A NEW YEAR DAWNS

Every new organization, like every new business, must go through its trial period before it can say it truly exists. A rule of thumb for small businesses is—the first three years are the hardest. This rule is equally true for organizations. All new activities start off in a burst of enthusiasm and good feeling. The original zest begins to dissipate during the second year upon exposure to the hard facts of life—heavy demands upon the time of participants, varying viewpoints on business to be conducted or problems to be solved, and the comparatively few conscientious, hard-working people who volunteer services. During the third year is felt the deepest weight of responsibility, the deepest frustrations, and many times—the soul-searching question "Is it all worthwhile?" Survival through this period does not guarantee future success in the operation, but it certainly establishes the worth of the people performing the working tasks.

On September 15, 1966 the National Conference of Standards Laboratories quietly celebrated its fifth birthday anniversary. Officially formed by resolution at the Los Angeles organizational meeting on September 15, 1961 our organization has come a long way toward recognition, both nationally and internationally. It has gone through all of the growing pains described above, but because of the dedication and hard work of its Chairmen, and the wholehearted support of unselfish men sitting on the Board of Directors or serving on the several operating Committees, the position of NCSL is now firmly established in the professional world of measurements engineering. In accepting the position of Chairman of NCSL I am fully aware of the many tasks and responsibilities I have assumed, and equally aware of the comparatively short period of time in which to accomplish so much that needs doing. I will need the understanding help of all delegates which they are capable of giving, and I expect that each delegate contacted for help will perform to the limit of his or her capabilities.

May I take this opportunity to wish all readers a very Merry Christmas and/or a Happy Chanukah, and a most Happy and Successful New Year.

Chairman NCSL

Decorative Design
Courtesy FCA-Stockholm
NATIONAL MEASUREMENTS STANDARDS WEEK

Chalk up one good try by Past Chairman VANDEHOUTEN to bring off an excellent idea. Unfortunately, we are only able to say that it was presented a little too late, to a Congress with much on its mind (including the November elections) and that the resolution was lost in the shuffle. Here is the story in John’s own words:

"As you know, Congressman George P. Miller, Chairman of the House Committee on Science and Astronautics introduced H.J. RES 1247 to designate the week of November 16, 1966 as National Measurement Standards Week. The resolution was substantially the one acted on by NCSL Delegate's Assembly during the Gaithersburg Conference. The resolution was referred to the Judiciary.

Due to the quantity of legislation pending before Congress and the pressure to adjourn prior to congressional elections, the resolution will not be acted upon. I don't plan any further action at this time.

Although this result is an unhappy one it is not without its compensations. Considerable interest and assistance resulted from the proposal. Official endorsements of the resolution, that I know of, were forwarded to Congress by the:

Instrument Society of America
Precision Measurements Association
American Society for Quality Control
Scientific Apparatus Makers Association
American Society for Testing and Materials
Aerospace Industries Association
American Ordnance Association - Standards & Metrology Div.
Electronic Industries Association
Institute Electrical & Electronic Engrs. - Boston

I fully expect that an appropriate time will present itself again in the next year or two to have a National Measurement Standards Week designated."

NCSL ELECTION

By memorandum dated October 24, 1966 Chairman JOHN R. VANDEHOUTEN announced the results of the annual election of officers and directors as follows:

The official results of the election of NCSL officers and directors are:

Charles E. White - Chairman
AVCO/MSD, Wilmington, Mass. 01887

Jerry L. Hayes - Vice Chairman (two years)
Metrology Engineering Center, Pomona, California 91769
The new officers will officially assume their new position on October 25, 1966.

I would like to express my gratitude to each of you for the assistance and cooperation you have given myself and the other officers and directors during 1966. I would particularly like to thank you for giving me this very rewarding experience.

Sincerely,

John R. VandeHouten

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NCSL BOARD OF DIRECTORS MEETINGS

The 1965/66 Board held its final meeting on October 25 and immediately following after adjournment, came the first meeting of the 1966/67 Board. The co-mingling of the two boards (some of whom were members of both Boards) permitted exchange of much vital information and a smoother transition of business.

Items of business included a report from the Recording Secretary which noted that NCSL is presently composed of 148 member organizations, and has 15 Liaison Delegates assigned by as many associations, institutions, or organizations. NCSL is taking steps to file with the Internal Revenue Service for tax-exemption status.
ANDY WOODINGTON reported on the Gaithersberg Conference and indicated that the authors were filing material for publication in the 1966 Conference Record slowly but steadily. NBS still hopes to have the record in print and available from the Government Printing Office shortly after the first of the new year.

Plans have been formulated for the establishment of a Secretariat at the National Bureau of Standards which will serve as a fixed, identifiable address through the years (many we hope) of NCSL's existence. It is identified as follows:

National Conference of Standards Laboratories  
c/o National Bureau of Standards (200.00)  
Washington, D. C. 20234

Continued operation of the Calibration Procedures Library has been assured through support offered via Navy channels and coordinated by NBS. Contract will be signed by incoming Chairman White to formalize the contract agreement.

