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17. Standards have functional applications at a number of levels:

a. individual standards
b. company standards
c. association of industry standards
d. national standards, and
e. international standards.

18. National Standardization

In a highly industrialized country, national standards are usually generated from the work already carried out by individual firms, trade associations, and government agencies. In developing countries, it is frequently necessary for the central standardizing authority to draw up national standards in the initial stages.

19. Whatever sequence or method employed in the preparation of national standards, it is essential that they should command the confidence of the producer and the user alike.

20. Language used in a standard should be clear and precise, each term having a definite meaning. Standard glossaries of terms are both useful and indispensable to assure that all parties involved in the exchange of goods and services speak and understand the same technical language.

21. Standards as a rule should stipulate the final properties of the products. In some exceptional cases, it may only be necessary to spell out a process of manufacture, e.g. for wines. If a manufacturing process must necessarily be described in detail, this should be done in an annex or appendix, and not in the main body of the specifications.

22. Since it is generally impractical to test every single item, sampling techniques are employed. Having obtained a representative sample, it is necessary to apply standardized tests to determine the properties corresponding to the criteria laid down in the specifications. In principle, a specification should always define the methods of testing and analysis. Where choice exists for selection from alternative test methods, consideration should be given to capital cost and technical skill required so that the final choice can be both economical and adoptable in the context of the industrial capability of the country. The criteria of compliance may be included in the standard to guide acceptance or rejection.

23. Specifications can be, broadly speaking, put into two categories:

a. dimensional specifications, and
b. performance or quality specifications.

In either case, goods or services should be defined by the minimum number of characteristics necessary to fulfill the purpose.

24. Codes of practice are recommended practices for design, installation, maintenance, construction, and services. These are generally issued separately.

25. There are several ways of bringing about the implementation of standards, and they fall between two extreme limits. One limit is the imposition of standards by legislation; the other implementation by persuasion and voluntary adoption.

26. In a free enterprise highly industrialized economy where manufacturers and users are conditioned to appreciate the value of standardization, the principle of voluntary adoption is likely to be successful. In countries at initial stages in industrial development a measure of official compulsion may be found beneficial to generate the initial momentum. When a standard is enforced by legislation it is desirable that the standard be referred to and not described in the legislation. It is difficult to amend and keep the legally spelled out standard up-to-date as the machinery of legislation is not normally attuned to quick action when changes are necessary.

27. Even a good standard may prevent technological advance if it is not subjected to periodic review. Standards must take into account the feedback of information on the experience in using the standards, as well as the latest innovations in research, techniques in instrumentation, automation, and control. A standard should be flexible enough to permit technological improvement, but not be too tentative to prevent a manufacturing process from achieving sufficient stability to become economic.

28. There is no precise formula for the frequency with which standards should be reviewed. The frequency of review should be determined by the pace at which a nation's industries progress. In the United Kingdom the period of 5 years; but only when need exists a review results in a revision. It would be desirable to specify a period for review in the body of standards especially for safety and health.

29. To relieve purchasers of the need for sampling and testing goods themselves, national standards organizations can act as certifying authorities in checking compliance of goods with national standards. In several industrialized countries the

national standards bodies have set up such systems. Certification is of special value to the ordinary consumer who is not equipped to check whether goods offered for sale and stated to meet a specification in fact do so. For foreign trade, the reciprocal recognition of national certifying schemes between countries that exchange goods and services can also be of considerable benefit.

30. International Standardization

The objective of international standardization is to facilitate international exchange of goods and services. The benefits of standardization are similar at the national and international levels for communication between suppliers and consumers, interchangeability of components and equipment, and the elimination of unnecessary variety. Developing countries have a large stake in international standardization since, as large importers of products of advanced countries, they would benefit considerably if they could freely buy their requirements from a wide range of suppliers offering equipment on the basis of common international standards.

31. The participants were informed that there were more than four hundred recommendations of the International Organization for Standardization (ISO). The compliance of national standards with ISO recommendations was being attempted by all member countries of ISO. There are, however, certain practical difficulties which stand in the way of early implementation.

32. One of the most important factors inhibiting the effort towards international standardization was the presence of two major systems of measurement: the metric (SI.) system, and the foot-pound (FPC) system. In this connection, the decision

of the Government of the United Kingdom to move towards the adoption of the metric system was a significant step in the direction of global unification.

33. Advance towards international standardization is necessarily slow, although in some industries, such as the chemical industry, progress could be expected rapidly. In other industries, such as those producing capital goods, international standardization may take a period extending even more than twenty or thirty years. The situation varies from industry to industry and from country to country. In the United Kingdom the compliance of British Standards Institution (BSI) standards with the total of ISO Recommendations was as below:

substantial agreement	45%
partial compatibility	16%
some disagreement	6%
in process	16%
not applicable	17%

The percentages given for several other advanced countries were lower than the above percentages for the United Kingdom.

34. The task of attuning national standards to comply with international recommendations is indeed a complicated one. First, adoption of international standards sometimes implies a large capital outlay for the changeover in equipment, and encourages the natural reluctance on the part of producers who have built up their plants and equipment on the basis of national standards. Secondly, the advantages of international standardization are largely in the field of international trade and, therefore the incentive to change is often weak in industries and in countries where the domestic market constitutes the predominant element in total production. In this connection, however, the participants

were heartened by the statement of the Observer from the United States Government that, following the Ispra Report, the U.S. authorities were studying the problem of moving towards international standardization. The European countries were also moving towards the harmonization of their national standards, irrespective of whether they formed part of the European Economic Community ("The Six") or the European Free Trade Association ("The Seven"). The developing countries welcome these moves by the Governments of advanced industrial countries as beneficial to the world community.

35. The participants recognized the important role of the ISO and IEC in the task of promoting international standardization. The task of evolving international recommendations is complex and takes a longer time than that taken in promulgating national standards. The period given was anywhere from two to eight years before a Recommendation was issued by the ISO.

36. The participants noted that many organizations, in addition to the ISO and IEC, were involved in the work of international standardization. There was clearly a need for better co-ordination and steps were being taken to improve it.

III. The Role of International Organization in the Field of Standardization

37. Five papers on this topic were presented, of which two were concerned with the activities of the ISO and the IEC and three with those of the United Nations family. The papers were: "International Organization for Standardization (ISO) and The Electrotechnical Commission (IEC), their Objective, Organization and Working Procedure" by Mr. H. Saint-Leger;

"Possibilities of Membership in the ISO and the IEC; Participation in their Technical Work; the Help they Brought to Developing Countries" also by Mr. H. Saint-Leger; "Interest and Activities of the United Nations in the Field of Industrial Standardization" by Mr. R.C. Desai; "National Testing and Standards Centres and UNESCO's Contribution Towards their Establishment in Developing Countries" by Mr. K. Billig; and "Preparations for a Standards Institute in a Developing Country" giving a short outline of the Industrial Testing and Research Centre in Damascus (Syria) by Mr. Th. Barlag.

38. The Role and Activities of the ISO and the IEC

Among the international organizations concerned with standardization the participants recognized the prime role of the ISO and the IEC in the development of standards to facilitate the international exchange of goods and services between nations.

39. The structure of the ISO consists of a General Assembly, a Council, the various committees of the Council and a General Secretariat. The IEC, an older organization, was set up to facilitate the co-ordination and unification of national electro-technical standards, and is now the Electro-technical Division of the ISO with functional and financial autonomy. Membership in the ISO is open to the most representative national standards organization in a country, the current (October 1965) membership being 51. The IEC similarly consists of the most representative national standards organizations in the electrical field, and has a present membership of 40. Some National Standards Organizations with jurisdiction over and activity in both the electrical and also other fields can be and are members of both these bodies. The ISO and the IEC are financed by

contributions from the member bodies.

40. The standardization activity of the ISO (and the IEC) is handled in the Technical Committees. The responsibilities of each Technical Committee is determined by the ISO (and the IEC) Council. The results of the work of the Technical Committees are published as ISO and IEC Recommendations. Of the other committees of the ISO, the one of primary interest to the developing countries is the Development Committee (DEVCO) which was set up to deal, among other things, with the standardization problems of the developing countries. Recently, at the recommendation of DEVCO, countries without a full-fledged standards organization can become "ISO Correspondent Members". The Correspondent Members are entitled to receive all documentation from the ISO, some of it free and the balance on paying a small fee, and to attend the Technical Committees in which they may be interested without being required to participate either as members or observers. The annual subscription for correspondent membership is $50.

41. In view of the importance of the ISO and the IEC as the primary organizations in the field of international standardization, the participants recognized that it would be in the interest of all developing countries to seek membership in the ISO and, where appropriate, in the IEC.

42. In respect of international standards the participants recognized the practical difficulties in formulating and implementing them. The task of formulating an international recommendation is more complicated than a national standard and, therefore, requires longer time. The implementation of these recommendations is also more complicated and has to be effected generally through national standards. In view, however, of the great importance of international standardization to their

economies, the developing countries were interested in all measures to speed up both the formulation and implementation of international standards. The participant and the Secretary-General of the ISO present at the seminar took note of an observation by one participants that an international recommendation on a commodity, of which his country was the major world supplier, was arrived at without consultation or participation by his country. To avoid such situations, the participants recommend that the ISO (and the IEC) should consider automatically inviting participation and its Technical Committees of such non-member countries which have significant interest, as buyers or sellers, in the commodity under consideration.

