NATIONAL BUREAU OF STANDARDS REPORT

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8072B

DEPARTMENT OF COMMERCE

PARTICIPATION IN

PAN-AMERICAN STANDARDS ACTIVITIES

A Digest, based on nearly four
months travel concerned with
Standards for Iron and Steel
(NBS Reports 7793, 7793A, 8072, 8072A)

By

LeRoy L. Wyman
Consultant, Metallurgy Division
National Bureau of Standards

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

THE NATIONAL BUREAU OF STANDARDS

Functions and Activities

The functions of the National Bureau of Standards include the development and maintenance of the national standards of measurement and the provision of means and methods for making measurements consistent with these standards; the determination of physical constants and properties of materials; the development of methods and instruments for testing materials, devices, and structures; advisory services to government agencies on scientific and technical problems; invention and development of devices to serve special needs of the Government; and the development of standard practices, codes, and specifications, including assistance to industry, business and consumers in the development and acceptance of commercial standards and simplified trade practice recommendations. The work includes basic and applied research, development, engineering, instrumentation, testing, evaluation, calibration services, and various consultation and information services. Research projects are also performed for other government agencies when the work relates to and supplements the basic program of the Bureau or when the Bureau's unique competence is required. The scope of activities is suggested by the listing of divisions and sections on the inside of the back cover.

Publications

The results of the Bureau's research are published either in the Bureau's own series of publications or in the journals of professional and scientific societies. The Bureau itself publishes three periodicals available from the Government Printing Office: The Journal of Research, published in four separate sections, presents complete scientific and technical papers; the Technical News Bulletin presents summary and preliminary reports on work in progress; and Central Radio Propagation Laboratory Ionospheric Predictions provides data for determining the best frequencies to use for radio communications throughout the world. There are also seven series of nonperiodical publications: Monographs, Applied Mathematics Series, Handbooks, Miscellaneous Publications, Technical Notes, Commercial Standards, and Simplified Practice Recommendations.

A complete listing of the Bureau's publications can be found in National Bureau of Standards Circular 460, Publications of the National Bureau of Standards, 1901 to June 1947 ($1.25), and the Supplement to National Bureau of Standards Circular 460, July 1947 to June 1957 ($1.50), and Miscellaneous Publication 240, July 1957 to June 1960 (includes Titles of Papers Published in Outside Journals 1950 to 1959) ($2.25); available from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

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1. ABSTRACT:

This digest presents in brief the major factors concerned with the participation of Department personnel in the activities of the Pan-American Standards Commission (COPANT) and its several working committees engaged in writing materials specifications in Iron and Steel, Textiles, and Concrete.

In addition, the highlights of standards activities within many Latin American nations and their level of effectiveness in COPANT are described. The technical assistance needed, as well as the possible role of AID assistance are outlined; and a number of suggestions are made which, if followed, could alleviate many present difficulties.

2. Standards

2.1 Broad Significance

The interests of the Department of Commerce, in assisting the Latin American nations in establishing effective standards programs at the national and international (COPANT) levels, stems from the desire to help in improving the economies of these countries, and thus enhance our own economic relations with these countries.

Standards, in the broad sense, are essential to technology, productivity and to the economy of a country. Thus, while a few of the Latin American nations have rapidly developed industries and established standards writing organizations, others have but little of either; some none at all.

Each of the Latin American countries needs certain national standards in order to develop its national economy; and whenever their productivity can provide export products, then there must be recognized and effective standards at the international level - which involves our economy. This, then leads directly to COPANT Standards in Latin America, and the status of COPANT standards as the recognized criterion of product quality in the Latin American Free Market, as has been stated by this group.

2.2 Standards Promotion

2.2.1 Apprehension Concerning Standards

Probably the greatest deterrent in the standards program in Latin America is the general lack of understanding of the significance of standards and how they contribute to the up-building of the technology, productivity, and hence the economy of a country. In fact, there is dire need for a definite campaign of missionary work in this area in order to overcome certain fears and lack of understanding of the beneficial effects of standards. For example:

(a) There is the fear and the resentment of the manufacturer that new "laws" are going to be imposed upon him; he doesn't realize that this is a voluntary effort for the benefit of his industry.

