhania, the well-known Industrialist, Inaugurating the Kanpur Branch Office. To his r are Shri M. Samiuddin, Director of Industries, UP; and Dr. A. N. Ghosh, Joint Director, ISI



A View of the Assembly at the Inauguration

Meetings of ISO/TC 17 and ISO/TC 92—India Offered Secretariat of New Working Group

TWO technical committees of the International Organization for Standardization (ISO) at which India was represented met at London last April.

ISO/TC 17 Steel

Some 75 delegates from Australia, Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Hungary, India, Italy, New Zealand, Norway, Poland, Sweden, United Kingdom, United States, USSR and Yugoslavia attended the seventh meeting of ISO/TC 17 which was presided over by Mr. G. Weston, Technical Director, British Standards Institution. The Indian delegation to the meeting consisted of Shri T. V. N. Kidao as Leader; and Sarvashri P. C. Kapur, K. Z. Mathen, and B. S. Krishnamachar as members.

One of the important decisions taken by the Committee was the unanimous acceptance of the Indian proposal on Redesign and Standardization of Hot-Rolled Structural Steel Sections* for which a new Working Group was decided to be set up, and ISI was invited to take

*Also see ISI Bull. Vol 13, No. 5, p. 239 (1961).

up its secretariat. Germany was the first country to support India's proposal and suggested that it was necessary to evolve a small number of metric sections for use by all the countries. French delegation appreciated the work done by India in this field and promised support to the proposal on the lines indicated by Germany. The proposal was highly appreciated by USSR. It suggested that the document could straightaway form the basis of discussion at the first meeting of the working group. The United Kingdom strongly supported India's proposal and expressed the hope that ISO Recommendations on this subject, when formulated, would result in international economy, and felt that the universal beam sections should also be included in the scope of work of the working group and that the sections evolved should be both in inch and metric units.

Another proposal by India was regarding the rationalization of carbon and alloy steels. At the instance of the Indian delegation, the committee agreed that two working groups of ISO/TC 17 relating to Structural Steels (WG 3) and Heat-Treated Steels (WG 4) should keep in view, in the course of their work,

the question of rationalization of carbon and alloy steels.

On the draft ISO Proposal for Quenched and Tempered Unalloyed Steels, a strong plea was made by India that in the case of open hearth steel, the limits for sulphur and phosphorus contents should be stipulated at 0.060 percent maximum instead of 0.050 percent maximum. This document was referred back to the working group for re-consideration of various comments made by India and other countries.

The Committee accepted all the comments made by India on the document entitled Selection and Preparation of Samples and Test Pieces for Steel. The Committee also approved for circulation to member bodies various documents on chemical analysis of steel.

ISO/TC 92 Fire Tests on Building Materials and Structures

The first meeting of ISO/TC 92, which was presided over by Dr. D. I. Lawson, Director, Elstree Fire Research Station, UK, was attended by some 25 participating delegates from Belgium, France, Germany, India, Netherlands, Poland, United

(Continued on p. 292)



A View of the Seventh Meeting of ISO/TC 17. The Indian Delegation of Four is Seated in the Second Row

REVIEWS

ASTM Standards on Cement (With Related Information). American Society for Testing Materials, Philadelphia. Pp. viii + 288. December 1960. Price \$ 4.00.

This ready-reference volume contains 8 specifications, 26 methods of test and several definitions. Two specifications for laboratory apparatus are also included. Methods added to this compilation since the previous edition cover: false set of portland cement (Paste method), fineness of hydraulic cement by the the ASTM Sieve 325, and potential sulphate resistance of portland cement. Revisions have been made in 4 specifications and definitions, and 8 methods have been retained as such from the previous edition. Changes and additions have also been made in the appended Manual of Cement Testing and Selected References on Portland Cement.

ASTM Standards on Gypsum Products and Plaster Aggregates, With Related Standards. American Society for Testing Materials, Philadelphia. Pp. viii + 152. December 1960. Price \$ 2.75.

The volume contains 16 specifications, 11 methods of test, 4 sets of definitions relating to gypsum products and plaster aggregates as well as related standards. Specifications for gypsum backing board and the method of test for surface burning characteristics of building materials have been added since the previous edition was issued in 1957. Revisions have been made in 5 specifications, 7 methods, and one set of definitions has been retained from the previous edition.

ASTM Standards on Soaps and Other Detergents. American Society for Testing Materials, Philadelphia. January 1961. Pp. viii + 272. Price \$ 4.25.

The volume contains 24 specifications, 23 methods of test and a set of definitions. Three new methods for the analysis of synthetic detergents have been added and the other standards have been revised and brought up-to-date since they were published in the previous edition of 1959. Also included are new proposed methods for the rapid determination of solids by infra-red moisture balance and for measuring re-deposition of soil on cotton fabric.

Compilation of Chemical Compositions and Rupture Strengths of Super-Strength Alloys. American Society for Testing Materials, Philadelphia. January 1961. Pp. (ii) + 10. Price \$ 1.50.

This compilation lists the name, nominal chemical composition, characteristic rupture strengths for rupture in 100 and 1 000 hr, and patentee for approximately 163 domestic and 114 foreign alloys. The compilation includes the ferritic (martensitic) alloys and age-hardening stainless steels. It does not include the conventional austenitic stainless steels.

First issued in 1955, this compilation was originally prepared for committee use only, in efforts to write ASTM specifications for high-temperature, super-strength alloys. The data in the compilation were found so useful that the Society was asked to publish this booklet.

Papers on Building Constructions. American Society for Testing Materials, Philadelphia. December 1960. Pp. vi + 118. Price \$ 3.50.

Building construction is approached from several angles in this publication. The necessity for quality control in structural glued laminated timber, the advantages of diaphragms and full-scale testing of these assemblies, the importance of satisfactory end joints in laminated wood beams, screw holding properties of various species of wood, wood pole-type buildings, and termite control in California are among the many facets reflected in studies and research described in this group of papers. A paper on lateral shear tests of light-gauge steel buildings is also included.

Strength and Related Properties of Wood Poles. By L. W. Wood, E. C. O. Erickson & A. W. Dohr. American Society for Testing Materials, Philadelphia. September 1960. Pp. 182. Price \$ 5.00.

A complete report on the ASTM Wood Pole Research Programme is now available as a separate publication. The report contains a wealth of data and information on tests of full-size poles used for carrying transmission lines of electric power and communication systems. In addition to 60 pages of discussion

and explanation of the many factors involved in the testing of wood poles, there are 82 tables of data covering the testing of some 600 full-size treated and untreated poles and over 14 000 small, clear specimens from the pole material. There are 31 figures and illustrations which further augment the report.

The ASTM Wood Pole Research Programme is one of the most comprehensive co-operative projects undertaken under the sponsorship of ASTM. The total cost of the programme was about \$ 300 000. The period of the programme was six years, starting from 1954. The programme was prompted by the very limited and inconclusive test data available on full-size poles. Inconsistencies in the method of rating the various species of poles was another factor in the decision to conduct the programme. This presented a challenge to ASTM Committee D-7 on Wood to contribute to the improvement and more economical construction practices and to the reduction of maintenance costs of wood poles.

1960 Supplement to Book of ASTM Standards Including Tentatives. American Society for Testing Materials, Philadelphia. December 1960. 10 Parts. Price \$ 4.00 per part or \$ 40 per set.

The Book of ASTM Standards comprising 10 parts is published triennially. In the intervening years, supplements are issued to each of the 10 parts. The 1960 supplements give their latest form standard specifications, tests, definitions, and recommended practices which are being issued for the first time or revised since their appearance in the 1958 Book of Standards.

The titles and the number of pages of each of the 10 parts of the 1960 Supplement are:

- Part 1* Ferrous Metals (Specifications) — 444 pages;
- Part 2* Non-Ferrous Metals (Specifications), Electronic Materials — 348 pages;
- Part 3* Methods of Testing Metals (Except Chemical Analysis) — 180 pages;
- Part 4* Cement, Concrete, Mortars, Road Materials,

- Water-Proofing, Soils — 240 pages;
- Part 5* Masonry Products, Ceramics, Thermal Insulation, Acoustical Materials, Sandwich and Building Construction, Fire Tests — 238 pages;
- Part 6* Wood, Paper, Shipping Containers, Adhesives, Cellulose, Leather, Casein — 212 pages;
- Part 7* Petroleum Products, Lubricants, Tank Measurement, Engine Tests — 320 pages;
- Part 8* Paint, Naval Stores, Coal and Coke, Aromatic Hydrocarbons, Gaseous Fuels, Engine Antifreezes — 210 pages;
- Part 9* Plastics, Electrical Insulation, Rubber, Carbon Black — 494 pages; and
- Part 10* Textiles, Soap, Water, Atmospheric Analysis, Wax Polishes — 334 pages.

1960 Supplement to the Metal Cleaning Bibliographical Abs-

tracts. By Jay C. Harris. American Society for Testing Materials, Philadelphia. December 1960. Pp. iv + 36. Price \$ 2.00.

This supplement covers the period 1958 to early 1960. There are 114 references for this period as well as 100 newly added references for the period prior to 1958.

New metals present new cleaning problems which must be solved by advanced methods or combinations of older methods. Ultrasonic cleaning, in-place cleaning of equipment in plants, or of pipe lines, and the cleaning of electronic components are receiving much consideration for the special problems involved. The reader will find not only references of practical application, but also on theory and laboratory evaluation.

Symposium on Technical Developments in the Handling and Utilization of Water and Industrial Waste Water. American Society for Testing Materials, Philadelphia. December 1960. Pp. iv + 92. Price \$ 3.00.

The dual problem of supplying enough suitable water for expanding industry while at the same time increasing the supply of unpolluted water for growing population is covered in this symposium volume. The general areas covered are: radioactive waste water, water for reactor cooling, pollution problems, irrigation, and increase in the supply of fresh water.

Since greater quantities of radioactive wastes have been generated and disposed of, or stored in interim containers at Hanford, USA, than at any other atomic installation, the control measures developed there and described in one paper are of particular interest. Another paper covers methods developed by the US Geological Survey for determination of radioactive materials in water.

PUBLICATION RECEIVED

Sugar Industry (Published Articles). First Edition. By G. Ramachandran. Hoe & Co, The Premier Press, Madras-1. 1960. Pp. viii + 156. Price Rs 8.00.

MEETINGS OF ISO/TC 17 AND ISO/TC 92—INDIA OFFERED SECRETARIAT OF NEW WORKING GROUP—Continued from p. 290

Kingdom and USSR, and by an observer member from Denmark. India was represented by Shri B. S. Krishnamachar, Deputy Director (Structural and Metals).

Defining the scope of ISO/TC 92 was the first task before the Committee. India had proposed that fire safety of buildings should also be included in the scope in view of the fact that fire safety of buildings and fire testing of building materials are closely inter-related. After discussion, the scope was finally decided as follows:

“To prepare definitions for fire terms and to prepare tests for

determining the properties of building materials and structures in relation to the protection against fire of the building in the construction of which they are used. The question of fire safety of buildings was deferred to a later date after consideration of the fire tests.”

Other items discussed at the meeting were: terminology, combustibility tests of materials, and fire-resistance tests of structures. Definitions were formulated of terms, such as: (a) Combustible, (b) Stabilize, (c) Fire Resistance, (d) Restraint, (e) Conditioning, (f) Collapse,

(g) Passage of Flame, and (h) Insulation; and it was agreed that these terms should be reconsidered after the test procedures are drawn up. In respect of combustibility tests of materials, considerable discussion took place regarding the thickness of the test specimen. Germany offered to conduct combustibility test on plastic materials and furnish the results to the technical committee in due course. The document concerning fire-resistance tests of structures was discussed and its revised version is expected to be circulated to all the member bodies.

TWO INDIAN STANDARDS WITHDRAWN

The Indian Standards Institution has withdrawn the following two Indian Standards:

- a) IS:372-1952 Specification for Manganese Ore — Battery Grade (*Tentative*), and
- b) IS:373-1952 Specification for Manganese Ore — Metallurgical Grade (*Tentative*).

These two standards were taken up for revision in August 1956. As a result of their examination, it was decided to withdraw them and to issue the following two Indian Standards:

- a) IS:1449-1961 Methods of Sampling Manganese Ore, and
- b) IS:1473-1960 Methods of Chemical Analysis of Manganese Ore.

With regard to the question of a specification for manganese ore, it has been felt that it is not possible to lay down any specification for the material at this stage; the position will be reviewed after some time.

STANDARDS NEWS

ISI to Participate in Indian Industries Fair

ISI has decided to participate in the Indian Industries Fair to be held at New Delhi from 14 November 1961 to 1 January 1962.

Participation of ISI in the Fair is intended to create widespread consciousness of the role of Indian Standards in the economic life of the country. While the development of industrial economy through planned efforts envisaged in various development plans, aims at greater production and utilization of the country's economic resources and man-power, it is of vital importance that our industrial products maintain a uniformly high quality giving the purchaser his money's worth, both in home markets and abroad.

The role of ISI in the economic life of the country will be portrayed with the help of posters, cartoons, charts and other material. Utility of the ISI Certification Mark as the third-party guarantee to the consumer will be prominently publicized. Facility will also be provided for visitors to the Fair to purchase ISI publications — Indian Standards, ISI Handbook of Publications, ISI Bulletin and Annual Reports.

Since its inception 14 years ago, ISI has been participating in important industrial exhibitions held in India to propagate the philosophy of standardization and its importance in the economic development of the country. Among others, ISI had participated in the Indian Industries Fair — 1955, at which the ISI Stall was awarded a HIGHLY COMMENDED CERTIFICATE FOR ART IN INDUSTRY.

Animal Husbandry Wing and Standards for Mixed Feeds

A good deal of emphasis was laid on the development of the ready feeds industry in the country at the fourteenth meeting of the Animal Husbandry Wing of the Board of Agriculture Research (ICAR), Ministry of Food & Agriculture, held at Bangalore on 10-14 July 1961. It was pointed out that the success of the various animal husbandry schemes under the Third Five-Year Plan depended to a large extent on the availability of cheap ready feeds. The Wing meets biennially

and advises Government on matters relating to animal husbandry.

The Board recommended, *inter alia*, that to encourage the development of feed compounding industries in the private sector, the Government should grant capital loans at easy interest terms, and the manufacturing firms should get the benefit of:

- a) railway freight concessions for transport of manufactured feeds as granted for similar commodities, fertilizers, etc., and
- b) off-take of the produce at agreed price by the Government Poultry Farms.

However, the Board also recommended that the loan and other facilities to be granted to the private enterprise shall be on the clear understanding that manufactured poultry

For You

The purpose of the 'Standards News' feature is to inform readers of this Bulletin about the various interesting developments related to standardization in India and abroad. In this context, the editor invites from individuals as well as organizations, contributions which could be included in this feature.

feed would conform to the standards laid down by the Indian Standards Institution.

The Indian Standards Institution has already published a Specification for Poultry Feeds (IS:1374-1959) for the guidance of manufacturers, and another specification for Balanced Feed Mixtures for Cattle is expected to be finalized soon. Specifications for individual feedstuffs are also being formulated. In view of the recommendations mentioned above, it is expected that more and more manufacturers would come forward with ready feeds conforming to Indian Standards.

The meeting of the Board was attended by Shri P. D. Rawate, Extra Assistant Director (Agri & Food) of ISI who had also contributed a note on the measures to be adopted for establishing and

encouraging the setting up of food processing and manufacturing centres for ready feeds for poultry and livestock. Other subjects discussed at the meeting of direct interest to the Animal Feeds Sectional Committee (AFDC 15) and Meat and Meat Products Sectional Committee (AFDC 18) of ISI were the need for setting up a Veterinary Public Health Organization for ensuring proper inspection of foods of animal origin, and proper utilization of fallen animals (for the production of bone meal and meat meal).

National Seminar on Storage of Food Grains

One of the recommendations made at the National Seminar on Storage of Food Grains held in New Delhi on 20-22 April 1961, states that Government should give its sanction to the findings and the conclusions regarding storage practices and standards arrived at by organizations like the Indian Standards Institution in order that they might serve as guiding principles for institutions and agencies doing work in the field of storage of food grains. It was naturally assumed that while arriving at these findings on standards and structures, the Indian Standards Institution would give due consideration to the regional variations and to the past experience of the Government.

The Seminar was organized by the Directorate of Storage & Inspection, Ministry of Food & Agriculture (Department of Food) and was devoted to the following aspects of the storage problems:

- a) Handling aspects — structures and equipment;
- b) Biological aspects — various factors causing deterioration; and
- c) Control measures — preventive and curative methods including use of chemicals and their adoption.

The Indian Standards Institution has published as many as 12 standards on food grain storage structures and practices, and seven specifications on pesticides, fumigants and rodenticides used in the storage godowns for food grains. Dr. D. V. Karmarkar, Deputy Director (Agri & Food) of ISI represented the Institution at the Seminar and also contributed a paper which summed

up the work of ISI with regard to the preparation of standards for food grain storage and made a plea for the implementation of standards published on the subject.

Standardization of Ayurvedic Drugs

Dr. Rajendra Prasad, the President of India, emphasized the necessity for standardization of Ayurvedic medicines while unveiling at Calcutta a marble bust of Kaviraj Shyamadas Vachaspati at the Shyamadas Vidya-shastra Pith (an Ayurvedic college-cum-hospital) last July. The President pleaded for constant research and stated that minute scientific analysis was needed to evaluate the exact efficacy of Ayurvedic drugs. He said that there was one great advantage in the Ayurvedic system, as, on an average, the cost of training people and of treatment of patients was not enormous.

This Ayurvedic Institution, originally founded 60 years ago and inaugurated by Pandit Motilal Nehru, is aided by the Central Government and is now conducting research on dropsy. The number of patients claimed to have been treated since the establishment of the Institution is about 14 lakhs.

Metric Measures

As a further step in the direction of metricization, the Fourth Conference of Controllers of Weights and Measures, held at Bangalore on 14-15 July 1961, recommended the enforcement of metric length measures for general use throughout the country with effect from 1 October 1961. The use of the old length measures would be permitted for a period of one year ending 30 September 1962. At present, metric length measures are in use in the textile industry in all ex-mill transactions.

The use of the metric capacity measures had been authorized in selected areas from 1 April 1961. The Conference recommended the introduction of these measures in a few more selected areas on 1 October 1961 and throughout the country on 1 April 1962. In all these areas, the use of metric measures would become compulsory after one year from the date of their introduction.

Metric weights were introduced in selected areas on 1 October 1958 with a two-year optional period which ended on 30 September last year. In the rest of the country (excepting Jammu & Kashmir where the metric system has been introduced from 1 April this year) metric

weights will become compulsory from 1 April 1962.

The Conference noted with satisfaction that enforcement of metric system had been successful in almost all the States and Union Territories. It recommended the immediate creation of full-fledged enforcement organizations in every state and intensification of publicity campaign especially in non-urban areas.

Amendments of Weights and Measures (Enforcement) Rules to bring them in line with ISI's revised specifications for weights and measures was considered and the report submitted by an Expert Committee, which had been set up for the purpose, was approved. It was felt that there should be adequate representation for Departments of Weights and measures on Sectional Committees entrusted with the drafting of standards on weights and measures and a request to that effect was made to ISI. The Institution was also asked to recommend specifications and procedures for verification of taxi-meters and water meters.

The next Conference, it was decided, would be held at Jaipur in January 1962.

Standards of Construction, Research and BAI

That the builders should raise the working standard of the Construction Industry, was a point made out by Shri V. K. Krishna Menon, India's Defence Minister, in his inaugural address delivered at the 18th Annual General Meeting of the Builder's Association of India (BAI) held in Bombay last April. Shri Menon was happy to note the interest of BAI in research work and said that his Ministry was also actively carrying out active research work in co-operation with the Central Building Research Institute, Roorkee.

Earlier, in his presidential address Shri M. J. Shah, President of BAI, had stated that the Association was planning to set up a co-operative Builders' Research Association to study construction problems scientifically and devise improved construction techniques. He hoped that all the Ministries of the Government of India which have an interest in construction would help in meeting the cost of this highly commendable project.

Today, when India is in the thick of its development activity, the role of the construction industry assumes special significance. It has been estimated that no less than two-thirds of all developmental work

involves the construction industry and the pivotal role that the builder has to fill is not less important than that of the planner and the designer. What can the most competent planning do or the most detailed blue prints achieve if the builder does not convert efficiently the blue prints into hard concrete realities?

The Builders' Association of India is a sustaining Member of ISI and it collaborates with ISI in formulating Indian Standards concerning Building and Construction Industries. It is represented on the Building Division Council of ISI and its three Sectional Committees, namely Building Construction Practices (BDC 13), Construction Plant and Machinery (BDC 28), and Planning and Organization at Site (BDC 29).

Standards and Export Trade of Coir Mats and Matting

The coir mats and matting industry has been passing through difficult times, and the Coir Board has been very much concerned about ruinous and unhealthy competition which has been prevailing in the export trade of these products. The necessity to devise some measures for regulating the export trade which would curb the unwholesome practice of under-quoting amongst exporters has been keenly felt all round. The Export Promotion Committee of the Coir Board has studied and examined this matter in considerable detail and the draft scheme which has been drawn for this purpose, suggests, *inter alia*, the following measures for improving the situation:

- a) As a first step, it is necessary that coir products should be Standardized. Standardization can be effected more or less on the basis of the specifications the Coir Board has set out in the printed catalogue.
- b) The varieties and grades of mats and mattings should be reduced — without detriment to the export trade and at the same time satisfying the needs of the consuming markets.
- c) The industry and the Coir Board should work out floor prices for mats and mattings quality-wise. Any sale of goods below the scale of floor prices should be discouraged.
- d) It is necessary that the export trade in coir products be so developed that the foreign importer can reasonably be sure of getting what he desires to purchase and what he has bargained for. To ensure this,

pre-shipment inspection of coir goods must be made more popular. The Coir Board should build up a suitable machinery for carrying out expeditious pre-shipment inspection of coir goods which would not involve any serious expenditure for importers. However, it may not be feasible to make pre-shipment inspection compulsory. The choice of demanding such inspection should be left to the foreign importer.

The stress being laid by the Coir Board on the necessity for standardization and inspection of coir products is very welcome. The Indian Standards Institution was seized of this problem as early as 1949 when the Coir and Coir Products Sectional Committee (TDC 9) was set up to prepare national standards concerning these products. Two specifications, namely, IS: 898-1957 Coir Fibre (*Tentative*), and IS: 1693-1960 Door Mats — Rod, have already been published, and one more, concerning Door Mats — Creel, Bit and Fibre; has been finalized for printing. The other draft Indian Standards, which cover coir Matting — Mourzouks and Carpets; Coir Yarn; and Methods of Test for Coir Fibre; are under various stages of preparation. Three specifications for coir ropes, namely, IS: 1410-1959 Hawser Laid Coir Ropes, IS: 1411-1959 Shroud Laid Coir Ropes, and IS: 1412-1959 Cable Laid Coir Rope, have also been published.

Functional Efficiency of Buildings

The Third Conference of Building Research Workers to be held at Roorkee on 13-14 Nov 1961 will devote its attention to those aspects of building design and construction generally referred to as 'Functional Efficiency'.

The aim is to exchange information and experience on the following topics:

- Testing and standardization of thermal and acoustical materials;
- The effect of climate on building design in the tropics;
- Thermal comfort in buildings including ventilation (natural and artificial), air-condition-

ing, and performance of building components;

- Acoustics of buildings (acoustical properties of materials, noise and related topics); and
- Lighting in buildings (natural and artificial).