43. Where no national standards were yet formulated, the participants agreed, in principle, to adopt ISO and IEC recommendations as their national standards. However, for reasons beyond their control, the developing countries experienced difficulties in this direction. They were, for example, dependent on the advanced countries for import of capital goods. So long as there was no agreement among their principal suppliers on the adoption of international standards, the developing countries had to contend with varying national standards. They could not adopt one foreign standard, as this would restrict their choice in buying equipment in the world market. It was for this reason that quickening the process of adoption of international standards by the industrially advanced countries would also speed up their adoption by the developing countries.

44. The developing countries were already embarking upon industrial development, and it was important that standardization is initiated or accelerated even before industrialization gathered momentum. Otherwise, in the absence of standardization, overlapping practices will develop and vested interests built up, making it more difficult at a later date to disentangle the situation.

45. The need to assist developing countries in their standardization activities was therefore urgent, and should receive immediate attention of ISO and IEC. The offer of correspondent membership, involving merely the receipt of ISO literature, was not enough. Countries which did not yet have fully developed national standards bodies, still needed a voice, at least in DEVCO and in those Technical Committees in the work of which they had vital interests. It is realized that for extending its activities, ISO would have to find additional financial resources, but the offer of the United Nations to provide resources for technical assistance to developing countries made to it at the Sixth General Assembly of the ISO in 1964 is there to take advantage of.

46. The participants would recommend to ISO to enlarge its operation considering that (a) promotion of standardization in newly developing nations cannot wait and requires equal attention with the technical activity of formulating standards, and (b) the interests of the developing countries need to be properly safeguarded by encouraging them to take more active part in those ISO committees which primarily affect their interests. On the other hand, developing countries should do their utmost to organize themselves and take full advantage of the forum provided by ISO and IEC.

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INDUSTRIAL TECHNOLOGY

Promotion of Standardization in Developing Countries

Note by the Secretary-General

The Secretary-General has the honour to transmit to the Committee the attached report of the Inter-regional Seminar on the Promotion of Standardization in Developing Countries held in Denmark from 4 to 25 October 1965.

47. The Role and Activities of the United Nations and UNESCO

The United Nations, UNESCO and other specialized Agencies, referred here as the United Nations system, are concerned mainly with technical assistance. Although its resources are limited, the United Nations system is capable of providing substantial financial and technical support for the entire range of needs of the developing countries in building up standards activity.

48. In the United Nations, industrial standards are the concern of the Centre for Industrial Development which was set up in 1962 in response to the demand for greater activity on the behalf of the United Nations in the field of industrial development of the developing countries.

49. The United Nations system engages in two areas of action: research and information and technical assistance. The research and information activity of these organizations include conducting of situation surveys and publication of material. Surveys of standards activities were carried out in Asia and Africa by the respective regional Economic Commissions of the United Nations. Publications entitled Industrial Standardization for Developing Countries, (United Nations sales No.: 65. II B 2) and Report of the Expert Working Group on Standardization, Patents and Marketing (Part I: Standardization), Economic Commission for Asia and the Far East, Asian Conference on Industrialization, were made available to the participants as a background document. Such surveys and publications could provide useful guidance and comparative data to developing countries in their tasks.

50. The technical assistance activities of the United Nations system is financed from contributions by Governments to several programmes, viz. the Special Fund, the Expanded

Programme of Technical Assistance, and the Allocations for Technical Assistance in the Regular Budgets of the United Nations, UNESCO and other specialized agencies. The aid available can be classified into four principal categories: establishment of standards institutions, conduction of technical meetings, assignment of experts, and provision of fellowships and scholarships for training abroad. The participants welcomed the facilities made available to them, and the assurances given to them of the willingness and ability of the United Nations to allocate increased resources for the promotion of standardization in developing countries, as part of its general programme to increase the share of its resources for industrial development. They noted that the provision of technical assistance of the United Nations in Turkey, Paraguay and Central America had added three member bodies to the ISO. The United Nations system was also assisting with testing laboratories set up independently or in conjunction with standards institutions and industrial or technological research institutes. On their part, the participants would recommend increased domestic effort in their own countries to make full use of the extensive facilities made available to them from the United Nations system.

51. The participants also approved the measures taken to achieve greater co-operation between the United Nations and the ISO and endorsed the proposals made by the United Nations for the extension of ISO (and IEC) activities to meet the urgent needs of new independent countries. They would welcome any arrangement which could be made by the ISO and the IEC with the United Nations for the specialized help which they can give as the premier technical institutions

in the field of standardization. The ISO and IEC and the United Nations had functions and responsibilities in this regard which were complementary; the two groups of organizations together could perform these better than either of the two on its own.

52. The most fruitful areas for the collaboration between the ISO (and IEC) and the United Nations would seem to be:

a) furthering the understanding, recognition and acceptance of industrial standardization in developing countries;

b) survey of existing conditions in developing countries and preparation of suitable standardization programmes for these countries;

c) promotion of regional and sub-regional co-operation in the field of industrial standardization;

d) organization of industrial standardization training programmes for personnel from developing countries;

e) search and hiring of experts for assignment in developing countries;

f) follow-up on projects already under way;

g) assuring adequate flow of information between industrialized and developing countries;

and

h) providing of advisory services and finance for industrial standardization programmes.

IV. National Standards Organizations and Their Functions

53. Seven papers were given on the subject: "Organization of the Standards Organization of a Small Country" based on the experience in Denmark by Mr. O. Meincke; "Building up a New Standards Organization" based on the experience in Turkey by Mr. O. Sturen; "First Steps in Setting Up a Standards Organization in a Developing Country" by Messrs. H. Binney and Mr. H. Glass; "Some Thoughts on the Establishment and Operation of a National Standards Organization in Developing Countries" based on the experience in Lebanon by Mr. A. Sharif; "Administration of a National Standards Body" based on the experience in India by Mr. H. Lal; "National Standardization in a Highly Industrialized Society - The United States of America" by Mr. R. E. Gay; and "Standardization in the USSR" by the State Committee on Standards, Measures, and Measuring Instruments of the Union of Soviet Socialist Republics.

54. No standard pattern exists for the establi~~shment~~ of a national standards organization. The development of a national standards organization in a given country must always be determined by its economic and social conditions. Still, a number of valid recommendations could be made for all developing countries in the initial stages of building up a standards organization.

55. All parties concerned with standards should be brought into the machinery of a national standards organization. These are the Government, industry, consumers, professional bodies, trade organizations, research organizations, and academic institutions. Only by winning the full cooperation and confidence of all concerned can a national standards organization become effective, and national standards express the real needs of the country.

While in industrialized countries national standards organizations usually have sufficient authority without government sponsorship, in developing countries these organizations should at least in the initial stages be strongly supported by the Government.

56. In many developing countries government financing has to be relied upon almost exclusively for the launching and initial stages of operation of a national standards body. As the organization develops, financial support from private bodies benefiting from its work may be feasible, and some revenues may also be forthcoming from sale of publications and other services such as testing and certification.

57. A national standards organization needs only a small staff in the beginning. At this stage, in order to reduce the time factor in national standardization, as well as to make the best use of available resources, the stress should be on the adoption or suitable adaptation of already existing foreign or international standards. It is of great importance that the staff, however limited the human resources, be well qualified. In a developing country there will be more need for the staff of a national standards organization to devote a significant part of their time to the promotion of standardization and the education of all concerned than is the case in industrially advanced countries. Because of limited resources the establishment of priorities is even more important in the case of the former than in the case of the latter. If the initial projects are selected and dealt with so as to highlight the value of standards, and at the same time establish the efficiency and impartiality of the standards organizations, it will secure both the moral and material support to undertake a much wider programme in the future.

58. One of the important tasks is to build up a library containing information on domestic and foreign standards and recommendations of the international standards bodies. All interested parties should be encouraged to take advantage of this service.

59. Testing facilities are indispensable for a standards programme. Without them a great number of standards will be "paper standards" and confidence in quality and reliability which is one of the main objects of introducing standards will not be built up. Compliance with the standards must be verifiable. Also, some testing is needed in the course of setting standards.

60. While there are no set rules for the organizational structure of a national standards organization, most existing national standards bodies have a great deal of similarity of structure.

61. Usually, in a developing country, the Government establishes the national standards body, stipulates its by-laws, its purpose, and assures the representation of all interested parties.

62. The highest authority of a national standards body is the General Assembly or Council. It is responsible for the policies and the budget of the Organization. It generally approves final national standards.

63. The Council usually has a large number of members representing the government, industry, trade, consumers, and research and technical institutions. An Executive Committee is, therefore, appointed from the membership of the Council to manage current work concerned with operating policies, finance, administration, etc. Often the adoption

of national standards is also the responsibility of the Executive Committee, unless a special "Technical Board" is appointed for this purpose.

64. The work of the Standards Body is divided between a number of Division Councils or Technical Divisions representing various industries with membership from all interests. Each Technical Division is responsible to the Executive Committee.

65. Technical Divisions set up Technical Committees, which are the basic or fundamental units of the entire standards organization. It is in these Committees that the standards are formulated. All the interests concerned with a given standard must be represented in the Technical Committee. One of the problems in putting together a Technical Committee is the difficulty of finding technically competent representation for the consumers, for which it will be advisable to promote consumer organization.

