

34 CODATA / NEWSLETTER

OCTOBER 1985

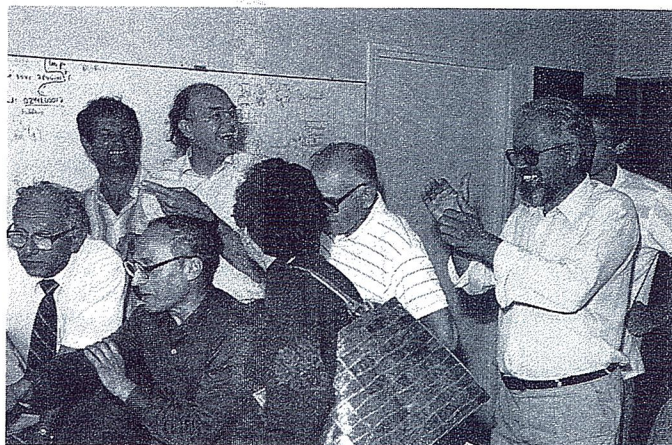
CODATA IN ACTION

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The Committee on Data for Science and Technology (CODATA) was established in 1966 by the International Council of Scientific Unions.

Working on an interdisciplinary basis, CODATA seeks to improve the quality, reliability, processing, management, and accessibility of data of importance to science and technology.



After successfully networking cooperating data banks in Gaithersburg, Maryland and Midland, Michigan, U.S.A., Sussex and Harwell, U.K., from Grenoble, France, Host Ansara leads the Task Group in applause for Gurvich's "Moscow Connection". (see page 3, TGCTT)



Henry Kehiaian addresses workshop at CODATA Secretariat during Thermodynamics Festival. (see page 4)

Tenth International CODATA Conference Ottawa, Canada 14 - 17 July 1986

Theme: COMPUTER HANDLING AND DISSEMINATION OF DATA

Preliminary Program

The Conference will consist of invited lectures and contributed posters. Four plenary, multidisciplinary sessions will deal with issues related to Data Structure and Access, Data Handling and Dissemination, International Aspects of Data Co-operation and Exchange, and Data Validation. Another twelve discipline-oriented symposia will cover the following topics:

- Data for Biotechnical Industries
- Mapping in Geophysics
- Evaluation of Materials Properties
- Data for Natural Resource Industries
- Biosciences Data
- Scientific and Technical Databases
- Advances in Materials Databases
- Modelling in the Geosciences
- Physical and Chemical Data for Advanced Technologies
- Environmental Data - the CODATA view
- Expert Systems in the Physical Sciences
- Data for Industrial Process Control

Call for Papers

Users of data, as well as those involved in data compilation, evaluation, handling or dissemination, are invited to submit contributions on subjects within the scope of the conference. Contributions may be submitted and presented in either English or French.

To facilitate discussion and interchange of ideas, all contributed papers will be presented as posters. Poster sessions may be followed by workshops in which appointed rapporteurs will lead discussions on groups of related papers.

Abstracts should be submitted as soon as possible but not later than 15 January 1986, to the Executive Secretary CODATA '86, at the address given below. Authors will be notified by March 1, 1986 about the acceptance of their contributions and will receive instructions on providing the full text at that time.

Database Demonstrations

Facilities will be made available for scientific and technical source database developers to give demonstrations during the afternoons of each day of the conference. In the case of mainframe databases, these facilities will include the complimentary use of a terminal and modem for dial-up access to commercial telecommunication networks; in the case of microcomputer databases, facilities will include table space and electrical power. Demonstrators will be responsible for their own telecommunication costs. Those wishing to give such demonstrations or requiring more information should contact the Executive Secretary CODATA '86 giving the appropriate particulars.

Exhibition

Provision is being made for a commercial exhibition of equipment and services relevant to CODATA's broad range of interests. This is clearly an excellent opportunity for suppliers of communication and information products and services (database producers and disseminators, computer equipment, telecommunication networks and publishers, for example) to reach scientific data professionals from 20-30 countries. Further information may be obtained from the Executive Secretary CODATA '86.