It is intended at the same time to hold an exhibition of samples of materials, drawings, plans, photographs and models to emphasize the various requirements that go to make a building functionally efficient.

Since a considerable amount of work on topics mentioned above, about which little information is available is being carried out by consulting architects, engineers and others, this conference should be greatly benefitted by their association and experience.

SARN Sets Up a Textile Industry Council

A Textile Industry Council has been set up by the Standards Association of Rhodesia and Nyasaland at the request of the Central African Textile Manufacturers' Association. The textile industry is one of the biggest secondary industries in the Federation.

The Council held its first meeting on 6 April 1961 to chalk out a programme of work and the setting up of various technical Committees.

At the meeting it was agreed that there was a need for standards in the textile industry and for the use of the Association's mark on products, to encourage the production of quality goods and their sale in both the Federation and the export markets.

The following committees were set up to deal with most aspects of the industry:

- Tarpaulins (previously formed);
- Plain cloths, calicos, drills, twills, satins and denims;
- Blankets;
- Towelling;
- Knitted fabric;
- Twine and cordage;
- Cotton wool; and
- Finishing and dyeing.

ASTM Mica Master Standard Samples

On 30 June 1961, Mr. Allan Bates, President of ASTM, presented to

Indian Embassy Officials at Atlantic City, N. J., a master set of visual quality standard samples for mica during the course of the 64th Annual Meeting of the Society. The set is comprised of the following qualities of mica:

- Clear and Slightly Stained
- Fair Stained
- Good Stained
- Stained 'A'
- Stained 'B'
- Heavy Stained

It is claimed that these standard samples have long been the basis for purchasing mica, both by the American industry and the United States Government.

The master set which will be kept in the custody of the Export Promotion Council would be studied against the national set of master standard samples and a report prepared for submission to ISO/TC 56 Mica through ISI along with a proposed set of samples. The national set of master standard samples has been prepared by the Master Standard Samples Subcommittee (ETDC 9:2) of ISI and comprises the following nine qualities of mica in accordance with IS: 1175-1957 Method for Grading and Classification of Muscovite Mica Blocks, Thins and Films:

- 1 Ruby Clear
- 2 Ruby Clear and Slightly Stained
- 3 Ruby Fair Stained
- 4 Ruby Good Stained
- 5 Ruby Stained A Quality
- 7 Ruby Stained B Quality
- 9 Ruby Heavy Stained
- 10 Ruby Densely Stained
- 11 Black Dotted

Mica now is a mineral of strategic importance to the electronics and space-age industries since it has excellent electrical insulating properties. Because mica, in the form in which it is used in these industries must be handled with automatic equipment, it is necessary that it should be highly uniform and free from minor defects, including waviness, certain stains and impurities which might affect electrical or thermal properties. Visual standards are still found necessary in the grading of mica, the eye yet being the most sensitive instrument for detecting minor flaws.

Implementation of Indian Standards

During the period 1 June to 31 July 1961 the following Government purchasing and consuming departments communicated to ISI that they had added to the list of Indian Standards, on the basis of which their purchases are made and other recurring problems solved, the standards given below under each. On 31 July 1961, 1 694 Indian Standards were in force, of which 1 447 had thus been adopted by various Government departments.

Directorate General of Supplies & Disposals

- IS: 947-1960 Towing Tender for Trailer Pump for Fire Brigade Use
- IS: 1081-1960 Code of Practice for Fixing and Glazing of Metal (Steel and Aluminium) Doors, Windows and Ventilators
- IS: 1188-1957 Ready Mixed Paint, Brushing, Oil Gloss, Genuine Zinc Oxide, For General Purposes
- IS: 1363-1960 Black Hexagonal Bolts (6 to 39 mm) With Nuts and Black Hexagonal Screws (6 to 24 mm)
- IS: 1383-1960 Method for Determination of Scouring Loss in Grey and Finished Cotton Textile Materials
- IS: 1397-1960 Kraft Paper
- IS: 1404-1959 Anti-Corrosive Paint, Brushing for Ships' Bottoms and Hulls, Red, Chocolate or Black, As Required
- IS: 1409-1959 Methods of Chemical Analysis of Antifriction Bearing Alloys
- IS: 1442-1959 Covered Electrodes for the Metal Arc Welding of High Tensile Structural Steel
- IS: 1504-1959 Commercial Beeswax
- IS: 1518-1960 Method for Gauging of Petroleum and Liquid Petroleum Products
- IS: 1521-1960 Tensile Testing of Steel Wire
- IS: 1527-1960 Methods of Chemical Analysis of Fireclay and Silica Refractory Materials
- IS: 1536-1960 Centrifugally Cast (Spun) Iron Pressure Pipes for Water, Gas and Sewage
- IS: 1537-1960 Vertically Cast Iron Pressure Pipes for Water, Gas and Sewage
- IS: 1538-1960 Cast Iron Fittings for Pressure Pipes for Water, Gas and Sewage
- IS: 1595-1960 Enamelled High-Conductivity Annealed Round Copper Wire (Synthetic Enamel)
- IS: 1599-1960 Method for Bend Test for Steel Products Other Than Sheet, Strip, Wire and Tube
- IS: 1610-1960 General Requirement for Sewing Machines (Household Model)
- IS: 1617-1960 Oil of Lavandin
- IS: 1639-1960 East India Tanned Kips and Skins
- IS: 1645-1960 Code of Practice for Fire Safety of Buildings (General): Chimneys, Flues, Flue Pipes and Hearths
- IS: 1663-1960 Methods for Tensile Testing of Steel Sheet and Strip of Thickness 0.5 mm to 3 mm
- IS: 1673-1960 Mild Steel Wire for the Manufacture of Machine Screws (By Cold Heading Process)
- IS: 1685-1960 Whiting for Rubber Industry
- IS: 1691-1960 Cast Iron and Mild Steel Flat Pulleys
- IS: 1692-1960 Method for Simple Bend Testing of Steel Sheet and Strip Less Than 3 mm Thick
- IS: 1700-1960 Drinking Fountains
- IS: 1701-1960 Mixing Valves for Ablutatory and Domestic Purposes
- IS: 1702-1960 Spring Balances
- IS: 1709-1960 Fixed Capacitors for Fans
- IS: 1711-1960 Self-Closing Taps
- IS: 1721-1960 Hair Belting Yarn
- IS: 1724-1960 Methods of Specifying and Testing Varnished and Enamelled Ring Rabbeth Bobbins for Cotton Mills
- IS: 1726-1960 Cast Iron Manhole Covers and Frames Intended For Use in Drainage Works
- IS: 1734-1960 Methods of Test for Plywood
- IS: 1737-1960 Small Size Spring Buffers for Cotton Looms

Controller General of Defence Production

- IS: 228-1959 Methods of Chemical Analysis of Pig Iron, Cast Iron and Plain Carbon and Low-Alloy Steels (*Revised*)
- IS: 303-1960 Plywood for General Purposes (*Revised*)
- IS: 652-1960 Wooden Separators for Lead-Acid Storage Batteries (*Revised*)
- IS: 1345-1960 Methods of Chemical Analysis of Printing Metals
- IS: 1383-1960 Method for Determination of Scouring Loss in Grey and Finished Cotton Textile Materials
- IS: 1433-1960 Beam Scales
- IS: 1466-1960 Ferro Vanadium
- IS: 1470-1960 Silico Manganese
- IS: 1471-1960 Ferro Phosphorus
- IS: 1548-1960 Manual on Basic Principles of Lot Sampling
- IS: 1549-1960 Steel Drums and Kegs (Galvanized and Ungalvanized)
- IS: 1565-1960 Electrical Apparatus Comprising Resistors
- IS: 1567-1960 Metal Clad Switches
- IS: 1571-1960 Aviation Turbine Fuels, Kerosine Type
- IS: 1572-1960 Cadmium Plating
- IS: 1574-1960 Glass Weighing Bottles
- IS: 1575-1960 Separating Funnels
- IS: 1585-1960 Motor Gasoline, 79 Octane
- IS: 1586-1960 Method for Rockwell Hardness Test (B and C Scales) for Steel
- IS: 1588-1960 Aviation Turbine Fuels, Wide Cut Gasoline Type
- IS: 1589-1960 Oil, Cylinder
- IS: 1590-1960 Glass Filter Flasks
- IS: 1591-1960 Glossary of Terms for Electrical Cables and Conductors
- IS: 1606-1960 Schedule for Automobile Lamps

Research Design & Standards Organization

- IS: 771-1958 White Glazed Earthenware Sanitary Appliances
(Continued on p. 318)

ISI Certification Marks

New and Renewed Licences, and Marking Fees

During the two months ending 31 July 1961, marking fee was revised for 14-mm sparking plugs covered by IS: 1063-1957. This had been specified earlier* as one naya paisa per plug with a minimum of Rs 500-00 for the production during a calendar year. Now, it will be one naya paisa per plug for the first 500 000 plugs with a minimum of

Rs 4 500-00 for production during a calendar year; for 500 001st plug and over, it will be 0-5 naya paisa per plug.







In July 1961 issue of this Bulletin, the standard mark and marking fees were prescribed for foam-type portable chemical fire-extinguishers; in this issue the standard mark and marking fee for soda-acid-type portable chemical fire-extinguishers are being announced. The marking fee for both the foam-type and soda-

acid-type portable chemical fire extinguishers is the same, that is, 50 nP per extinguisher and the minimum for production during a calendar year to be charged for both the types of extinguishers, will be Rs 1 500-00.

During the same period, ISI specified standard marks and prescribed marking fees in respect of 8 products, granted 19 new licences and renewed another 26 for the use of standard marks; particulars of all these are given below:

*See ISI Bull., Vol 11, No. 5, p. 220 (1959).

STANDARD MARKS AND MARKING FEES





PRODUCT/CLASS OF PRODUCT	DESIGN OF STANDARD MARK	NUMBER AND TITLE OF RELEVANT INDIAN STANDARD	UNIT	MARKING FEE PER UNIT
Tea-Chest Battens		IS: 10-1953 Specification for Plywood Tea-Chests (<i>Revised</i>)	One Hundred Sets	35 nP
Sulphuric Acid, Battery Grade†		IS: 266-1950 Specification for Sulphuric Acid	One lb	2 nP per unit with a minimum of Rs 1 000-00 for production during a calendar year
Plywood for General Purposes‡		IS: 303-1960 Specification for Plywood for General Purposes (<i>Revised</i>)	One Hundred Square Feet	Nil (Contribution to the Plywood Industry Voluntary Contribution Fund would continue to be made to the Development Wing, Ministry of Commerce & Industry)
				
				
Foot-Balls, Volley-Balls, Basket-Balls and Water Polo Balls		IS: 417-1953 Specification for Foot-Balls, Volley-Balls, Basket-Balls and Water Polo Balls (<i>Tentative</i>)	—	No marking fee is to be charged

†Marking fee for Sulphuric Acid was announced earlier. See *ISI Bull.* Vol 12, No. 4, p. 189 (1960).

‡In view of the Revision of IS: 303-1951, the standard mark, covering this product and announced earlier on p. 246 of Sep-Oct 1960 issue of this Bulletin, has been revised.

(Continued on next page)

STANDARD MARKS AND MARKING FEES—Contd

PRODUCT/CLASS OF PRODUCT	DESIGN OF STANDARD MARK	NUMBER AND TITLE OF RELEVANT INDIAN STANDARD	UNIT	MARKING FEE PER UNIT
Unreinforced Corrugated Asbestos Sheets	<p>IS:459</p> 	IS: 459-1959 Specification for Unreinforced Corrugated Asbestos Sheets	One Metric Tonne	20 nP
Bicycle Frames	<p>IS:623</p>  <p>FRAME ONLY</p>	IS: 623-1955 Specification for Bicycle Frames (<i>Tentative</i>)	One Bicycle Frame	5 nP per unit with a minimum of Rs 500-00 for production during a calendar year
Bicycle Spokes (Plain) with Nipples and Washers	<p>IS:630</p> 	IS: 630-1955 Specification for Bicycle Spokes (Plain) and Nipples for Spokes (<i>Tentative</i>)	One Gross	2 nP per unit with a minimum of Rs 1 500-00 for production during a calendar year
Portable Chemical Fire Extinguishers, Soda-Acid Type	<p>IS:934</p> 	IS: 934-1960 Specification for Portable Chemical Fire Extinguisher, Soda-Acid Type	One Extinguisher	50 nP per unit with a minimum of Rs 1 500-00 for production, during a calendar year, of both foam-type and soda-acid type extinguishers

NEW LICENCES GRANTED

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-311 26-6-1961	1-7-1961	30-6-1962	M/s Prem Industrial Corporation, Madras	Hard-Drawn Stranded Aluminium and Steel-Cored Aluminium Conductors for Overhead Power Transmission Purposes (IS: 398-1953)
CM/L-312 26-6-1961	1-7-1961	30-6-1962	M/s Sonawala Industries Private Ltd., Bombay	Sulphuric Acid, Battery, Pure and Analytical Reagent Grades (IS: 266-1950)
CM/L-313 26-6-1961	1-7-1961	30-6-1962	M/s Naham Foundry Ltd., Naham	Three-Phase Induction Motors Up to 10 Horse Power (IS: 325-1959)
CM/L-314 26-6-1961	1-7-1961	30-6-1962	M/s Hyderabad Asbestos Cement Products Ltd., Sanatnagar	Unreinforced Corrugated and Semi-corrugated Asbestos Cement Sheets (IS: 459-1955)
CM/L-315 26-6-1961	1-7-1961	30-6-1962	M/s Rohtas Industries Ltd., Dalmianagar	do
CM/L-316 26-6-1961	1-7-1961	30-6-1962	The Reliable Water Supply Service of India Private Ltd., Lucknow	Flushing Cisterns for Water Closets Urinals (IS: 774-1957)
CM/L-317 26-6-1961	1-7-1961	30-6-1962	M/s Cable Corporation of India Limited, Bombay	Paper-Insulated Lead-Sheathed Cables for Electricity Supply (IS: 692-1957)
CM/L-318 29-6-1961	15-7-1961	14-7-1962	M/s N. G. K. Electrical Industries, Bombay	Three-Phase Induction Motors Up to 5 Horse Power (IS: 325-1959)
CM/L-319 29-6-1961	15-7-1961	14-7-1962	M/s Hind Timber Industries, Yamunanagar	Plywood Tea-Chest Battens (IS: 10-1953)
CM/L-320 18-7-1961	1-9-1961	31-8-1962	M/s R.S. Brothers, Jaipur	Bicycle Frames (IS: 623-1955)
CM/L-321 18-7-1961	1-9-1961	31-8-1962	M/s Jaipur Cycle and Parts Industries, Jaipur	do
CM/L-322 18-7-1961	1-9-1961	31-8-1962	M/s Rajasthan Cycle Industries (Regd), Jaipur	do
CM/L-323 18-7-1961	1-8-1961	31-7-1962	The Metal Box Company of India Ltd., Madras	18-Litre Square Tins (IS: 916-1958)
CM/L-324 26-7-1961	1-8-1961	31-7-1962	The Sports Goods Training-cum-Production Centre, Calcutta	Foot-Balls, Volley-Balls, Basket-Balls and Water Polo Balls (IS: 417-1953)
CM/L-325 26-7-1961	1-8-1961	31-7-1962	M/s Devidayal (Sales) Private Ltd., Bombay	BHC Emulsifiable Concentrates (IS: 632-1958)

(Continued on next page)

NEW LICENCES GRANTED — *Contd*

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-326 26-7-1961	1-8-1961	31-7-1962	M/s Tata-Fison Limited, Salkia	BHC Emulsifiable Concentrates (IS: 632-1958)
CM/L-327 31-7-1961	1-8-1961	31-7-1962	M/s India Plywood Company, Calcutta	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-328 31-7-1961	15-8-1961	14-8-1962	The Metal Containers Private Ltd., Naini, Allahabad	18-Litre Square Tins (IS: 916-1958)
CM/L-329 31-7-1961	15-8-1961	14-8-1962	M/s Delta Spokes Manufacturing Co., Bombay	14 SWG Bicycle Spokes (Plain), with Nipples and Washers (IS: 630-1955)

LICENCES RENEWED

NO. OF LICENCE AND DATE OF ISSUE	PERIOD OF VALIDITY		NAME AND ADDRESS OF THE LICENSEE	ARTICLE COVERED BY THE LICENCE AND NUMBER OF RELEVANT INDIAN STANDARD
	from	to		
CM/L-29 1-7-1957	16-7-1961	15-7-1962	M/s Tata-Fison Limited, Bombay	i) DDT Dusting Powders (IS: 564-1955) ii) DDT Water Dispersible Powder Concentrates (IS: 565-1955)
CM/L-30 11-7-1957	16-7-1961	15-7-1964	The India Cements Ltd., Sankarnagar, Talaiyuthu	Ordinary and Rapid-Hardening Portland Cement (IS: 269-1958)
CM/L-88 22-5-1958	2-6-1961	1-6-1962	The Hindustan Electric Co. Ltd., Faridabad	Aluminium Conductor Steel Reinforced and All Aluminium Conductors (IS: 398-1953)
CM/L-89 22-5-1958	2-6-1961	1-6-1962	M/s Estrela Batteries Limited, Bombay	Leclanché Type Dry Batteries for Flash Lights (IS: 203-1958)
CM/L-90 20-6-1958	1-7-1961	30-6-1962	The National Screw and Wire Products Limited, Calcutta	Hard-Drawn Copper Solid and Stranded Circular Conductors for Overhead Power Transmission Purposes (IS: 282-1951)
CM/L-117 13-2-1959	1-7-1961	30-6-1962	M/s Metallica Works Private Ltd., Bombay	Antifriction Bearing Alloys (IS: 25-1950)
CM/L-125 29-5-1959	16-6-1961	15-6-1962	M/s Model Soap Company, Calcutta	Toilet Soap (IS: 284-1951)
CM/L-126 29-5-1959	16-6-1961	15-6-1962	M/s Power Cables Private Ltd., Kalyan	Hard-Drawn Stranded Aluminium and Steel-Cored Aluminium Conductors for Overhead Power Transmission Purposes (IS: 398-1953)
CM/L-129 23-6-1959	1-7-1961	30-6-1964	The Alkali & Chemical Corporation of India Ltd., Calcutta	BHC Emulsifiable Concentrates (IS: 632-1958)
CM/L-131 24-6-1959	1-7-1961	30-6-1964	M/s East India Distilleries and Sugar Factories Limited, Madras	BHC Dusting Powders (IS: 561-1958)
CM/L-132 24-6-1959	1-7-1961	30-6-1964	do	DDT Dusting Powders (IS: 564-1955)
CM/L-133 15-7-1959	1-8-1961	31-7-1962	The Travancore Sugars & Chemicals Ltd., Tiruvalla	Rectified Spirit — Grade 1 (IS: 323-1959)
CM/L-134 15-7-1959	1-8-1961	31-7-1962	M/s Motor Industries Co. Ltd., Bangalore	14-mm Sparking Plugs (IS: 1063-1957)
CM/L-135 15-7-1959	1-8-1961	31-7-1962	M/s Sharda Plywood Industries Private Limited, P.O. Jeypore, Assam	Plywood Tea-Chest Panels (IS: 10-1953)
CM/L-136 3-8-1959	17-8-1961	16-8-1962	M/s Liberty Chemical Works, Bombay	Sodium Thiosulphate, Photographic Grade (IS: 246-1957)
CM/L-169 22-2-1960	15-7-1961	14-7-1962	The Mysore Insecticides Company, Madras	BHC Dusting Powders (IS: 561-1958)
CM/L-194 30-5-1960	15-6-1961	14-6-1962	M/s Enco Plywood & Sawmill Industries, Siliguri	Commercial (Common) and Moisture-Proof Plywood (IS: 303-1960)
CM/L-195 30-5-1960	15-6-1961	14-6-1962	M/s Western India Plywoods Ltd., Baliapatam	do
CM/L-197 30-5-1960	1-7-1961	30-6-1962	M/s Kwaliti Waterproof Manufacturing Co., Delhi	Waterproof Packing Paper Made from 60 g Kraft Paper (IS: 293-1951)
CM/L-198 14-6-1960	16-6-1961	15-6-1962	M/s Bando Plywood Works, Calcutta	Tea-Chest Plywood Panels (IS: 10-1953)
CM/L-203 15-6-1960	1-7-1961	30-6-1962	M/s Mahalakshmi Glass Works Private Ltd., Bombay	Aerated Water Glass Bottles (IS: 1107-1957)
CM/L-204 28-6-1960	15-7-1961	14-7-1962	The Jaipur Metals & Electricals Ltd., Jaipur	Copper Rods for Boiler Stay Bolts and Rivets (IS: 288-1960)
CM/L-205 20-7-1960	1-8-1961	31-7-1962	M/s Kaira District Co-operative Milk Producers' Union Ltd., Anand (W.R.)	Milk Powder (Whole and Skim) (IS: 1165-1957)
CM/L-206 20-7-1960	20-7-1961	19-7-1962	M/s Imperial Chemical Industries (India) Private Ltd., Bombay	BHC Dusting Powders (IS: 561-1958)
CM/L-207 20-7-1960	1-8-1961	31-7-1962	The Renown Biscuit Co., Bombay	Biscuits (Excluding Wafer Biscuits) (IS: 1011-1957)
CM/L-208 29-7-1960	15-8-1961	14-8-1962	M/s Bengal Chemical & Pharmaceutical Works Ltd., Calcutta	Naphthalene (IS: 539-1955)

ISI ACTIVITIES

FIRST MEETINGS

Electric Lamps and Accessories

The work on electric lamps and accessories was in the past done by the Electric Lamps Subcommittee, ETDC 7:4, working under the Electrical Appliances and Accessories Sectional Committee, ETDC 7. The status of this subcommittee was decided to be raised to that of a Sectional Committee with a view to expediting the work in this field.

The first meeting of the Electric Lamps and Accessories Sectional Committee, ETDC 23, was held at Calcutta on 26 and 27 June 1961, under the chairmanship of Shri Sachin Sen of Bharat Electrical Industries. The Committee finalized for publication the draft Indian Standard Specification for Visual Indicator Lamps and approved for wide circulation the following two drafts: (a) Schedule for High-Pressure Mercury Vapour Lamp; and (b) Capacitors for Electric Discharge Lamp. The Committee also considered the draft Specification for Glow Starters for Fluorescent Lamps and decided that the scope of the specification should be enlarged to cover starters for use with different wattages of fluorescent lamps.

The Committee reviewed the future programme of work and proposed to initiate work on detailed specifications for lamp caps and holders.

Electronic Equipment

The first meeting of the Electronic Equipment Sectional Committee, ETDC 24, was held at Manak Bhavan on 23 May 1961, under the chairmanship of Shri S. Thiruvengatachari, Director of Frequency Assignments, All India Radio. This Committee is one of the four newly set up committees resulting from the re-organization* of the former Radio Equipment Sectional Committee, ETDC 8.

The scope of work of ETDC 24 covers all electronic equipment (except acoustical equipment), such as transmitters, receivers, measuring instruments, etc, and their methods of testing, performance requirements and safety. The Com-

mittee decided at this meeting to set up the following subcommittees and panels for detailed work on the corresponding subjects:

- a) Radio Receivers Subcommittee;
- b) Electronic Measuring Equipment Subcommittee;
- c) Panel for Transmitters; and
- d) Panel for Safety of Electronic Equipment.