66. Much of the technical and administrative work of a national standards body is managed by a permanent Secretariat. The Secretariat is directed by a Managing Director or Secretary-General, and is responsible to the Executive Committee and the Council. The Secretariat is composed of both technical and clerical staff. The Secretariat assures the smooth collaboration between various Technical Committees and Technical Divisions, maintains contacts with the interests concerned with the standards work, with other national standards bodies and with international standardization organizations. It distributes draft standards prepared by Technical Committees and publishes and sells final national standards.

The staff of the Secretariat provides all necessary technical and secretarial assistance for the meetings of the Technical Committees. The technical staff of the Secretariat also assists in the education of all concerned with matters of standardization, particularly in developing countries.

67. In the administration of a national standards body the importance of training and motivation of staff of the permanent secretariat needs to be stressed. The need for dedicated leadership and office manual containing various procedures in the organization is emphasized. It is concluded that a national standards body run by standards engineers should obviously set an example in administration and efficient methods of operations.

68. The organizational structure of the national standards body should be flexible to allow for development and expansion of the standardization activities.

69. The functions of a national standards body can be summarized as follows:

a. the preparation, publication and implementation of national standards;

b. the centralization of standardization efforts in the country through the collaboration of all interests concerned;

c. the co-operation with national standards bodies of other countries; and

d. the representation of the country in the ISO and IEC.

V. Establishment, Adoption and Application of Standards

70. Three papers were presented on this topic: "Working Procedure of the Technical Work of the Standards Organization of a Small Country" based on the experience in Denmark, by Mr. O. Meincke; "Experience in Standardization Efforts in a Newly Industrialized Country" based on the experience in India, by Mr. S.K. Sen; and "Voluntary or Compulsory Standards" by Mr. Th. Franck.

71. As in the case of organizational structure, the working procedure of established national standards bodies shows marked similarities.

72. Essential to the work of a national standards body is the "Programme", indicating the fields and scope of activities to be undertaken by the standards organization. This programme must be set up through a co-operative effort of all parties interested in industrial standards. No programme of work should be regarded as final and set, and provision must be made for its revision or extension in line with relevant technical and economic developments. In establishing the programme, an important rule to observe is that no work should be taken up for which a definite need does not exist.

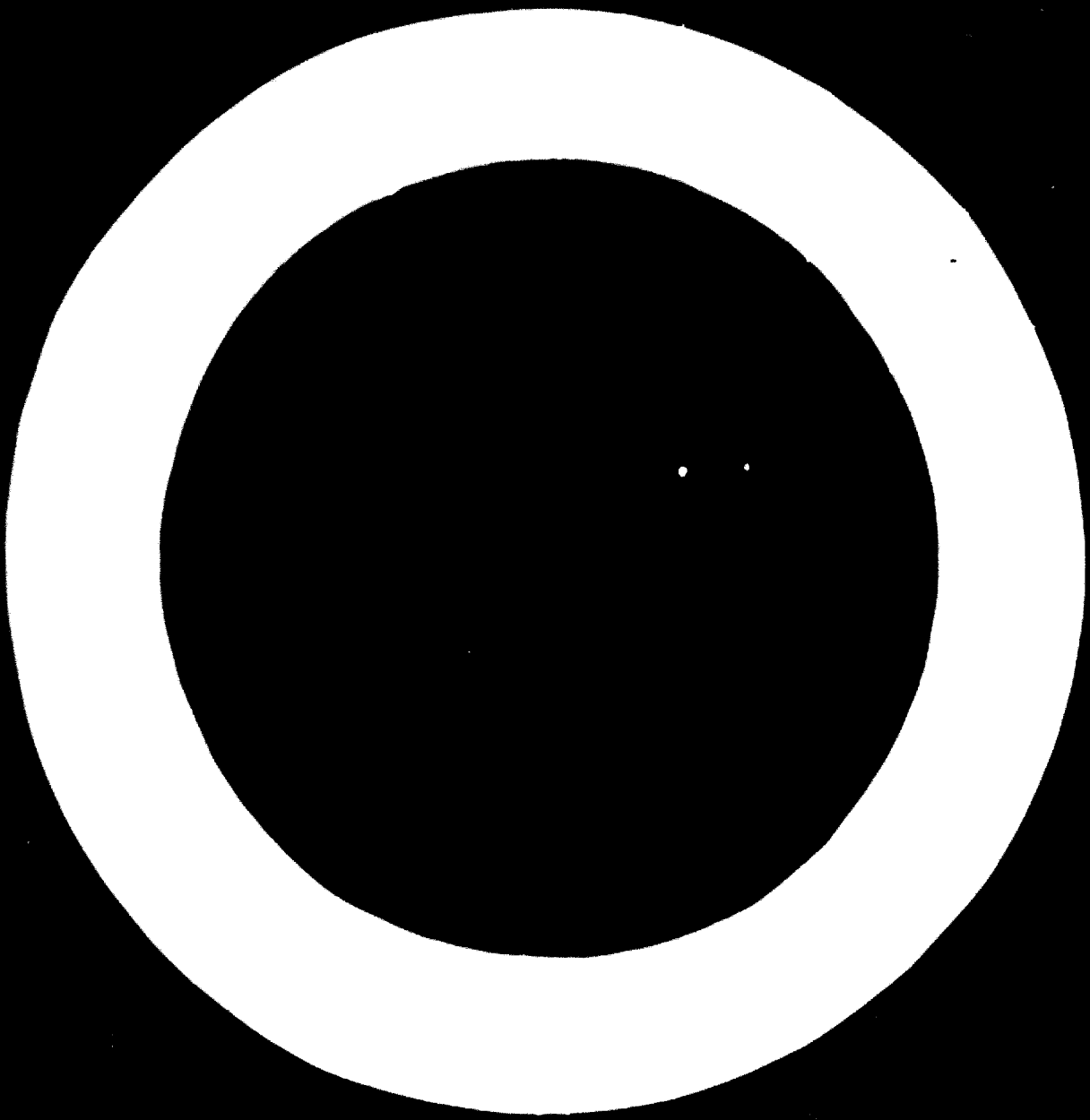
73. As soon as it has been decided to take up a new question for study, a new Technical Committee is formed to undertake it, unless the study can be referred to an already existing Committee. Sometimes the Technical Committee sets up working groups for the purpose of preparing First Drafts. When the Technical Committee has approved the first draft proposal it becomes a draft standard, and is circulated for criticism. All those interested in the content of the draft standard are given the opportunity to examine it, and requested to make comments on it. All comments received are presented to the Technical Committee for consideration and

for possible incorporation into the draft standard. Modifications of the draft standard are sometimes so considerable that it has to be recirculated for examination and comments before the Technical Committee can approve it. The final draft standard, together with relevant information regarding its formulation, is transmitted through the Secretariat to the Executive Committee or the Division Council (whichever has the delegated authority from the Council or the General Assembly) with the request that it be adopted as a national standard.

74. The above described procedure is detailed and usually requires a long time. This underlines the desirability of adapting or adopting existing national or international standards wherever possible, which might shorten the time taken. As an example, the participants were informed that in India the average time taken for technical processing of a standard is 33 months, while the average time taken from the receipt of a proposal to final publication of the standard is 52 months.

75. Draft proposals are sometimes sent to the national standards body from outside organizations with the demand that they be adopted and issued as national standards. If such draft proposals have been prepared in collaboration with all interests concerned they can be issued as draft standards for comments. If not, they should be first discussed by the appropriate Technical Committee, and can be used by that Committee as a first draft proposal.

76. ISO recommendations or ISO publications can also be adopted as draft standards by the Technical Committees of the national standard body. This not only results in a considerable



saving of time, but facilitates the co-ordination and unification of national standards as well.

77. The "ISO Guide for the Preparation of ISO Recommendations", distributed to the participants, can be utilized to good effect in the presentation and editing of draft standards and national standards. A wider application of this Guide would bring about a degree of consistency among national standards from various countries and facilitate the work of both international and national standardization.

78. In addition to the work directly related to the issuing of national standards, the national standards body is also responsible for related work of technical and administrative nature, most of which should be entrusted to the Secretariat. Examples of this are: preparation of the Annual Report, issue of lists of existing national standards, establishment of technical co-operation between Technical Committees of the national standards body and various technical organizations, etc.

79. In most industrialized countries, the primary purpose of standardization is to co-ordinate and harmonize the existing industrial pattern. In a developing country, however, standardization is not only an instrument of co-ordination but of direction as well, with the latter function being often the predominant one.

80. The voluntary or mandatory character of national standards is generally determined by the social and economic structure of the country in question. But, it can be said that, since a good standard is a consensus of all interests concerned with the subject matter of the standards, it should command ready

acceptance without legal or other pressures. In some cases, however, where the safety and health of individuals is concerned, or where the national interest is involved (e.g. in certain cases of export) standards are made mandatory. It should also be noted, with respect to legally enforced national standards, that the legislative process is a slow one to respond to the need for change and modification, which can render a standard obsolete in the light of rapid technical developments and thus act as a brake on technical and economic progress.

81. Another aspect of implementation of standards is certification marking for goods conforming to accepted standards. A certification mark is a third-party guarantee, that the goods have been inspected and tested, and can be purchased with a reasonable assurance of quality. This is of considerable importance to the purchaser who has no readily available testing facility, knowledge or skill for inspection and testing, or where such testing is un-economical. The organization providing certification marking must be independent and technically competent, and with no business interests. In addition to being satisfied that quality control is carried out in the factory, this organization must maintain a continuous check on quality by inspecting and testing samples of the product in question.