Conference Venue and Accommodation

All sessions will be held in the Westin Hotel located within a 3 minute walk of the Parliament Buildings and the main shopping and restaurant area of Ottawa. Blocks of rooms have been reserved at the Westin and the nearby University of Ottawa. Several other hotels are within a few minutes walking distance.

Second Announcement and all Additional Information

Those wishing to receive the Second Announcement containing registration and travel information as well as those wishing to submit abstracts or obtain information about the Database Demonstrations or Exhibition are invited to contact:

Executive Secretary CODATA '86, Conference Services,
National Research Council of Canada, Ottawa, CANADA
K1A 0R6, Telephone no.: (613) 993-9009, Telex no.: 053-3145.

Future Bio Data Bank Omnifarious?

A restructuring of biological knowledge by a (U.S.) National Academy of Science committee summarized in "Models for Biomedical Research: A New Perspective" has led to the suggestion that more refined organization of biological data, in a form which makes recognition of the cross-connections more explicit, will turn up new generalizations.

The committee suggests that scientists start thinking about how to develop a biology-wide information system--a computerized "matrix data base"--structured so that it can be accessed from many aspects. Categories would include, for example, level of organizational complexity (from atoms to populations); phylogenetic status; physiological responsiveness (behavior); metabolism, and biological regulation.

The committee noted that development of such a data base will require "a new kind of scientist", with dual expertise in biology and information science. The data base would greatly expand the array of possible models used by providing information on phenomena that are analogous to various aspects of the subject under study. Being designed to search for "general laws and structures...(it) will make general biology much more easily accessible to the biomedical scientist."

IUPAC Provisional Recommendations Thermodynamic Data in Biology

Thermodynamic data are important in describing and developing an understanding of biological systems. However, at present there is marked variation in the terminology and symbols used. A guide has been prepared by the Interunion Commission on Biothermodynamics in which SI units and symbols of special importance for biothermodynamics are summarized together with examples and with comments concerning their use. It is recognized that in some cases extant recommendations made by IUPAC may have to be adjusted slightly or developed further in order to suit the practical needs in the biological sciences.

The overall aim of the report has been to prepare a document which will serve as a practically useful guide for those who are involved in scientific writing and in teaching in the field of biothermodynamics.

Comments on these recommendations are sought and should be sent before the end of March 1986 to: Prof I. Wadsö, Termokemi, Kemicentrum, Lunds Universitet, Box 124, S-221 00 Lund, Sweden.

CODATA'S Thermodynamic Tables Task Group Announces Publications, Plans, and Needs

CODATA's Task Group on Chemical Thermodynamic Table (TGCTT) met in Grenoble, France in early September to complete two major data compilations of critically evaluated thermodynamic data.

The first of the two volumes, "CODATA Key Values for Thermodynamics" represents the final report of CODATA's former Task Group on Key Values for Thermodynamics. This report gives definitive values for thermophysical and thermochemical properties for 150 substances that are very frequently indispensable for the interpretation of calorimetric and equilibrium measurements. These substances include 53 elements, and--typically--their aqueous ions and an oxide and halide. The properties are standard 298.15 K enthalpies of formation, entropies, and enthalpy increments.

These selections are documented by extensive notes, include 100 tables of thermal functions, a catalog of all measurements upon which the selections for aqueous ions are based and a bibliography of some 2000 references. Use of key values in interpreting measurements and in constructing tables of recommended values will simply facilitate the intercomparison of values and the thermodynamic compatibility in many tables. These key value tables will appear early in 1986.

