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Change to the Metric System?

A statement by the
BRITISH STANDARDS INSTITUTION

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Change to the Metric System?

About a year ago the British Standards Institution set up a special committee to review any trends towards the use of the metric system by British industry and to recommend action to be taken by B.S.I. The committee was drawn from the membership of B.S.I.'s Executive Committee and Export Panel (see last page). After consideration of the Special Committee's views and those of the Export Panel, the Executive Committee has decided to publish the statement below and to put it before the Divisional Councils and Industry Standards Committee of the B.S.I., in order that the case for a change to the metric system should be examined industry by industry and a conclusion reached.

Increasing advocacy of a change within a defined period

It is evident that an increasing volume of opinion in this country regards a change to the metric system as essential and even inevitable, though it does not minimize the costs and the difficulties, which to the country as a whole and to some industries in particular would be formidable. These costs and difficulties would, however, increase rather than diminish as time goes on.

From the point of view of the United Kingdom's export trade as a whole, the use of the metric system and of metric standards will be increasingly demanded by our trade not only with Europe—whether we are members of the Common Market or not—but also, and perhaps even more significantly, with markets in the developing countries in Asia, South America and elsewhere, which are of major importance as providing growing outlets for our future trade. These countries lean towards the metric system rather than the Inch/lb system. In view of this, and despite the continuing importance of the U.S.A. and Commonwealth markets, a decision within a relatively short time in favour of a change, to be made over a defined period, is increasingly advocated. Clearly the time required for a change would vary from industry to industry and would have to be planned and phased according to their needs, but it is only on the basis of a firm assumption of a general move, which *nothing less than a Government directive could induce*, that most individual industries could or would take any decisive action, or even discuss the problem realistically with their customers and suppliers. Only on this basis could replacement of tools and plant be planned economically.

Should change be dependent on parallel action by the U.S.A.?

A major question is whether a decision to change should be made dependent on parallel decisions by the inch-using Commonwealth countries and the U.S.A., with whom there has for long been close co-operation on basic engineering practice. Many of those who support a change in principle make this a condition; others argue the contrary and in particular suggest that we should not await a decision from the U.S.A. which, because of its relative self-sufficiency, can afford to go much more slowly than we can. There appears to be considerably greater interest in the matter in the U.S.A. now than for some time. Certainly it would be very desirable to have consultations with the U.S.A. and Commonwealth. Some Commonwealth countries are considering the possibility of a change and would welcome a clear view from the United Kingdom.

Education for the metric system

One of the first essential steps in making a change would be the encouragement of metric and decimal thinking. This would be one result of any early decision to adopt a decimal coinage which should be followed promptly by an appropriate education programme. One consequent measure which might follow quickly would be the use of parallel inch/lb and metric scales in new weighing and measuring equipment and similarly, of course, of inch/lb and metric measures in relevant British Standards.

Considerations relevant to B.S.I. action

There are a number of considerations to be borne in mind in determining the action to be taken by the B.S.I. on the assumption of a change:—

- a. Some British Standards—e.g. where tolerances are wide—could be expressed in the metric system by simple conversion, without altering significantly the methods of manufacture; these would be the first to change. Particular efforts could be made to secure in international standards committees a single series of sizes in such cases.

Nevertheless, it is clear that in many cases a change to metric units, if it is to achieve its objective, will involve changes in sizes and in engineering design, as well as extensive retooling. In such cases the standards and the industries concerned could only change over a much longer period.

- b. In mechanical engineering it is not infrequently the case that the greater technical experience is in inches, and inch standards are more developed and complete than metric standards; some are also common practice between the United Kingdom, U.S.A. and Canada. It is accepted that at the present time there are a number of cases where no internationally agreed metric standards exist, but there is an accelerating programme to secure them.
- c. On the other hand there are performance and quality standards accepted by metric countries to which this country must approximate more closely if we are not to lose trade; it is argued that the use of metric dimensions will help towards this and that also we shall be in a better position to influence international agreement if we are talking in metric terms.

Action by B.S.I.

- The action to be taken by B.S.I. on the assumption of a change to the metric system within, say, 15 to 20 years, would be on the lines indicated below; some of the steps will in any event be called for in relation to the increasing use of metric measures by some sections of industry, and the proposals should be looked at with that in mind.
1. A plan for the translation of British Standards into the metric system would be drawn up (see the preliminary study in the Appendix relating action by B.S.I. to the general sequence of change).
 2. Greater efforts would be made to secure a single international recommendation for dimensional series, even if this meant in some cases acceptance of a metric series. The corresponding sizes recommended by the Committee on Scientific Principles of Standardization*, as finally agreed, would be pressed for whenever they had a chance of being acceptable. Other countries should be reminded that their co-operation towards reaching agreement on such series would make a general change by the United Kingdom more rapid and would help all round. Agreement in the international standards bodies might be facilitated by putting a target date for implementation a few years ahead.
 3. Where two series now exist in international recommendations B.S.I. would publish the metric series as a British Standard as well as the inch series, for use by those who wished to work in a transitional period.
 4. In other cases where metric standards are urgently needed in particular industries they would be prepared and issued as a matter of priority.
 5. In the first stage British Standards not issued in fully metric form would show metric as well as inch/lb values; some more precise conversions might be required than is at present the practice.