The Committee approved for wide circulation the following two drafts: (a) Methods of Measurements for Amplitude Modular Radio Frequency Signal Generators (30 kc/s to 30 Mc/s), and (b) Requirements for General Purpose Amplitude Modulated Radio Frequency Signal Generators (30 kc/s to 30 Mc/s). The Committee also authorized the Radio Receivers Subcommittee to approve and put into circulation a preliminary draft for Methods of Measurements for Receivers for Frequency Modulated Transmitters. In addition, the Committee decided on the procedures to be followed in dealing with the corresponding IEC work on transmitters, receivers, safety, electronic measuring equipment and interference suppression.

Environmental Testing Procedures

The first meeting of the Environmental Testing Procedures Sectional Committee, ETDC 26—another committee which was newly-formed as a result of the re-organization† of the former Radio Equipment Sectional Committee, ETDC 8—was held at Bangalore on 21 and 22 June 1961, under the chairmanship of Col K. K. Mehta, Chief Inspector of Electronics, Inspectorate of Electronic Equipment, Ministry of Defence. The scope of work of ETDC 26 covers climatic, mechanical and other environmental tests for electronic components as well as complete electronic equipment.

At the meeting in Bangalore, the draft Revision of IS: 589-1954 Procedures for Basic Climatic Tests for Electronic Components, which had already been finalized earlier, was re-examined with reference to some points. The Revision now entitled as Procedures for Basic Climatic and Mechanical Durability Tests, will be published in the final form shortly.

†See ISI Bull. Vol 13, No. 4, p. 194 (1961).

The Committee also approved for wide circulation two drafts covering environmental testing procedures for complete electronic equipment, Part I dealing with general clauses and Part II detailing procedures for damp heat (cycling) test. These drafts are largely based on the corresponding IEC work.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Agricultural and Food Storage Practices

The fifth meeting of the Agricultural and Food Storage Practices Sectional Committee, AFDC 7, was held on 8 June 1961 at Bhopal in joint session with the second meeting of the Prefabricated Aluminium Foodgrain Storage Bins Subcommittee, AFDC 7:2. The meeting was presided over by Dr. S. V. Pingale, Chairman, AFDC 7.

The Committee finalized for publication the draft Indian Standard Specification for Aluminium Food Grain Storage Bins in the light of the comments received as a result of wide circulation of its draft. The Committee also agreed to issue amendments, without circulation for metricizing the Indian Standard Codes of Practice for the following:

- a) Construction of *Bukhari* Type Rural Food Grain Storage Structure (IS: 600-1955);
- b) Construction of *Kothar* Type Rural Food Grain Storage Structure (IS: 601-1955);
- c) Construction of *Morai* Type Rural Food Grain Storage Structure (IS: 602-1955);
- d) Storage of Food Grain and Its Protection During Storage (IS: 610-1955); and
- e) Handling of Food Grain in Transit (IS: 611-1955).

The subject of Fork Lifts for Stacking Grain Bags, which the Committee had recommended for being taken up earlier, was decided to be transferred to the Engineering Division.

At the suggestion of the Chairman, the Committee agreed to draw up a specification for 'Thermosamplers'.

Animal Feeds

Dr. N. D. Kehar, Chairman, Animal Feeds Sectional Committee, AFDC 15, presided over its seventh

*See ISI Bull. Vol 13, No. 4, p. 194 (1961).

meeting, held on 20 May 1961 at Manak Bhavan. At this meeting, the following draft Indian Standard Specifications were approved for wide circulation with a view to eliciting technical comments:

- a) Bonemeal as Livestock Feed;
- b) Mustard and Rape Oilcakes as Livestock Feed;
- c) Sesamum (*Til*) Oilcake as Livestock Feed; and
- d) Linseed Oilcake as Livestock Feed.

The proposed draft Indian Standard Specification for Balanced Feed Mixtures, as drafted by the Panel consisting of Dr. S. N. Ray and Dr. S. K. Talapatra, was also discussed and the Committee approved it for wide circulation with some modifications.

The subject of rice bran was allotted to the Grain By-Products Subcommittee, AFDC 15:4, as it was already looking after the work on rice polish.

Meat and Meat Products

The fourth meeting of the Meat and Meat Products Sectional Committee, AFDC 18, was held on 5 June 1961 at the Central Food Technological Research Institute, Mysore, under the chairmanship of Shri V. A. Mehta, Development Officer, Ministry of Commerce & Industry. The Chairman said, in his opening remarks, that the meat processing industry was of great importance both from the point of view of our national economy as well as of earning foreign exchange by export of meat products. He added that the formulation of quality standards for meat products as well as a standard code of practice for anti-mortem and post-mortem inspection would assist in the development of this industry both for the internal as well as the export markets.

At this meeting, the following three drafts were approved for wide circulation with a view to eliciting technical comments:

- a) Code of Practice for Ante-Mortem and Post-Mortem Examination of Meat Animals;
- b) Specification for Animal Casings for Sausages; and
- c) Specification for Pomfret Canned in Oil.

The Committee also decided to undertake the formulation of an Indian Standard Specification for Dried Bombay Duck (*Bombil*) of which the estimated production is 125 thousand tonnes and export earnings are estimated to be about a crore of rupees. This standard is

intended to meet, in particular, the need of importing countries for standard products.

Edible Starches, Confectionery and Cereal Products

At the Central Food Technological Research Institute, Mysore, was held the twelfth meeting of the Edible Starches, Confectionery and Cereal Products Sectional Committee, AFDC 10, on 5 June 1961 under the chairmanship of Dr. K. Mitra. At the outset, the Committee stood in silence for one minute as a mark of respect to the late Shri G. R. Sathe of M/s Sathe Biscuits & Chocolate Company Limited, Poona.

Welcoming the members, Dr. V. Subrahmanyam, Director, CFTRI, stressed that the Ministry of Commerce & Industry should make it compulsory for new licensees to take ISI Certification Mark for their products.

At the meeting, the draft Indian Standard Specifications for: (a) Whole Wheatmeal Bread, and (b) Desiccated Coconut were approved for wide circulation. These two subjects had been proposed for formulation of standards by the Development Council for Food Processing Industries. The Committee also approved an amendment to IS: 1158-1957 Corn Flakes, stipulating the maximum ash excluding edible common salt to be 1.0 percent.

The Committee recommended that the following subjects be taken up for formulation of standards:

- a) *Besan*,
- b) Wafer Biscuits,
- c) Malt Extract,
- d) Composite *Idli* Powder,
- e) *Papad*,
- f) Soluble Coffee,
- g) Non-Toxic Non-Transferable Printing Inks, and
- h) Wrapping Wax Paper in Reel.

The Committee also constituted the Desiccated Coconut Subcommittee, AFDC 10:7, with Shri Ahmed Mohideen as the Convener.

BUILDING DIVISION

Building Limes

The Building Limes Sectional Committee, BDC 4, at its seventh meeting held on 27 June 1961 with Prof. C. H. Khadilkar in the Chair, considered, among other things, comments received on IS: 712-1956 Specification for Building Limes. Certain modifications to IS: 712-1956 were accepted for incorporation as and when the revision of this specification is taken up.

The Committee finalized for printing the draft Indian Standard Code of Practice for Manufacture of Lime in Mixed Feed Kilns — Vertical Type. Also, the draft Code of Practice for Preparation and Use of Lime Mortar was approved for wide circulation.

The Committee recommended the following new subjects for formulation of standards:

- a) Broken Bricks Aggregate for Use in Lime Concrete; and
- b) Coarse *Surkhi* for Use as Fine Aggregate in Lime Mortars.

With regard to the preparation of an Indian Standard Specification for Kankar Lime, the Committee felt that extensive collection of data was necessary for this purpose. A separate subcommittee under the convener'ship of Dr. M. L. Puri was, therefore, constituted.

Timber

Five drafts were finalized for printing and another five approved for wide circulation by the Timber Sectional Committee, BDC 9, at its twelfth meeting held on 15 July 1961 at Calcutta under the chairmanship of Shri V. S. Rao, Inspector General (Forests). The titles of drafts finalized for printing are given below:

- a) Code of Practice for Preservation of Timber (Revision of IS: 401-1954);
- b) Code of Practice for Preservation of Bamboo and Cane for Non-Structural Purposes;
- c) Method of Testing Wood Poles;
- d) Wood Poles for Overhead Power and Telecommunication Lines (Revision of IS: 876-1957); and
- e) Timber for Use in Aircraft Construction.

The titles of the drafts approved for wide circulation are as follows:

- a) Timber for Use in Aircraft Propeller Construction;
- b) Timber for Lorry Bodies;
- c) Wooden Tent Pins;
- d) General Requirements for Tool Handles (Revision of IS: 620-1954); and
- e) Classification of Commercial Timbers and Their Zonal Distribution (Revision of IS: 399-1952).

The Committee recommended that wide circulation be waived for the last draft.

Construction Plant and Machinery

Welcoming members to the third meeting of the Construction Plant and Machinery Sectional Committee,

BDC 28, Shri R. S. Bhalla, Chairman, requested them to make personal efforts for ensuring that the progress on the formulation of standards on items of construction plant and machinery, kept pace with the development of the industry so that users were able to obtain plant and machinery most suited to their requirements and conforming to standard specifications. The meeting was held at Manak Bhavan on 22 and 23 May 1961.

The Committee approved for wide circulation draft specifications for the following:

- a) Heaters for Tar and Bitumen;
- b) Distributors for Hot Tar and Bitumen; and
- c) Concrete Vibrators, Immersion Type.

The Committee recommended that work should be initiated on screened vibrators, shutter vibrators, pan vibrators, vibrating tables and hand drum asphalt mixer.

CHEMICAL DIVISION

Alcohol and Allied Products

The tenth meeting of the Alcohol and Allied Products Sectional Committee, CDC 2, was held on 29 and 30 June 1961 at Manak Bhavan under the chairmanship of Shri G. Gundu Rao. The Committee considered the suitability of prescribing 'pyronimin' and 'total bitters' of *neem* as alternative complete denaturants for alcohol. It was felt that there was a great potentiality of development of these newly proposed denaturants with such modifications as to suit the proper requirements of denaturants of alcohol, but there was also the necessity of conducting further investigations with a view to harnessing properly these denaturants in the interest of national economy.

The Committee considered the proposed draft Indian Standard Tables for Alcoholometry. The computation of strength of aqueous solutions containing ethanol is at present made in the country from the specific gravity figures at 15.6°C and the strength is expressed in terms of proof spirit. The Committee had felt that it would be advisable to abolish the proof-spirit system and replace it by the method of stating the percentage of alcohol by volume using the centesimal alcoholmeters and the Gay-Lussac's tables. Consequently, the Committee had entrusted one of its panels to study this question and collect as much information as possible from different

sources. On the basis of information and data thus collected, the proposed draft was prepared and discussed by the Committee. It was decided that, since these tables were being used constantly in France, this draft should be referred to some French chemist and specific advice sought with regard to a few discrepancies.

In this connection, Shri Gundu Rao remarked that this work relating to the introduction of a new system of alcoholometry, when completed, would be an outstanding achievement for ISI. He also mentioned that the emphasis that was being placed so far on alcohols for potable liquors should now shift to its use as industrial raw material and for which he considered the new alcoholometric system to be more rational and practicable.

Besides these, the following draft specifications were approved for wide circulation with a view to eliciting comments from interested parties:

- a) Amyl Alcohol, Industrial Solvent Grade — (Revision of IS: 360-1953);
- b) Butyl Alcohol Normal, Industrial Solvent Grade — (Revision of IS: 361-1953);
- c) Perfumery Grade Alcohol — (Revision of IS: 1049-1957); and
- d) Diacetone Alcohol.

Paints and Allied Products

The Paints and Allied Products Sectional Committee, CDC 8, at its 15th meeting, held at Calcutta on 1 June 1961, under the chairmanship of Shri P. C. Chanda finalized for publication, the following four draft specifications:

- a) Thinner for Synthetic Paints and Varnishes for Aircrafts;
- b) Thinner Antichill for Cellulose Nitrate Based Paints, Dopes and Lacquers for Aircrafts;
- c) Plastic Wood, for Joiners Filler (Revision of IS: 423-1953); and
- d) Paste Filler, for Colour Coats (Revision of IS: 426-1953).

While finalizing draft Revisions of various Indian Standard Specifications belonging to the category of RMP Primers, a problem of far-reaching importance, namely substitution of values of characteristics, at present rated against approved sample, by numerical figures, was discussed at great length. The Committee finally agreed that the minimum recorded numerical figures of such characteristics be obtained from

some of the leading laboratories of the country and be incorporated in the draft Revisions of IS: 102-1950, IS: 103-1950, IS: 104-1950, IS: 105-1950, IS: 106-1950, IS: 107-1950, IS: 108-1950, IS: 135-1950 and IS: 136-1950.

Besides, performance tests incorporated in IS: 1419-1959 Anti-Fouling Paint, Brushing, for Ships' Bottoms and Hulls, Red, Chocolate or Black, as Required, were also thoroughly examined and it was agreed that a suitable raft trial performance test, as is presently being carried out by the Naval Chemical and Metallurgical Laboratory, Bombay, should also be included in IS: 1419-1959. A draft amendment to this standard was approved for wide circulation.

The Committee recommended that the following new subjects be taken up for formulation of standards and felt that no preliminary investigation of these new subjects was necessary:

- a) Etch Primer, and
- b) Dope Resisting Paints for Aircrafts.

Plastics

Welcoming the members to the seventh meeting of the Plastics Sectional Committee, CDC 17, held at Calcutta on 19 May 1961, Shri N. Srinivasan, Industrial Adviser (Chemicals), Development Wing, Ministry of Commerce & Industry and Chairman CDC 17, said that the target capacity for plastics materials had been raised from 20 000 metric tonnes at the end of the second plan to 125 000 metric tonnes in the third plan and a target of 400 000 metric tonnes had been envisaged for 1970. The Chairman added that the plan was for the 'forward-looking' and 'bold' and not for the 'half-hearted' and 'play-safe' entrepreneurs.

The Committee finalized for publication the following draft Indian Standards:

- a) Methods of Test for Thermosetting Synthetic Resin Bonded Laminated Sheets;
- b) Specification for Paper Base Thermosetting Synthetic Resin Bonded Laminated Sheets;
- c) Specification for Fabric Base Thermosetting Synthetic Resin Bonded Laminated Sheets;
- d) Specification for Decorative Thermosetting Synthetic Resin Bonded Laminated Sheets; and
- e) Specification for Unsupported Flexible Vinyl Film and Sheeting.

The Committee also considered the modifications suggested by the Subcommittee for Thermosetting Moulding Powders and Resins, CDC 17: 1, in IS: 867 (Part I)-1956, IS: 867 (Part II)-1959 and IS: 1300-1959. The Committee decided that the two parts of IS: 867 should be amended suitably and a revised composite draft prepared. It was also decided that IS: 1300-1959 Phenol-Formaldehyde Moulding Powder should be revised and the draft specification for phenol-formaldehyde moulding powder of improved variety incorporated in the revision.

The Committee also approved, for wide circulation, draft standard for Methods of Sampling of Thermosetting Moulding Materials.

The Committee decided to refer the question of distinguishing ivory from plastics and bones to the Government Test House, Calcutta.

Coal Carbonization Products

The second meeting of the reconstituted Coal Carbonization Products Sectional Committee, CDC 23, was held on 15 July 1961 at Hyderabad. Dr. S. Hussain Zaheer, Director, Regional Research Laboratory, presided.

The Committee examined the various comments and observations received for revising IS: 1061-1957 Specification for Coal Tar Disinfectant Fluids, Black and White and

appointed a special panel comprising Dr. S. P. De to explore suitable ways and means for expediting the work.

The Committee also decided that the Coal Tar Products Subcommittee, CDC 23: 2, should prepare draft Revisions of the following Indian Standard Specifications:

- a) IS: 358-1953 Benzole, Industrial;
- b) IS: 534-1955 Benzene, Ordinary;
- c) IS: 535-1955 Benzene, Pure, Nitration Grade;
- d) IS: 537-1955 Toluene, Pure, Nitration Grade; and
- e) IS: 539-1955 Naphthalene.

The highlight of the work of the Committee was the setting up of an *ad hoc* study group which is to select and adopt suitable priority for various subjects under dye intermediates that may be taken up for standardization. This study group will also elucidate the general pattern or proforma that standard specifications for dye intermediates should follow. To begin with, the Committee decided that the following dye intermediates and related products, which are now being manufactured in the country, may be taken up for standardization:

- a) BON acid (β -oxy naphthoic acid);
- b) Sulphanilic acid;
- c) Naphthionic acid; and
- d) Diamino s.ilbene — disulphonic acid.

The Committee recommended that its Coal Tar Products Subcommittee, CDC 23: 2, may take up the following new subjects for standardization:

- a) *o*-, *m*- and *p*-Cresol;
- b) Xylenols;
- c) Pyridine bases;
- d) Crude Anthracene; and
- e) Xylene 2° and 3°.

ELECTROTECHNICAL DIVISION

Electrical Conductors and Accessories

The draft revisions of IS: 449-1953 Enamelled High-Conductivity Annealed Round Copper Wire (Oleo-Resinous Enamel), and IS: 482-1953 Reels for Covered, Solid, Round Electrical Winding Wires; and draft specifications for: (a) Cotton Covered Rectangular Copper Conductors, and (b) Drums for Covered Winding Wires and Strips for Electrical Purposes, were approved for wide circulation at the sixth meeting of the Electrical Conductors and Accessories Sectional Committee, ETDC 2. The meeting was held at Bangalore on 18 May 1961 under the chairmanship of Shri V. Venugopalan, Director, Central Water & Power Commission. The meeting of the Sectional Committee was preceded by a meeting of the Winding Wires Subcommittee, ETDC 2: 2, and Insulated Cables Subcommittee, ETDC 2: 3. All these drafts incorporated dimensions in metric system.

The Committee accepted the recommendations of ETDC 2: 3 for printing an Indian Standard Specification for PVC Sleeveings for Electrical Purposes. The Committee also decided that an Indian Standard Specification should be prepared for PVC-Insulated Weather Proof Cables to suit the Indian conditions.

The important subject of colour of earthing conductor in flexible cables and cords was discussed at length, and the Committee was of the opinion that although the proposal to have a double coloured earthing conductor, as was being recommended at the international level, was desirable, yet this required much greater examination, in as much as the colours prohibited for use for the cores as a result of this decision would have considerable effect on the colours that are normally used in power systems for distinguishing the phases.

Automobile Electrical Equipment

The third meeting of the Automobile Electrical Equipment Sectional Committee, ETDC 14, was



Meeting of the *Ad hoc* Panel for Printing Ink Containers Held at Calcutta last April under the Convenership of Shri A. Ray of the Metal Box Company of India Ltd.

At the instance of the All India Printing Inks' Manufacturers' Association, ISI has undertaken the task of producing an Indian Standard Specification for Tinplate Containers. These Containers are at Present being Manufactured in at least 13 diameters, and to 92 Specifications Due to Widely Varying Specific Gravities of Printing Inks. The Proposed Draft Indian Standard Specification for Round Printing Ink Containers, Circulated after the Meeting of this Panel Stipulates, only 4 sizes of Containers Each with a Single Base Diameter but 3 or 4 Heights.

held at Bombay on 6 and 7 July 1961 under the chairmanship of Shri V. P. S. Menon, Industrial Adviser to the Development Wing, Union Ministry of Commerce & Industry. The Committee finalized for printing the draft specification for Electric Horns, Part I DC Vibrating Type and approved for wide circulation the following drafts:

- a) Specification for Horn Relays;
- b) Specification for Terminal Connectors for Automobile Batteries;
- c) Methods of Test for Sparking Plugs (Revision of IS: 1062-1957); and
- d) Specification for 14-mm Sparking Plugs (Revision of IS: 1063-1957).

On the recommendation made by the Subcommittee on Standardization and Assessing of Raw Materials of the Development Council for Automobile Industry, the Committee felt that the following new subjects be taken up:

- a) All automobile lamp units (other than bulbs), such as head lamp, side lamp, tail lamp, etc;
- b) All types of switches used in an automobile; and
- c) Fuses and fuse boxes.

Insulating Materials

The insulating Materials Sectional Committee, ETDC 18, at its second meeting, which was presided over by Shri S. Swayambu, Director, Research, Central Water & Power Commission, approved for wide circulation four drafts concerning insulating materials. Three of these cover test procedures, conditioning, pre-conditioning, etc, of electrical insulating materials in general. These drafts, based on the corresponding documents issued by the International Electrotechnical Commission, are entitled as: (a) Methods of Test for Electric Strength of Insulating Materials at Power Frequencies; (b) Methods of Test for the Determination of the Insulation Resistance of Solid Insulating Materials, and (c) Recommendations for the Conditioning and Testing of Electrical Insulating Materials. The fourth draft related to the Specification for Built-Up Mica which is commonly known as micanite. This draft, which is expected to be very useful in assisting the development of the built-up mica industry which is starting in this country, gives details about the physical and mechanical requirements, electrical strength,

bond content, etc, of various types of built-up mica, such as flexible sheet, hard moulding sheet, mica folium, commutator sheet, heater plate sheet and tape.

The Committee also considered the possibility of preparing an encyclopaedia on mica and mica products but decided that although at the moment very little data on this aspect was available, the subject was worth giving serious consideration and that enough data should be collected to ensure that a good encyclopaedia is compiled.

Flame-Proof Electrical Equipment

The second meeting of the Flame-Proof Electrical Equipment Sectional Committee, ETDC 22, held on 10 and 11 July 1961 at Manak Bhavan, was presided over by Shri S. S. Kumar, Chairman, Central Water & Power Commission. Shri Kumar in his opening remarks referred to the valuable work done by Dr. J. W. Whitaker in initiating this important work.

The Committee discussed the draft Indian Standard Specification for Flame-Proof Enclosures of Electrical Apparatus and approved it for wide circulation for eliciting comments.

An important point which came up for prolonged discussion related to the certification of flame-proof equipment. The Committee was unanimous about the need for having compulsory certification for such an equipment.

The committee decided to take up work on the following subjects:

- a) Specification for Intrinsically Safe Electrical Apparatus and Circuits; and
- b) Code of Practice for Installation and Maintenance of Flame-Proof and Intrinsically Safe Electrical Equipment.

Two Panels under the Convener-ship of Dr. G. N. Badami and Shri V. B. K. Murthy respectively were constituted to prepare preliminary drafts for these subjects.

ENGINEERING DIVISION

Commercial Weights and Measures

Three draft specifications were finalized for printing at the tenth meeting of the Commercial Weights and Measures Sectional Committee, held on 18 and 19 May 1961 at Bombay under the chairmanship of Shri V. V. Apte. These specifications relate to the following:

- a) Self-Indicating and Semi-Self-Indicating Counter Type Weighing Machines;

- b) Large Metric Capacity Calibrating Measures, Non-Tilting Type; and

- c) Person Weighing Machines.

In addition, the draft Indian Standard Code of Practice for Calibration of Vehicle Tank in Petroleum Industry was approved for wide circulation.

The Committee had received a proposal from the Secretary, Government of West Bengal, to include 50-g cast iron weight in IS: 1056-1957 Commercial Metric Weights. The consensus of opinion of the Committee was that it should not be included because of the following reasons:

- a) There will be casting difficulties;
- b) It will not be cheap as the rejections are likely to be very heavy. In fact, some of the members pointed out that even in 100-g weight, rejections were too many; and
- c) It will not form a complete set with the brass weights (non-bullion).

In the beginning, the Committee had stood in silence as a mark of respect to the memory of late Shri E. Lakshmipathi, who was a member of EDC 41 and General Manager of M/s Andhra Scientific Co.