The second volume of tables, "CODATA Thermodynamic Tables", also to appear soon thereafter is a comprehensive thermodynamic treatment and prototype tables of selected compounds of calcium and related mixtures. This book constitutes a task group report edited by D. Garvin, V.B. Parker and H.J. White, Jr. It includes recommended

values for thermophysical and thermochemical data on the element calcium, its oxide, hydroxide, fluoride, chloride, sulfide, nitrate, and carbonate (in gas, liquid, and solid phases, as appropriate), and alloy (Ca-Mg), a fused salt system ($\text{CaCl}_2\text{-KCl}$) and an aqueous solution ($\text{CaCl}_2\text{-H}_2\text{O}$).

These tables are a prototype set and were prepared by the members of TGCTT as an experiment to test the plan they have developed for a CODATA Thermodynamics Tables project. This project will produce tables and data bases on the thermodynamics of inorganic and organic substances and systems. These tables will be computer based throughout its entire operation, will use the CODATA "Key Values", and will be prepared by experts from various countries. Data bases developed in this work also will be made available.

These prototype tables on calcium compounds will include about 70 tables of thermal functions, thermochemical values for sixty substances, mixing properties, catalogs of measurements, discussions of recommended values, and bibliography.

Commentary on the tables will be sought from the chemical thermodynamics community. Persons interested in participating in this review and evaluation should write to: Professor Edgar F. Westrum, Jr., Department of Chemistry, University of Michigan, Ann Arbor, MI 48109

The Task Group has initiated its next round of evaluated data on selected compounds of iron with probable extension to cobalt and nickel compounds. The element, oxides, hydroxides, halides, sulfates, carbonates, and silicates will be treated.

The Task Group will welcome information on new measurements.

Participants in the Grenoble meeting were: H.J. White, Jr. (Chairman), I. Ansara, D. Garvin, L.V. Gurich, V.B. Parker, J.B. Pedley, D.D. Wagman, and E.F. Westrum, Jr.

"Thermodynamic Data Needs on Iron Compounds"

The CODATA Task Group on Thermodynamic Tables is preparing a data base and tables that will include selected values of enthalpies and Gibbs energies of formation, entropies, and heat capacities at 298 K, plus thermal functions (0-4000 K) for pure compounds and the mixing properties for binary and ternary systems. The specific substances are listed below.

For substances:

Fe(c, l, g) ,	FeOCl(c) ,
$\text{Fe}^+(\text{g})$,	FeS(c, l, g) ,
$\text{Fe}_{1-x}\text{O(c)}$,	$\text{FeS}_2(\text{c})$,
$\text{Fe}_2\text{O}_3(\text{c, gamma})$,	$\text{FeSO}_4(\text{c, g})$,
$\text{Fe}_3\text{O}_4(\text{c})$,	$\text{F}_2(\text{SO}_4)_3(\text{c})$,
FeO(g) ,	$\text{Fe}_3\text{C(c)}$,
$\text{Fe}_2(\text{g})$,	$\text{FeCO}_3(\text{c})$,
FeOH(g) ,	$\text{Fe}_3\text{N(c)}$,
FeOOH(c, g) ,	FeSi(c, l) ,
$\text{Fe(OH)}_2(\text{c, g})$,	$\text{Fe}_2\text{SiO}_4(\text{c})$,
$\text{Fe(OH)}_3(\text{c})$,	
FeF(g) ,	
$\text{FeF}_2(\text{c, l, g})$,	
$\text{FeF}_3(\text{c, g})$,	
$\text{Fe}_2\text{F}_4(\text{g})$,	
$\text{Fe}_2\text{F}_6(\text{g})$,	
$\text{FeCl}_3(\text{c, l, g})$,	
$\text{FeBr}_3(\text{c, l, g})$,	
$\text{FeI}_3(\text{c, l, g})$,	

$\text{Fe(NH}_4)_2(\text{SO}_4)_2(\text{c})$,

For solutions:

$\text{Fe}^{2+}(\text{aq})$,
 $\text{Fe}^{3+}(\text{aq})$, and

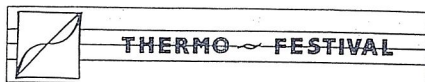
for the systems:

Fe-Cr, Fe-Ni, Fe-O, Fe-S, Fe-C, Fe-N, Fe-Si, Fe-P.