(b) There is the fear of the manufacturer that, being harnessed with quite low-level labor, any changes brought about by the necessity for closer tolerances or by simplification of product lines will result in labor difficulties.

(c) There is the fear of many manufacturers that by participating in a standards program they will need to give up their "trade secrets".

(d) There is a lack of understanding on the part of business executives on two scores:

1. How standards improve quality and reduce costs

2. That on having to meet the Free Trade Market that they will be compelled to guarantee product quality - and this means standards

2.2.2 Standards Assistance

NBS personnel have not only played a most substantial role in rendering technical assistance to the Latin American standards programs, but have also given major help in initiating the establishment of such bodies in those countries (Bolivia, Colombia, Ecuador, and Paraguay) which presently have no recognized national standards-writing organization.

In addition to the above, U.S. industry provided three experts at the November '62 textile meeting, and one specialist at the Montevideo cement meeting.

At this juncture it might be well to point out six very significant factors resulting from these visits by NBS personnel:

1. These visitations were by members of the staff of NBS, an organization well known and highly respected in Latin America.

2. These experts were recognized in their own right for accomplishments in standards work in their special fields.

3. These experts were giving needed assistance - and at the expense of the U.S. Government.

4. Assistance was given to the formation of new standards bodies, and help to existing ones through a combination of "civilian" and "government" contacts which could scarcely be accomplished if only the "civilian" status was held by the U.S. participant.

5. The aroused interest in these standards has emphasized the dire need for the establishment of Weights and Measures in most of these countries.

6. The NBS representatives, in their repeated visits, have built up an excellent array of personal contacts which have materially enhanced the effectiveness of their efforts.

U.S. participation in these Latin American seminars and meetings by the A.S.A., our official international representative, has been essentially by attending COPANT Council meetings and through the financial support that it has thus far been able to provide.

2.2.3 Disturbing Factors

One of the most important difficulties lies in the fact that COPANT does not have a permanent headquarters and staff; the primary reason being that there are not enough funds to permit the establishment of such an organization - nor is there a stable income from member-country dues to support this organization even if it were now set up. As a consequence, the Secretariat is provisional, through the courtesy of IRAM, and though much criticized for autonomous and autocratic action, it has made progress. Thus credit must be given where due. Furthermore, our own lack of program, program support, and poor communications are disturbing factors as will be subsequently discussed.

3. Status of National Standards Bodies

Argentina and Mexico are the only Latin American nations that have adopted and employ measurement standards; Argentina having obtained theirs through cooperation with the French over 75 years ago; Mexico having obtained hers from the U.S.

With reference to Standards Practices, that is, materials and commodity, specifications and test methods and codes, the following chart summarizes the present status of the Latin American countries with respect to their present organization for the promulgation of such standards.

TABLE I

Country	Weights & Measures	Standards Body	Type	COPANT Member
Argentina	Yes	IRAM	I*	Yes
Bolivia	No	-	-	No
Brazil	No	ABNT	I*	Yes
Chile	No	INDETECNOR	G	Yes
Colombia	No	CONSEJO INCONTEC ?	G I	No
Ecuador	No	-	-	No
Guatemala (Central Amer.)	No	ICAITI	S**	Yes
Mexico	Yes	DGN	G	Yes
Paraguay	No	-	-	No
Peru	No	INANTIC	G*	Yes
Uruguay	No	UNIT	I	Yes
Venezuela	No	COVENIN	G	Yes

I = Independent
G = Government Agency

* Receives both government and industry support
** Acts for seven Central American countries under O.A.S.

It may be noted that four of these nations do not have recognized standards-writing bodies; the situations in these countries being as follows:

Bolivia

The Bolivian Technological Institute has requested our assistance in getting a standards program started.

