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A BUREAU OF STANDARDS FOR INDIA

II

AS we have pointed out, in our previous issue of *Current Science*, industrial standardization, which started with the introduction of technics and scientific methods in industry, was accelerated by the economic pressure in producing countries and by the way in which standardization provided an easy remedy for some of their difficulties. Standardization by companies (of their products and processes of manufacture), which started in the latter half of the last century, was extended into standardization by groups or associations towards the beginning of this century. Experience showed, however, that in order to obtain full benefit from the process standardization must be undertaken on a national basis. At present not only is standardization in industrial

countries being introduced on an inter-industrial basis but attempts are also being made to bring about international co-operation in the field as far as possible.

The main interests affected by the introduction of standardization in industry are: (1) Producer, (2) Distributor, (3) Consumer. The Government of the country being generally the largest consumer of goods and being responsible for the economic development of the nation cannot of course be left out. The fact that these interests are closely interlinked is not always easily recognised, the consumer does not usually recognise the benefits of standardization and considers it as a problem for the producer. The consumer's engineer very often assumes an uncompromising attitude by specifying

unique equipment or machinery, and is unwilling to sacrifice the latitude of his wide choice in favour of standardised goods for the sake of what he thinks to be the benefit of the maker. On the other hand a producer who has secured precedence in the market may sometimes run after the fallacious idea that he can bind down the customers by supplying them with unique or special types of products which are not available elsewhere. Thus there is a possibility of lack of understanding not only between users and makers but also between makers themselves. The chief difficulty of the problem lies in setting up machinery that would harmonise the various interests and operate for the common good. One obvious solution would be to set up an agency controlled by the Government to deal with the problem of standardization in industry. But it must be remembered that the technical and the scientific world is becoming so complicated and the controlling factors in industry so diverse that to come to any impartial decision which could claim adherence from all, it is but expedient that all interested should have a voice in framing it. In industry standardization is a co-operative movement and cannot be established by law without violating its usefulness considerably. A Government agency with its powers circumscribed by the government restraint and administering with the help of inelastic legislation is not only likely to fail but may prove a hindrance to the progress of industry. Experience in other countries has shown that a fully democratic organization representing all legitimate interests and claiming no authority except by the merit of its decisions is best able to rally co-operation on all hands and gain public

confidence. Added Government recognition would of course bring the security and dignity that are indispensable.

The function of such a body is to simplify, modify and unify the needs of the producer and the consumer with a view to increase the efficiency of production on one hand and ensure the safety and security of the consumer's interest on the other. The work to be done in this connection can be classified under the following heads:—

1. Standardization of quality: this consists in fixing, in definite or measurable terms, such properties of materials as are pertinent to its quality. Uniformity of composition, mechanical strength, etc., may be quoted as instances.

2. Standardization of performance: These specifications lay down in terms which are susceptible to measurement the minimum factors or requirements involving net efficiency, durability, and safety of an appliance under test or working conditions. In the case of electrical machinery the specifications include speed, output, power factor, rise of temperature and several other factors.

3. Standardization of practices: Formulation of codes or regulations regarding construction, installation, maintenance, operation or testing of plant and apparatus with a view to secure safety, uniformity and continuity in working.

4. Simplification: This is intended to bring about uniformity in types, sizes or grades of manufactured goods and to reduce such types, etc., to an optimum number with a view to minimise the waste involved in the production of unnecessary variety of goods, and to secure interchangeability of appliances and component parts.

5. Standard testing: Testing of typical manufactured goods is done with a view to assess the quality of such goods impartially and help the industry by the knowledge so gained in further development and in advertisement.

The outline of the work as stated above may be sufficient to indicate how closely standardization is connected with the scientific development of industry. When organised within healthy limits it is one of the outstanding factors that controls the economic progress of industry. Care must however be taken to guard against premature standardization or over standardization. The general tendency amongst the manufacturers is towards achieving standard requirements more than making new improvements and also towards using all ingenuity in achieving these results by the most economical methods. Secondly forces towards maintaining the *status quo* in manufacturing processes are invariably supported by established custom and vested capital. Standardization therefore if carried out without sufficient safeguards may impede progress or even lead to sterilisation. To derive maximum advantage from standardization in industry it must be based on liberal principles. The following points may be worth mentioning in this connection:

1. Standardization should be based on voluntary co-operation between the various interests.

2. To reach full effectiveness it must be organized on an inter-industrial basis.

3. The number of standards set up should be a minimum and should not change unless a definite improvement on the old one is attainable.

4. Standards must be open to critical surveillance and must be subject to review and revision whenever these are found necessary.

5. As far as possible attempts should be made to level up standards. No recommended standard should prove a hindrance to progress.

6. Standards should be based only on reliable information or observations regarding pertinent factors. Only such factors as are essential to obtain the desired effect should be made mandatory. Freedom in all details and in methods of achieving effects should be given to individuals.