The Task Group will welcome reports of measurements that should be considered in the construction of the tables. These should be sent to: Dr. Howard J. White, Jr., Chairman, Physics Bldg., Room A316, National Bureau of Standards, Gaithersburg, MD, 20899.



TGCTT takes photo-break at Grenoble. (l to r: seated: Garvin, Parker, Wagman; mid-row: Gurvich, Rand, Ansara; rear row: White, Pedley, Westrum.)



Henry Kehiaian and a highly organized team comprising, (wife, son, and son's fiancée), the CODATA Secretariat's Mme. Glaeser, ITODY's staff, aides, and collaborators too numerous to enumerate, provided and survived a dramatic, effective, and productive, trifurcated, thermodynamics series in Paris August through September. Of course, until



Henry Kehiaian, organizer (ITODYS).

the final report is compiled and disseminated, even many of the nearly 250 participants may not fully appreciate the achievement of the closely coordinated and well integrated series of three meetings on vapor-liquid equilibrium, phase equilibrium in multicomponent systems, as well as presentations and demonstrations, involving many thermo-physical and thermochemical data bases.



Jacques Dubois (Paris) chairs Session, Meeting 2.

Some appreciation for the scientific scope of the meeting can be garnered from the four circulars programmed plus 1554 pages of abstracts of the presentation. In addition, many (closed) working parties deliberated on the presentations and developed reports and decisions, in turn shared with the participants,

(continued on page 8)

Academia Sinica's Database Project

Computerized informational services are presently quite weak in Academia Sinica (Chinese Academy of Sciences) at a time when the quantity of scientific information and number of its users are being dramatically increased. Like others, the Academy has difficulties in providing scientific information to users promptly and efficiently.

Having recognized the urgency of solving this problem, the Chinese Government has established the "Scientific Databases and Information Service System of Academia Sinica" as one of the National Key Projects for the period of 1986-90.

Academia Sinica is a unique scientific institution in China with more than 120 research institutes and total staff of 80,000. It is China's largest comprehensive research center in natural sciences. Its research work covers, both extensively and intensively, almost all the disciplines of astronomy, earth sciences, biosciences, mathematical science and physical science. It is also engaged very actively in the research and development of new technologies and many multi-disciplinary projects. Much of its work is recognized by the international scientific community, and agricultural productions.

The following four goals are expected to be achieved in the 1988-90 biennium:

- to establish a scientific information system, providing on-line database services of many types to all the research institutions, universities and colleges, industries and agricultural departments of the country--particularly those in Beijing area--through its communication networks and the national civil communication net.

- to create about 20 databases, mostly numeric--but with documental and managerial databases also included--covering primarily the areas of chemistry, physics, and biosciences. Typical databases include: "Chemical Engineering Data", "Naming and Structure of Chemicals", "Chinese Bioscience Documents", "Bio-technological Data" and "Physical and Chemical Data of Applied Materials", etc. The total capacity of these databases for the on-line computer services before 1990 will be around 15,000 megabytes.

- to build up Academia's "Scientific Databases Service Center" in the north-western suburbs of Beijing city, where the density of the country's research institutions and universities is very high. This institution will be responsible for organizing, coordinating, and administering the establishment of computerized information systems of various kinds at different research institutes affiliated with the Academy. And with a large computer system and

all the necessary devices for services and networking, the institution will also function as the service center of the Academy's information system as a whole and control center for the operation of the system's communication networks.

- to consider common needs for scientific and technical information by the international societies. With the "Database Center" as the "window" and the leading body, the Project will either during or after its construction, actively seek technical collaboration and information exchanges with related institutions outside of China, and will make efforts in realizing resource sharing with other countries by its international online services around 1988.

When the Project is completed, it will become China's largest information system in natural sciences. Supported by Academia's research work and advanced facilities, providing many types of information produced both domestic and abroad in most areas of science to the vast groups of users in the country, it will surely play a very positive role in promoting China's economic development and make its due contributions to the advancement of mankind as a whole.