82. A great deal of promotional work is necessary to secure the widespread implementation of voluntary standards. This may include advertisements in the press, exhibitions, films and slides, press releases, conferences, etc., and is of particular importance for the implementation of standards in a developing country.

83. Considerable help in the implementation of voluntary standards can be derived from the Government when in all its purchases it makes use of national standards. In most developing countries the Government is the largest body of organized consumers, and its influence on the adoption of standards by manufacturers is correspondingly great.

VI. Initial Activities in Application of Standards to Industry

84. Four papers were presented on the subject: "International Standardization Concerning Quantities, Units, and their Symbols" by Mr. H. Jensen; "Basic Standards" by Mr. J. Busck; "Test Methods" by Mr. J. Busck; and "Testing Facilities for the Development and Application of Standards" by Mr. F. Hadass.

85. For easy communication and promotion of progress, it is necessary to standardize symbols used in science and technology, and have uniform and generally accepted units of measurements. The Metre Convention, which was established in 1875 and has today the membership of 81 governments, has recommended the use of the Système International (SI system) of weights and measures. The responsibility of using the SI system in standards rests with the national standards bodies. The adoption of the SI system may be a slow process, particularly in fields where the use of other units of measurement has already been established. The promotion of the use of the international units should be directed towards both industry and educational institutions. The ISO committee dealing with quantities and units (TC 12) is preparing a document for use in educational institutions which is proposed to be printed in large numbers and distributed with the help of UNESCO.

86. Basic Standards can be defined as standards which are used as the basis for the elaboration of other standards. Examples of the basic standards of general applicability are: sizes for standards; reference numbering; preferred numbers; codes of drafting and drawing etc. Examples of basic standards for specific fields are: tolerances, limits, and fits for mechanical engineering; modules for building industry, etc.

87. The English term "basic standard", because of its use for both the systems of units and measurements (SI standard, foot-pound standard) and for the standards described in paragraph 3, leads to some confusion and misunderstanding and should be examined for a possible convention to establish two different terms as in French ("étalon" and "norme fondamentale").

88. The value of standardization is greatly reduced when one cannot make sure by means of appropriate <u>testing</u> that the product fulfils the requirements. The importance of testing and test methods is illustrated by the fact that about one third of ISO Recommendations and Draft Recommendations are concerned with testing.

89. Among existing relevant test methods, the most common groups are the following: measurement of dimensions by a variety of means such as rules, gauges, etc; testing of quality of materials by chemical analysis, mechanical tests, electrical tests; evaluation of the performance of machines and apparatus through various performance tests measuring output, reliability; and a variety of electrical and mechanical safety tests.

90. Different test methods may give different results for the same characteristic. It is, therefore, necessary to standardize test methods and rules to be followed in the testing procedure.

As testing involves additional costs on the product, it should be first decided what is the most economical test method giving satisfactory results.

91. In a given standard, test requirements may be given immediately after the definition and description of the subject matter. In some cases, it is better to give test requirements in a separate standard. In either case, the test method should cover: sampling (where applicable), description of testing apparatus, performance of test, reporting and interpretation of results.

92. Testing equipment used in developed countries is not always available or suitable in developing countries. Test methods for the specific needs and conditions of the latter should be adapted or developed from the beginning.

93. The need for efficient testing facilities is of particular importance in a developing country for the building up of the export trade which usually represents a buyers' market, and where goods, to be competitive, must strictly adhere to buyers' specifications and standards. No less important are testing facilities for safeguarding the interests of a developing country in importing capital goods and consumer products.

94. Testing facilities are indispensable for the development of local industries along the right path and formulation of standards and specifications which take full account of a country's needs and local conditions of supply and quality of raw materials, availability of labour and equipment, financial resources, etc.

95. Testing laboratories which are purely functional, and not built for prestige purposes, can be equipped and made operative with comparatively modest means. It was possible, for instance, to have an efficient testing laboratory in the initial stages with 300 m^2 - 500 m^2 of floor space, and an investment in equipment of $120,000 - $150,000. Financial outlays of this magnitude were within the scope of the U.N. Special Fund, which generally provides funds for experts, training fellowships and equipment.

96. In addition to specialized testing laboratories, a national standards body can make good use of testing facilities available at university and other research laboratories. But, routine testing being only of secondary importance in the work of these laboratories, testing facilities built specially for the needs of the standards body and operated by it will in most cases be eventually justified.

VII. Standardization and the Consumer

97. The following four papers were presented: "Basic Requirements: Material Specifications, Test Methods" by Mr. J. Hillenius; "Standardization of Components and Utensils" by Mr. B. Otzen; "Marks Indicating Conformity with Standards" by Mr. B. Bresle; and "Relationship of the Consumer Organizations to the Work of the Standardization Organizations" by Mr. P. Goldman.

98. The consumers of today, who have a large choice of consumer goods, need guidance not only as a protection against shoddy goods, but also to prevent them from buying goods not really suited for their purpose. There are currently three established systems for consumer information: comparative testing, quality or certification marking, and informative labelling. All three

systems provide guidance to the consumer in making a good choice, and have their advantages and limitations.

99. In comparative testing the relevant properties of several brands of product are compared, and price information is sometimes given. The results of testing are published in such a manner that the consumer can make his own choice, though recommendations may at times be made to guide the consumer. The results of comparative testing are greatly influenced by the test methods employed. There is, therefore, a clear need for international co-operation to unify test methods, especially since some brands of products are sold in many countries and international trade is continuously expanding. This, however, does not mean that the consumer is "standardized". The evaluation of product properties can be different in various countries and for various groups of consumers. For comparative testing, objective measuring methods should as far as possible be used, but, in special cases it might also be necessary to use subjective methods (e.g. ease of handling, tonal quality, taste). One of the problems of comparative testing is sampling. In the case of cheaper merchandise, such as incandescent lamps, it is possible to test a reasonably large number of units, but with more expensive items, such as motor cars, this often cannot be done. A drawback of this system is also that the results of testing are generally published too late to provide guidance for all consumers, or the results get outdated by changes already made by the manufacturers.

100. Quality or certification marks indicate that a specific product complies with certain standards. Quality marks are based on published standards issued by national standardization organizations, and are generally the property of these organizations.

A manufacturer is given the right to use the quality mark for a specific product on the condition that the quality of the product complies with the minimum requirements stated. In order to check this, the product is tested by authorized testing stations. In addition the organization operating the quality mark will occasionally visit the plant where the product is manufactured to assure that quality is maintained during production, and check it also with test samples collected from the market.

101. In some countries quality marking is widespread and well established; in other countries it is used only for articles of certain types. Quality marks are of particular value for articles where a certain minimum quality level is absolutely necessary, or safety requirements should be met. One of the main objections in this context is that a quality mark does not indicate the quality of products better than the standard and, therefore, puts the producers of higher quality products at a disadvantage. Secondly, quality marks are often wrongly represented and interpreted as guarantees of high quality rather than assurances that only the pre-set minimum requirements have been met.

102. Informative labelling gives factual information on the essential properties of a specific product so that the consumer can decide for himself which product is best suited for his specific needs. This system has been in use for more than a decade in Scandinavian countries, and is now being introduced in the Netherlands and the United Kingdom.

103. A firm using the labelling system has to give on the label information according to a standardized label, so that a basis for comparison among different brands can be maintained. Labels include only "objective" data, that is, information that can be determined by standard tests. Measuring methods used are agreed upon by representatives of all parties concerned - consumers, manufacturers, trade, and research. Firms prepare their own labels on the basis of tests carried out in their own or in independent laboratories, but an independent body maintains continuous vigilance to insure that data indicated on the label conform with the tested characteristics of the product.

104. The informative labelling system omits "subjective" yet valuable information to the consumer. Another problem in the successful application of this system is the high degree of sophistication among the consumers necessary to make the system work. Consumer education in informative labelling, which has been found useful in Scandinavian countries, may be employed with advantage in developing countries.

105. Effective consumer information and protection all call for <u>standard methods of measuring performance</u>. The national standards organizations are best qualified to define relevant product characteristics and describe standard methods of measuring performance. The participants noted that both ISO and IEC are willing to give assistance in establishing international standard methods of measuring performance. IEC/TC 59 has done some work in this respect on electrical domestic appliances, and ISO/TC 73 is also engaged in activities relating to the collaboration between consumers and standards organizations.

106. The economic advantages of standardization which are reflected in lower prices for the consumer are considerable. Such advantages, among others, are improved interchangeability of parts, easier service and maintenance, lower inventory costs and larger production lots.

107. The purpose of consumer unions is to safeguard the interests of the consumer by establishing a better balance of power between the seller and the buyer. The formation of consumer unions has been taking place at an accelerating pace since World War II, and today the International Organization of Consumer Unions (IOCU) has 35 members from 22 countries. The governing body of these unions is composed of organizations which carry out comparative testing of consumer goods and publish the results of such tests, including brand names and prices.

108. The fundamental characteristics of these consumer organizations are that they are non-profit bodies, independent of business support and influence. They do not accept advertisements in their publications or commercially exploit their test results.