Among items discussed by the incoming 1966/67 Board were the following:

1) A realistic evaluation of the status and importance of Liaison Delegates and encouragement for larger representation in this category.
2) A study of the need for Workshops in early 1967, topics for discussion, and encouragement for such meetings on a complementary, repeating basis at more than one location, thereby reducing travel costs and time away from jobs by those attending. Vice Chairman Arsenault is coordinating studies, for recommendations to be made by Dec. 31, 1966.
3) Adoption of a working budget
4) Careful review and action toward establishment as a non-profit organization under U.S. Internal Revenue Laws.
5) Centralization of funds in a bank in close proximity to the new NCSL Secretariat Office established within the province of NBS.

STANDARDS FOR SPACE SIMULATION

Environmental Quarterly for September 1966 noted two new standards issued by the American Society for Testing and Materials:

- E297: Calibrating Ionization Vacuum Gage Tubes
- E296: Application for Ionization Gages to Space Simulators

DEDICATION OF NBS FACILITIES

Attendees at the 1966 NCSL Standards Conference may have thought that they were part of a dedication program at the new NBS-Gaithersburg facilities because of the cordiality and hospitality they received—but not so! The official dedication took place on November 15 before an invited audience of dignitaries and emissaries from all over the world.

Items of interest were extracted from the publicity releases sent us by Reeves Tilley. We note for the first time, having overlooked it last May, that there is in the center of the courtyard adjacent the NBS Library, an apple tree which is descended from the tree made famous by Sir Isaac Newton. Also, the Bureau is 65 years old in this year of dedication. We're glad to see that the Bureau, unlike the human race, is not arbitrarily retired at this age but instead, is given a new face, a new home, a hearty slap on the back, and told to go on and do a better job than was ever done before!

Featured speakers at the dedication included Dr. A. V. Astin, Director-NBS and Secretary of Commerce J. F. Connor. Indicative of the importance attributed to international standardization of industrial measurements were the topics discussed at sessions
following the dedication. These included, "International Competition and Cooperation in Technology", "The Impact of International Measurements Conventions, Norms and Standards on World Trade", and "Technology: Its Influence on the Character of World Trade and Investment".

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**FREQUENCY BAND DESIGNATIONS**

From the January 1966 issue of the Metrology Bulletin, issued by the Navy Calibration Program, Metrology Engineering Center, BuNavWepsRep, Pomona, California comes a table of wave guide designations:

<table>
<thead>
<tr>
<th>FREQ RANGE (GHz)</th>
<th>RMA-EIA WAVEGUIDE DESIGNATION</th>
<th>MFR. BAND DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.12 to 1.70</td>
<td>WR 650</td>
<td>L, P</td>
</tr>
<tr>
<td>1.70 to 2.60</td>
<td>WR 430</td>
<td>C, LS, R, N</td>
</tr>
<tr>
<td>2.60 to 3.95</td>
<td>WR 284</td>
<td>S, C, L</td>
</tr>
<tr>
<td>3.95 to 5.85</td>
<td>WR 187</td>
<td>G, H, C, K</td>
</tr>
<tr>
<td>4.9 to 7.05</td>
<td>WR 159</td>
<td>C</td>
</tr>
<tr>
<td>5.3 to 8.20</td>
<td>WR 137</td>
<td>J, XN, G</td>
</tr>
<tr>
<td>7.05 to 10.00</td>
<td>WR 112</td>
<td>H, XB</td>
</tr>
<tr>
<td>8.20 to 12.40</td>
<td>WR 90</td>
<td>X</td>
</tr>
<tr>
<td>10.00 to 15.00</td>
<td>WR 75</td>
<td>M</td>
</tr>
<tr>
<td>12.40 to 18.00</td>
<td>WR 62</td>
<td>Ku, P, U, Y, F, C</td>
</tr>
<tr>
<td>15.00 to 22.00</td>
<td>WR 51</td>
<td>N</td>
</tr>
<tr>
<td>18.00 to 26.50</td>
<td>WR 42</td>
<td>K, E, B</td>
</tr>
<tr>
<td>26.50 to 40.00</td>
<td>WR 28</td>
<td>R, A, V, Ka, S, U, D</td>
</tr>
<tr>
<td>33.00 to 50.00</td>
<td>WR 22</td>
<td>Q, C, S</td>
</tr>
<tr>
<td>40.00 to 60.00</td>
<td>WR 19</td>
<td>M, B</td>
</tr>
<tr>
<td>60.00 to 90.00</td>
<td>WR 12</td>
<td>E, S, A</td>
</tr>
<tr>
<td>86.00 to 110.00</td>
<td>WR 10</td>
<td>F, W, 10</td>
</tr>
</tbody>
</table>