STRUCTURAL AND METALS DIVISION

Methods of Chemical Analysis

The seventh meeting of the Methods of Chemical Analysis Sectional Committee, SMDC 2, was held at Bangalore from 26 to 28 June 1961 under the chairmanship of Dr. T. Banerjee. The Committee finalized for printing the draft Indian Standard Methods of Chemical Analysis of the following:

- a) Ferro-Alloys,
- b) Bauxite, and
- c) Tin Ingot.

In the first draft relating to ferro-alloys, a new method, namely a rapid volumetric method for the determination of silicon in ferro-silicon has been included as an alternate method. This has been developed by a team of Indian scientists after considerable investigation carried out by a number of laboratories; it has also been established as a very quick and reproducible method.

The Committee also approved for wide circulation draft revisions of Indian Standard Methods of Chemical Analysis of the following:

- a) Aluminium and Aluminium Alloys (IS: 504-1954);

- b) Copper (IS: 440-1955); and
c) Lead (IS: 403-1952).

The Committee decided to carry out an investigation on Preece Test, using a standard temperature of $27^{\circ} \pm 2^{\circ}\text{C}$ instead of the temperature prescribed in IS: 429-1954 Methods for Testing Weight and Uniformity of Coating on Galvanized Iron and Steel Wires and Steel Sheets, and IS: 728-1956 Methods for Determination of Weight, Thickness and Uniformity of Coating on Galvanized Articles other than Wires and Sheets. After the results of the investigation are known, draft Revisions of these standards will be prepared.

Methods of Sampling

The Methods of Sampling Sectional Committee, SMDC 4, held its fifth meeting on 10 July 1961 at Manak Bhavan. Dr. A. V. Sukhatme, Chief Statistician of TISCO, presided over the meeting.

The Committee finalized for printing the draft Indian Standard Methods of Sampling Non-Ferrous Metals for Chemical Analysis, which lays down the procedure for preparing samples of non-ferrous metals and alloys for the determination of chemical composition. The number of samples required to be tested from a lot and the number of pieces to be selected for the preparation of a sample, are not considered in this standard, since these will vary with the material.

The Committee approved for wide circulation, the drafts of the following:

- Methods of Sampling Quartzite,
- Methods of Sampling Dolomite, and
- Methods of Sampling Bauxite.

These drafts lay down the procedure to be followed in collecting and preparing samples from a lot in order to determine ore sizes, moisture content and the chemical composition of the ores in the lot. The procedures for sampling of the ores from stockpiles, loaded wagons, conveyor belts and ship's holds is also included.

The Committee has undertaken the work of formulating the Indian Standard Methods of Sampling Flourite, which had been deferred earlier.

Structurals

The fourth meeting of the Structurals Sectional Committee, SMDC 6,

was held on 29 and 30 May 1961 at Calcutta. In the absence of Shri O. S. Murthy, Shri S. Das Gupta of TISCO presided.

At this meeting, the following four draft Indian Standard Specifications were finalized for publication:

- Mild Steel Plate, Sheet and Strip, for General Engineering Purposes;
- Mild Steel Flats for General Engineering Purposes;
- Mild Steel Bars, Round and Square, for General Engineering Purposes; and
- Rolled Steel Bulb Plates.

With the publication of these basic dimensional standards, the production of the various hot-rolled steel products in the country would be greatly facilitated. Consumers also would be in a position to know which standard sizes are available and they could, accordingly, plan their requirements and re-design the existing standard drawings.

The Committee also authorized the ISI Directorate to issue into wide circulation draft Indian Standard Specifications for the following:

- Steel Piling Sections;
- Tubular Steel Transmission Poles for Overhead Power Lines; and
- Special Angle Sections with Legs of Unequal Width and Thickness.

In order to cater for the special requirements of the wagon building industry, special channel sections have also been standardized and the related draft standard will also be issued into wide circulation.

The Committee approved the research work being done at the National Physical Laboratory on Cold-formed lightgauge structural steel sections* and recommended that NPL should set up a separate unit for carrying out this work on a large scale and, if necessary, with the assistance of the Hindustan Aircrafts Ltd., which is also interested in this subject.

Lead, Zinc, Tin, Antimony and Their Alloys

In the absence of Dr. N. Anjaneyulu, Shri S. C. Lahiry, Director of Inspection (Met), Directorate General of Supplies & Disposals, Tata-nagar, presided over the sixth meeting of the Lead, Zinc, Tin, Antimony and Their Alloys Sectional

Committee held at Calcutta on 26 June 1961.

At this meeting, the Committee finalized two draft Indian Standard Specifications. One of these relates to rolled zinc and covers the requirements for zinc plate, sheet and strip for general engineering purposes. The other pertains to rosin-cored solder wire used by the electrical industries in the country; requirements of the Indian Telephone Industries, Bangalore, are also covered in this specification. Besides, the draft Amendment No. 1 to IS: 742-1955 Zinc Base Alloy Die Castings, covering metric equivalents instead of fps sizes for the test specimens for the determination of physical characteristics, was finalized for printing.

The Committee also decided to issue amendments to IS: 26-1956 Tin Ingot (*Revised*) and IS: 405-1952 Lead Sheets for General Purposes.

TEXTILE DIVISION

Textile Standards

Shri Srinagabhushana, Principal, Sri Krishnarajendra Silver Jubilee Technological Institute, Bangalore, presided over the twenty-second meeting of the Textile Standards Sectional Committee, TDC 1, held at Bangalore from 25 to 27 May 1961. The chairman brought to the notice of the Committee the practice of certain people offering comments after the standards were published. It would be far more preferable, he stated, if such comments were offered at the time when the drafts were circulated for comments so that they could receive proper attention.

The Committee approved for wide circulation the draft standard methods for determination of the following:

- Fabric Dimensions;
- Ends and Picks per Ten Centimetre in Woven Fabrics;
- Breaking Load and Elongation at Break of Woven Fabrics (By Constant-Rate-of-Traverse Machine);
- Bursting Strength of Woven and Knitted Fabrics (Revision of IS: 298-1951); and
- Weight per Square Metre and Weight per Linear Metre of Fabrics.

It was decided to take up the work of formulating an Indian Standard Method for Determination of Twist in Single Yarn by the Use of Untwist-Twist Type of Twist Tester. This decision is based on the results of the investigation carried out to compare untwist-twist type twist

*See ISI Bull. Vol 13, No. 2, p. 64-70 (1961).

tester with direct counting type twist tester.

Wool

Production of quality and standard goods was emphasized by Shri D. N. Saraf of the All India Handicrafts Board, who presided over the fifteenth meeting of the Wool Sectional Committee, TDC 4, held on 23 May 1961 at Manak Bhavan. He said that it was gratifying to note that as much as 90 percent of the carpets produced in centres, such as Agra, Bhadohi, Jaipur, Mirzapur, etc., were exported. He stressed that in order to maintain our foreign market and to compete with other foreign manufacturers, it was necessary to export carpets of standard quality.

The Committee considered and approved for wide circulation the draft Indian Standard Method of Grading Hand-made Wool Carpets which will cover the products of all regions in India. The meeting of TDC 4 was, therefore, held in joint session with the meetings of the Subcommittee for Woollen Carpets and Woollen Rugs, TDC 4:3; and the three panels for Woollen Carpets and Woollen Rugs (Floor Coverings). The three panels cover the carpets made in Mirzapur, Bhadohi, etc.; Rajasthan, Agra, etc.; and Andhra.

The draft will be specially scrutinized with a view to ensuring that it was properly co-related with the ISI Certification Marks Scheme.

Textile Chemistry

The twenty-ninth meeting of the Textile Chemistry Sectional Committee, TDC 5, was held on 9 June 1961 at Bombay. In the absence of Dr. P. C. Mehta, Chairman of the Committee, Dr. B. K. Vaidya presided over the meeting.

The Committee approved the following 13 drafts for general circulation:

- a) Method for Determination of Fastness of Dyestuffs to Metals in the Dyebath: Chromium Salts;
- b) Method for Determination of Fastness of Dyestuffs to Metals in the Dyebath: Iron and Copper;
- c) Method for Determination of Colour Fastness of Textile Materials to Washing in the

Presence of Sodium Hypochlorite;

- d) Revision of IS: 9-1949 Method for Determining Shrinkage of Cotton and Linen Cloth on Washing;
- e) Method for Quantitative Chemical Analysis of Binary Mixtures of Cellulose Triacetate and Certain Other Fibres;
- f) Method for Quantitative Chemical Analysis of Binary Mixtures of Polyamide and Certain Other Fibres;
- g) Method for Quantitative Chemical Analysis of Binary Mixtures of Protein Fibres and Certain Other Fabrics;
- h) Method for Quantitative Chemical Analysis of Binary Mixtures of Secondary Cellulose Acetate and Certain Other Fibres;
- j) Method for Quantitative Chemical Analysis of Mixtures of Cellulose Triacetate and Secondary Cellulose Acetate Fibres;
- k) Method for Quantitative Chemical Analysis of Binary Mixtures of Regenerated Cellulose Fibres and Cotton;
- m) Revision of IS: 1299-1958 Method for Determination of Dimensional Changes on Washing of Fabrics Woven from Rayon and Synthetic Fibres Not Liable to Felting;
- n) Revision of IS: 667-1955 Simple Methods for Identification of Common Commercial Textile Fibres; and
- p) Amendment No. 1 to IS: 970-1956 Method for Determination of Colour Fastness of Textile Materials to Degumming.

Textile Sizing and Finishing Materials

In the absence of Shri Kanchanlal C. Parikh, Chairman of the Textile Sizing and Finishing Materials Sectional Committee, TDC 12, Shri S. Govinda Menon presided over the ninth meeting of TDC 12, held at Trivandrum on 2 June 1961.

In this meeting, the draft Indian Standard Specification for Tapioca Flour for Use in the Cotton Textile Industry was approved for general circulation. Tapioca flour and tapioca starch are being increasingly used as a sizing and finishing

material in the textile industry. It is estimated that out of a consumption of about 49 000 tons of starch in the cotton textile industry about 5 500 tons are in the shape of tapioca starch.

Ropes and Cordages

The Ropes and Cordages Sectional Committee, TDC 14, held its seventh meeting on 25 May 1961 at Calcutta, one of the most important centres of rope industry. The meeting was presided over by Shri A. K. Ghose, General Manager of the Ganges Rope Co. Ltd., Calcutta, and Chairman TDC 14. Earlier, the ninth meeting of the Subcommittee for Ropes and Cordages, TDC 14: 1, had been held on 22 and 23 May 1961.

The Committee considered the recommendations of TDC 14: 1 and also the comments received from various sources on the draft Specifications for the following, and finalized them for publication:

- a) Country Jute Twine, Three-Ply;
- b) Spun Yarn Jute, 18-Ply;
- c) Tarred Hemp Marline, Two-Ply; and
- d) White Indian Hemp Line.

The Committee also approved for wide circulation draft revisions of the Indian Standard Specifications for the following:

- a) Hawser-Laid Manila Rope (IS: 1084-1957);
- b) Shroud-Laid Manila Rope (IS: 1085-1957); and
- c) Cable-Laid Manila Rope (IS: 1086-1957).

Tapes for Electrical Purposes

The draft Indian Standard Specification for Cotton Selvedge Tape for Electrical Purposes was finalized for publication at the third meeting of the Tapes for Electrical Purposes Sectional Committee, TDC 35. This meeting was held on 3 July 1961 at Calcutta under the chairmanship of Shri A. K. Choudhry.

The Committee considered the possibility of taking up the work of formulation of draft Indian Standard Specifications for tapes for electrical purposes made out of nylon, linen, rayon, etc. It was decided that the proposal be discussed in detail at the next meeting when more data would be available.

NEW INDIAN STANDARDS

Indian Standards recently published are briefly described here.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Toffees

The Indian Standard Specification for Toffees (IS: 1667-1960) prescribes general requirements, essential and optional ingredients, types, methods of test and sampling, and includes clauses on packing and marking. Requirements have been prescribed in respect of moisture, sulphated and acid-insoluble ash, reducing sugars, sucrose, fat and total protein. The four types of toffees, specified in IS: 1667-1960 are: plain, milk, modified and butter.

Honey Extractor, Tangential Type

The honey extractor is an essential equipment which a bee-keeper should have in order to extract the maximum quantity of honey from the frames. It forms a costly item in bee-keeping equipment. There are many kinds of honey extractors available — from simple hand-driven types used in small apiaries to the complex power-driven types used in large bee-keeping organizations. The Indian Standard Specification for Honey Extractor, Tangential Type (IS: 1736-1960) prescribes requirements for a hand-driven honey extractor. This type of extractor has two sizes to fit eight super frames of the Type-A and Type-B beehives specified in IS: 1515-1959 Specification for Beehives. This extractor could also be used for other frames which could fit in the rotating frame-holder of the extractor.

Aluminium Foil for Milk Bottle Caps

Aluminium foil is commonly used for making milk bottle caps, as it is an excellent material for stamping according to the shape required. It can be pressed readily round the bottle mouth, is a safe metal for contact with milk and is comparatively cheap. It affords both security as well as hygienic protection required for milk filled in the bottle.

The Indian Standard Specification for Aluminium Foil for Milk Bottle

Caps (IS: 1705-1960) covers the requirements for aluminium foils used for making caps for milk bottles. The width of foil specified by this standard has, however, been adjusted with 38-mm neck diameter as prescribed in IS: 1392-1959 Specification for Glass Milk Bottles. The specification (IS: 1705-1960) has been kept flexible with regard to the use of different colours for caps for easy identification of different types of milk.

Meat of Sheep and Goats

Meat of sheep and goats is canned in brine with or without the addition of sodium nitrate, sodium nitrite and sugar. In order to ensure the quality and wholesomeness of the finished product, various physical, chemical, micro-biological and hygienic requirements have been prescribed in the Indian Standard Specification for Meat of Sheep and Goats Canned in Brine (IS: 1743-1960), which prescribes the requirements and methods of test.

The formulation of Indian Standards for meat and meat products has been undertaken at the instance of the Ministry of Health, Government of India, and IS: 1743-1960 is one of the series of Indian Standards for meat and meat products being prepared by ISI.

BUILDING DIVISION

Methods of Testing Small Clear Specimens of Timber

The evaluation of basic properties of timber, such as strength, density, effect of various treatments on strength, etc, and the establishment of design functions for structural timbers are done on the basis of tests carried out on small clear specimens of timber. A clear specimen is one which is free from defects, such as knots, shakes, etc.

The Indian Standard Methods of Testing Small Clear Specimens of Timber (IS: 1708-1960) covers methods of testing such specimens for static bending, compression parallel to the grain, impact bending, compression perpendicular to the grain, indentation, shear parallel to grain and shrinkage.

Fire Safety of Buildings

The Indian Standard Code of Practice for Fire Safety of Buildings (General): Non-Electric Lighting Equipment, Oil and Gas Heaters and Burners of Small Capacity (IS: 1647-1960) is one of a series of fire-safety codes being formulated by ISI with a view to providing reliable and adequate guidance with regard to fire prevention, fire fighting and fire grading of buildings. This code covers fire-safety requirements in respect of non-electric lighting equipment, such as hurricane lanterns and pressure lamps using oil. It also lays down fire-safety requirements for certain domestic heating equipment, such as oil or gas-fired heaters, cookers and boilers of the average domestic size and prescribes certain fire-safety precautions in respect of open or exposed flame appurtenances that may be met with in buildings.

Wire Gauze for General Purposes

Wire gauze for general purposes is manufactured both on large scale and on cottage industry basis. As variations occur in the quality and construction which tend to defeat the very purpose of using wire gauze, the Indian Standard Specification for Wire Gauze for General Purposes (IS: 1568-1960) has been prepared to guide manufacturers to conform to the minimum requirements regarding material and construction. It is hoped that the specification would help manufacturers to produce goods of a uniform quality even in the cottage industry.

Fibre Hardboards

Fibre hardboards of various types are being used in increasing quantities in the construction of railway carriages, bus bodies, prefabricated houses, panelling, partitions, furniture, etc. It is, therefore, necessary to classify the various types of hardboards and to lay down the essential requirements for such boards for general purposes. The Indian Standard Specification for Fibre Hardboards (IS: 1658-1960) covers the classification and essential requirements of fibre hardboards for general

purposes, with the exception of insulation boards, wood particle boards (chip boards), and similar boards.

Wood Wool for Packaging Purposes

The Indian Standard Specification for Wood Wool for General Packaging Purposes (IS: 1707-1960) covers the essential requirements of wood wool for general packaging purposes, for example, for the packing of machinery and other engineering equipment, furniture, glassware and ceramics. The specification prescribes timbers suitable for wood wool and includes requirements in respect of dimensions of strands, and dust and small pieces. Investigations for evolving a method of test for determining the amount of cushioning provided by wood wool are underway and a method of test will be included in IS: 1707-1960 as soon as the results become available.

Fire-Fighting Equipment

Work on the formulation of Indian Standards for fire-fighting equipment and appliances was undertaken by ISI at the instance of the Ministry of Home Affairs, Government of India, who expressed urgency for standardizing fire-fighting equipment on a nation-wide scale so that a national fire service having similar equipment all over the country could be organized. The Indian Standard specifications for the following are the latest addition to this series:

IS: 938-1960 1800-l/min (or 400-gal/min) Small Fire Engine;

IS: 939-1960 Snatch Block for Use with Fibre Rope for Fire Brigade Use; and

IS: 951-1960 Combined Foam and CO₂ Crash Tender.

It is hoped that the formulation of such standard specifications and their implementation through the Ministry of Home Affairs and the Fire Insurance Association of India will secure for the country an integrated system of fire-fighting units spread all over the country and ready to be mobilized in any emergency without experiencing difficulties on account of non-standard equipment, non-standard appliances and non-interchangeability.

CHEMICAL DIVISION

Calcium Carbide, Technical

The Indian Standard Specification for Calcium Carbide, Technical

(Revised) (IS: 1040-1960) was first issued in 1957. At that time two qualities representing the average qualities of the imported and indigenous materials were specified. The main difference between the two was in the gas yield and the phosphorus content in acetylene gas generated. It was expected that manufacturers would be able to improve the quality of the indigenous material so that one of the qualities could be removed from the standard by 1960 at the latest.

The progress so far made by the industry was recently reviewed by ISI and it was felt that though serious efforts had been made by the industry, it had not become possible to make much improvement in the quality of indigenous material mainly due to the non-availability of suitable raw materials. The present Revision, therefore, includes both the qualities of materials.

During the review of the industry, it was found that graded sizes 4-15, 4-80 and 25-80 which were not covered by IS: 1040-1957 were being manufactured and consumed in large quantities. These graded sizes have been included in this Revision.

Jute Batching Oil

The finished jute goods contain usually 5 to 7 percent its weight of oil which is an essential material for the batching of jute. The oil is generally applied in the form of an oil in water emulsion, although occasionally, oil and water are added separately at the batching stage. Hence, quality of jute goods is influenced by the quality and quantity of the oil added.

The object of preparing IS: 1758-1960 Specification for Jute Batching Oil is, therefore, manifold: firstly, to ensure the quality of jute goods which should be such as not to give rise to complaints both in the external and internal markets; secondly, to ensure the absence of kerosinic or other objectionable odour from gunny bags used for storing food-stuffs; and thirdly, to help improve the present anomalous situation in which different suppliers are marketing oils of different characteristics for the batching process.

ELECTROTECHNICAL DIVISION

PVC Insulated (Heavy Duty) Electric Cables

The latest addition to the series of Indian Standards for insulated wires and cables is the Specification for

PVC Insulated (Heavy Duty) Electric Cables, Part I For Working Voltages Up to and Including 1 100 Volts [IS: 1554 (Part I)-1961]. This specification covers the requirements of both armoured and unarmoured single-core, twin-core and multi-core PVC insulated and sheathed cables with an outer sheath, for electricity supply and control purposes. The cables specified here are suitable for use on AC single-phase or three-phase (earthed or unearthed) systems for rated voltages up to and including 1 100 Volts. These cables may be used on DC systems for rated voltages up to and including 1 500 Volts.

Time Switches

Time switches are being extensively used for regulating the switching operations of electrical circuits. The object of the Indian Standard Specification for Time Switches (IS: 1766-1961), is to lay down a uniform basis for the design, construction and testing of time switches with a view to providing proper lead and guidance to the indigenous industry.

This specification covers the general requirements and tests applicable to all types of time switches employed for automatically closing, opening or switching over one or more circuits at any desired time.

DC Potentiometers

DC potentiometers for laboratory and industrial uses are being made in this country in large numbers. The Indian Standard Specification for this material covers three grades of DC potentiometers, namely precision, semi-precision and industrial. All quantities and dimensions in this standard have been given in metric units.

AC Electricity Meters

The Indian Standard Specification for AC Electricity Meters, Part IV Three-Phase Kilowatt-Hour Meters with Maximum Demand Indicator [IS: 722 (Part IV)-1961] applies to whole-current and transformer-operated kilowatt-hour meters for use in 3-phase 3-wire and 3-phase 4-wire networks and provided with maximum demand indicator.

The two publications containing the first three parts of this standard published earlier are as follows:

IS: 722 (Parts I & II)-1955 AC Whole-Current Electricity

Meters: Part I General Requirements, and Part II Single-Phase 2-Wire Whole-Current Credit Type Meters; and IS: 722 (Part III)-1958 AC Electricity Meters: Part III Three-Phase Whole-Current and Transformer-Operated Meters, and Single-Phase Two-Wire Transformer-Operated Meters.

Stationary Cells and Batteries

The Indian Standard Specification for Stationary Accumulators, Lead-Acid Type (IS: 541-1954) was published as a tentative standard in 1954. At the time of its Revision, it was decided to issue the following two specifications superseding IS: 541-1954:

IS: 1651-1960 Stationary Cells and Batteries Lead-Acid Type (With Tubular Positive Plates).

IS: 1652-1960 Stationary Cells and Batteries Lead-Acid Type (With Planté Positive Plates).

These specifications prescribe the overall dimensions, capacities and performance requirements. The tests and performance requirements relate to the prevalent ambient conditions in the country.

These specifications belong to a series of Indian Standards on secondary cells and batteries, which include batteries for motor vehicles, motor cycles and aircraft.

Industrial Lighting Fittings with Metal Reflectors

The Indian Standard Specification for Industrial Lighting Fittings with Metal Reflectors (IS: 1777-1961) covers a range of general type of industrial lighting fittings with metal reflectors for use with incandescent, mercury-vapour and fluorescent lamps. The specification lays down requirements with regard to material, sizes of reflectors, accessories in fittings for tubular fluorescent lamps, finish, luminous output and distribution of light, and sampling inspection of these industrial lighting fittings.

Fittings having reflectors made of other materials, such as plastics, perspex, etc, which have different properties will be covered under separate Indian Standards. Special purpose fittings, such as those used in mines, collieries, acidic and dusty atmospheres, etc, are also not covered in IS: 1777-1961.

ENGINEERING DIVISION

Shovels

The Indian Standard Specification for Shovels (*Revised*) (IS: 274-1961) was first issued in 1951. The revised standard covers the requirements for four types of shovels with two types of handles intended for general use. The following are some of the more important modifications made in this Revision:

- Supply of shovels in hardened and tempered condition has been made optional.
- D-type handle has been excluded with a view to conserving timber, as there is a higher percentage of wastage of wood in its manufacture.
- The overall length of firing shovel (long blade) has been reduced to give a better freedom of movement to the fireman or stocker.
- The contour line of the flexure between the blade and socket of shovel has been improved in accordance with good forging practice.