109. Tests carried out by consumer unions are designed to give all relevant and possible answers to the consumer before buying. If the requirements of a national standard are sufficient to give these answers, consumer unions test to these stardards. If not, they rely on stardards of other countries, or on methods devised by them or by independent technical experts.

REPORT OF THE INTER-REGIONAL SEMINAR ON THE PROMOTION OF STANDARDIZATION IN DEVELOPING COUNTRIES

(Helsingør, Denmark, 4-25 October 1965)

110. One of the main problems consumer unions are currently attempting to solve is a satisfactory representation of consumers in national standards bodies, both in terms of their number and technical competence for the purpose of counter-balancing the predominant influence and technical superiority of manufacturers' representatives. It is, however, of the greatest importance that this problem be solved because the only way of establishing reliable test methods for consumer goods would be the full co-operation of consumers and manufacturers.

111. The example of consumer unions in developed countries is more of a future than present relevance for developing countries. In the latter, the protection of consumer calls for governmental action.

VIII. Company (In-Plant) Standardization

112. Three papers were presented by Mr. B. B. Singh: "Necessity, Objective and Savings", "Organization of Company Standards Department", and "Collaboration: Internal and External".

113. National and international standards cannot cover all the complex and extensive needs for in-plant standards, for which reason company standards activity is indispensable.

114. The principal objective of company standardization is the reduction of costs, without impairing the quality and performance of the product. Lack of company standardization leads to excessive stocks of materials and spare parts, slow inventory turn-over, accumulation of in-process inventory, large number of specially designed items, time-consuming special handling, additional machine set-up time, shorter production runs, long delivery cycles, complex and inefficient production control, etc.

115. The benefits of company standardization are both tangible and intangible. Tangible benefits, among others, are the reduction of inventory, reduction in production control and inspection costs, reduced maintenance, saving in design and tooling costs for special components, improvement in control of quality and reliability of products, and reduced obsolescence. Examples of intangible benefits are better service to and relations with customers, and better coordination between the design and production function.

116. Indispensable for the organization and successful operation of a company standards department is the full backing of the

management and the complete co-operation of all involved. Depending on the responsibilities of the standards department and on the company, the standards department will be under the General Manager, Works Manager, Chief Design Engineer or some other executive of comparable status. The company standardization function cuts across managerial lines, and it is therefore important that it be placed as high as possible on the organization chart as a staff rather than a line function.

117. Company standards are of different types: formal standards and specifications (e.g. drafting practices, screw thread dimensions) and codes of practice (e.g. code for welding). Formal company standards are mandatory while codes of practice are sometimes for guidance.

118. The normal sequence in the preparation of company standards is: collection of data; arrangement of the same in a logical sequence; elimination of unnecessary variety, inconsistencies and inadequacies; publication and promotion of the resulting standard. In the preparation of standards all departments affected should be consulted. At times a working committee or representatives of all functions and departments affected may be advisable. A proposed standard, before the final approval and acceptance as approved standard, should always be circulated for suggestions and comments.

119. Often, it will be found that a national or foreign standard is suitable for company needs and can be adopted without change thus saving considerable time and effort.

120. Standards cannot remain static in a dynamic company and must often be reviewed and revised if necessary. In revising, exactly the same procedure in obtaining comments should be followed as if it were a new standard. To facilitate the application of standards in new products, standardization should be applied at the design stage. The application of new standards to existing products is, naturally, often difficult.

121. In industries where companies have strong operating similarities and face like problems, some standards are handled on an industry wide basis. Standards formulated under such conditions can provide the basis for future national standards.

122. A company standards department needs continuous contact with the outside world. In seeking solutions to its problems it needs access to a large source of national and international standards and other relevant information. The best source of such data is the national standards body, and co-operation with the same on the part of company standards departments is of great value to them. This co-operation gives also the companies a better opportunity to play a more active role in the formulation of national standards.

123. In the course of the Seminar, the participants were given the opportunity of studying company standardization at the following industrial concerns engaged in different industrial activities:

Name of company	Industry
Volvo, Göteborg	Automobiles
Eriksbergs Mek. Verkstads A/B Göteborg	Shipbuilding
Aalborg Vaerft, Aalborg	
Sabroe, Aarhus	Building Components Machine Tools, Refrigeration, Compressors
Paasch & Silkeborg, Silkeborg	Dairy Machinery
Angli, Herning	Shirt Manufacturing
Tulip Brand, Vejle	Meat Packing
Laur.Knudsen, Vejle	Household Appliances
Danfoss, Nordborg	Electrical Equipment Automatic Controls

The programme included the presentation of papers on standards activity in these companies, followed by plant tours.

124. The participants were given information and evaluation of the standards organization in these companies, the standards applied, the methods of formulating standards, and the inter-departmental arrangements for their implementation. All the companies expressed their conviction that company standardization had resulted in reduction in costs. They also spoke highly of the value they derived from participation in the work of national and international standardization.

IX. Training of Standards Engineers

125. A paper entitled "Training of Standards Engineers" was presented by Mr. S. K. Sen. The term "Standards engineer" has been taken in

a general sense to include all technical personnel who have to deal with standardization.

126. Standardization being a specialized activity, it is usually difficult to find suitable personnel to work as "standards engineers". It is more so for developing countries which are likely to face a general shortage of all types of technical people.

127. Training of standards engineers is therefore of utmost importance. It even assumes a special significance because of the fact that normal training facilities for standards engineers are not available as for other engineering and technical professions, since the subject of standardization is not usually taught as a specialized subject in technical education. Only lately, in the U.S., and some other countries, a few educational institutions in technology have initiated courses in this field.

128. Facilities for training in standardization outside educational institutions are also limited. In the field of professional training, Mr. John Gaillard conducted for many years a short but intensive course in New York. In France, the Association pour L'Organisation des Stages en France (ASTEF) and the Association Francaise de Normalisation (AFNOR) together have been organizing a group training in standardization for developing countries since 1961. The national standards institutes of Denmark, Federal Republic of Germany and Sweden have run training courses from time to time. Among the developing countries, the Indian Standards Institution (ISI) has organized courses for training standards engineers for various functional levels.

129. Standards engineers in the national standards bodies should receive different training from those working in companies though there would be much in common in course content for the two groups. The approach to standardization, presentation of standards, and the technical and human problems met with in national standardization differ from those met with in company standardization to an extent that specialization in one requires different treatment and training than in the other. It is of utmost importance, however, that the inter-relationship between the two should be clearly brought home to all standards engineers irrespective of whether they work in the national standards body or in a company.

130. In training standards engineers for national standards bodies, emphasis is laid on the techniques of organizing and conducting committee meetings and dealing with human problems which arise in seeking a balance between the various interests involved in formulation and implementation of standards. On the other hand, training of company standards engineers needs more emphasis on communication and correlation between different company functions, coding and control of material and inventory, documentation and information retrieval, drafting and drawing practices, and the like. It is important that the training of all standards engineers should combine theory and practice to enable the trainees to utilize the knowledge gained in their respective functions.

131. The training courses for standards engineers for national standardization work should preferably include: (i) an orientation phase, (ii) a study phase and (iii) a practical phase. Lectures for the study phase may include: (i) principles of standardization,

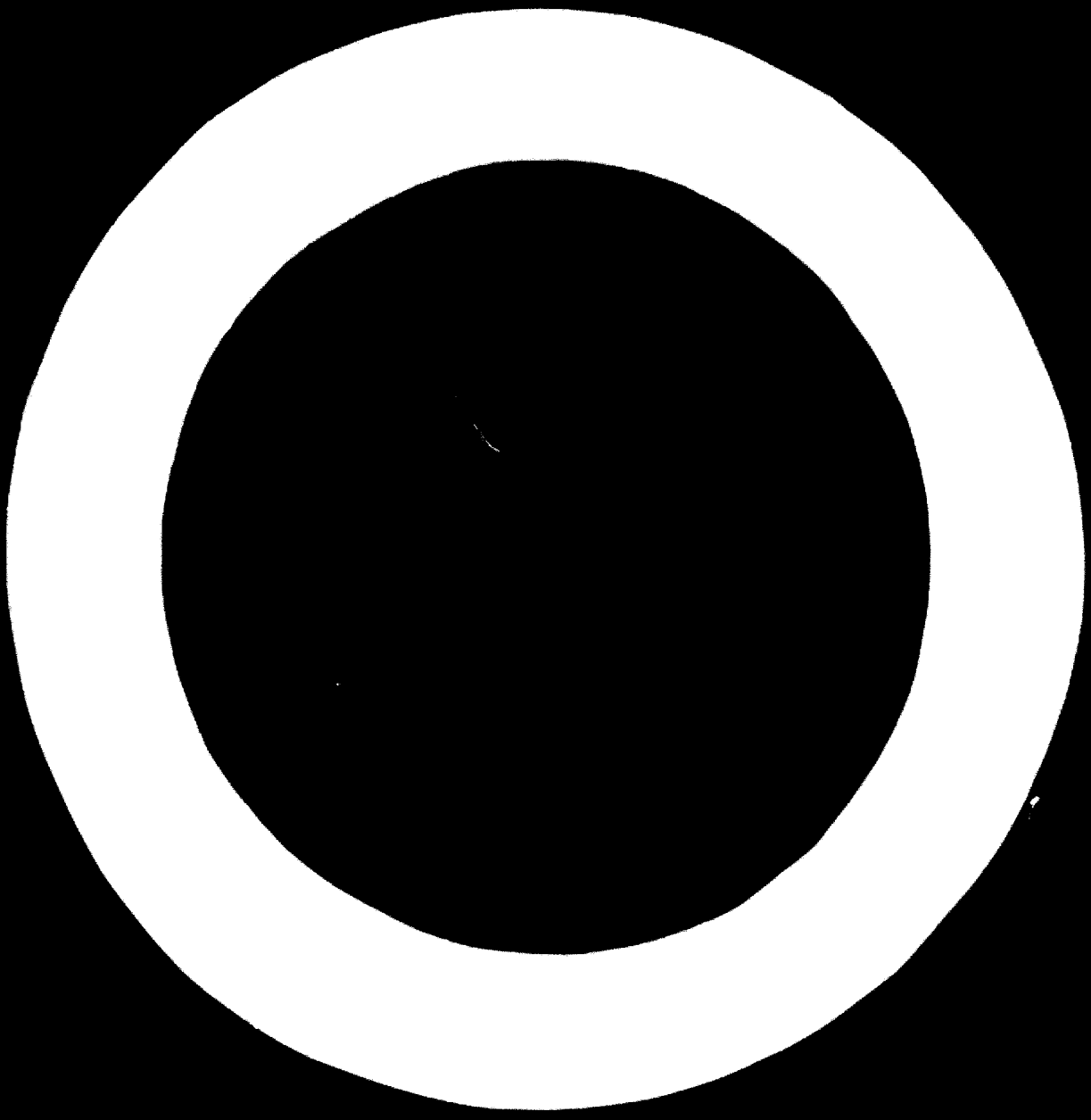
(ii) organization and techniques for national standardization work, (iii) implementation of standards and (iv) public relations. The course of training for company standards engineers is usually a short and intensive one and the principal subjects discussed may cover: (i) standards functions at national and company levels, (ii) scope and organization of company standards activities, (iii) tools and techniques for company standardization, (iv) material management, (v) documentation and identification systems, (vi) coding of stores, (vii) drawing control, and (viii) management support for standardization.