CODATA FRANCE "Journée d'étude"

Organized by the CODATA FRANCE Committee, the "Study Day" provides an opportunity to become acquainted with the state of the art developments on data banks in chemistry, physicochemistry, geology, biological, material science on artificial intelligence, on new technologies and on political and international aspects, and on transmission and diffusion of information.

The meeting will be held 22 November 1985, at the CNRS Salle de Conférence, 15 quai A. France, 75007 Paris. Details on participation and program are available from: Bernard Marx, DBMIST/MEN, 3, Boulevard Pasteur-75015 PARIS. Tel: (1)4539 2575 P. 30.97

2nd Intl. Symposium on Spatial Data Handling

The Second Symposium, organized under the sponsorship of the Commission on Geographical Data Sensing and Processing of the International Geographical Union, the International Cartographic Association and several other professional organizations, will be held in Seattle, Washington, U.S.A., on July 6-10, 1986. These meetings will be devoted to the in-depth exploration of scientific topics associated with the computer processing of map-type or spatial data.

CODATA Workshop on Internationally Compatible Environmental Data

A CODATA-sponsored workshop at McGill University, Montreal, Canada, 19-23 May 1986, on Directions for Internationally Compatible Environmental Data will provide a forum for 100 selected participants with various backgrounds and interests.

Leaders, planners, and legislators, of today and the future, require well-documented, internationally compatible data for selected, geographically delineated areas of the world. This need is reflected, for example, in programs such as the ICSU "Program on Global Change" and the UN program "Man and the Biosphere." If changes are to be discerned in the future, baseline data should be measured now.

The prime objective of environmental data collection is for the assessment of environmental changes. Data compatibility--both across political boundaries and in time series--is necessary to meet this objective.

The workshop is convened to stimulate international discussion towards data compatibility through international agreements on standard data measurement, recording and handling methods. This workshop will draw from the existing framework of standards and environmental organizations and current body of data. It will bring together experts from measurement laboratories, international environmental programs, technical standards organizations, data and statistics programs, and, importantly, some of the key data users such as those doing model predictions, as well as those involved in more practical environmental problem areas--especially of internationally shared resources. Acid precipitation, the CO₂ issue and chemical contamination are examples.

The Keynote Address "will be given by Ichtaque Rasool (currently from France) who is chairman of a study group conducted by the ICSU Committee on Space Research (COSPAR) regarding data needs for the ICSU "International Geosphere-Biosphere Program: A Study of Global Change." The Workshop Address, by Nicole West (France), will review international measurement standards programs.

Four main topics encompass biological aspects providing indication of pollutants in ecosystems. A Chairman (assisted by a Rapporteur) and a Presenter of a Position Paper (PPP) have been selected for each.

Air: Chm. H.W. Georgii (Frankfurt); PPP, R. Jaenicke (Mainz).

Water: Chm. P. Packman (Medmenham); PPP, E. Hamilton (Tallest, Florida).

Soil: Chm. H.G. Gyllenberg (Helsinki); PPP, D.S. Barth (Las Vegas).

Data Management: Chm. Ted (R.E.) Munn (Laxenburg); PPP, D.L. Massart (Brussels) (tentative).

Discussion subgroups will enhance presentation of participants' views and attainment of the objectives involving assessment:

- of the current status and projected needs of measurement standards and methods for air, water, and soil environments.

- of the current status and projected needs for databanks, and for efficient dissemination of environmental data.

- of the current status and projected needs for background measurements and global monitoring.

The source of data incompatibility often lies with data measurement rather than management. The workshop will address standards for sampling design and methods, taking, storing, and preparing samples, analytical methods, reference and calibration material, data reporting, and units and nomenclature where appropriate. It will attempt to assess a need for standards aimed at specific environmental programs, such as those carried out under the UN, or regional international programs.