The dimensional and other requirements have now been expressed in metric units, rationalized to the extent possible.

Powrahs

The need for rationalization of the types and sizes of *powrahs* had been keenly felt and in IS: 1759-1961 Specification for *Powrahs*, only nine types, most popular in the country, have been covered. This specification will, therefore, facilitate enquiry and order which are required to state clearly the weight and description of *powrahs* by reference to the figures and also whether they are to be supplied in the hardened or unhardened condition.

The specification prescribes a simple drop test for *powrahs*. It is proposed to investigate the desirability of modifying this test so as to simulate, as nearly as practicable, the actual service conditions.

Vertical Turbine Pumps

The object of IS: 1710-1960 Specification for Vertical Turbine Pumps for Clear, Cold Fresh Water is to provide guidance to manufacturers and users of the turbine pumps specified in the title. This specification is principally applicable to vertical turbine pumps, but all the requirements except some will

generally be applicable to electric submersible pumps as well.

The characteristics of the clear, cold, fresh water expected to be normally handled by the pumps covered in this specification are as follows: Turbidity — 50 ppm (*Max*) (Silica scale); Chlorides — 500 ppm (*Max*); total solids — 3 000 ppm (*Max*); pH value — 6.5 to 8.5 specific gravity 1.004 (*Max*); and temperature — 30°C (*Max*).

Trough Compass

Unlike surveyors or prismatic compasses, trough compasses do not by themselves form a complete surveying instrument; rather they work as adjuncts to some other surveying instruments. They are intended to give the direction of magnetic north.

The Indian Standard Specification for Trough Compass (IS: 1764-1961) lays down requirements with regard to components, dimensions, materials, construction and workmanship, and tests for 125-mm trough compass used in conjunction with plane tables.

Twist Drills

The Indian Standard Specification for Twist Drills (*Revised*) (IS: 599-1960) covers the requirements for parallel and taper shank twist drills for general engineering use. This revision of the specification, which was first published in 1955 as a tentative standard was necessitated in order to give units and quantities in metric system pursuant to the decision of the Government of India to change over to metric system of weights and measures. In addition, the following main modifications have been made:

- Information on steels suitable for the manufacture of drills has been deleted; instead, hardness ranges for high-speed steel and high-carbon steel drills have been specified.
- Tolerance limits on the diameters, overall lengths of twist drills and the method of their designation have been incorporated.

STRUCTURAL AND METALS DIVISION

Mechanical Testing of Metals

Uptil 1953, ISI had published only IS: 223-1950 and IS: 497-1953 covering tensile testing of ferrous and non-ferrous metals. The

methods of conducting other mechanical tests, such as bend test, hardness test, etc, had been specified in the material specification concerned. Now, with the availability of a few draft ISO Recommendations in this field, it has been felt desirable that separate Indian Standards covering various mechanical tests be prepared. The following three Indian Standards are the latest additions to this series:

- IS: 1754-1961 Method for Calibration of Vickers Hardness Testing Machines;
- IS: 1757-1961 Method for Beam Impact Test (V-Notch) on Steel;
- IS: 1789-1961 Method for Brinell Hardness Test for Grey Cast Iron.

Sizes of Graphite Crucibles

The Indian Standard Sizes of Graphite Crucibles (IS: 1748-1961) specifies nominal sizes of the lift-out type of graphite crucibles commonly used at present in this country. The range covered is from No. 1 to 1 000 and shape is similar to Morgans 'A'.

As the 'brimful' capacity of the crucible has been found to be proportional to the size number, the internal dimensions have been worked out with certain definite ratios between the bottom diameter and top diameter as well as bottom diameter and internal height. The ratios chosen are approximately the mean ratios observed in the foreign as well as Indian Crucibles.

TEXTILE DIVISION

Cotton Sewing Thread Bleached or Dyed

The Indian Standard Specification for Cotton Sewing Thread, Bleached or Dyed (IS: 1720-1960) prescribes constructional details and other particulars of 22 varieties of cotton sewing thread, bleached or dyed. The specification prescribes general and specific requirements; the latter are in respect of count of thread, construction, length per kilogram (or pound), breaking load, stability of twist, colour fastness, etc.

Door Mats — Rod

Being an important item in our export trade, the need to have an Indian Standard Specification for Door Mats—Rod (IS : 1693-1960) was long felt.

This specification prescribes the requirements of rod mats made out

of coir yarn known in the trade as 'beach' and 'vycome'. In manufacturing rod mats, tufts are formed by winding the coir yarn on the warp strands round a flat rod, the height of which gives the tufts of the required pile height. Tops of tufts, when cut, open into a brush.

Spring Buffers for Cotton Looms

A spring buffer is a V-shaped leather article used in overpick looms. It is mounted on the picker spindle to check the picker when the shuttle leaves the loom box. The 'working life' of a buffer is influenced by a large number of variables like the speed of the loom, the width of the loom and other working conditions.

The Indian Standard Specification for Large Size Spring Buffers for Cotton Looms (IS: 1738-1960) prescribes the requirements for spring buffers of large size, for use in overpick cotton looms. The specification, which recognizes six different varie-

ties of buffers, gives for the convenience of the buffer-manufacturing industry, values both in metric and fps systems of quantities in two separate parts.

Cotton Spindle Tape

The Indian Standard Specification for Cotton Spindle Tape (for Cotton Textile Mills) prescribes constructional details and other particulars of 12 varieties and 2 grades of cotton spindle tape designated as Grade 1 and Grade 2. It also lays down requirements regarding sampling, and methods for determination of width, weight per 100 metres, picks per centimetre, breaking strength and elongation at break, and length of roll.

MISCELLANEOUS

Metric Values in Standards

Consequent upon the decision of the Government of India to adopt the metric system for all weights and

(Continued on next page)

AMENDMENT SLIPS

Amendment slips have been issued during the period 1 June 1961 to 31 July 1961 to the following Indian Standards:

NO. AND DATE OF AMENDMENT	NO. AND TITLE OF INDIAN STANDARD
No. 1 June 1961	IS: 303-1960 Specification for Plywood for General Purposes (<i>Revised</i>)
No. 2 May 1961	IS: 436-1953 Methods of Sampling of Coal and Coke (<i>Tentative</i>)
No. 1 May 1961	IS: 437-1956 Specification for Size Grading of Coal and Coke for Marketing (<i>Revised</i>)
No. 1 June 1961	IS: 439-1953 Specification for Hard Coke (<i>Tentative</i>)
No. 2 June 1961	IS: 557-1954 Specification for Sodium Acetate, Technical and Photographic
No. 1 May 1961	IS: 709-1957 Specification for Medium Strength Aircraft Plywood
No. 1 June 1961	IS: 1011-1957 Specification for Biscuits (Excluding Wafer Biscuits)
No. 1 July 1961	IS: 1139-1959 Specification for Hot Rolled Mild Steel and Medium Tensile Steel Deformed Bars for Concrete Reinforcement
No. 1 May 1961	IS: 1145-1957 Specification for Lead-Acid Storage Batteries for Motor Cycles
No. 1 May 1961	IS: 1407-1959 Specification for Round Paint Tins

measures before December 1966, it has become necessary to convert all existing standards into this system, and also to write all new standards in it. In carrying out this task, many problems are met with, requiring adjustment and co-ordination with the existing practices, within the changing pattern of industry. While no general guide can be laid down

for solving the organizational type of problems in switching over to the metric system, the Indian Standard Guide for Specifying Metric Values in Standards (IS: 1722-1960) has been prepared, keeping in view the different types of difficulties that one comes across. The standard is intended to provide guidance in resolving technical problems concerned

with determining and specifying values in terms of the metric system while preparing new standards or converting the existing standards to the metric system.

It is also expected to furnish guidance to agencies and departments other than ISI in writing or re-writing their standards and specifications in metric system.

DRAFT INDIAN STANDARDS

Brief reviews are given here of draft Indian Standards issued recently for wide circulation to elicit comments from interested parties in India and abroad. Comments are considered by the Sectional Committee concerned at the stage of finalization of the drafts.

Titles of draft Indian Standards which are due to be issued in wide circulation in the near future are also given at the end; some of these might have been circulated while this issue was under print.

AGRICULTURAL AND FOOD PRODUCTS DIVISION

Insecticide Sprayers

Hand compression sprayers and single-barrel stirrup pumps are used for spraying insecticides for the control of pests and diseases in agriculture by public health authorities. The requirements in regard to materials included in the draft specifications for these two items are only the minimum, and the use of other materials having characteristics equivalent to or higher than those specified in these drafts is not precluded. To ensure interchangeability of certain parts, which may require to be replaced, the necessary mating dimensions have been specified, but in doing so care has been taken to see that no restriction is placed on improvement in design.

Animal Casings for Sausages

Most of the animal casings produced in the country are exported. Due consideration has, therefore, been given in the preparation of the draft Indian Standard Specification for Animal Casings to the requirements prescribed by the importing countries for the import of animal casings with particular reference to ante-mortem and post-mortem inspection, calibration and certification. It is expected that casings

conforming to this specification will find ready acceptance abroad and also step up the export of this commodity. For the guidance of manufacturers, the detailed process of manufacture of animal casings has been included as an appendix to this draft.

Ante-Mortem and Post-Mortem Examination of Meat Animals

Proper ante-mortem examination of all animals before slaughter is essential to ensure that they are not affected with any disease or other condition which may render the flesh unwholesome. There are some diseases which are communicated from animals to man by contact and, therefore, ante-mortem examination is also necessary for safeguarding the health of consumers as well as of butchers. Post-mortem examination is essential to detect carcasses, parts of carcasses and organs which may be diseased and thereby rendered unfit for human consumption. At present, there is no uniform procedure for ante-mortem and post-mortem examination of meat animals on an All-India basis but is regulated by local bodies under Municipal Acts. The formulation of the draft Indian Standard Code of Practice for Ante-Mortem and Post-Mortem Examination of Meat Animals is intended to meet the need for a uniform procedure for the whole country.

Pomfret Canned in Oil

Pomfret is usually canned in oil. In order to ensure the quality and wholesomeness of the finished product, various physical, chemical, micro-biological and hygienic requirements have been prescribed in the draft Indian Standard Specification for Pomfret Canned in Oil. The formulation of this specification was undertaken at the instance of the Development Council for Food Processing Industries, Union Ministry of Commerce & Industry.

Layout for Regulated Market Yards for Tobacco

The Seminar on Regulated Markets held at Mysore from 22 to 24 January 1959 and organized by the Union Ministry of Food & Agriculture had recommended that, as far as possible, the regulated market yards should conform to Indian Standards. Accordingly, ISI has published the Indian Standard Layouts for Regulated Market Yards for: (a) Agricultural Commodities (IS: 1497-1959), (b) Fruits and Vegetables (IS: 1787-1961), and (c) Cattle (IS: 1788-1961). Tobacco, which was so far not included in the commodities covered by the Agricultural Produce Markets Act, has now been included by some of the states and, therefore, the draft Indian Standard Layout for Regulated

Market Yards for Tobacco has been prepared.

Livestock Feeds

With a view to assisting in the proper growth of livestock in the country and guiding manufacturers in the development of animal feed industry, draft Indian Standard specifications have been prepared for the following which are used as livestock feed:

- a) Mustard and Rape Oilcake;
- b) Sesamum (*Til*) Oilcake;
- c) Linseed Oilcake;
- d) Bonemeal; and
- e) Balanced Feed Mixtures for Cattle.

These drafts prescribe essential requirements in regard to livestock feeds, such as moisture, crude protein, crude fat, crude fibre, total ash, acid-insoluble ash, castor husk, calcium and phosphorus, as well as sampling procedures. The draft specification for balanced feed mixtures also gives a few feed formulæ which, on experiment, have been found to give satisfactory results.

BUILDING DIVISION

Fire-Fighting Equipment

A series of Indian Standard specifications for fire-fighting equipment has been prepared at the instance of the Union Ministry of Home Affairs. Draft Indian Standard specifications for the following are the latest addition to this series and the scope covered is indicated against each:

- a) *Fire Extinguishers, Chloro-Bromo-Methane* — includes portable chemical fire extinguishers, chloro-bromo-methane type of 1-litre, 2-litre, 4.5-litre and 9-litre Capacity.
- b) *Self-Contained Breathing Apparatus for Fire Brigade Use* — covers various types embodying one or other of the following principles: (1) Oxygen, closed-circuit, using 'reducing' valve; (2) Oxygen, closed-circuit, using 'demand' valve (with or without 'reducing' valve; and (3) Compressed-air, open circuit, using 'demand' valve.
- c) *Electric Motor Sirens for Fire-Brigade Use* — lays down the requirements regarding construction and performance.
- d) *Fire Extinguisher, Water (Bucket Pump Type)* — prescribes requirements regarding material, capacity, construction, finish and test of portable

fire extinguisher, water (bucket pump type) having a capacity of 10 litres.

Butt Hinges

The necessity of combining IS: 205-1950 Specification for Butt Hinges, and IS: 1341-1959 Specification for Cold Rolled Mild Steel Butt Hinges, to have only one Indian Standard covering all types of butt hinges had been long felt by both the industry and consumers. Draft Revision of these standards in a single document is given in the draft Specification for Butt Hinges which covers butt hinges made from cold-rolled mild-steel sheets, cast brass, extruded brass, rolled brass sheets and extruded aluminium alloys. Opportunity has been taken to specify only metric dimensions of hinges.

Tee and Strap Hinges

The draft Revision of IS: 206-1956 Specification for Tee and Strap Hinges has been prepared with a view to metricizing the various dimensions specified earlier. To cater for special needs of consumers, two more classes of tee hinges, that is medium and heavy, have been introduced. In the light class of tee hinges, 75-mm, 100-mm and 125-mm sizes have also been included in the draft Revision.

Hasps and Staples

The draft Revision of IS: 363-1951 Hasps and Staples, Safety and Wire Types, specifies various dimensions of hasps and staples in metric units, and includes extruded sections of brass in addition to cast brass for the manufacture of brass hasps and staples. The draft covers requirements regarding material, dimensions, manufacture and finish of hasps and staples.

CHEMICAL DIVISION

Indicator Solutions

It has been found that uniform procedures have not been prescribed for the preparation of indicator solutions. In testing laboratories, considerable unnecessary difficulty is caused in preparing and maintaining more than one solution of the same indicator for the same type of titration, when testing according to Indian Standards is to be done. With a view, therefore, to reducing the present variety, the draft Indian

Standard Methods of Preparation of Indicator Solutions has been prepared. Essentially, the draft standard is intended to serve as a ready guide to the various committees preparing Indian Standards but it is hoped that it would be of use outside ISI also.

Butter Tins

In view of the fact that a number of dairy plants is being set up in the country, production and distribution of butter are expected to increase considerably with possibilities of export also. At present, butter is being packed and marketed in a large variety of tinsplate containers built to non-metric sizes, in addition to the paper packages. Rationalization of the sizes of these tins and specifying them in metric units will assist standardization work in connected industries and result in an overall economy. Also, it is considered necessary to prescribe the various other requirements of these tins in order to ensure that the product reaches the consumer in a good condition.

The draft giving the preferred sizes and dimensions of butter tins in metric units and also the other essential requirements has been formulated at the request of the Union Ministry of Food & Agriculture.

Oils of Bergamot and Rosemary

The latest additions to the series of Indian Standard specifications for essential oils and allied products are the following:

- a) Oil of Bergamot; and
- b) Oil of Rosemary.

The oil of Bergamot is indispensable in the production of eucalyptol and is also widely used in cosmetic lotions, creams, powders and soaps. The oil of rosemary is used mainly for perfuming soaps, denaturing alcohol, in disinfectants and in compositions of inhalants; it is also used for pharmaceutical preparations, such as liniments, and some selected varieties are employed for flavouring soups, sauces, meats, etc.

Magnesium Chloride

The Indian Standard Specification for Magnesium Chloride, Technical (IS: 254-1950) was published in 1950. Recently it was suggested that a specification for the pure grade of the material suitable for the pharmaceutical industry should

also be formulated. Therefore, both the technical and pure grades of the material have been covered in the draft Revision of IS: 254-1950. The title of this draft is Specification for Magnesium Chloride, Technical and Pure.

Ready Mixed Paints

The first seven of the published series of Indian Standards relating to ready mixed paints, oil-based for exterior use (finishing), namely IS: 103-1950, and IS: 117-1950 to IS: 122-1950, have been in existence for more than a decade. Their draft revisions incorporate all changes found necessary through use of these standards. Besides, in view of the general decision to go metric, consequential changes in paint terminology and substitution of fps values by rationalized metric values have also been taken care of in these draft Revisions.

Bromine, Technical

The draft Indian Standard Specification for Bromine, Technical, lays down requirements and methods of test. Requirements have been prescribed in respect of specific gravity; and percent by weight of bromine, chlorine and non-volatile matter.

Common Salt for Hide-Curing and Fish-Curing

Two Indian Standard specifications were published earlier for Common Salt for Hide-Curing (IS: 593-1954) and Common Salt for Fish-Curing (IS: 594-1954). It has been pointed out that salt containing a high percentage of sodium sulphate, as provided for in IS: 593-1954, is no longer manufactured. It was, therefore, felt necessary to upgrade this specification by prescribing a minimum sodium chloride content of 96 percent and a maximum of 2 percent sodium sulphate content.

The specification for common salt for fish-curing was published as a tentative standard to be revised when the quality of fish-curing salt manufactured in the country improved. The results of experiments conducted by a number of laboratories in the country for determining the maximum impurities allowable in fish-curing salt and the quality of salt available for fish-curing purposes were considered. On these considerations, it is desirable to prescribe a purity of 98.0 percent for the salt and to prescribe a

limit of 0.5 percent for insoluble matter.

Consequently, draft Revisions of IS: 593-1954 and IS: 594-1954 have been prepared and the composite document entitled draft Indian Standard Specification for Common Salt for Hide-Curing and Fish-Curing has been issued in wide circulation. It is proposed that when published this standard will supersede the existing two Indian Standards on the subject.

ELECTROTECHNICAL DIVISION

Signal Generators

The Institution has taken up the project of preparing specifications for the various electronic measuring instruments used in testing and calibration of electronic equipment, such as broadcasting receivers, communication receivers, transmitters, etc. As a first step, the following two draft standards have been prepared on the most commonly used and versatile equipment:

- a) Methods of Measurements for Amplitude-Modulated Radio-Frequency Signal Generators (30 kc/s to 30 Mc/s); and
- b) Requirements for General-Purpose, Amplitude-Modulated, Radio-Frequency Signal Generators (30 kc/s to 30 Mc/s).

The former draft covers the methods of measurement of the electrical and other characteristics, while the latter specifies, the minimum requirements to be satisfied by signal generators for commercial purposes, such as aligning and testing of radio receivers and other similar equipment.

Propeller-Type Ventilating Fans

With the indigenous manufacture of propeller-type ventilating fans, need has been felt for a uniform basis for assessing the performance of such fans together with a uniform method of testing. The draft Indian Standard Specification for Propeller Type Ventilating Fans has, therefore, been drawn up to assist not only users but manufacturers also.

The draft covers AC-single or three-phase propeller-type ventilating fans, such as exhaust, wall, window, gable-end, port-hole, bulkhead, kitchen and dark-room fans for use at voltages not exceeding 250 or 440 and their associated speed regulators, if any. Sizes included in the draft range from 200 to 1500 mm.

Arc Welding Transformers

The draft Indian Standard Specification for Arc Welding Transformers: Part II Multi-Operator Type lays down the electrical performance characteristics, methods of tests and constructional requirements for the welding transformer to withstand rough usage. The special feature of this draft, which has been prepared with a view to guiding manufacturers to ensure good quality, sufficient degree of safety and correct performance, is the adoption of 'duty cycle' basis for specifying the transformer ratings.

Part I of the specification covering Arc Welding Transformers, Single Operator Type [IS: 1851 (Part I)-1961] is under print.

Thermocouple Pyrometers with Indicators

Thermocouple pyrometers are being widely used in connection with the temperature measurements for obtaining energy balances in all thermal processes, particularly those involving combustion and heat transfer, and also in carrying out tests.

The draft specification covers requirements and methods of tests for thermocouple pyrometers where the indication of temperature is done by a millivoltmeter. This draft also gives reference tables for junction temperature and voltage for platinum-platinum-rhodium, chromel-alumel, iron-constantan and copper-constantan thermocouples.

ENGINEERING DIVISION

Engineer's Squares

Indian Standard specifications for a number of items, required in the workshop and inspection room, are under preparation. The draft Specification for Engineer's Squares has been issued, whereas draft specifications for straight edges, surface plates, dial gauges, angle plates and sine bars, and plug and ring gauges are being prepared.

The draft issued relates to the fixed-blade engineer's squares made in three grades of accuracy and of sizes up to 1000 mm. It does not apply to adjustable blade squares.

Parallel Keys and Keyways

The parallel key is generally used when the transmission of power is normally uni-directional, and the starting torque is not a very high percentage of the running torque,

and periodic withdrawal of the key or sliding action thereon is required. Also where gib-head is not conveniently accommodated, a parallel key of appropriate size often serves the purpose.

The draft specification covers the dimensions and tolerances for parallel keys and keyways, and material for key bars. Other specifications in this series under preparation are: (a) Taper Keys; (b) Woodruff Keys; and (c) Tangential Keys.

T-Slots, T-Bolts and T-Nuts

With a view to specifying metric values and to incorporating the international consensus of opinion on the subject, IS: 519-1954 Specification for T-Slots, T-Bolts and T-Nuts has been revised. The draft Revision has been split into three draft specifications for the following and their scope is indicated against each:

- a) *T-Slots* — covers the dimensions and tolerances on dimensions for T-slots in machine tools and other specifications.
- b) *T-Bolts* — prescribes requirements for T-bolts for T-slots in machine tools and also in other appliances
- c) *T-Nuts* — specifies requirements for T-Nuts for use with studs on machine tools and other machines provided with T-slots.

Limits and Fits

The draft Indian Standard Recommendations for Limits and Fits for Sizes above 500 mm up to 3 150 mm is expected to be of great use to designers in the heavy engineering field as larger sizes come into use and as the heavy industry develops. An Indian Standard Recommendation for Limits and Fits for Engineering (IS: 919-1959) covering sizes up to 500 mm has already been issued.

It is felt that there are many practical difficulties in achieving interchangeable manufacture in large diameters due mainly to difficulties of measurement. This specification may, after finalization, be regarded as tentative.

Shaft-Height for Driving and Driven Machines

Manufacture of prime-movers as diesel engines and electrical motors has been established in the country and these machines are coupled to other driven machines, such as generators, pumps, agricultural im-

plements, etc. To ensure that the designs are worked out making interchangeability possible among different makes of machines, the draft Indian Standard Dimensions for Shaft-Height for Driving and Driven Machines has been prepared. The draft covers the heights from 25 to 1 600 mm, tolerances on height and parallelism for shafts of driving and driven machines.

Commercial Metric Capacity Measures

During a few years of its currency, the need has been felt to revise IS: 1058-1957 Specification for Commercial Metric Capacity Measures. A number of modifications has been made in the draft Revision, having the same title, and the more important ones are given below:

- a) The figure and some dimensions of pouring-type conical measure (schematic) have been changed.
- b) The use of riveting the handle in capacity to be used in milk trade has been dispensed with and welding, soldering or brazing of handles has been recommended; and
- c) The grade of the brass sheets has been modified to conform to grade BS 60 of IS: 410-1959 Rolled Brass Plate, Sheet, Strip and Foil (*Revised*).