**SOME TECHNICAL REFERENCES**


8. "A Precision DC Potentiometer Microwave Insertion Loss Test Set", Stelzried, Reid, and Petty.
17. "Calibration of Vibrating-Sample Magnetometers", Case and Harrington. From EEE-CIRCUIT DESIGN ENGINEERING, October 1966:
20. "Linear Integrated Circuits", Eimfinder, Background, From ELECTRONIC INSTRUMENT DIGEST For November 1966:
MEETING ACTIVITIES

NCSL members participated in large number at the October meetings of the Instrument Society of America held in New York. Several sessions were natural topics for participation. These included:

a. Implementation of the Metric System
b. The licensed Metrologist
c. Standards Laboratory Management Workshop
d. How can the performance of precision instruments be stated in a way to improve its meaning to the user?
e. Progress Report - Specifications for precision instrumentation.
f. International Industrial Calibration Standards
g. The 1965-66 NCSL Measurement Agreement Comparison Audit

a) Debate over the adoption of the metric system as the one legal measurement system in this country continues unabated. Talks at the ISA sessions revealed the continued antipathy of mechanical-oriented professions toward the system as contrasted with the attitude of the electronic, chemical, or physics-oriented professions. Louis Polk, formerly head of Sheffield Corporation, again stressed cost of adoption as a prime factor mitigating consideration of the proposed change. This argument, of course, is a perennial one and has existed since the first part of the 19th century. The only change appears to be that the magnitude of the estimated cost of change increases by one order approximately every fifty years of debate. In rebuttal, Dr. Allen V. Astin of NBS pointed out that talk of cost of conversion was very misleading (responsible people have indicated cost would vary between 3X10^9 to 55X10^9 dollars). As he indicated—conversion can mean several things. It could consist of merely adopting the language of the metric system and incorporating scale conversions only. It could mean complete hardware changes and the costs would then mount astronomically. Finally, it could be construed to incorporate new standards, specifications, and hardware, and the ultimate in cost would have been attained. However, as Dr. B. W. Thomas of Thomas Instrumentation and Research pointed out (and as many others before), the cost of conversion will get no cheaper as the years go by. A. M. Schmidt, from the USAF Standards Laboratory at Tachipawa AF Base near Tokyo, related the experiences of the Japanese in converting to the metric system. He pointed out that the educational system in the Japanese schools converted measurements to the dual Japanese and metric system immediately after World War I and that official conversion by the nation to the metric system was completed in April 1966. Long exposure to the terminology and
scales of the metric system had preconditioned the nation to the change which was made with little furor or fuss. It was most interesting to note that only one exception exists in the Japanese conversion—the scale of measurements incorporating the Japanese term "momme" has been used for centuries to determine size of pearls. Because of its international adoption by the pearl industry and its lack of conflict with other scales, the term was retained.

b) The subject of licensing Metrologists was presented at a session but apparently won little support from attendees. In the minds of many technical people, the thought of subdividing the profession of engineering (already covered by registration of engineers in most states of the Union) into smaller compartments, is most unpleasant. Furthermore the thought of "licensing" as contrasted to "registering" raises the hackles on the necks of many engineers, who resent the implications of political control inherent in licensing and absent in registering.

c) The editor missed the Workshop on laboratory management because of time conflicts. However it is worth noting that past efforts of the Workload Control Committee have culminated in production of two Standard Practices which have been submitted to Bill Holmes for review and adoption by the NCSL Board.

d/e) A session on language used by vendors to describe equipment performance and reliability was lively, well-attended, fairly polite, and noted for the restraint exercised both by laboratory representatives and instrument manufacturers personnel. A point held in common by all speakers was the lack of definitions of terminology used to prescribe performance. The need for action along these lines was stressed and it is worthwhile to note that NCSL Committees investigating criteria for performance of standards instrumentation, have recently devoted much effort to definitions of terminology as a prerequisite to further committee actions.

f) The efforts of industrial nations to establish uniformity in individual national standards of measurement was reported at the Gaithersburg NCSL Conference in May 1966, was touched upon at the Boulder Conference on Precision Electromagnetic Measurements in June 1966, and was brought up to date at this ISA session. The subject continues to stress the greater need for international industrial measurement standardization and the apathy of the United States toward the subject of international industrial specification standards.
In connection with this subject, it is interesting to note two items of news appearing in "American Engineer" for November. One states "At the request of the Secretary of Commerce, companion bills have been introduced in the House and Senate by Rep. George P. Miller (D-Calif.) and Sen. Warren G. Magnuson (D-Wash.) to authorize the secretary to promote US participation in the 'international standardization of products, processes, test methods, and performance characteristics of products and processes,' for the collection and dissemination of engineering product standards, and Federal, state, or local procurement standards."