Colombia

The situation here is complex; the University at Bucaramonga believes it represents the country; there is a government agency (Consejo - or Council) so charged by law and the Engineering Society and industry have formed the "independent" INCONTEC for this purpose. It is expected that the Ministry of Public Works will authorize INCONTEC to act as the standards body for Colombia.

Ecuador

The Society of Engineers and Architects of both Guayaquil and Quito are organizing for such a program, with the assistance of industry.

CENDES, the government-industry-AID organization had such a program projected, and is standing by to assist the above effort if needed.

It is also proposed that a technical institute be formed, which will include many of these activities.

Paraguay

Has just passed a law which provides for a technical institute to engage in most of these activities.

But few of the existing bodies are doing an effective job at the national level. As a consequence, they can offer but little support to the Pan-American Standards Commission at the international level.

In most instances this is a "dollar problem" in that the group is receiving inadequate support because of the newness of the program and meagre support from government and/or industry. Where industry support would normally be expected and is found to be lacking, it is either because industry has not learned of the significance of standards - or there is little or no industry in the country.

4. Standards Assistance

The Latin American nations need help in their standards programs, and this is in several areas:

(a) Weights and Measures Program

(b) Building an effective national standards body

(c) Giving effective support to and participation in COPANT.

4.1 Weights and Measures

Assistance in the establishment of Weights and Measures, including costs, must be accomplished via channels whereby the government of the country and/or the AID Mission therein initiates the process, culminating in a formal request from the Department of State to Department of Commerce (NBS) to provide this service.

4.2 Industry Response

In most of the Latin American countries where there is a significant amount of industry there is a general lack of understanding on the part of business executives of what standards can do for them. In fact, this lack of standards consciousness is responsible for the meagre amount of industry support.

NBS personnel have given, and plan to render far more assistance to standards groups by lecturing to various business and industry groups in order to convey to them the lessons we have learned over many years of industry support of standards. This is an area where we can be of material assistance.

In those countries which have little or no industry, the development of a standards program must be accomplished by its government, possibly with the assistance of AID, OAS, or UN; with proper technical guidance being provided by such groups.

4.3 AID Assistance

During recent visits to the AID Missions in most of the Latin American countries, there was reflected a genuine interest in the concept of utilizing AID assistance as a means of promoting industrial development, in a direct manner, by assisting in providing an effective standards group. In fact, several AID Missions had such

projects listed for their programs for industry, and expressed willingness to participate in these efforts - several of which had been receiving technical assistance from NBS personnel.

In such programs, it will be necessary for the AID Missions to obtain the assistance of experts who are well-founded in standards procedures - and preferably as they apply in Latin America.

4.4 OAS Assistance

OAS has been of material assistance in the formation of COPANT, and is presently sponsoring the Seminar Program (see 5.2.1).

5. COPANT, Comision Pan-Americana de Normas Tecnicas, or

PASC, Pan-American Standards Commission

5.1 Organization

COPANT membership consists of the representatives of the national standards bodies of the several Latin American nations having such organizations.

COPANT support is supposedly through the dues paid by the member organizations. Many, in fact, cannot afford the few hundred dollars annual dues.

Lacking funds, COPANT has been unable to establish a permanent Secretariat in Montevideo, as planned, and has relied on the good offices of IRAM (Argentina) to carry on as the Provisional Secretariat.

At the November 1962 meeting of the COPANT Council, it was estimated that the <u>permanently</u> located headquarters could be operated for $35,000 per year.

5.2 Standards Activities

Secretariats for a number of activities have been assigned by COPANT, as follows:

TABLE II

Category	Country
Textiles	Peru - INANTIC
Cement	Uruguay - UNIT
Steel	Chile - INDETECNOR
Foods	Guatemala - ICIATI
Electrical Equipment	Argentina - IRAM
Asbestos Cement	Argentina - IRAM
Leather	Argentina - IRAM
Railway & Auto Parts	Brazil - ABNT
Wood Construction	Brazil - ABNT
Prefab. Windows, Doors, etc.	Venezuela - COVENIN

5.2.1 Seminar Programs

During 1962 there were a number of seminars held (Table III), and six more are programmed for 1963. All of these are cooperative between OAS and COPANT, with travel and per diem for approved registrants being paid by OAS funds for seminar attendance. In the steel seminars, ILAFA (Latin American Iron & Steel Institute) has cooperated with COPANT and conducted the specifications-writing seminars at its Santiago headquarters.