Coolant Pumps for Machine Tools

The production of machine tools is steadily increasing in India. Many of the machine tools need coolant pumps. It was felt by machine tool manufacturers and interested electrical manufacturers that the cost of production of such pumps could be lowered considerably if agreement was reached between machine tools' manufacturers and electrical manufacturers on leading dimensions, dimensions associated with the interchangeability of the pump as a whole, and pumping capacities. It is hoped that in due course the machine tools' manufacturers would be able to meet most of their requirements in terms of the Indian Standard Specification for Coolant Pumps for Machine Tools, the draft of which has been issued.

STRUCTURAL AND METALS DIVISION

Phosphor Copper Ingot

Two grades of phosphor copper ingots are covered in the draft

Indian Standard Specification for Phosphor Copper Ingots. The draft includes clauses on supply of material, sampling and criteria of conformity, chemical composition, shape and weight, freedom from defects, packing and marking.

Brass Strip for the Manufacture of Pen Nibs

The draft Indian Standard Specification for Brass Strip for the Manufacture of Pen Nibs prescribes requirements for brass strip in respect of the following: (a) chemical composition; (b) physical properties; (c) freedom from defects; (d) sizes and tolerances on width, length and thicknesses; (e) packing; (f) marking; (g) sampling and criteria for conformity; and (h) information to be given by the purchaser.

Free Cutting Brass Rods and Sections

An Indian Standard Specification for Free Cutting Brass Rods and Bars for Use in Screw Machines (IS: 319-1951) was first issued in 1951 as a tentative standard, and its draft Revision is now being issued with a view to bringing out a firm standard. The main modifications made in this draft Revision entitled Specification for Free Cutting Brass Rods and Sections and some of the additional information now included are with regard to the following:

- a) General Requirements for the supply of material;
- b) Certain clarification in the table giving chemical composition;
- c) Freedom from defects;
- d) Information to be given by the purchaser;
- e) Sampling and criteria for conformity based on statistical principles;
- f) Details of tensile test; and
- g) Recommended sizes and tolerances of rods and sections.

High Tensile Brass Rods, Bars and Sections

The draft Revision of IS: 320-1951 High Strength Brass Rods, Bars and Sections (*Tentative*) is entitled High Tensile Brass Rods, Bars and Sections. It is now being issued with a view to publishing a firm standard.

The draft Revision covers the requirements for rods and sections of three alloys, produced by extrusion, rolling, extrusion and drawing, rolling and drawing, hot forging for machining and general purposes.

These alloys are designated and described as follows:

- Alloy 1 — Hardened without aluminium; suitable for soldering.
 Alloy 2 — Hardened without aluminium; suitable for soldering but aluminium hardened and, therefore, less easily soldered.
 Alloy 3 — A high tensile brass suitable for machining and capable of obtaining alpha/beta structure, if required.

Chemical Analysis of Quartzite and High Silica Sand

Since various indigenous laboratories dealing with the analysis of minerals follow different methods for a similar estimation, the necessity was felt to prescribe such standard methods which could be used by laboratories for their day-to-day work and in cases of dispute. For those estimations which are lengthy and time-consuming but are very accurate and meant to be used as referee methods, simple procedures of estimations have been prescribed in the draft Indian Standard Methods of Chemical Analysis of Quartzite and High Silica Sand as alternate methods in order to facilitate their use for the routine analysis.

Mild Steel Wire Rod for the Manufacture of Machine Screws

On the recommendation of the Tariff Commission, Government of India, the draft Specification for Mild Steel Wire Rod for the Manufacture of Machine Screws (By Cold Heading Process) has been prepared. The draft covers the requirements of mild steel wire rod up to 20 mm diameter for the manufacture of machine screws conforming to IS: 1673-1960 Mild Steel Wire for the Manufacture of Machine Screws (by Cold Heading Process).

TEXTILE DIVISION

Manila Ropes

The draft specifications for the following are draft Revisions of Indian Standards indicated in brackets; their respective scopes are also given against each:

- a) Hawser-Laid Manila Rope (IS: 1084-1957) — prescribes requirements for three grades of rope, 25 to 457 mm (or 1 to 18 in.) in size.
 b) Shroud-Laid Manila Rope (IS: 1085-1957) — covers requirements of three grades of rope, 25 to 457 mm (or 1 to 18 in.) in size.

- c) Cable-Laid Manila Rope (IS: 1086-1957) — covers requirements for three grades of cable-laid manila rope, 127 to 457 mm (or 5 to 18 in.) in size.

Since the rope industry and trade throughout the world, including the countries using the metric system, accept fps as the basic system, the metric values given in the draft Revisions are, in almost all cases, mere equivalents rounded off to the nearest unit in consonance with the practice followed, for instance, by the German Standards Body in their standard DIN 83305. The draft Revision also includes a provision for the net weight of a lot and a reduced test length of one metre for determining the breaking load if the machine available cannot accommodate the prescribed length of two metres.

Cotton Spindle Tape

The draft Indian Standard Specification for Cotton Spindle Tape (for Jute Textile Mills) prescribes constructional details and other particulars of 14 varieties of cotton spindle tape for jute textile mills. The draft is divided into two parts. In Part I all quantities and dimensions have been expressed in the metric system, and in Part II in the fps system with the metric-system equivalents in brackets.

Tapioca Flour

Tapioca flour is prepared by powdering dried tapioca chips in a disintegrator or any other kind of grinding mill and sieved. The sieved tapioca flour is used for textile and other industrial purposes. Tapioca flour is supplied to many textile mills in larger quantities than tapioca starch and the conversion to starch is carried out at sight just prior to being used. It is estimated that in cotton textile industry alone, about 5500 tons of tapioca starch are being used.

The draft Indian Standard Specification for Tapioca Flour for Use in the Cotton Textile Industry prescribes requirements of tapioca flour which is a sizing material. Methods of tests for various characteristics of the tapioca flour are also given.

Damage in Jute Goods Due to Micro-Organisms

Jute goods are liable to be attacked and damaged by micro-organisms,

such as bacteria, fungi, etc, while in transit, storage or use. This deterioration is usually more marked in climatic conditions prevalent in tropical and sub-tropical countries. The need was, therefore, felt for the formulation of standard methods for the following, drafts of which have been issued:

- a) Detection and Estimation of Damage in Jute Fabrics Due to Micro-Organisms; and
 b) Detection and Estimation of Damage in Jute Yarn and Cordages Due to Micro-Organisms.

Inset Mail Wire Healds

The draft Indian Standard Specification for Inset Mail Wire Healds for Use in Cotton and Silk Weaving (Excluding Jacquard and Fancy Weaving) is expected to be of use to the wire heald manufacturers in manufacturing inset mail wire healds of acceptable quality and to consumers in acquiring dependable supplies. The draft prescribes the requirements for wire healds in which a metal mail is inserted between the two wires tinned together.

Estimation of Residual Starch in Cotton Fabrics after Desizing

Starch is applied to warp yarn during the sizing operation prior to weaving. In order to obtain efficient results in bleaching, dyeing, printing and other finishing treatments, it is essential that starch and other ingredients of size present in grey cloth and also the natural non-cellulosic impurities in cotton are removed completely before giving these treatments. Such a removal is accomplished in the processes of desizing and scouring. Efficient desizing would remove more than 90 percent of the starch present. Starch, if not removed to this extent, will interfere with the efficiency of kiering, yielding degradation products with reducing properties; these products would act detrimentally, especially on coloured yarns if they are present in the material under treatment. Hence, a routine test to determine the quantity of residual starch in the desized cloth is necessary, for which the draft Indian Standard Methods for Residual Starch in Cotton Fabrics After Desizing has been issued. The draft prescribes two methods for the estimation of residual starch in cotton fabrics after desizing.

Determination of Colour Fastness

Fastness of dyestuffs is of considerable importance to the consumer. The fastness depends not only upon the nature and depth of colour of the dyestuff used but also upon the nature of the fibre on which it is applied and the method of application employed; the same colouring matter when used in dyeing different fibres, or when applied by different methods may give vastly different results. Formulation of standard methods of test for determining fastness of dyestuffs to different processes likely to effect the change in colour is, therefore, necessary. Consequently draft Indian Standard Methods for the following have been prepared:

- a) Determination of Fastness of Dyestuffs to Metals in the Dye-bath: Chromium Salts;
- b) Determination of Fastness of Dyestuffs to Metals in the Dye-bath: Iron and Copper; and
- c) Determination of Colour Fastness of Textile Materials to Washing in the Presence of Sodium Hypochlorite.

DRAFT INDIAN STANDARDS TO BE CIRCULATED

During the period under report, the following draft Indian Standards

were being processed to be put into wide circulation in the near future:

- 1) Specification for Desiccated Coconut.
- 2) Specification for Wheatmeal Bread.
- 3) Specification for Test Sieves.
- 4) Specification for Ammonium Sulphate Nitrate.
- 5) Specification for Liquid Driers for Paints.
- 6) Specification for Liquid Driers, Concentrated, for Paints.
- 7) Specifications for Ready Mixed Paint, Brushing, Finishing, Oil Gloss, for General Purposes.
- 8) Guide for Insulation Co-ordination.
- 9) Specifications for Enamelled High Annealed Round Copper Wire (Oleo-Resinous Enamel).
- 10) Specification for Reels for Covered Solid, Round Electrical Winding Wires.
- 11) Specification for Cotton Covered Rectangular Copper Conductors.
- 12) Specification for Drum for Covered Winding Wires and Strips for Electrical Purposes.
- 13) Specification for Rubber-Insulated Cables and Flexible Cords for Electric Power and Lighting (for Working Voltages Up to and Including 11 kV).
- 14) Specification for Braided Cables with Copper Conductors for Overhead Transmission Lines.
- 15) Methods of Test For Electric Strength of Insulating Materials at Power Frequencies.
- 16) Methods of Test for the Determination of the Insulation Resistance of Solid Insulating Materials.
- 17) Recommendations for the Conditioning and Testing of Electrical Insulating Materials.
- 18) Specification for Built-Up Mica.
- 19) Test Chart for Radial Drilling Machines.
- 20) Methods for Determination of Fabric Dimensions.
- 21) Methods for Determination of Ends and Picks per Ten Centimetres in Woven Fabrics.
- 22) Method for Determination of breaking Load and Elongation at Break of Woven Fabrics (By Constant-Rate of Traverse Machine).
- 23) Method for Determination of Bursting Strength of Woven and Knitted Fabrics.
- 24) Method for Determination of Weight per Square Metre and Weight per Linear Metre of Fabrics.

New Subjects Approved for Formulating Indian Standards

The following list gives the new subjects, approved by the Division Council concerned or its Standing Working Committee during June and July 1961 for formulation of Indian Standards.

Agricultural and Food Products Division

Maize Grit
Maize Oilcake
Maize Gluten
Dried Bombay Duck (Bombil)
Besan
Wafer Biscuits
Malt Extract
Composite *Idli* Powder
Papad
Soluble Coffee

Thermosamplers**Building Division**

Estimation of Liquid Flow in Conduits: Part I Straight Pipes, and Part II Non-Straight Pipes and Fittings
Measurement of Liquid Flow by Means of Orifice Plates and Nozzles
Measurement of Fluid Flow by Means of Venturi

Engineering Division

Table-Tennis Balls

Structural and Metals Division

Standard Sand for Testing Foundry Binding Material
Linseed Oil for Use as Core Binder
Method of Test for Core Oils
Silica Flour
Methods of Sampling Fluorite

Draft Standards from Commonwealth Countries

The following draft standards from Commonwealth Countries were received for comments during 16 May 1961 to 15 July 1961. Copies of these documents are available in ISI Library for reference.

Australia

- Doc-562 Dental Chisels, Excavators, Probes and Scalers
- Doc-563 Hypodermic Dental Needles
- Doc-566 Cutback Bitumen
- Doc-567 Decorative Thermosetting Laminated Sheet
- Doc-568 Vinyl Asbestos Floor Tiles
- Doc-569 Pressure Sensitive Adhesive Masking Tapes
- Doc-571 Moisture Regains and Commercial Allowances for Textile Materials
- Doc-572 Rainwear from PVC Sheeting
- Doc-575 Density Hydrometers for Use in Milk
- Doc-576 Industrial Safety Gloves and Mittens
- Doc-577 Portable Warning Signals
- Doc-578 Welding Capsule Type Steel Cylinders for the Storage and Transport of Compressed Acetylene Dissolved in Acetone

Ireland

- S 101 Commercial Envelopes

New Zealand

- D6223 Precast Chimney Units for Slow Combustion Stoves
- D6561 Model Building Bye-law: Miscellaneous Provisions
- D6578 Model Land Drainage Bye-law

Pakistan

- AFDC11(1) Refined Sugar
- AFDC11(3) Cane Molasses
- AFDC16(1) Dextrose Monohydrate
- AFDC16(2) Liquid Glucose
- TDC3(3)/89 Method for Testing and Tolerances for Cotton Sewing Threads
- TDC6(1)/91 Methods of Testing Knitted Textile Fabrics
- Tex-82-ATO Method for Determination of Thickness of Cloth

South Africa

- SABS15/3/9 Assessment of Defects in Woven Cotton Textiles
- SABS15/22/7 Gas Cylinders
- SABS19/9/10 Code of Practice Relating to the Use of Portable Steel Containers for Compressed Gases

United Kingdom

- AB(PLC/RUC)904 Dinghy Buoyancy Equipment. Part 4: Expanded Ebonite
- AB(PLC/RUC)905 Dinghy Buoyancy Equipment. Part 3: Expanded Polystyrene
- AB(PLC/RUC)906 Dinghy Buoyancy Equipment. Part 2: Rubber-Proofed Sheeting
- AB(PLC/RUC)907 Dinghy Buoyancy Equipment. Part 1: Unsupported PVC Sheeting
- AB(LBC)1201 Laboratory Fritted (Sintered) Filters
- AB(B)1228 Fencing (Revision of BS 1722 Parts 1-7 and 9)
- AB(MEE)1271 Master Gear
- AB(PLC)1386 Unplasticized PVC Pipe for Industrial Uses
- AB(BMB)1448 Asphalt Tiles for Paving and Flooring: Natural Rock Asphalt
- AB(M)1449 Playground Equipment for Parks. Part 3B of BS 3178 Plane Swings
- AB(M)1450 Fixed Playground Equipment for Schools. Part 3B of BS 3191 Special Requirements for Steel Tubular Climbing Apparatus
- AB(AGE)1492 Sisal Twines for Automatic Pick-up Balers and Similar Maclines
- AB(RUC)1599 Method for Zinc Oxide Stability Test for Latex
- AB(T)1660 Informative Labelling of Carpets, Carpeting and Rugs
- AB(INE)1661 Recommendations for the Graduation of Industrial Instruments for Quantitative Measurements
- AB(MEE)1698 Stainless Steel Cone Joint Fittings
- AB(ADC)1764 Methods of Test for Polyvinyl Acetate Adhesives for Wood
- AB(INE)1784 Physical Characteristics of Wrist Watches.

- Part 1: Waterproof, Shock-Proof and Anti-Magnetic
- AB(T)1799 Twines Made from Jute, Flax, Hemp, Phormium, Sisal and Cotton
- AB(SGC)1807 Hypodermic Syringes for Insulin Injection (Luer Fitting)
- AB(MEE)1922 ISO Metric Screw Threads (with Provisional DIN Tolerances)
- AB(PLC)1928 Unsaturated Polyester Resin Systems for Low Pressure Fibre Reinforced Plastics
- AB(B)2024 'Guaranteed Minimum' Reckoners for the Building and Civil Engineering Contracting Industries
- AB(PVC)2055 Addendum to British Standard Methods of Testing Pigments for Paints; Methods of Test of Residue on Sieve
- AB(BMB)2081 Waterproofing Building Papers
- AB(TLE)2114 Memorandum on Valves for Radio-frequency Heating Equipment
- AB(DPE)2146 Precision Spools for Magnetic Tape
- AB(LGE)2147 Tungsten Filament Miscellaneous Electric Lamps
- AB(ACE)2148 Steel Bolts and Nuts (B.A. and B.S.F. Threads) for Aircraft
- AB(ACE)2149 Steel Bolts and Nuts (Unified Threads) for Aircraft
- AB(ACE)2150 Corrosion-Resisting Steel Bolts and Nuts (B.A. and B.S.F. Threads) for Aircraft
- AB(ACE)2151 Corrosion-Resisting Steel Bolts and Nuts (Unified Threads) for Aircraft
- AB(BLCP)2200 Code of Practice on Daylight
- AB(M)2308 Hospital Bedside Lockers
- AB(M)2309 School Musical Instruments: Percussion Instruments
- AB(T)2311 Light-Weight Salvage Sheets for Fire Service Use
- AB(GSE)2374 Governors for Appliances Burning Town Gas
- AB(CRE)2393 Glossary of Mining Terms: Drainage Section

AB(ELE)2416 Testing and Approval of Domestic Electrical Appliances. Part B: Electric Motor-Operated Appliances. Section B1: General Requirements
 AB(MEE)2417 Engineering Drawing Practice
 AB(SGC)2458 Hypodermic Surgical Mounted Needles (Luer Fitting)
 AB(SFE)2491 Glossary of Thermal Insulating Terms
 AB(GSE)2492 Domestic Appliances Burning Town Gas. Part 1: General Requirements

AB(MEE)2526 Hobbing Machines for General Purposes
 AB(ELE)2589 Testing and Approval of Domestic Electrical Appliances. Part A: Heating and Cooking Appliances. Section A11: Electric Room Heaters
 AB(RUC)2655 Styrene Butadiene Rubber
 AB(WEE)2691 Recommendations for the Metal-Arc Welding of Structural Steel Tubes to BS 1775
 AB(ISE)2759 Carbon Steel Plates, Sections and Bars with Certified High Temperature

Properties [Supplement No. 1 (1961) to BS 1501:1958]
 AB(WEE)2764 Recommendations for the Radiographic Examination of Fusion-Welded Butt Joints in Thickness of Steel Up to 4 in.
 AB(WEE)2765 Classification of Covered Electrodes
 AB(ELE)2790 PVC-Insulated Cables for Power Switchgear Wiring
 AB(PHC)3461 Identification of the Emulsion Side of Edge-Marked Roll Film (For Use in Still Picture Cameras)

IMPLEMENTATION OF INDIAN STANDARDS — Continued from p. 296

RECOMMENDATIONS FOR IMPLEMENTATION

The Government of Rajasthan and Delhi Administration have directed all heads of departments that, while making purchases for official use, preference should be given to goods bearing ISI Certification Mark over those which do not bear the Mark. Furthermore, Indian Standards relating to the following items have been recommended for implementation, and also adopted in certain cases as detailed below:

Layout for Regulated Market Yards

The Mysore State Regulated Markets Conference, 1961, held at Gadag from 15 to 17 May, has recommended that for the planned development of market yards, such factors as arrivals,

storage facilities, maximum amenities, scope for future expansion, etc, should be taken into consideration and the Agricultural Produce Market Committee should have a Master Plan incorporating all these facilities. The Conference has further recommended that, the Master Plan should, as far as possible, be prepared in conformity with the relevant Indian Standards, taking the local conditions into consideration (see p. 311).

Code of Building Bye-laws (IS : 1256-1958)

The second conference of municipal corporations in India held at Bombay resolved that the Indian Standard Code of Building Bye-laws issued by ISI may be adopted by all the corporations in respect of Model Building Regulations.

Stationery Items

The Indian Historical Records Commission at its thirty-sixth session held at Chandigarh resolved that the various record-creating agencies in India should use, as far as possible, standard quality paper and ink of the standards specified by ISI. Further, the National Archives of India should take similar action in regard to carbon paper and typewriting ink.

Coir and Coir Products

The Ministry of Commerce & Industry, Government of India, has requested Indian commercial representatives abroad to give wide publicity among the importing organizations about the availability of Indian Standards on coir and coir products.

SIXTH STANDARDS CONVENTION

Over one hundred technical papers have been received for discussion at the nine technical sessions which will be the main feature of the Sixth Indian Standards Convention to be held at Kanpur from 25 to 31 December 1961*, and for which some 650 delegates had got themselves registered by the middle of last October. At this convention, an exhibition will also be held of the products bearing ISI Certification Mark. Besides, the Organizing Committee of the Convention is planning to organize two excursions at the end of the Convention, one to Khajuraho and the other to Lucknow.

*See ISI Bull., Vol 13, No. 4, p. 161 (1961).

K. L. MOUDGILL PRIZE TO BE OF RS 1000

The cash prize of Rs 500-00, instituted by ISI in commemoration of the distinguished services rendered by Dr. K. L. Moudgill, which ISI awards annually for valuable contribution to the cause of standardization, has now been raised to Rs 1 000-00, with the proviso that the Awards Committee might split this prize for any particular year into two prizes of Rs 500-00 each, if considered necessary. The present investment of the Fund financing the prize indicates that it will bring a minimum return of Rs 1 000-00 per year.

It will be recalled that this prize has so far been awarded to Dr. Lal C. Verman (1958), Lala Shri Ram (1959), and Shri G. D. Joglekar (1960).

STANDARDS ADDED TO ISI LIBRARY

The list includes standards received in ISI Library during 16 May to 15 July 1961. Full titles of only those standards are given which, besides being accessioned in the Library, are also stocked by ISI for sale. Numbers of all other standards are listed under their respective general classification headings. Readers, who are interested in obtaining their titles or any other information concerning them, are requested to address the Librarian.

The standards are in the official language(s) of the country of origin.