* An advisory committee of the International Organization for Standardization (ISO).

Appendix

A preliminary study for a conversion of the United Kingdom to a fully metric system over a period of 20 years

Many differing views have been expressed as to the time that would be needed to effect a substantial change-over to a fully metric system. Periods as widely separated as 5 years and 50 years have been suggested as the minimum time in which such a change could be effected and there may be some merit in examining a tentative time-table for the various stages that would need to be gone through.

To do this it is necessary to fix some time period and a figure of 20 years has been taken to see how far the necessary stages could be fitted in to such a period.

Years 0-3 The movement would have to be triggered off by a Government pronouncement and this would be preceded and followed by many top level consultations amongst leading industrial bodies, consultative councils and the like. Educational authorities, professional societies and institutions, trade unions, trade associations, chambers of commerce and many others would need to be brought into these consultations; a period of three years is allowed for this preliminary work of initiating the change and preparing a national plan for it to be effected smoothly.

Years 3-5 Once the initial decisions had been taken at national level and an overall skeleton plan prepared, the way would be clear for major groups and bodies, and later for individual companies, to work out their own programme within the overall plan. A period of two years is provided for this planning.

Years 5-3 Meanwhile stocks would be allowed to run down, dates would be set for terminating near-to-obsolescent lines of manufacture and some new designs would be initiated in metric dimensions.

Years 0-3 Parallel with all this the B.S.I. would be considering the formidable task of revising say 1,500 British Standards, most of which would be needed in their new form (N.B.S.) before industry could make a real start in changing over their production. Some preliminary planning by B.S.I. would clearly be essential and a period of three years is allowed for this.

The revision of standards would raise other awkward problems, for example: is a $\frac{1}{4}$ in long object to be redefined as an exact conversion 19.05 mm, as a rounded figure 19 mm, or as a more conventional metric

figure 20 mm? Problems such as this would arise not once but many times in every single British Standard to be revised. Though some general rules for revision could be framed, most of these decisions would have to be taken individually on their merits.

Years 3-5 Considerable additional staff would have to be recruited and trained by B.S.I. and the experience of the Indian Standards Institution would give a valuable clue as to the size of staff needed and the time required to get the revisions under way. A period of a further two years is allowed for this.

Years 5-15 At the end of the first 5-year period it is assumed that the movement is well under way and a further 10 years is allowed to complete the task of revising the whole 1,500 or more British Standards which include dimensional data.

Years 5-10 Concurrently industry would be tackling the problem vigorously. By the end of the first 5-year period there would be some N.B.S. available—few industries would get very far until the appropriate N.B.S. were published. New metric designs would be coming forward and some of the commoner components would be available in metric dimensions for incorporation in the new designs. Market research would have revealed how far trade conditions called for a vigorous policy or a policy of more gradual change.

Years 10-15 In the 10th-15th-year period production in metric dimensions would be gaining momentum. Many of the commoner components would now be available in metric form and N.B.S. would be available for most products.

Years 15-20 The final period from the 15th-20th year would be the time to take stock of the position and to note how far the movement had progressed. This is an irreversible movement, so efforts would now have to be made from Government levels downwards to convince laggards that they must move with the times. A date should be set for making inch measure non-preferred.

Tentative programme of 20 years

ACTION TO BE TAKEN	PERIOD AND STAGE IN PROGRAMME (YEARS)
Initiation of Policy	
Government pronouncement	0—0
Industrial consultations and planning	0—3
Revision of education programme (with necessary reprinting) and implementation	1—4
Technical literature, handbooks, data sheets, charts, etc., reprinted and on sale	2—5
New measuring instruments, dials, gauges, become available or old ones are converted	2—4
B.S.I. Programme	
Formulation of general policy and programme	0—3
Major revision commences	3—15
Revision substantially complete	15—15
Industrial Action	
Stocks run down, detailed planning, etc.	3—5
New designs coming forward	5—5
N.B.S. becoming available	5—5
New components becoming available	10—10
Metric production gathering momentum	10—15
Efforts to expedite the movement and to eliminate old units	15—20