Thus far, over 20 textile specifications and 18 iron and steel specifications are in process, and the recent cement symposium will produce others in this category. Also, there is a scheduled symposium in each of these areas later this year. The committee on leather standards has yet to meet, but is doing business by correspondence.

TABLE III

OAS-COPANT Seminars

Textiles - Lima, Peru (3 through 1963)
Steel - Santiago, Chile, with ILAFA (4)
Buenos Aires, Physicale Mech. Testing (1)
Mexico, Chemical Anal. (1)
Cement - Montevideo
Rio de Janiero

To be held Balance of 1963

Textiles - Lima
Steel Pipe and Tube - Santiago
Cement, Aggregates - Rio de Janiero

5.3 U.S. Representation

5.3.1 ASA

The American Standards Association is the official representative of the U.S. in international materials standards, per Department of Commerce designation. As such, it holds COPANT membership and currently is represented on the COPANT Council and holds the Vice-Presidency.

5.3.1.1 Proposed Specifications Reviews

At the instigation of Department personnel working in collaboration with ASTM Headquarters, an ASTM-ASA arrangement now provides for review of COPANT proposed specifications by special ASTM subcommittees in iron and steel, textiles, and concrete which formerly considered only ISO proposals - or were not even organized for any international reviews.

5.3.2 Department Representation

Table IV shows the participation of Department personnel in standards events. These representatives have, in most instances, constituted the entire U.S. delegation.

TABLE IV

Department of Commerce, National Bureau of Standards Participation

	Arg.	Bol.	Brazil	Cent. Am.	Chile	Col.	Ecuad.	Mex.	Par.	Peru	Urug.	Ven.	Costa Rica	Panama
Foster++ Cem. & Concrete	62		62		62					62	62			
Schiefer++ Textiles	62		62	62 (a)	62	62		62		62 (a)	62	62		
Jensen & MacKay Weights & Measures			62	62								62	62	62
Hoffman & Harris Elec. Stds.				62				62		62				
Kanagy & Nagaski +++ (D/Agric.)	63		63		63				63	63	63			
Wyman++ Iron & Steel	62		62		62 63			62						
Wyman Stds. Program	62 63	* 63	62 63	62	62 63	62 63*	62 63*	62	63*	62 63	62 63	62		

* Promoting formation of a national standards-writing body
++ Participation in COPANT Seminars
+++ Participation in Standards meetings

In this connection it should be made abundantly clear that, because of the interest areas connected with the organizations with which they are associated and represent, the areas of concern of Department personnel are much broader than those of a technical society or industry representative from the U.S. Furthermore, representatives from NBS are held in very high regard in Latin America.

While representation in Latin American standards affairs has thus far been by NBS personnel, this is but the initial step in a program which will be broadened to include the business and economic interests of the Department by having BDSA, OBE, etc. participation. The objective of this program is the eventual transfer of these activities to U.S. industry.

Because of the fact that the NBS experts represent both the technical assistance interests in the standards themselves and the U.S. Government's interests in the effects of standards on our mutual economies, many more doors are open and much more cooperation can be obtained by these Department people than could be hoped for through the normal "civilian" channels. Thus when one couples these factors with the present difficulties with U.S. representation and the desirability of AID assistance, with the technical assistance that this will require; then the desirability of complete liaison by NBS or Department of Commerce throughout all of these efforts becomes most evident.

From another viewpoint, U.S. representation in the standards-writing committees of COPANT should ultimately be handled by representatives from U.S. industry; these being selected via ASA. Unfortunately, this phase of the industry representation is not beyond the talking phase, and the only industry representatives have been those obtained via NBS personal contacts.