001.4 Scientific Nomenclature. Terminology

Portugal: NP 18

003.62 Notations. Symbols

Sweden: SIS 73 4121

05 Periodical

Portugal: NP 1; 26
Sweden: SIS 73 4312, 4412

31 Statistics

Italy: UNI 4497
USA-National Bureau of Standards: H 108

526.951.2 Plummets

Poland: PN N-99320

53 Physics and Mechanics

Czechoslovakia: CSN 25 4355, 4356, 4360 to 4367; 70 6640, 6641
Denmark: DS 735
Germany: DIN 51550; 52210, 212; 58150, 152, 153, 158; TGL 4849, 50; 7208; 7679
Poland: PN M-53101, 185, 186
USA: ASA PH22.117: 1960 Spectral Diffuse Density of Photographic Sound Record on Three-Component Subtractive Color Films
ASA S1.1: 1960 Acoustical Terminology (Including Mechanical Shock and Vibration)
Yugoslavia: JUS K.T4.150, .155, .160, .162, .164, .220, .222

54 Chemistry

Germany: DIN 19260, 261, 263; TGL 3128
Netherlands: NEN 3101
Poland: PN C-80575; N-02007; Z-04065, 068

614.8 Accident Prevention. Safety

Germany: DIN 14640
Israel: SI 361; 365
Yugoslavia: JUS Z.B1.032

615.47 Medical and Surgical Instruments

Germany: TGL 6795; 8249
Poland: PN Z-56124, 181
UK: BS 3330: 1961 Polythene Splints and Appliances for External Orthopaedic Use
BS 3353: 1961 Anaesthetic Breathing Bags Made of Anti-Static Rubber
USA-Federal Supply Service: Fed-std-00140, 142

620.1 Materials Testing

Czechoslovakia: CSN 25 0251, 0405
Germany: DIN 50321
Sweden: SIS 90 0009

621-1/-9 Machinery Details

Germany: DIN 806; 7603; 24909, 910, 911, 919, 930, 946, 947; TGL 6885; 7126; 7221
Italy: UNI 3963; 4386
Poland: PN M-02497, 499; -55016, 020; -61252, 253

621.3 Electrical Engineering

Belgium: NBN 400
Canada: CSA C 22.2 No. 114
Ceylon: CS 34
Czechoslovakia: CSN 34 7922, 8002, 8142, 8143, 8740; 35 0900; 36 7091; 37 0170 to 0178, 0610 to 0612, 0657 to 0659, 0675, 0720; 38 0411, 2156; 72 5818, 5819, 5820, 5825 to 5836
Germany: DIN 40712; 41318, 319, 454, 536, 538, 556, 557, 559; 42673; 43853; 46284, 285; 47302; 48069, 175; 49311, 321 to 335, 360, 402, 491, 494, 810; 53489; TGL 4263 (Bl 1-4), 64; 4614; 5332; 6591; 7065; 7200, 16 to 18; 7609, 11; 0-41572; -41682
Israel: SI 366; 367
Netherlands: NEN 3164; 3229
Poland: PN E-02113; -05001; -77201; -90006; T-02250; -80300; -82108; -82114, 135, 138 to 140; -92317, 600, 601
South Africa: SABS 171; 184; 185
Switzerland: SNV 24720, 721, 722, 730, 737, 738

UK: BS 2004: 1961 PVC-Insulated Cables and Flexible Cords for Electric Power and Lighting
BS 2136: Part 1: 1961 Fixed Metallized-Paper Dielectric Capacitors for DC Operation for Use in Telecommunication and Allied Electronic Equipment: General Requirements and Tests
BS 3337: 1961 Dimensions of Plug Part and Lampholder for Capless Photo-Flash Lamps
BS 3346: 1961 Armoured PVC-Insulated Cables
BS 3360: 1961 Copper Conductors in Insulated Cables and Cords
BS 3361: 1961 Copper Conductors in Insulated Cables and Cords (Metric Units)
BS 3456: Section A2: 1961 Testing and Approval of Domestic Electrical Appliances: Electric Fires
BS 3456: Section A3: 1961 Testing and Approval of Domestic Electrical Appliances: Electric Kettles

BS 3456: Section B2: 1961 Testing and Approval of Domestic Electrical Appliances: Electric Vacuum Cleaners
UK-Electrical Research Association: ERA CL/T2; D/T111, 122, 124, 195
USA: ASA C8.23: 1960 Synthetic Rubber Insulation for Wire and Cable, 60 C Operation
ASA C8.24: 1960 Synthetic Rubber Insulation for Wire and Cable, 75 C Operation
ASA C8.26: 1960 Natural Rubber Performance Insulation for Wire and Cable, 60 C Operation
ASA C8.27: 1960 Natural Rubber Heat-Resisting Insulation for Wire and Cable, 75 C Operation
ASA C8.31: 1960 General Purpose Neoprene Sheath for Wire and Cable
ASA C8.32: 1960 Heavy-Duty Black Neoprene Sheath for Wire and Cable
ASA C8.37: 1960 Ozone-Resisting Butyl Rubber Insulation for Wire and Cable
ASA C8.38: 1960 Synthetic Rubber Heat- or Moisture-Resisting Insulation for Wire and Cable
ASA C8.39: 1960 Synthetic Rubber Performance, Moisture-Resisting Insulation for Wire and Cable
ASA C8.40: 1960 Synthetic Rubber Insulation for Wire and Cable, 90 C Operation
ASA C37.7: 1960 Interrupting Rating Factors for Reclosing Service on Power Circuit Breakers
ASA C78.705: 1960 Dimensional and Electrical Characteristics of 48-Inch (1.5-Ampere) T-12 and PG-17 Rapid-Start Fluorescent Lamps
ASA C78.706: 1960 Dimensional and Electrical Characteristics of 72-Inch (1.5-Ampere) T-12 and PG-17 Rapid-Start Fluorescent Lamps
ASA C80.5: 1960 Rigid Aluminium Conduit
USA-American Society for Testing Materials: ASTM STP 56
Yugoslavia: JUS N.C4.110, .241; N.J2.030; N.R2.001, .020

621.43 Internal Combustion Engines

Germany: TGL 6982
Poland: PN L-01050

621.56/.59 Refrigeration Technology

Germany: TGL 6778; 7113

621.6 Storage Containers. Pipes, Flanges, etc

Czechoslovakia: CSN 01 7045
Denmark: DS 134
France: PN E 29-701 to -706

Germany: DIN 1754; 31551, 552; TGL 6669; 7121 to 7125; 7743; 7849; 8205, 10
 Israel: SI 61
 Netherlands: NEN 2385; 3038
 USA-American Water Works Association: AWWA C201; 202
 Yugoslavia: JUS B.D1.200, .210, .220, .225, .226, .230, .240, .245, .250, .255, .400

621.65 Pumps

Germany: TGL 7296, 97

621.74 Foundry Work

Germany: TGL 6282; 8167 to 8175

621.753.3 Gauges

Czechoslovakia: CSN 25 4105
 Germany: TGL 7891
 USA-Federal Supply Service: GGG-G-17a
 Yugoslavia: JUS K.T3.066, .120, .130, .131, .136, .137, .140, .145, .146, .950 to .952; K.T4.110, .116; M.B1.114

621.791 Welding

Chile: INDITECNOR 34-80
 Italy: UNI 4545
 Netherlands: NEN 2372
 Poland: PN M-57060
 Yugoslavia: JUS C.T3.030

621.798 Packing and Dispatch

Germany: DIN 55456
 India-Ministry of Defence: IND/GS 1018; IND/GS/DRG 2324
 Poland: PN M-79250
 Sweden: SIS 71 3301

621.822 Bearings

Czechoslovakia: CSN 02 4810 to 4813
 Germany: DIN 5412 (Bl 1-4)
 Italy: UNI 4494 to 4496; 4597
 Poland: PN M-86401
 USA: ASA B 3.9: 1960 Bearing Mounting Accessories

621.833 Gear

Czechoslovakia: CSN 01 4607, 4608
 Germany: TGL 6945; 7031
 Hungary: MSZ 434
 Netherlands: NEN 2360

621.86 Mechanical Handling and Hoisting Equipment

Germany: DIN 15148; TGL 4808; 7920
 Sweden: SIS 50 42 01; 71 00 02; 71 00 21; 71 00 22; 71 00 23
 USA-Hoist Manufacturers Association: HMA 400

621.873 Crane

Italy: UNI 4547, 48

621.876 Lifts, Elevators

USA: ASA A17.1: 1960 Safety Code for Elevators—Dumbwaiters and Escalators

621.88 Means of Attachment, Fastenings

Canada: 39-GP-50
 Czechoslovakia: CSN 02 1381, 1382, 1609; 24 3125
 Germany: DIN 13 (Bl 35-36); 434; 435; 18261; 30280 (Bl 1-2); 340, 341; TGL 4737; 4806; 7719, 20, 23; 0-464

India-Ministry of Defence: IND/GS/DRG 1412

Italy: UNI 4533 to 4536
 Netherlands: NEN 2256 to 2259
 Poland: PN M-53216; -65031

621.89 Lubrication

USA: ASA Z11.3: 1960 Cone Penetration of Lubricating Grease

621.9 Machine Tools

Czechoslovakia: CSN 22 0001, 5235, 5241, 5244 to 5250, 5253, 5256, 5257, 5260 to 5265, 5269 to 5301, 5309 to 5325; 23 2832, 2835; 24 2161, 2162, 2200, 4283
 Germany: DIN 338; 346; TGL 6136, 38; 8190 (Bl 1-2)
 Italy: UNI 521; 1944; 3089; 3811; 3999; 4000; 4387; 4388; 4498 to 4503; 4550; 4551
 Netherlands: NEN 1990
 Poland: PN M-55019; -56106; -57614; -57616; -58413
 UK: BS 1296: 1961 Butt-Welded, Single Point Cutting Tools and Blanks

624 Civil Engineering

Czechoslovakia: CSN 73 2004
 Germany: DIN 4019 (Bl 2)
 Poland: PN B-04486
 USA-American Society for Testing Materials: ASTM STP 270

625.1/.6 Railway Engineering

Germany: DIN 30051
 Italy: UNI 4502
 Poland: PN K-91 032, 037, 048, 049

628.9 Illumination

Czechoslovakia: CSN 35 0505
 Germany: TGL 7018

629.113 Automobile Engineering

Canada: CSA D106
 Czechoslovakia: CSN 01 4450; 30 3710, 6050
 Germany: DIN 7797 to 7799; 7813; TGL 7814, 17, 18
 Poland: PN S-91011; -91244; -95015
 Sweden: SIS 26 3102, 3105, 3115, 3120, 3122, 3130, 3135, 3141, 3142
 Yugoslavia: JUS B.E3.701; M.NO.010, .301; .N1.053, .054, .056, .071, .072; .N4.001

629.12 Shipbuilding

Italy: UNI 2543; 4589, 90
 Poland: PN C-94102; W-82116; -82142; -82151

629.13 Aeronautical Engineering

Italy: UNI 4537 to 4540
 Poland: PN L-95005; -95010 to -95014

63 Agricultural and Animal Produce

Czechoslovakia: CSN 46 6160, 6415; 47 0020, 0510, 0520, 0525
 Germany: TGL 6724; 7029; 7614, 15, 18, 20, 21, 72; 8125
 Hungary: MSZ 1816
 Netherlands: NEN 1308
 Poland: PN A-86100; -86201; -86231; -87022; -87054; R-58002 to -58005; -75360
 South Africa: SABS 065
 USA-Federal Supply Service: C-M-00355; O-I-00568a
 Yugoslavia: JUS E.C1.020; .J1.011

64 Domestic Science, Catering

Czechoslovakia: CSN 38 6512
 Germany: TGL 7211; 7895; 8440, 48
 Poland: PN M-40051
 Sweden: SIS 50 7411 to 7418
 UK: BS 3456: Section A2: 1961 Testing and Approval of Domestic Electrical Appliances: Electric Fires
 BS 3456: Section A3: 1961 Testing and Approval of Domestic Electrical Appliances: Electric Kettles
 BS 3456: Section B2: 1961 Testing and Approval of Domestic Electrical Appliances: Electric Vacuum Cleaners

661 Chemicals (Fine, Heavy, etc)

Chile: INDITECNOR 39-8D; 39-9
 Czechoslovakia: CSN 65 2957; 68 5392, 6023, 6263
 Germany: TGL 4465; 6530; 6755; 7264; 7513, 79, 80; 7750, 51; 8078; 8116, 20, 21; 8217, 58, 60; 8450, 55, 75, 99
 Israel: SI 359
 Poland: PN C-88005
 USA-Federal Supply Service: O-S-809a; EE-B-0086a; TT-D-301b; TT-T-662b

662.6/.9 Fuels, Heating, Combustion

Czechoslovakia: CSN 38 5520 to 5526, 6510 to 6515, 6520, 6525, 6541; 44 1392, 1395, 1420, 1460
 Germany: DIN 51603, 849
 Israel: SI 90
 Poland: PN C-97016; -97038
 USA: ASA Z11.37: 1960 Knock Characteristics of Motor Fuels Below 100 Octane Number by the Motor Method
 ASA Z11.69: 1960 Knock Characteristics of Motor Fuels Below 100 Octane Number by the Research Method

663.5 Alcoholic Beverage

Germany: TGL 8247 (Bl 1-5)

664 Food Industries, Preservation

Czechoslovakia: CSN 58 6240
 Germany: TGL 2957; 6725; 7040 to 7042, 70; 7625
 Poland: PN A-74001; -74007; -74011; -74014; -74015; -74204
 UK: BS 3340: 1961 Sunset Yellow FCF for Use in Foodstuffs
 BS 3341: 1961 Amaranth for Use in Foodstuffs

665.5 Petroleum Industry

USA: ASA Z11.41: 1960 Unulfonated Residue of Petroleum Plant Spray Oils
 ASA Z11.71: 1960 Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates

666.1/.2 Glass Industry

Israel: SI 371
 Portugal: NP 177
 Netherlands: NEN 3060
 Sweden: SIS 52 55 03; 52 55 05; 52 55 06; 70 50 18

666.7 Refractory Material

Italy: UNI 4450 to 4458
 Poland: PN H-12001; -12003

667.6 Paint and Varnish Industry

Canada: 1-GP-136a
 Ceylon: CS 31

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Czechoslovakia: CSN 43 3009; 67 3065, 3115, 3152, 3155, 3156, 3158, 3161 to 3163, 3179, 3186, 3188, 3194
Germany: TGL 6513; 7739
Poland: PN C-01701; -04404
South Africa: SABS 630

668.1 Soap

Germany: TGL 8910
Poland: PN C-77001

668.5 Essential Oil

Netherlands: NEN 5363

669.1 Ferrous Metallurgy

Ceylon: CS 30
Czechoslovakia: CSN 41 3030, 7102, 7113, 7141, 7322, 7436, 7455, 7460, 7482; 42 0511, 0513, 2933, 2941, 6422 to 6424, 6460
Germany: DIN 1623 (Bl 1-2); TGL 6773, 76, 77; 7970 to 7975
Hungary: MSZ 4315; 7260, 63
Italy: UNI 4531, 32; 4544, 49
Poland: PN H-04661; -89500
UK: BS 1441: 1961 Galvanized Steel Wire for Armouring Submarine Cables
 BS 2789: 1961 Iron Castings with Spheroidal or Nodular Graphite
 BS 3333: 1961 Pearlitic Malleable Iron Castings
Yugoslavia: JUS C.B0.500, .551; .B3.021, .024, .026, .030, .101, .111, .131, .411, .421, .431, .441, .550

669.2/.8 Non-Ferrous Metallurgy

Czechoslovakia: CSN 42 1393
Germany: DIN 1729 (Bl 1-2); 2030; 17800, 811
Italy: UNI 4507
Netherlands: NEN 5256
Sweden: MNC 51; SIS 14 51 44; 14 52 02; 14 52 03; 14 52 04; 14 54 43; 14 54 44; 14 54 65

674 Wood Industry

Netherlands: NEN 3251, 52
Poland: PN D-95011
UK: BS 838: 1961 Methods of Test for Toxicity of Wood Preservatives to Fungi

Yugoslavia: JUS D.E1.020, .025, .026 to .028, .033, .040, .110, .121, .122, .131, .132, .141, .150, .160

675 Leather Industry

Czechoslovakia: CSN 79 2266
Poland: PN P-22219

676 Paper and Pulp Industries

Czechoslovakia: CSN 50 0010, 0260, 1210
Germany: TGL 7803; 7963; 8599
Poland: PN P-96015; -96201; -97002; -97013
Portugal: NP 16
Sweden: SIS 71 11 29

677 Textile Industry

Czechoslovakia: CSN 80 0819
Denmark: DS 921; 922; 924; 929
Germany: DIN 15315; 53822, 890; 60600; 64590, 591; TGL 5664; 7112; 7471; 8033
Netherlands: NEN 5225 to 5227
Poland: PN P-63440; -82454
Sweden: SIS 65 00 37; 65 00 38; 65 00 51; 65 00 55; 65 00 59; 65 00 60; 65 00 64
UK: BS 1771: 1961 Outdoor Uniform Clothes for Fire Service, Local Authority and Hospital Staffs
 BS 2016: 1961 Methods for the Determination of the Linear Density of Textile Fibres by Weighing
 BS 2019: 1961 Lines Made from Cotton and Hemp
 BS 3339: 1961 Loom Weft Forks and Grates
 BS 3349: 1961 Protective Canvas Sheets for Overhead Work (Non-Corrosive Atmospheres)
 BS 3356: 1961 Method for the Determination of Stiffness of Cloth
Yugoslavia: JUS F.B2.011, .012, .021

678 Rubber and Plastic

Czechoslovakia: CSN 38 6519
Germany: TGL 7598, 99; 7600, 01; 7995
Italy: UNI 427
Poland: PN C-83033; -89250; -89251
Spain: UNE 53 515

Sweden: SIS 20 0513; 20 0514
UK-Ministry of Aviation: DTD 5517

685.6 Gymnasium Equipment

Germany: TGL 6691
Yugoslavia: JUS Z.D1.020, .025, .030, .035

687.1 Clothing Ready Wear

Canada: 49-GP-21, -22
Germany: DIN 61527

69 Building Industry, Materials, Trades, Construction

Canada: 63-GP-3; 69-GP-2P
Czechoslovakia: CSN 38 6411; 73 2001, 3300, 3301
Denmark: DS 1024, 25
Germany: DIN 1997; 4720, 22; 18017, 031, 112; TGL 7527; 8020
Hungary: MSZ 109; 8193
Poland: PN B-23011; -30000
Sweden: SIS 52 73 01; 56 70 12; 56 70 14
USA: ASA A82.1: 1961 Sampling and Testing Brick
 ASA A83.1: 1961 Sampling and Testing Structural Clay Tile
 ASA A99.1: 1961 Facing Brick (Solid Masonry Units Made From Clay or Shale)
 ASA Z21.13.2: 1960 Approval Requirements for Central Heating Gas Appliances: Gravity and Forced Air Central Furnaces

77 Photography and Cinematography

USA: ASA PH3.35: 1960 Designating and Measuring Focal Lengths and Focal Distances of Photographic Lenses
 ASA PH22.27: 1960 Method of Determining Transmission Density of Motion-Picture Films
 ASA PH22.50: 1960 Reel Spindles for 16-mm Motion-Picture Projectors
 ASA PH22.52: 1960 Cross-Modulation Tests for 16-mm Variable-Area Photographic Sound Prints
 ASA PH22.67: 1960 1 000-Cycle Balancing Test Film for 35-mm Motion-Picture Sound Reproducers

OBITUARY

We regret to announce the sad and sudden demise of Shri Babubhai C. Munshaw (b. 1910-d. 30 August 1961), a leading figure in the Indian textile world, who had established no less than four industrial concerns, namely Texind Corporation Private Ltd., Paramount India Private Ltd., Amber Textile Mill and the Munshaw Industries for manufacturing textile machinery and parts.

Shri Munshaw was a renowned expert in the field of textile machinery. His knowledge was derived from actual experience gained during his many overseas travels, which included some 18 visits to Japan, 8 to Europe, and one to Australia. It was because of his sound and expert knowledge that he was called upon four times to represent India at the meetings of the Textile Machinery and Accessories Technical Committee of the International Organization for Standardization (ISO). In addition, ISI had the privilege of his active help and support almost since the inception of the Institution. He had been a member of the Textile Division Council of ISI since 1948, the Chairman of the Spindle Tapes and Tubular Banding Sectional Committee, TDC 25, and member of Co-ordination (ISO/TC 72 Machinery) Sectional Committee, TDC 26. From 1951 to 1959 Shri Munshaw represented the Textile Division (TDC) on the General Council (GC); from 1952 to 1955 he represented GC on the Executive Committee; and from 1952 to 1957 he represented GC on the Finance Committee.

Shri Munshaw was also a well-known social worker and a prominent member of the Bombay Presidency Radio Club Limited, the Association of Merchants and Manufacturers of Textile Stores and Machinery, and many other educational and trade associations of the country.



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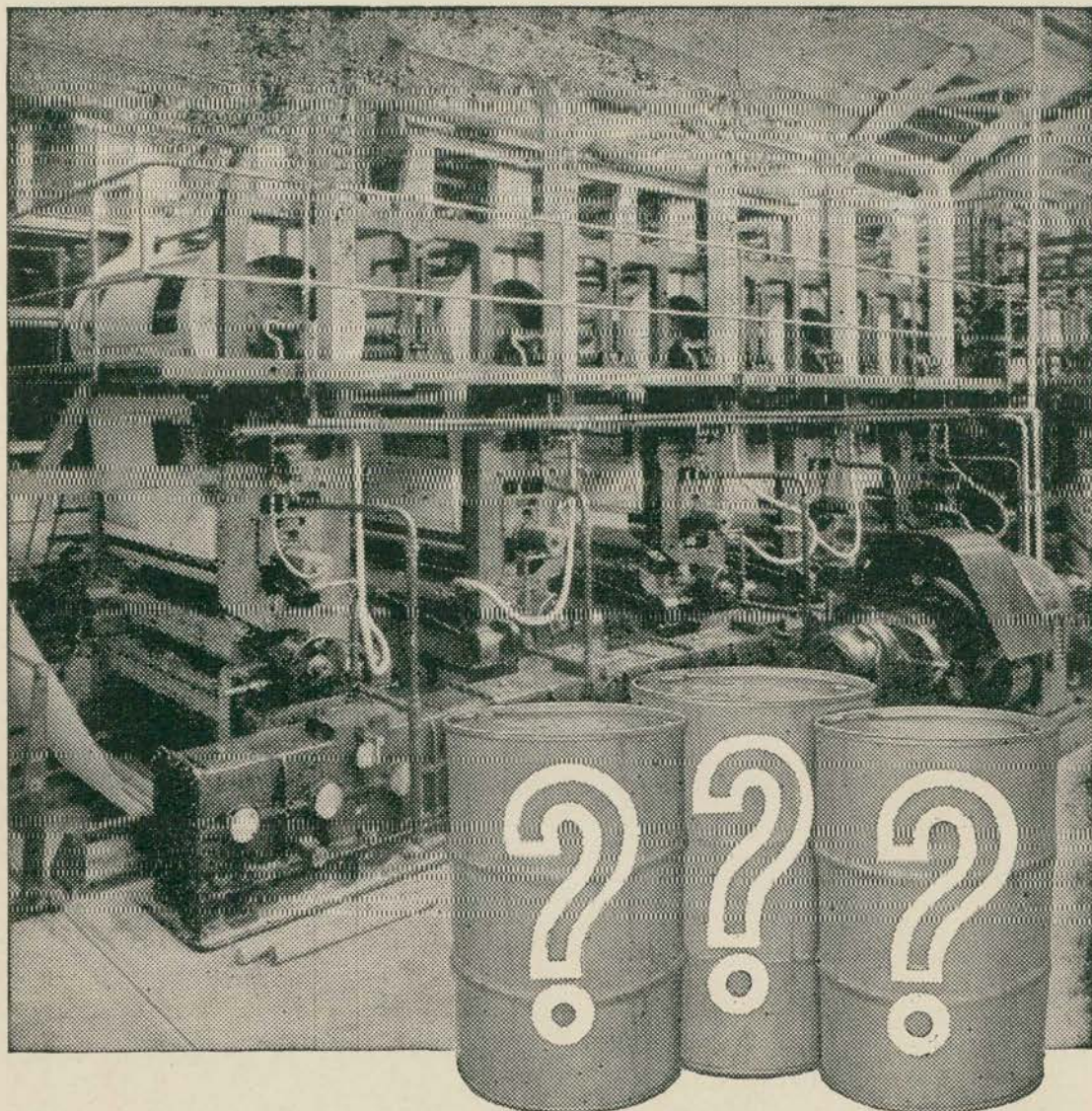
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JAPANESE SCIENCE WRITERS AND EDITORS VISIT ISI

A group of 9 general science writers and editors visited Manak Bhavan last July during their two-day stay at Delhi. Their three-month tour of European, American and Asian countries had been sponsored by the Japanese Newspaper Publishers and Editors Association. The group comprising Messrs H. Ishikawa, T. Iwasaki, S. Kikuchi, S. Furuta, Y. Abe, K. Takahashi, T. Fukuda, N. Masaki was escorted by Mr. S. Ito.

At Manak Bhavan, they were shown round and taken to the standards museum. In the absence of the Director the group held informal discussions with Dr. A. N. Ghosh, the Acting Director, who explained to them the standardization activity in India and abroad, with special emphasis on the functioning of ISI and the coverage and processing of Indian Standards.