132. In a developing country the acceptance of a company standardization programme by the company management is often a slow process requiring an educational or promotional programme. This may take the form of short conferences of company managers, where experiences of concrete results obtained from standardization can be highlighted with particular reference to current, topical problems of the industries.

133. Apart from management conferences, another programme, which has been found effective in impressing company management is to make a survey of the existing company practices to bring out the need of and the savings that can be achieved from a planned standards programme. Indian experience along this line shows that, in a brief period of about six months, a number of areas can be located in which standardization can be shown to result in substantial benefits through codification, variety reduction, simplification and so on.

134. There could be no doubt that developing countries wishing to set up national standards bodies will experience the need for training their personnel right from the planning stages. The participants noted that the training courses in India and France will continue to be available to nominees from developing countries. Several other advanced countries have also offered to accept trainees for individual placements. The United Nations, moreover, is ready to give high priority for fellowship and scholarship awards in this field.

135. The participants still felt that the establishment of one or more international centres for training in standardization is the need of the hour. The centres could utilize international teaching staff and evolve courses of study with international background. The matter should be taken up by ISO for planning of suitable programmes and devising ways and means for implementing them. The participants hope that a liaison will be established between the United Nations and ISO for this purpose, and it will be possible to find the necessary financial resources.



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APPENDIX 1

LIST OF DELEGATES

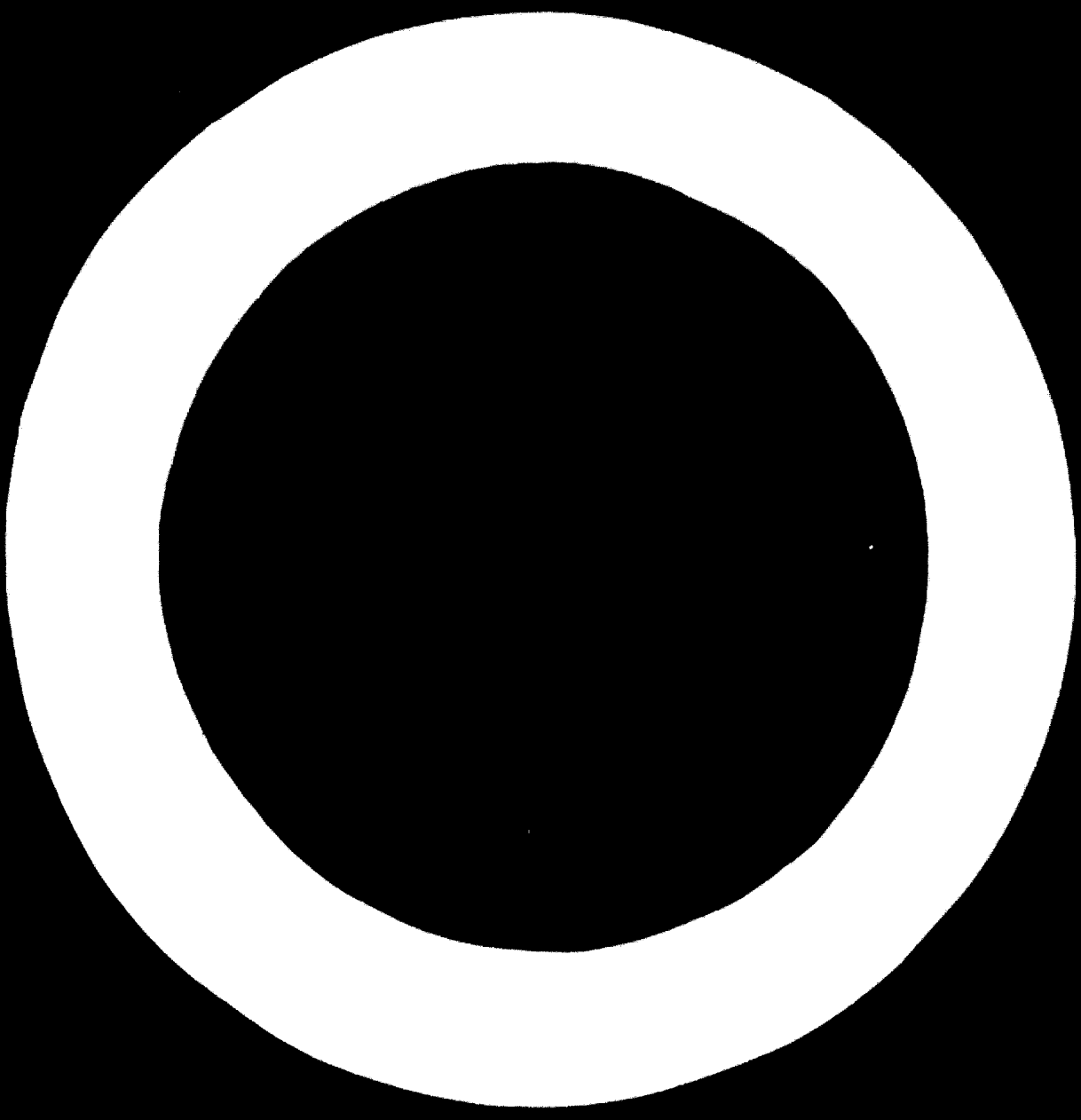
Country	Name	Office held
AFGHANISTAN	Mr. Ali Mohammed Saeed ZOL	Acting Director of Money and Banking Ministry of Planning
ARGENTINA	Mr. Julio Velo HUERGO	Ex Professor, Testing of Materials Memb. of Adv. Comm. of INTI Memb. of the Board of Dir.'s of IRAM
BOLIVIA	Mr. Gaston Abel SOLIZ	Chief Mechanical Engineer Corporacion Minera de Bolivia
BRAZIL	Mr. Taylor FRAZAO	Advisor to the ministry for economic planning
CEYLON	Mr. Rupawansa C. DE SILVA	Assistant Director of Development Ministry of Industries and Fisheries
CHILE	Mr. Gustavo A. Campos RADDATZ CHER	Memb. of Head Documentation Dept. and Technical Dept. of Latin American Iron and Steel Institute IL.F. Repr. of INSTITUTO

Country	Name	Office held
CHINA	Mr. Pou-tche TCHENG	Board Member, Chinese National Standards Reviewing Board Director, Bureau of Commodity Inspection & Quarantine
ECUADOR	Mr. Gérmánico PINTO	Economist of Industrial Section of the Planning Board
GHANA	Mr. E. LARTEY	Coordinator of Industrial Research Director of Industrial Standards Institute Ghana Academy of Sciences
HONDURAS	Mr. Manuel de Jesus CRESPO	Head of the Technical Assistance Dept. of the Centro Cooperativo Técnico Industrial Head of the Secretaria Técnica de la Comisión de normas de Honduras
INDIA	Mr. Harbans LAL	Secretary, Administration (Deputy Dir.) Indian Standards Inst.