7. If possible all specifications should be made to pass through an experimental stage before they are finally accepted.

8. As far as possible the initiative for a new standards specification should come from all parties interested in it and not from a standards organization.

9. Codes and regulations involving technical details though sometimes national in character should be handled in an advisory capacity.

Organised on these lines standardization has proved a great help to industry, it promotes precision in industry and puts it on a scientific basis, it clarifies the undertaking between the maker and the user and promotes fair dealing.

To the producer, it saves the waste of time and material involved in unnecessary diversity of patterns and sizes of ordinary commodities. It gives him an idea of what the customer expects and enables him to level up the excessive ups and downs in the

market demand by spreading out his production over the whole year. Thus it incidentally helps in reducing seasonal unemployment in industry, it prevents unfair competition amongst producers and puts them on the same level without eliminating the possibility of specialised production, it helps to promote truthful advertising. To the distributor it spares the necessity of keeping large stocks representing so much locked-up capital much of which can never be realised. To the consumer it means less cost, better quality, prompt delivery, interchangeability of appliances, full guarantees from the manufacturers and an immunity from the risk attendant on a novel design. It is a guide to purchase and a reliable basis for comparison of standard tenders. If a transformer of a certain capacity is needed all that the consumer need do is to indicate that the performance of the appliance shall be in accordance with certain known specifications; he receives quotations for a machine of the same guaranteed performance and chooses the cheapest.

To what extent standardization and particularly simplification can be introduced in industry, and to what effect, can easily be seen if we turn our attention to any of the industrial countries, the process for instance has greatly contributed towards the success of the American Motor industry. According to the General Motor Co. of America the 13,000 minor components of which a car is built up are now reduced to only 2,000.

In India industrial activity so far is small and is limited to a few fields such as textiles, cement, electricity, engineering, etc., etc., but judging from the trend of events during the past few years it would appear that the

country will soon witness an industrial revolution. Whether this revolution come sooner or later it can be said without any hesitation that an organisation to guide the technical and industrial practices in the country is a necessity and will surely be a step in the right direction. We may state here the following reasons:

1. At present the specifications followed in India are mostly British. Besides these specifications are also issued by Government and semi-government bodies to suit their own requirements. We think it is time these various specifications are co-ordinated and placed on a national basis to suit the requirements of the growing Indian Industry.

2. If co-ordination and standardization is introduced in some of the existing industries such as the electrical supply industry it will be possible to create a definite market for a limited variety of goods. It need not be pointed out that this would be a great incentive to the initiation of new productive industries.

3. The necessity of a recognised place which would test the quality and performance of industrial products and issue necessary certificates is being increasingly felt. The Government Testing Laboratory at Alipore undertakes such work but its activity is so far limited.

We therefore suggest that a central organisation to consider questions relating to standardization in Indian industry and to take the necessary steps to promote such standardization is a necessity. We may also put forward some tentative proposals for such an organisation.

The aims of the organisation should be

- (1) to co-ordinate the existing resources to undertake work connected with standardization and to create opportunities for various industries interested in such work to come together and co-operate in the work.
- (2) To study and co-ordinate the industrial standards followed in the country, to modify the old ones or formulate new ones in the light of the needs of the growing Indian Industry.
- (3) To work in co-operation with existing research laboratories in India and to secure for the industries the necessary aid to standardize their products.
- (4) To promote knowledge of national standards in this country and abroad and to act as an authoritative channel of co-operation in international standardization work.

The organisation should be thoroughly representative and may be formed of representatives from

- (1) leading industrial and commercial concerns and organisations.
- (2) Research institutions and laboratories.
- (3) Engineering and commercial associations.
- (4) Central Government (Department of Commerce, Communication and Central Stores).
- (5) Provincial and state governments which are interested in the work.

The organisation may not have a laboratory of its own; work connected with securing technical data or carrying out investigations to base its recommendations upon can in the initial stages be undertaken in co-operation with public institutions.

We may suggest that the Government Testing Laboratory, Alipore, which is already interested in this type of work would co-operate. If necessary some additions should be made to enable it to undertake work of a specialised nature. Standard testing could also be carried out at the same place.

The actual working of such a body should be on the same lines as those of the British Standards Association. A new specification or modification is sponsored by any party represented on the body, after due consultation and agreement with other interests involved. A special expert committee consisting of representatives of all legitimate interests is then formed to study and formulate the proposals and recommend them to the Central Board. The Committee has wide powers and its decisions are accepted except in cases of dispute. Wide publicity is given to the proposals during the committee stage and the next stage when the proposals are published as tentative specifications. Any comments or criticism are carefully considered. The specifications are finally incorporated when they are accepted by all and have proved their suitability.

Expenditure involved in such an organisation is small (only on office accommodation, printing and few experts) and can be met by contributions from commercial bodies represented on the organisation and the various governments.