The second item is entitled "Ford Supports Metric System" and reports "The Ford Motor Company has published a booklet entitled 'Ford and the Metric System'. A message in the publication from H. L. Misch, vice president of engineering, states that Ford will support conversion to the metric system and will develop within the company a schedule for orderly conversion of world-wide operations.

The Measurement Audit Committee presented data compiled as of October 1, concerning results of the 1965/66 audit. The Committee expects to be able to print the final results in the Proceedings of the 1966 NCSL Standards Conference, due for printing by the Government Printing Office in Washington, in January 1967.

On the opposite page are several scenes of the NCSL activities at the ISA show. Again we are indebted to delegate from Tokyo, Al Schmidt, who assisted in obtaining the pictures.

1. Shel Richardson introduces his speakers who reported on the Measurement Audit Program.
2. An intent audience listened to all details.
3. John VandeHouten and Bill Holmes noted the results.
5. The audience could hardly wait
6. to pick up preprints of the several talks,
7. While Bill Wildhack was amused at the photographer.
GI GAHERTZ VERSUS MEGAHERTZ

It has been most interesting to sit on the sidelines and watch the skirmishing being conducted within the pages of Microwave Journal and also Electronic Products concerning the use of gigahertz to replace megahertz.

Seymour B. Cohen in an editorial in the September issue of the Journal noted that his deprecation of the new term in a previous editorial in May, had brought down upon his head the wrath of numerous readers. Some suggestions had been advanced to utilize the abbreviation Ga instead of GHz but apparently no great weight of argument was presented for this case.

Mel Mandell reporting in Electronic Products for November gave the results of a vote conducted by the magazine among its readers. A total of 3,898 votes were cast, the final tally showing 2512 in favor of cps and 1386 in favor of hertz. Of great interest was the presentation of excerpts from letters from readers, on the subject. It is interesting to note how the lack of broad viewpoint or well-rounded education is displayed in the typical complaint against the change in terminology by what we can only presume is the typical engineer. The average American is usually considered by the rest of the world as being fairly intelligent and alert but narrowly centered in the education he receives, to the American viewpoint. He is considered provincial in thinking, arrogant in his approach to ideas generated outside the United States and supremely certain that he, like Father, knows best what is good for him, his country, and his world. In spite of all this however, it is good to note that the American sense of humor is still with us, as evidenced by a contribution from a West Coast engineer. Entitled "Hertz Rent a Cycle", the offering goes like this:

"I thought that I was going Nertz.  
The day they named the cycle Hertz.  
From names like DeKhotinsky save us.  
When will they name the second, AVIS?  
What now of foot-pounds, ergs, and joules.  
Will they be named for water fowls?  
To quote the Bard, would rose smell sweeter  
If name were changed to foot or meter?  
Oh doctors, eggheads, profs and seers  
Please don't confuse us engineers."

WE AIM FOR ACCURACY!

When we miss, we acknowledge our errors. The last issue commented that the new chief of the NBS Office of Engineering Standards Liaison and Analysis was Dr. George D. Hudson. This was erroneous, since the new chief is Dr. G. S. Gordon.
BACKGROUND READING

Recent articles by Williamson and Sinnet in Research/Development magazine, although related to familiar problems and presenting familiar (to most management people) solutions, are still worth reading and preserving. Williamson wrote recently on "The Gentle Art of Delegation", "Watch Your Language", and presented a series of four articles on "browsing" as a constructive approach to innovation in thinking. The more-philosophical articles by Sinnett we find also to be thought provoking, and the quotations which head each month's presentation are quite pungent. Often he quotes from a source to which I was exposed as a young engineer, namely Elbert Hubbard's Scrapbook, and also his Notebook. Both books traveled with me many years and were a source of pleasant reading and a prod to the conscience upon many occasions. Typical provocative leads to Sinnett's articles are these quotes:

"The average man plays to the gallery of his own self-esteem". Hubbard
"Everybody thinks of changing humanity but nobody thinks of changing himself" Tolstoy
"Character is the result of two things - mental attitude, and the way we spend our time". Hubbard
"At every crossway on the road that leads to the future--each progressive spirit is opposed by--a thousand men appointed to guard the past". Maeterlinck.
"What do we live for if it is not to make life less difficult to each other?" Eliot

Other articles noted as being of management interest are as follows:

SOME PERSONAL NOTES OF DELEGATES

AVRIM KALISKY of Sperry Rand/Sudbury in Massachusetts has moved to a post in Thailand for a one-year period with Applied Scientific Research Corp., under UNESCO sponsorship.

IVAN G. EASTON of General Radio was recently promoted to Executive Vice President for that company.

HARVEY G. LANCE of NBS-Boulder has taken over the task of editing the Newsletter of IEEE Group on Instrumentation and Measurement.