The U.S. and its industries are presently suffering the consequences of not having participated in ISO affairs. In fact, we have entered into this field at too late a date to be effectual in blocking specifications which exclude our products. And now, when we have the opportunity to be in on the ground floor in preparing Latin American specifications, we are dragging our feet policy- and support-wise, and NBS personnel are carrying the load for the U.S. and its industry.

6. Communications

6.1 COPANT - U.S.

This is a deplorable situation, and one which is severely aggravated by mail services of a nature to which we are unaccustomed. Additionally, one must consider that COPANT is in its infancy and has yet to develop an effective means of communication within the organization.

6.2 COPANT - Latin America

This line of communications is very poor, and there is ample evidence that a major fault lies in the poor mail services in Latin America.

In this connection, as well as in the preceding (6.1), it must be kept in mind that the COPANT Secretariat is a provisional, part-time effort, and that one could expect a permanent, full-time headquarters staff to function more effectively.

6.3 U.S.

Our own communications within the government are bad, and it is probably because of the fact that there has been no clearly defined policy as to

(a) The total area of interest of the Department of Commerce, and NBS - from economics and trade on through standards.

(b) There is no assurance of or provision for continuity of effort by NBS personnel.

(c) The role which AID is prepared to play - and pay - in the over-all Latin American standards program, and that which the AID Missions will support in each Latin American nation.

(d) Adequate coordination of the standards efforts of the Department of Commerce, NBS, AID, OAS, UN, ASA, and COPANT by efficient liaison.

6.4 NBS - ASA

Except for the details of the last COPANT Council meeting - as yet not officially disclosed, communications have been mainly from NBS personnel to ASA in regard to COPANT activities.

7. Embassy Cooperation

7.1 Commercial Officers

This has, in general, been very effective, and in the few instances where there was an apparent lack of interest it was found that this was probably due to lack of adequate information.

Most of our Commercial Attaches lead quite harassed job lives, and encounter many "visiting firemen" and "junketeers" on one-shot visits. However, when they have been thoroughly briefed as to the magnitude and significance of the Latin American standards program, then - and only then - can they best utilize their resources and capabilities in our interests.

It is most unfortunate that the whole story of this standards program could not have been presented to the Commercial Attaches meeting in Lima, last spring.

7.2 AID Personnel

In general, AID personnel are more remote than our commercial people with respect to familiarity with standards and their significance to commerce and industry. As a consequence, a large amount of effort is necessary to remedy this situation - most particularly if there is to be AID assistance to the standards program in Latin America.

In general, recent discussions with AID personnel in most of the Latin American countries reveal a most cooperative attitude that could soon lead to practical programs.

In this event, the several AID Missions so engaged will assuredly need expert guidance from U.S. experts.

8. Recommended Department Action

In order to make the standards program more effective and to attain the desired objectives, it is recommended that the following be implemented:

8.1 Provision for the continuity of representation by Department personnel in all Latin American standards affairs.

8.2 Provision for adequate liaison with all organizations involved in standards activities in Latin America.

8.3 Provision for the participation of business and economic personnel of the Department in this program.

8.4 Use of Department facilities to publicize these standards activities of the Department in order to inform U.S. industry to the end that it should assume the major role in U.S. participation in Latin American standards affairs.

U. S. DEPARTMENT OF COMMERCE
Luther H. Hodges, *Secretary*

NATIONAL BUREAU OF STANDARDS
A. V. Astin, *Director*

THE NATIONAL BUREAU OF STANDARDS

The scope of activities of the National Bureau of Standards at its major laboratories in Washington, D.C., and Boulder, Colorado, is suggested in the following listing of the divisions and sections engaged in technical work. In general, each section carries out specialized research, development, and engineering in the field indicated by its title. A brief description of the activities, and of the resultant publications, appears on the inside of the front cover.

WASHINGTON, D. C.