Country	Name	Office held
KOREA	Mr. Seung-yup PARK	Director for Korean Bureau of Standards of the Ministry of Commerce and Industry of Korea
KUWAIT	Mr. A. Abdulwahab MOHAMMAD	Assistant under Secretary for Industrial Affairs
MALAYSIA	Mr. Thambiah SIVAGNANAM	The Ministry of Commerce and Industry
MALTA	Mr. Maurice Emanuele GALEA	Mechanical Engineer with Dept. of Industry Malta Government
MEXICO	Mr. Jorge Alfredo Sanchez SANDOVAL	Jefe del Depto. de normalizacion, Direccion General de Normas. Secretaria de Industria y Comercio
NIGERIA	Mr. Chukwuemeka Ezeji-OKOYE	Acting Senior Assistant Secretary (Projects) Federal Ministry of Industries
PHILIPPINES	Mr. Remedios E. RACELA	Officer-in-Charge, Bureau of Standards

Country	Name	Office held
ROUMANIA	Mr. Alexander CORDASEVSCHI	Joint Director of the Governmental Bureau of Standards
SAUDI ARABIA	Mr. Kamel A. TAWFIQ	Deputy Director Metrology Ministry of Commerce and Industry
SUDAN	Mr. Ahmed Mohamed BABIKER	Superintendent of Standards
SYRIAN ARAB REPUBLIC	Mr. Abdelmajid ABOUSHALA	Director of the Department of Industry in Aleppo
TANZANIA	Mr. Ngambikomsu Joseph MAMUYA	Planning Officer
THAILAND	Mrs. P. SUDASNA	Chief of Physics Section, Physics and Engineering Division. Department of Science
TURKEY	Mr. Ismail Taner BERKUN	Director of Publications and Information Turkish Standards Institution

Country	Name	Office held
UGANDA	Mr. Henry NALIKKA	Construction Engineer, Uganda Electricity Board
UNITED ARAB REPUBLIC	Mr. Abdel Karim Helmi ABDALLA, dr.	Director Standardization Department



OBSERVERS

Name	Office held	Country
Mr. L. A. BALYKOV	Assistant Chief of Foreign Department USSR State Committee of Standards, Measures and Measuring Instruments	USSR
Miss Bashira BARAKAT	Ministry of Industry	Syrian Arab Republic
Mr. Yos BUNNAG	Director-General Department of Science	Thailand
Mr. M. DARGE	Siemens & Halske AG	Federal Republic of Germany
Mr. Adnan FAHAM	Ministry of Industry	Syrian Arab Republic
Mr. Madhu S. GOKHALE	UNTAO Expert Radio Corporation of America	U. S. A.
Mr. E. HOLL	Deutscher Normenausschuss	Federal Republic of Germany

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1. The Inter-Regional Seminar on Promotion of Industrial Standardization in Developing Countries was held in Helsingør, Denmark, from 4 to 25 October, 1965. The Seminar was sponsored by the United Nations in co-operation with The Royal Government of Denmark.

2. The Programme of the Seminar was set up by the Danish Standards Association in consultation with the United Nations and the Development Committee (DEVCO) of the International Organization for Standardization (ISO). The substantive items on the agenda were:

   a. The purpose and importance of standardization
   b. The role of international organizations in the field of standardization
   c. National standards organizations and their functions
   d. Establishment, adoption and application of standards
   e. Initial activities in the application of standards to industry
   f. Standardization and the consumer
   g. Company standardization
   h. Training of standards engineers

3. The Seminar was attended by 27 participants and 15 observers. The geographical composition of the participants and observers was as follows:

	Participants	Observers
From Africa	6	2
" Asia	11	4
" Europe	3	7
" Latin America	7	0
" North America	0	2

4. The Seminar heard 30 papers from international experts of high repute in their respective fields. The presentation of these papers was followed by intensive discussions on the relevance and application of the points made by the speakers to the situation of the developing countries in general, and on the specific conditions in the participants' countries.

5. The complete list of participants, observers and speakers is given in Appendix 1.

6. The participants had also the benefit of visits to the Headquarters of the Danish Standards Association and the Government Testing Laboratory in Copenhagen and to several factories both in Denmark and Sweden. The complete programme of the papers, discussions and visits is given in Appendix 2 (Omitted from this issue of the Report).

7. The Seminar was opened jointly with the United Nations International Seminar on the Application of Cartography for Economic Development, by Mr. H.E. Kastoft, Director of the Secretariat for Technical Co-operation with Developing Countries, of the Royal Government of Denmark. Mr. Kastoft explained the organization and financing of the Seminars and thanked the United Nations for the trust it had placed in the Danish Government. He also observed that the current year saw no less than 30 seminars organized in Denmark. The participants were welcomed to the meeting by Mr. Horacio M. Ureta, Chief of the Cartographic Section of The Resources and Transportation Division, and Mr. R.C. Desai, Chief of the Industries Section of The Centre for Industrial Development on behalf of the United Nations, and by Professor Einar Andersen, Director of the Danish Geodesic Institute.

8. Messages of welcome from Mr. I.H. Abdel-Rahman, Commissioner for Industrial Development, and Mr. M.R. Leonard, Acting Commissioner for Technical Assistance of the United Nations, were read.

9. A speech was given by Mr. Carl Iversen, Headmaster of the University of Copenhagen, on the Social and Economic Structure of Denmark.

10. Mr. O. Weincke, the Managing Director of the Danish Standards Association served as the Director, and Mr. R.C. Desai of the United Nations as Co-director of the Seminar.

11. The participants elected the following committee to draft its report:

1. Mr. A.H. Abd Alla (U.A.R.)
2. Mr. M.d.V. Crespo (Honduras)
3. Mr. C. Ezeji-Okoye (Nigeria)
4. Mr. M.E. Galea (Malta)
5. Mr. R.E. Racela (Philippines)
6. Mr. J. Vela Huergo (Argentina)

Mr. H. Lal (India) was elected as Rapporteur, and Mr. I.D. Radović (United Nations) as Secretary to the Drafting Committee. The Drafting Committee elected Mr. J. Vela Huergo as its chairman. Mr. S.K. Sen was co-opted to serve the Committee as Advisor.

12. The participants from Afghanistan, Argentina. Bolivia, Brazil, Ceylon, China, Ecuador, Honduras, India, Korea, Kuwait, Malaysia, Malta, Mexico, the Philippines, Roumania, Sudan, Syria, Tanzania, Thailand, Turkey, Uganda and the United Arab Republic made brief statements on the development of standardization activity in their countries.

13. The Drafting Committee presented its Report on 25 October. With a few amendments the Report was unanimously adopted and the Seminar concluded.

14. In adopting this Report, the participants wish to express their gratitude to the United Nations and the Danish Government for organizing the Seminar. They particularly wish to place on record their deep appreciation of the able direction provided by Mr. O. Meincke and of the co-operative, courteous and efficient manner in which Mr. L. Nørgaard, Miss R. Pedersen and Miss U. Busk provided help in administrative and social matters.

II. The Purpose and Importance of Standardisation

15. On the subject of the importance of national and international standardization, three papers were presented: "What is Standardization? Its Aims and Possibilities" by Messrs. H. Binney and Mr. H. Glass; "Importance of International Standardization for International Trade" by Mr. A.T. Vrethem and "The Role and Significance of Industrial Standardization and Uniformity of Measurements in Ensuring Quality of Output" by the State Committee of Standards, Measures and Measuring Instruments of the Union of Soviet Socialist Republics.

16. The participants agreed that wherever goods and services are exchanged, standards provide a common language and criteria for judging the value of goods and services, and establishment of methods by which goods and services could be put into optimum use. These results are achieved by the provision of glossaries of terms and definitions, specifications, methods of sampling, methods of gauging and testing, and codes of practice.

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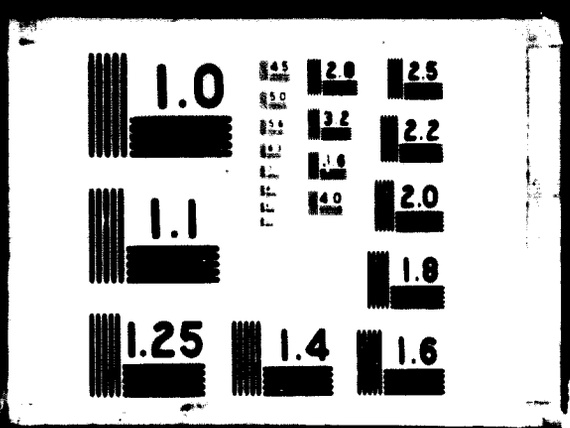