DEAN A. BRUNGART, formerly of Litton Industries, is now with Teledyne Systems in Hawthorne, Calif. Dean is Past-Chairman of Precision Measurements Association (PMA).

CHARLES E. WHITE of AVCO Missile Systems Division is chairman of the IEEE Boston Section.

DON I. HERVIG had his picture in Electronic News for September 19 in an article featuring the new 40,000 square foot Metrology Center at Redstone Arsenal. He appeared to be quite proud of the new center of which he is head.

In Memoriam

We regret receiving too late for the September issue, the news of the death of Walter C. Hunter of Sandia Corporation. Walter was well known to many of the NCSL people, serving on the Board of Directors at the time of his death. He also was Secretary/Treasurer of the Group on Instrumentation and Measurement of the Institute of Electrical and Electronic Engineers. He was a competent, experienced, dedicated worker, and was deeply respected by all co-workers. We feel a sense of personal loss of a friend, and extend to his widow our sincere condolences.
GENERAL ASSEMBLY - INTERNATIONAL SCIENTIFIC RADIO UNION

URSI had its beginnings in 1913 during the primitive days of spark gaps and crystal detectors. The need for international cooperation in research and development induced a group of nine scientists from six European countries to meet in Brussels to establish the International Commission of Scientific Wireless Telegraphy. The onset of World War I interrupted further planning but reorganization in 1919 established the International Union of Scientific Radio Telegraphy under the auspices of the International Research Council (later the International Council of Scientific Unions). In 1928 the organization's name was changed to International Scientific Radio Union (URSI). The permanent secretariat was established in Brussels.

The aims of URSI are 1) to establish and promote international cooperation in the scientific study of radio, 2) to encourage and aid in the organization of radio research requiring cooperation on a large scale, 3) to promote the establishment and use of common methods and standards of radio measurements, 4) to encourage and aid the discussion and dissemination of the results of these activities. URSI pursues these aims through official national and international organizations. Every three years normally, the international meetings (General Assemblies) are conducted, lasting approximately two weeks and usually attended by 600-900 people. Here are presented papers and symposia devoted principally to the latest developments of radio science. Commissions and Committees observe various fields of research and recommend future projects. These meetings serve to promote acquaintances among people in many countries having like interests.

The technical work of URSI is carried out by permanent international bodies named Commissions which conduct continuous studies of the fields of research. Presently these Commissions are:

I. Radio Standards and Measurements
II. Radio and Ionospheric
III. Sonospheric Radio
IV. Radio Noise of Terrestrial Origin
V. Radio Astronomy
VI. Radio Waves and Circuits
VII. Radio Electronics

At the national level are National Committees from about 28 countries. Each Committee comprising from 10 to 30 people acts as an executive committee to administer a larger group of people engaged in promoting the technical work of URSI within the individual country. Such work quite often involves the holding of national meetings conducted by national groups called Commissions and similar in scope to the Commissions of URSI. These Committees are established under the authority and cognizance of each country's National Scientific Academy or National Research Council.
URSI has had many accomplishments, the latest of which was the role it played in the establishment of the Third International Geophysical Year (1957-58), and the International Year of the Quiet Sun (1964-65). URSI also initiated international action toward the placement of artificial earth satellites in orbit.

With relation to URSI, your editor's interest has been principally with Commission I, since first accepting appointment in 1957. The principal areas of interest for this Commission are a) Frequency Standards, b) International Comparison of Frequency Standards, c) Standard Frequency Transmissions, d) Field Strength Measurements, e) RF Power Measurements, f) Fundamental Electrical Quantities, g) Properties of Materials at RF, h) Determination of Physical Constants.

Many participants in the work of US Commission I are well-known to a number of NCSL members. These include, but are not limited to Dr. J. F. Richardson of NBS, Chairman 1964-67; Dr. B. O. Weinschel of Weinschel Engineering, Chairman-elect (1967-70); R. W. Beatty, H. E. Bussy, A. H. Morgan, M. C. Selby, G. F. Engen, D. M. Kerns, H. W. Lance, R. C. Mockler, K. A. Norton, R. C. Powell, G. E. Schafer, of the National Bureau of Standards; E. A. Gerber of USA EDRL at Fort Monmouth; E. L. Ginzton of Varian Associates; A. B. Giordano, A. A. Oliner, and E. Weber of Polytechnic Inst. of Brooklyn; B. P. Hand of Hewlett-Packard; E. W. Houghton, W. W. Mumford, and W. M. Sharpless of Bell Telephone Laboratories; W. Markowitz, formerly of US Naval Observatory; T. M. Mukaihata of Hughes; R. A. Soderman of General Radio; M. C. Thompson of ESSA.