Electricity. Resistance and Reactance. Electrochemistry. Electrical Instruments. Magnetic Measurements. Dielectrics. High Voltage. Absolute Electrical Measurements.

Metrology. Photometry and Colorimetry. Refractometry. Photographic Research. Length. Engineering Metrology. Mass and Volume.

Heat. Temperature Physics. Heat Measurements. Cryogenic Physics. Equation of State. Statistical Physics.

Radiation Physics. X-ray. Radioactivity. Radiation Theory. High Energy Radiation. Radiological Equipment. Nucleonic Instrumentation. Neutron Physics.

Analytical and Inorganic Chemistry. Pure Substances. Spectrochemistry. Solution Chemistry. Standard Reference Materials. Applied Analytical Research. Crystal Chemistry.

Mechanics. Sound. Pressure and Vacuum. Fluid Mechanics. Engineering Mechanics. Rheology. Combustion Controls.

Polymers. Macromolecules: Synthesis and Structure. Polymer Chemistry. Polymer Physics. Polymer Characterization. Polymer Evaluation and Testing. Applied Polymer Standards and Research. Dental Research.

Metallurgy. Engineering Metallurgy. Metal Reactions. Metal Physics. Electrolysis and Metal Deposition.

Inorganic Solids. Engineering Ceramics. Glass. Solid State Chemistry. Crystal Growth. Physical Properties. Crystallography.

Building Research. Structural Engineering. Fire Research. Mechanical Systems. Organic Building Materials. Codes and Safety Standards. Heat Transfer. Inorganic Building Materials. Metallic Building Materials.

Applied Mathematics. Numerical Analysis. Computation. Statistical Engineering. Mathematical Physics. Operations Research.

Data Processing Systems. Components and Techniques. Computer Technology. Measurements Automation. Engineering Applications. Systems Analysis.

Atomic Physics. Spectroscopy. Infrared Spectroscopy. Far Ultraviolet Physics. Solid State Physics. Electron Physics. Atomic Physics. Plasma Spectroscopy.

Instrumentation. Engineering Electronics. Electron Devices. Electronic Instrumentation. Mechanical Instruments. Basic Instrumentation.

Physical Chemistry. Thermochemistry. Surface Chemistry. Organic Chemistry. Molecular Spectroscopy. Elementary Processes. Mass Spectrometry. Photochemistry and Radiation Chemistry.

Office of Weights and Measures.

BOULDER, COLO.

CRYOGENIC ENGINEERING LABORATORY

Cryogenic Processes. Cryogenic Properties of Solids. Cryogenic Technical Services. Properties of Cryogenic Fluids.

CENTRAL RADIO PROPAGATION LABORATORY

Ionosphere Research and Propagation. Low Frequency and Very Low Frequency Research. Ionosphere Research. Prediction Services. Sun-Earth Relationships. Field Engineering. Radio Warning Services. Vertical Soundings Research.

Tropospheric and Space Telecommunications. Data Reduction Instrumentation. Radio Noise. Tropospheric Measurements. Tropospheric Analysis. Spectrum Utilization Research. Radio-Meteorology. Lower Atmosphere Physics.

Radio Systems. Applied Electromagnetic Theory. High Frequency and Very High Frequency Research. Frequency Utilization. Modulation Research. Antenna Research. Radiodetermination.

Upper Atmosphere and Space Physics. Upper Atmosphere and Plasma Physics. High Latitude Ionosphere Physics. Ionosphere and Exosphere Scatter. Airglow and Aurora. Ionospheric Radio Astronomy.

RADIO STANDARDS LABORATORY

Radio Standards Physics. Frequency and Time Disseminations. Radio and Microwave Materials. Atomic Frequency and Time-Interval Standards. Radio Plasma. Microwave Physics.

Radio Standards Engineering. High Frequency Electrical Standards. High Frequency Calibration Services. High Frequency Impedance Standards. Microwave Calibration Services. Microwave Circuit Standards. Low Frequency Calibration Services.

Joint Institute for Laboratory Astrophysics - NBS Group (Univ. of Colo.).

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