In order to achieve dialog with these generators, data management experts, and the targeted international data users, representatives are being invited from international environmental programs such as SCOPE and COSPAR (ICSU), UNEP, OECD, and WHO, as well as standards programs such as ISO. Additionally, representatives of relevant national organizations dealing with the same issues, and often acting as the national interfaces with international bodies, will participate.

Further information can be obtained from either Michel Martin-Bouyer, Chairman, Université de Chambéry, P.O. Box 1104, 73011 Chambéry, France, or G.C. Carter, Numerical Data Advisory Board, National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418. Both are members of the Organizing Committee.

Wm. H. Evans - Expert Evaluator

William Harrington Evans, 64, CODATA participant and retired thermodynamicist at the National Bureau of Standards, died June 24, 1985 in Washington, D.C., after surgery complicated by arteriosclerotic cardiovascular problems and diabetes.

Dr. Evans joined the National Bureau of Standards (NBS) in July 1947, where he specialized in the analysis and evaluation of chemical thermodynamic data until his retirement in 1977. He co-authored the widely used reference works NBS Circular 500, "Selected Values of Chemical Thermodynamic Properties" (1982). In 1976, he was awarded the U.S. Department of Commerce Silver Medal for his innovative application of



computers to the processing, storage, and retrieval of chemical thermodynamic data.

He served as a principal consultant to the international CODATA Task Group on Key Values for Thermodynamics from the time of its inception in 1968. After his retirement in 1977, Dr. Evans continued to serve in these capacities and as a consultant to the Chemical Thermodynamics Data Center at NBS until his death. For fifteen years he was a major contributor and then associate editor of the annual Bulletin of Chemical Thermodynamics.

Dr. Evans pioneered in the development of the automated systems currently used at NBS to sort and organize thermodynamic data by chemical formula or by property, and to retrieve and print these data as camera-ready copy. The present format of the Bulletin of Chemical Thermodynamics is a true monument to his ingenuity and industry.

Dr. Evans developed methods for calculation of thermal functions of gaseous molecules from spectroscopic and molecular data and resulting computer programs that he wrote (which are currently in use in many other scientific laboratories) illustrate his devotion to careful analysis and scientific rigor. He was a quiet, unassuming individual, but a creative and effective critical analyst.

Dr. Evans had a broad knowledge of the literature of chemistry and physics. He was especially skilled in the evaluation and analysis of scientific articles, and his fantastic and non-fading photographic memory made him a tremendous source of information on the details of results contained in the chemical

(continued on page 7)

The Editor, CODATA Newsletter

Sir,

I have read with delight in the July 1985 issue the lively article by the Executive Secretary about the Hôtel de Noailles and Auteuil and was fascinated to learn about the manifold literary, artistic, theatrical, engineering and musical connexions of that cosy village. As regards the latter, while it is just possible that one of the ancestors of Giacomo Puccini of *Bohème*, *Butterfly*, *Tosca* etc. fame (who descended from 5 generations of musicians) lies buried in Auteuil, I suggest that the composer was Piccini who indeed spent the end of his life in Auteuil where he died in 1800.

I was however surprised that no mention was made of one of the truly great "multidisciplinary", "interdisciplinary" and "international" scientists—also a statesman, politician, soldier, social "reformer", philanderer etc. who, having married Lavoisier's widow spent the last 12 years of his life in Auteuil and lies buried there. The inscription on his tombstone reads: "A la mémoire de Benjamin Thompson, Comte de Rumford, né en 1753 Woburn près Boston en Amérique, mort 21 Aout 1814. EN BAVIERE Lieutenant Général, Chef de l'Etat Major Général, Conseiller d'Etat, Ministre de la Guerre—EN FRANCE Membre de l'Institut, Académie des Sciences.