All contributed to the participation in the triennial report of U.S. progress in radio measurements 1963-66, as presented to the XVth General Assembly held in Munich, September 5-15, 1966. The sessions conducted by URSI International Commission I included reviews of progress in:

1. Standard Frequency and Time Transmissions
2. Velocity of Radio Waves
3. Atomic Standards of Frequency (Masers and Cesium)
4. International Comparisons of RF Standards
5. International Standardization of Precision Coaxial Connectors
6. Laser Measurements and Standards
7. Synchronization of Clocks via Satellites
8. Radio Materials Measurements
9. RF Measurement Techniques Above and Below 1GHz
10. Low-Noise Measurement Techniques

During the sessions, your editor was able to discuss the operation of NCSL with several individuals from other countries, thereby gaining first-hand information on the progress of industrial
standardization in those countries. One such session was spent with Dr. H. Schneider and his associate, in which an insight was obtained on teaching of measurements to under-graduate students at the Technische Hochschule in Munich. Several meetings with Dr. Ing. H. Fleischer, Secretary-General of the Verbandes Deutscher Elektrotechniker (similar to IEEE), were quite enlightening on the role of German industrial standards in the national area. Dr. C. Egidi of the Instituto Elettrotecnico Nazionale at Turin, Italy was very helpful in supplying information relative to industrial standardization in Italy.

Several recommendations and resolutions were passed during the meetings of Commission I. These included 1) a perpetual invitation to have an observer from the International Bureau of Weights and Measures (BIPM) sit in on the meetings of International Commission I, 2) that steps be taken in the Europeon area to more effectively provide a reliable source of standard frequency and time, 3) that BIPM be encouraged to extend the work of international comparison of standards; that URSI encourage more intercomparisons at national levels, 4) that the 14 mm precision connector standard established by IEEE in 1965 be the preferred connector of this size for international comparison, and that IEC consider its adoption for precision measurements purposes, 5) that further steps be taken for provision of a system of uniform atomic time and constant frequency, 6) that at present the cesium transition is the most suitable to adopt as a standard for a definition of a second.

Returning to Boston, several days were spent in London, to see the changes brought about since my days there in World War II, and to revisit several speakers on the program presented at the NCSL Standards Conference at Gaithersburg. We were very pleased to meet Mr. A. Wynne of the Ministry of Technology, who had actively sponsored the trip to the U.S. by Mr. E. Barnett, and to renew acquaintances with Mr. Barnett, Foxwell, and Locke. As an aside, a special trip was made to the new Playboy Club in London to discuss physical measurement standards. The trip reminded me of the attempt by a local organization to establish a physical standard for female pulchritude--3/4 of a female head. Needless to say, no standard of such dimension exists in any laboratories visited to date and there is some question as to applicability.

On the opposite page are some pictures made (under natural light) at the URSI General Assembly. Of particular interest is the shot made of Prof. A. Prokhorov of the Moscow Lebedev Institute of Physics who has been a member of the Russian Commission I for a number of years, and who received the Nobel Prize in Physics in 1965. The pictures are as follows:

1) The focal point for all information, arrangements, Kaffe klatches, etc. in the Technische Hochschule
2) Myron Selby translates for Russian delegate Dr. G. Bourdoun
3) Dr. B. Weinschel illustrates a point in discussing the new standard precision connectors
4) Ian Harris of Great Britain talks about connector interface problems
5) Bob Beatty of NBS reports on measurement progress above 1GHz
6) Harold Bussy presents material on material measurements
7) Prof. J. Bonanomi of Switzerland presents atomic standards progress 1963-66
8) Prof. A. Prokhorov, Russian delegate, makes a point with Col. E. Herbays, Secretary-General of URSI
9) Dr. J. Richardson, NBS and Dr. L. Essen of Great Britain and Chairman International Commission I, discuss strategy
10) Dr. H. Schneider and associate, at the Techinsche Hochschule discuss the significance of industrial measurements and study the role played by NCSL in the U.S. scene.

MORE TECHNICAL REFERENCES

A questionnaire distributed by Past Chairman VANDEHOUTEN in 1966 was quite productive in the quality of the answers returned. It is interesting to note the report returned of useful services provided by NCSL. These included:

a. Excellent source of information concerning
   1. Laboratories devoted to measurements/standards
   2. Calibration procedures
   3. Laboratory organization, administration, and responsibilities
   4. Practical operating experiences of measurements laboratories
   5. Available calibration services
   6. Activities at NBS
   7. Personnel levels and training requirements for measurements laboratories
   8. State of the art in measurements standards and instrumentation

b. Calibration Procedures Library

c. Directory of Standards Laboratories

d. Needs for measurements standards from the management viewpoint

e. Measurement Accuracy Audit Round Robins in 1964 and 1966

f. Newsletter

g. Contacts with people having similar problems

h. Channels to express national measurement needs

In addition, services felt to be desirable or necessary from NCSL included:

a. Expansion in membership of NCSL committees which would result in
   1. More output from committees
   2. More sharply defined interfaces between NCSL and NBS
   3. Updating of laboratory operation surveys conducted in previous years
   4. Development of greater interest in measurements engineering and encouragement of engineers to participate
   5. More material for and emphasis upon training personnel
   6. More information re job descriptions and labor grades
   7. Glossary of terminology

b. Calibration procedures to be made available at a reasonable fee to small laboratories with limited personnel

c. Encouragement to reduce redundancy in operations of similar organizations

d. Personal data listing of key laboratory personnel

e. Data on operating costs of measurements laboratories

f. Sponsorship of more technical programs at level of the state of the art
g. Encourage reduction of ambiguity in calibration procedures
h. More status reports on committee activities
i. Better interpretations of military or government specifications

It was noted also that answers indicated a desirability to expand committee activities to:

a. Definitions and/or Glossary of terms
b. Pressure Standards
c. Study of costs and economics of measurements laboratories

Replies indicated that Workshops in a number of areas would be welcomed. These included:

1. Laboratory Management and Training.
2. Sinusoidal and Shock Motion Calibration of Accelerometers.
3. Evaluation of the effectiveness (cost, quality) of standards and calibration programs.
4. Selling Management on the value of calibration.
6. Calibration service (including preventive maintenance) requirements, and practices for measuring and test equipment.
7. Personnel training in measurement and standards.
8. Optical Inspection.
9. Environmental control requirements training.
10. Regional biennial meetings for each of four major groups, alternating with biennial National Conferences.
11. Specific measurement areas such as photometry, vibration, etc.
13. Microwave standards and techniques.
14. Pressure measurement.
15. Error analysis.
17. Computer techniques -- developing a common language.

Finally, a number of contributors felt that future NBS-sponsored activities should include seminars, publications, and research (where required) devoted to:

18. Developing computer programs for presentation, reduction, and preservation of data.
19. Primary calibration procedures.
20. Same service on basic fields previously given in seminars at NBS.
21. Vacuum measurements and standards; fixed points of the pressure scale.
22. Accuracy in measurements and calibration i.e., Technical Note 262 was a big step in the right direction; now update it and maintain it.
23. Work being done at present to extend capabilities of NBS.
24. Areas of measurement which require further improvements at NBS.
25. Training workshops for technicians in various areas such as physical measurements - temperature pressure, etc.
26. There is a real need for some program where the lab personnel can get out and learn new techniques, see what other people are doing. This improves morale and instills greater confidence in the measurement technician. This kind of program stands a chance of getting management approval for trips.
27. Coil and capacitor losses, measurements, calibration and standards.
28. Standardization techniques for intercomparing standards at higher frequencies (such as standard inductors to 10 MHz).
29. Microwave techniques and standards as well as the fresh approaches to tying electrical standards to physical measurement (example capacitance) and applied statistics for all areas as developed in the field of mass measurement.
30. Laser interferometer measurements; rf power measurements - greater accuracy; high frequency inductance and capacitance measurements; rf voltage measurements + 1% to 1 GHz.
31. Spectral transmission of both plano parts and lens systems (1) parts and systems, (2) optical resolution of lens systems including instrumentation. Means for calibration of dust counters in the range 0.3 to 10.0 microns.
32. Publications on techniques to self calibrate systems now sent to NBS, better (more often) communications of trends, interests, and programs in the measurement field on a national and international level.
33. High pneumatic pressures (6000 +psi), (2) acoustic pressure measurements for undersea transducers, (3) calorimetry pressure measurements, (4) ultra high vacuum (10^-8 torr and lower), (5) residual gas mass spectrometry.
34. Error analysis, ratio measurements; measurements, actual "cookbook" methods that could be duplicated by our labs, details rather than theoretical papers, and emphasis on techniques whereby more labs can become more self sufficient and still have needed confidence level.
35. Bringing electrical measurements into as good statistical control as mass measurements.
36. Work being done to relate standards to the most basic laws of scientific endeavor.
37. Temperature-data reduction techniques; vibration-acceleration measurements.

HELP WANTED

In reply to the Editor's request for help in compiling the material for the Newsletter, acknowledgement must be made of offers received from Leonard Berringer of the publication "Instruments and Control Systems"; V. G. Gersbach, F. Sciacchitano, M. Steinberg, J. Vande-Houten; William Wingstedt of the publication "Quality Assurance"; Milton Aronson of the publication "Measurement and Data News". We hope to be able to take advantage of these offers in the near future.
From the writings of C. M. Sinnett as presented monthly in the publication Research/Development, we have retrieved these pungent idea-killers. Mr. Sinnett's recommendation is "Put these killer phrases on your black list--and keep them there."

It's not in the budget.
Where does the money come from?
Who thought of that?
Costs too much.
I can't give you the money to go ahead
Too big (or small) for us.