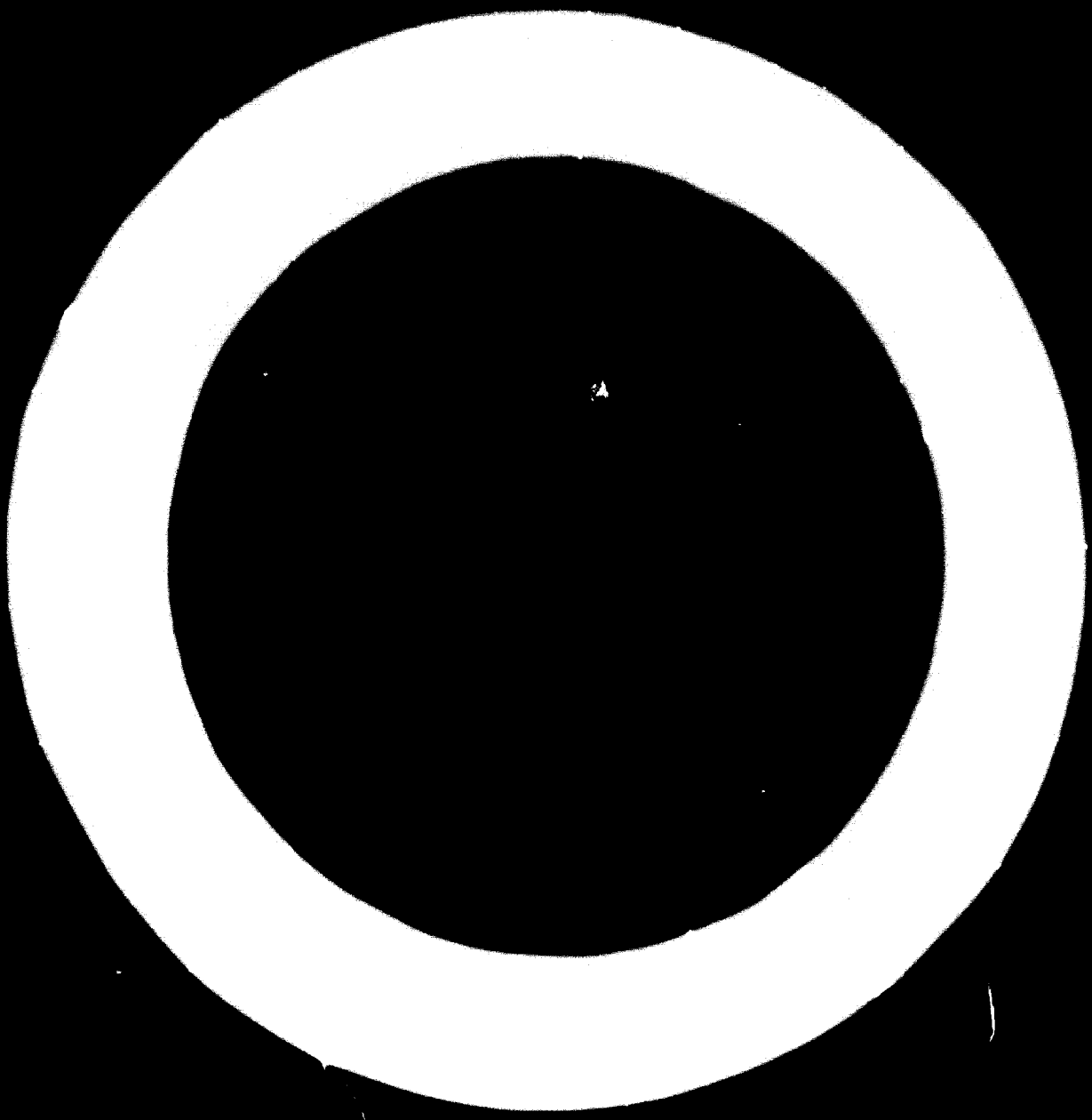
Name	Office held	Country
Colonel P. Jansen SCHOONHOVEN	Standardization Department of Defense	Netherlands
Mr. Malcolm W. JENSEN	Manager, Engineering Standards Div., Institute for Applied Technology, National Bureau of Standards	U. S. A.
Mr. N. LUDWIG	Director Deutscher Normenausschuss	Federal Republic of Germany
Mr. J. L. MADSEN	Director Stichting Nederlands Normalisatie-Instituut	Netherlands
Mr. Nasuh MALAS	Director of Industrial Control Ministry of Industry	Syrian Arab Republic
Mr. Mohamed MOHEISHI	Nominee of Government of Libya	Libya
Mr. Bashir Elhadi RAMADAN	Nominee of Government of Libya	Libya

SPEAKERS

Name	Office held	Country
Mr. Th. BARLAG	Project Manager The Industrial Testing and Research Centre	Syrian Arab Republic
Mr. K. BILLIG	Acting Director Division of Technological Research UNESCO	France
Mr. B. BRESLE	Svenska AB Philips	Sweden
Mr. R. C. DESAI	Chief, Industries Section Technological Division Centre for Industrial Development	United Nations
Mr. Th. FRANCK	Director of Danish Technical-Scientific Research Council Chairman of Danish Standards Association	Denmark
Mr. Roger E. GAY	Managing Director American Standards Association, Inc.	U.S.A.
Mr. H. M. GLASS	Technical Director British Standards Institution	United Kingdom

Name	Office held	Country
Mr. P. GOLDMAN	Director, British Consumers Association	United Kingdom
Mr. F. HADASS	Director Standards Institution of Israel	Israel
Mr. J. M. HILLENIUS	Concern Standardization Department	Netherlands
Mr. Carl IVERSEN	Professor Headmaster of the University of Copenhagen	Denmark
Mr. H. Højgaard JENSEN	Professor Chairman of ISO/TC 12	Denmark
Mr. Harbans LAL	Secretary, Administration Indian Standards Institution	India
Mr. B. OTZEN	Chief Engineer Philips Industri og Handels A/S	Denmark
Mr. Henry SAINT-LEGER	General Secretary ISO	Switzerland
Mr. S. K. SEN	Senior Officer Indian Standards Institution	India
Mr. Amin A. SHARIF	Secretary Lebanese Standards Institution	Lebabon

Name	Office held	Country
Mrs. V. SIMONSGAARD	Chief Engineer Danish Standards Association	Denmark
Mr. Brij B. SINGH	Standards-Engineer Telefon Fabrik Automatic A/S	Denmark
Mr. Olle STUREN	Managing Director Swedish Standards Association	Sweden
Mr. O. WEINCKE	Managing Director Danish Standards Association	Denmark



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Miss Ulla BUSK
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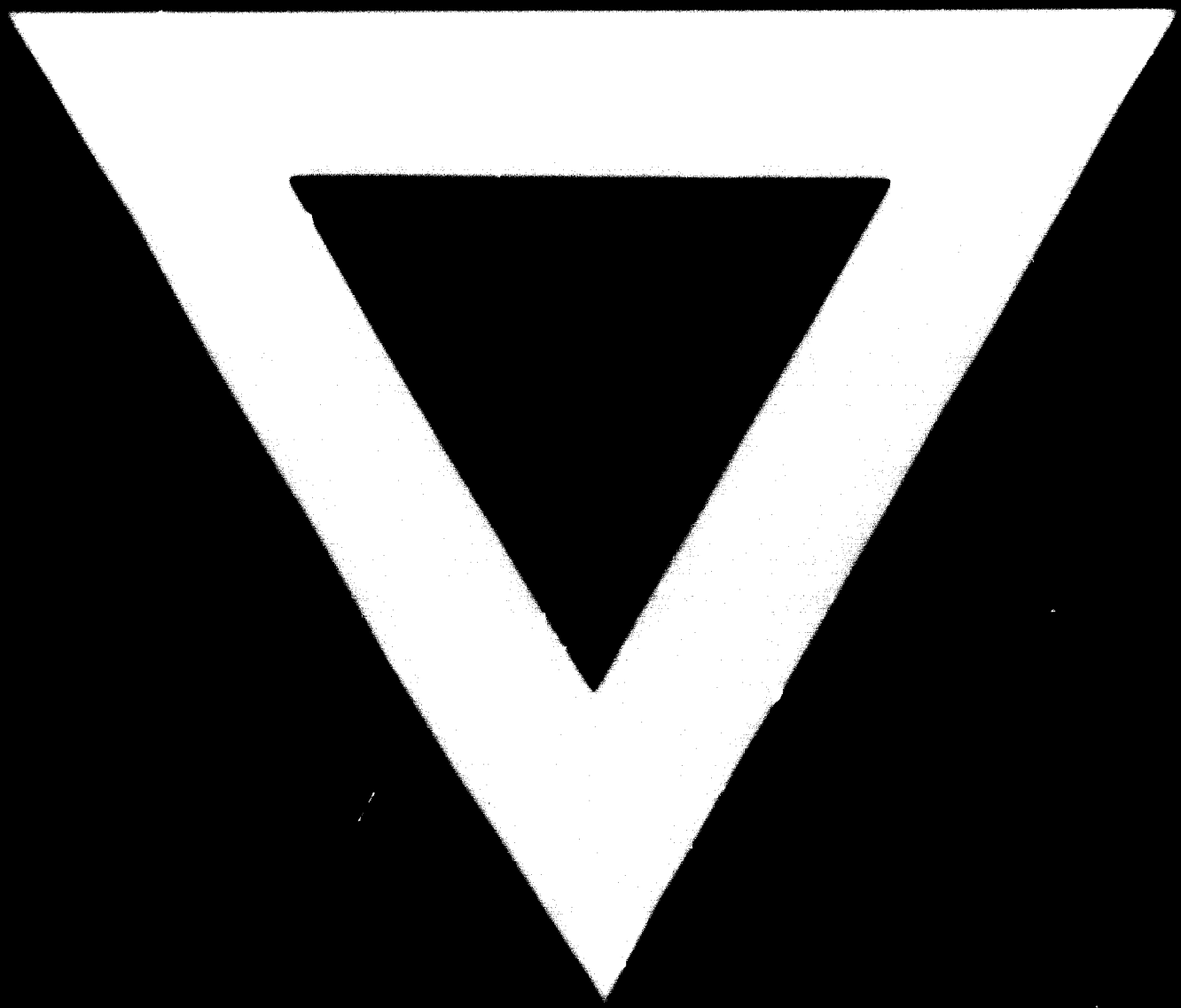
Danish Standards Association



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