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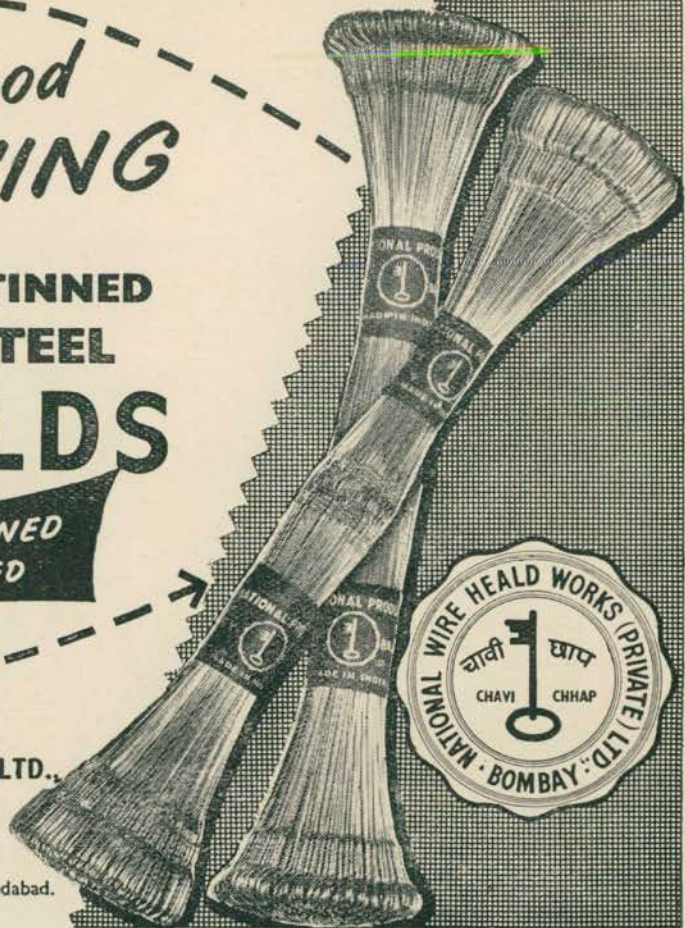
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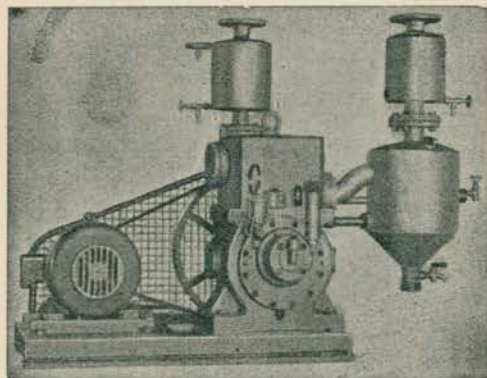
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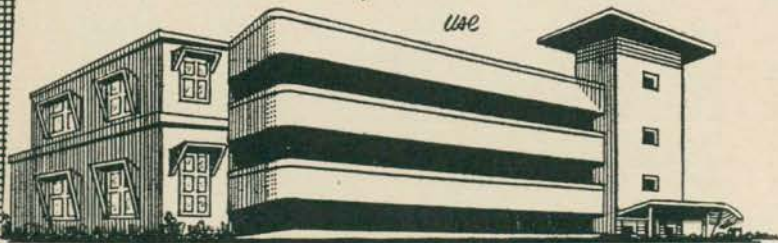
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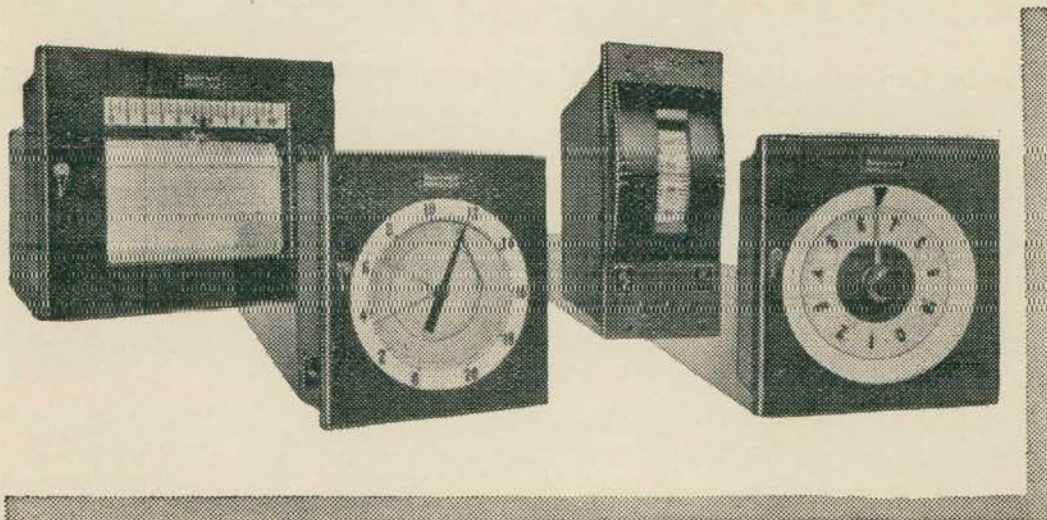
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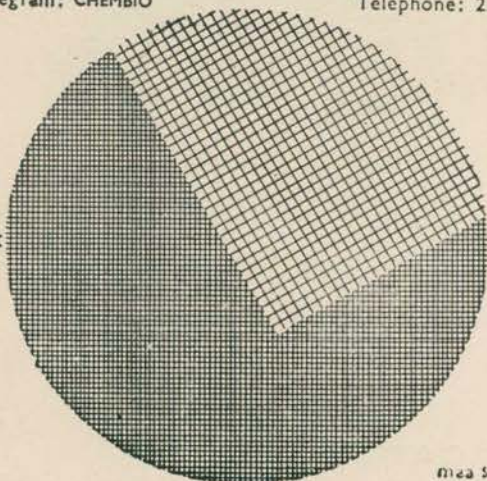
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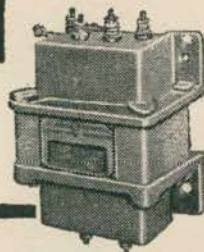
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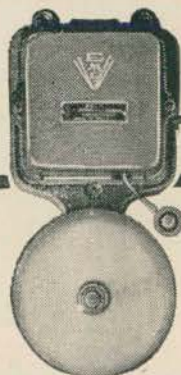
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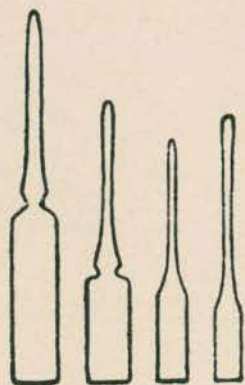


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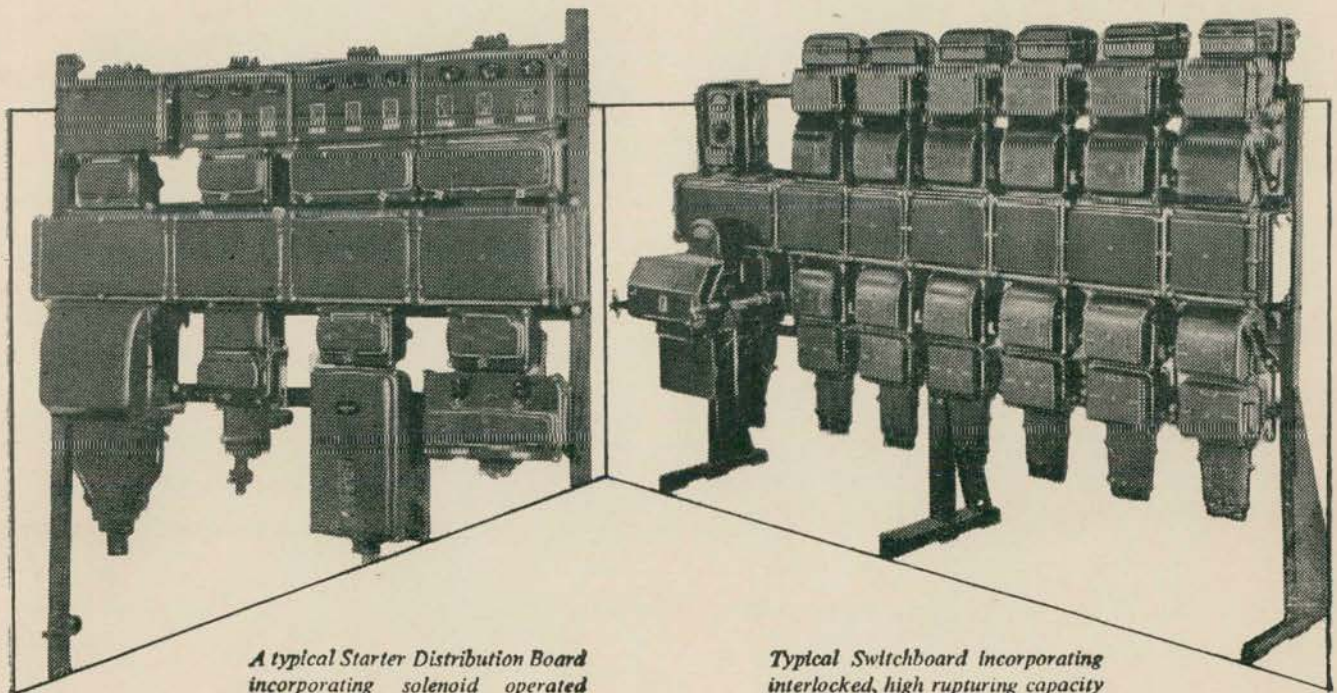
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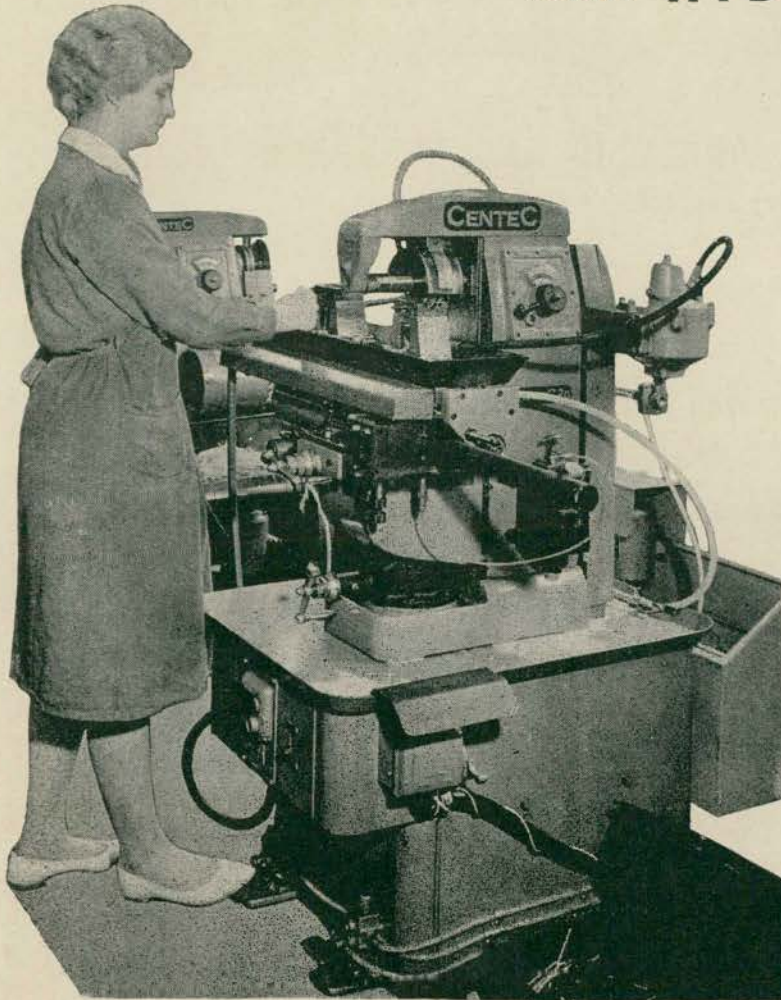


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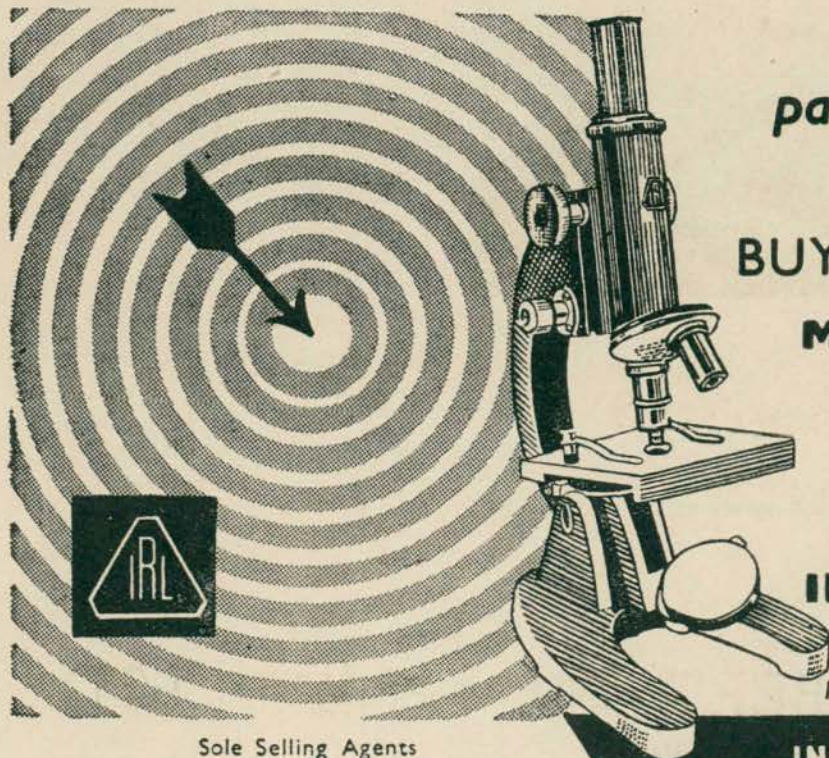


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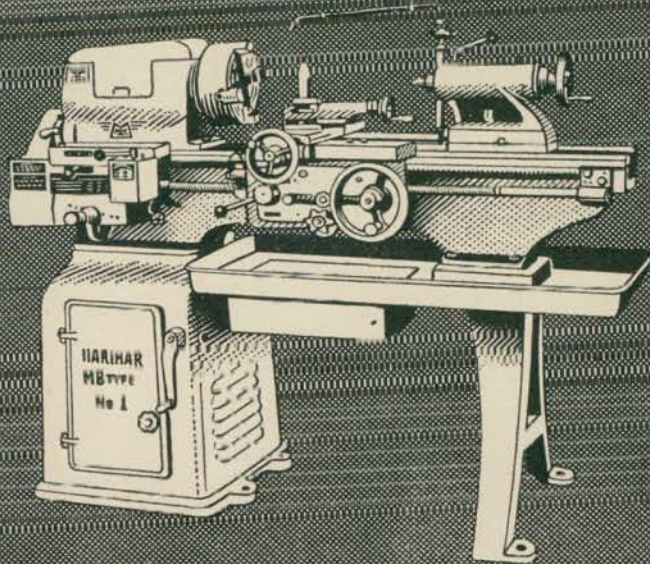
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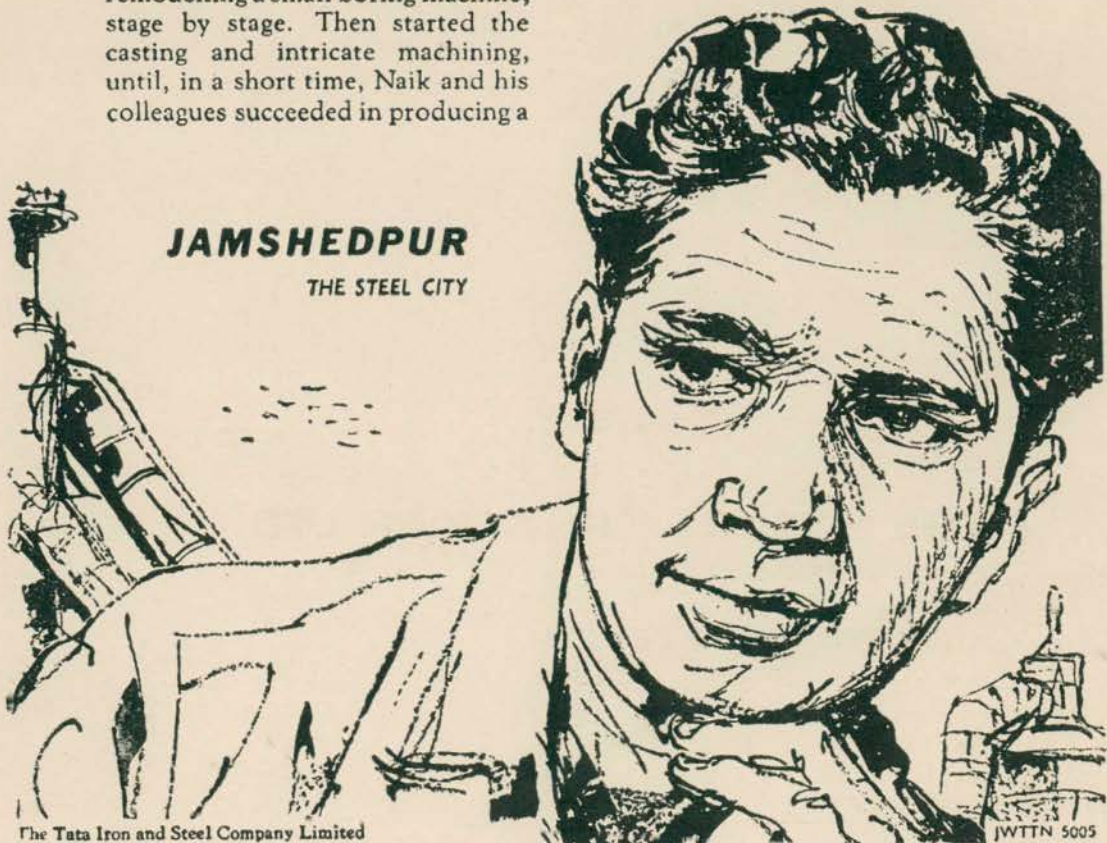
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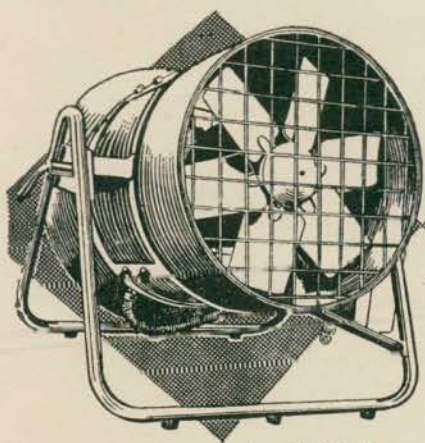
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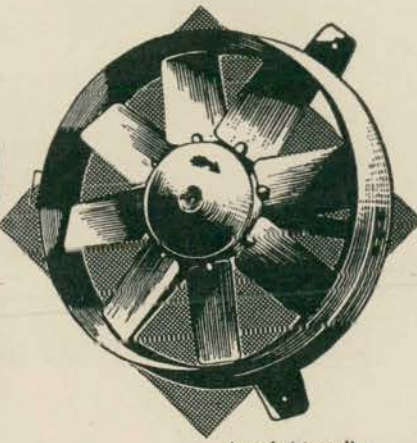
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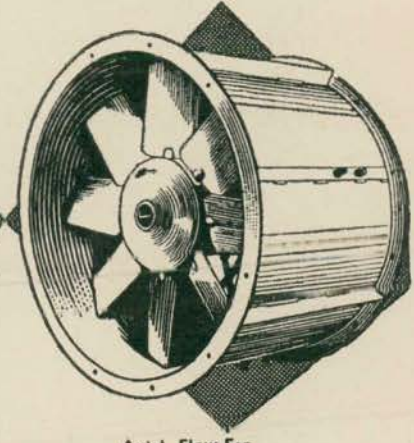
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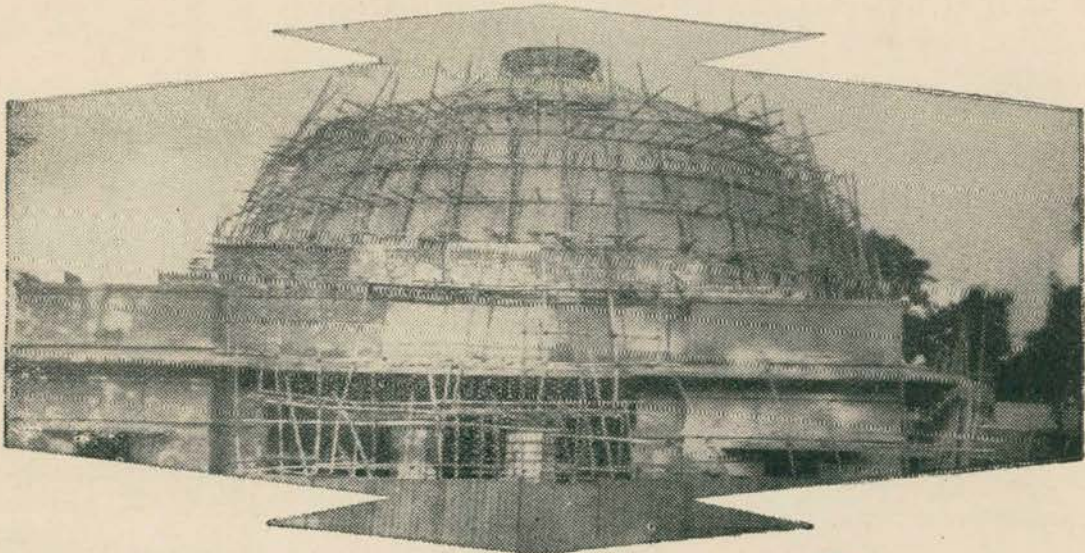


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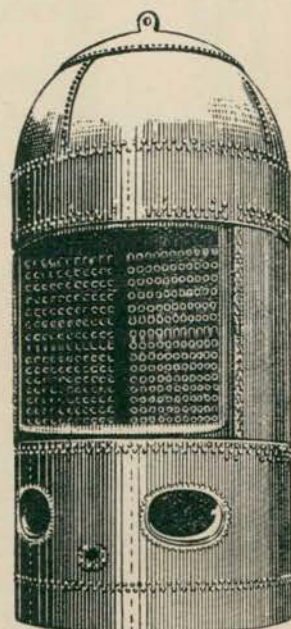
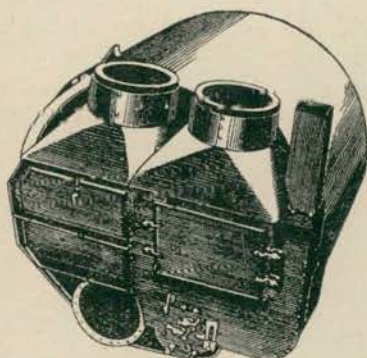
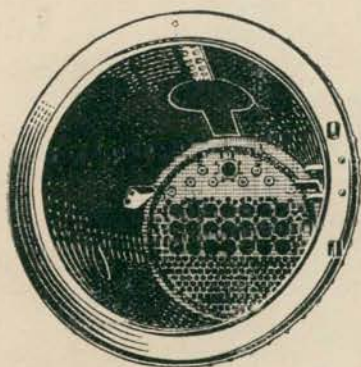
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