We tried that before.
We're not ready for it.
Everybody does it this way.
Too academic.
Not timely.

It's a gimmick.
Too hard to administer.
Not profitable.
It's not progressive.
Too theoretical.
Production won't accept it.
They'll think we're long-haired Personnel aren't ready for this
Engineering can't do it.
Won't work in my territory.
Customers won't stand for it.
The new men won't understand.
The old men won't use it.
You'll never sell that to management.
Doesn't conform to our policy.

We don't have the manpower.
Takes too much time (work).
It's never been done before--why stick our necks out?
Don't move too fast
We don't want to do this now.
Factory can't follow up.
We have too many projects now.
Not enough background
Stretches imagination too much.
Why something new now? Our sales are still going up.
Let's wait and see.

Let's form a committee
Has anyone else ever tried it?
Too hard to sell
I don't see the connection.
What you are really saying is...

What do they do in our competitor's plant?
Let's sleep on it.
Don't be ridiculous
That's beyond our responsibility.
It's too radical a change.
This will make other equipment obsolete.
Let's get back to reality.
That's not our problem.
You are two years ahead of your time.
Can't teach an old dog new tricks.
We'll be the laughing stock.
We did all right without it.
Let's shelve it for the time being.
Why bring that up?
It requires new processes.
It isn't patentable.
It is too complicated.
It violates our contract.
How can you cheapen it?
Too much trouble to get started.

It didn't work the last time we tried it.
Are you nuts?
It will require new tools.
That is a lousy idea.

It's not our kind of work.
It is out of our department.
It will take too long to develop it.
That is only a research idea.
What about your other job?
How much time did you spend on that?
What is it good for?

It stinks.
Let's make a market research test first.
It isn't competitive.
The union will scream.
That's too ivory tower.
Here we go again.

Let's put it in writing.
It's been done this way for 15 years--why change it?
How about someone else trying it first?

In addition to the above, we have also received a poetic (?) contribution from a member who prefers to remain anonymous:

I'm not allowed to run the program...
Or see how well it will go;
I'm not allowed to calibrate,
Or help the program grow.
I do not exercise control...
Or have authority to tell,
But let the damn thing cease to work
...and then see who catches Hell!!!

The Good Old Days

Any readers who feel out of breath at today's hectic pace and are tired of job-hopping all over the country might pause to read the following, extracted from "Engineer" for Autumn 1966 and published by the Engineers Joint Council.

Anybody pining for the good old days of engineering?
Here are a few company rules of a list of ten posted by an engineering office in Morgantown, West Virginia, dated about 1850.

Man employees will be given an evening off each week for courting purposes, or two evenings per week if they go regularly to church.
Any employee who smokes Banner cigars, uses liquor in any form, gets shaved at a barbershop, or frequents pools or public halls, will give me good reason to suspect his worth, intentions, integrity, and honesty.
The employee who has performed his labors faithfully, and without fault for a period of five years in my service, who has been thrifty and attentive to his religious duties, and is looked upon by his fellow man as a substantial and law abiding citizen, will be given an increase of five cents per day in his pay, providing a just return of profits from the business permits it.
RENEW YOUR SUBSCRIPTION!

Each year it has been the custom to revise and update the mailing list for this Newsletter. This coming year it is quite important that our American readers supply the editor with an up-to-date address including Zip Code. To simplify our mailing problems note that you, the reader, will not receive future 1967 issues of the Newsletter until, and unless, you return this page, complete with name and mailing address to which the Newsletter is to be sent. This issue comes to you via first-class mail to insure delivery to the proper addressee. Future issues within the U.S. will go out, as usual, via third-class mail.

Please do not delay return of this address information sheet since compiling new address plates is a time-consuming task fitted into gaps in our company's regular work schedule.
APPLICATION FOR MEMBERSHIP
NATIONAL CONFERENCE OF STANDARDS LABORATORIES

Name of Laboratory or Organization

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applies for membership in the National Conference of Standards Laboratories and appoints as its Delegate

Name and Title

who will serve until June 30, 1967

Signed: ______________________

Title: ______________________

Date: ______________________

The NCSL is a continuing non-profit association whose members are either measurement standards and calibration laboratories, organizations maintaining such activities or other organizations having related interests whether operated under academic, scientific, industrial, commercial or government auspice.

Application for membership is made by completing the above form and submitting it together with the annual dues of fifty dollars ($50.00). Checks should be made payable to the National Conference of Standards Laboratories.

Applications may be mailed to:

Mr. Donald DeLauer, Chief
Det. #2 2802d IG&C Op
P. O. Box 1525
Vandenberg AFB, California 93437

If an otherwise qualified organization finds it impossible to become a member organization by payment of dues as such, it may be granted member privileges by payment of an equivalent registration fee in advance of the Delegate's Assembly.