Who was this remarkable man? An English "colonial", native of the commonwealth of Massachusetts, who during the War of Independence was a loyalist, a spy to the Governor of Massachusetts, Colonel of the "King's American Dragoons"—and who eventually came to be regarded as one of the greatest Americans! He spent most of his life partly in Munich where he created the "English Garden", established work-houses to make the numerous beggars work, feeding them on "Rumfordsche Suppe" (1000 calories per day) and where he became a Count of the Holy Roman Empire; and founded the Royal Institution of Great Britain. His scientific work was wide-ranging. With his canon-boring experiments he demolished the caloric theory of heat, he was the originator of the concept of the propagation of heat by convection, he applied physical principles to the heating and ventilation of buildings. A 300 page long essay deals with kitchen fireplaces and utensils and makes observations relating to the "Most Useful Art" cookery and a mouth-watering article of 40 pages extolls "The Excellent Qualities of Coffee and the Art of Making it to Perfection". Count Rumford was a true polymath and anyone interested in his turbulent life should read the biography by the late Sanborn ("Sandy") C. Brown of M.I.T., a noted plasma-physicist.

May I finally mention an obvious misprint - I feel sure that Phyllis Glaeser must have meant "Auteuil, pronounced as in *fauteuil*" rather than "pronounced *fauteuil*". However this gives me the excuse to retell the 50 year old story about the refugee from Central Europe who feeling depressed by the illogical English spelling and pronunciation sees on his arrival in London a poster advertising Noel Coward's musical: "CAVALCADE—pronounced success" and commits suicide.

Yours faithfully,

N. Kurti.

SECRETARIAT TELEPHONE NUMBER INCREMENTED

A new digit has been added to Parisian telephone numbers. The 525 is changed to 4525. Hence, the new CODATA Secretariat number is 4525-0496.

CODATA CALENDAR . . .

1985

November

- 7-9 Task Group on Referral Database. Paris, France.
- 22 CODDATA FRANCE, Paris, France.(see page 4)

December

- 9-11 Task Group on Hybridoma Data Bank. Nice, France.

1986

January

- 30 USNC-CODATA, Washington, DC, U.S.A.
- 31 NDAB, Washington, DC, U.S.A.

February

- 6-8 CODATA Executive Committee Meeting. Paris, France.

March

- (---) CODATA Task Group on Geothermodynamic Tables. Ann Arbor, Michigan, U.S.A. (tentative)

May

- 18-23 CODATA Workshop on Internationally Compatible Environmental Data. McGill University, Montreal, Canada.

July

- 14-18 10th International CODATA Conference. Ottawa, Canada.
- 18-19 15th CODATA General Assembly. Ottawa, Canada.

1988

September

- 19-22 11th International CODATA conference and 16th General Assembly (tentative). F.R.G.

It's Proposal Season

Readers of the Newsletter are welcome to propose projects and the establishment of CODATA Task Groups. Such suggestions should be made to the Secretary General, Dr. David R. Lide, Jr., Office of Standard Reference Data, National Bureau of Standards, A 321 Physics Building, Gaithersburg, MD, 20899, by 30 November, 1985, in writing for the consideration of the Executive Committee meeting in Paris, 6-8 February, 1986 and the subsequent General Assembly in Ottawa, July, 1986. Make the proposals as specific as possible and list the tangible results sought.

The Executive Committee considers the following types of activities:

- Computerized data management, including: standards and guidelines for the structure of data files, consultation on data base management systems, research on new techniques for analysis or manipulation of data files.

- Preparation of computer-searchable directories to data sources.

- Joint scientific projects with ICSU Unions and other bodies.

- Projects in which CODATA serves a coordinating role for a set of operational data projects.

- Pilot projects managed by CODATA (analogous to the Hybridoma and Monoclonal Antibodies Data Bank).

New CODATA Publications . . . *

Fundamental Physical Constants, Physicochemical Property and Phase Equilibrium Data. Edited by Andrzej M. Szafranski and Jack H. Westbrook.^a

Computer Science and Data Banks. Edited by Zdzislaw S. Hippe and Jacques-Emile Dubois.^b

The Role of Data in Scientific Progress. (Proceedings of the Ninth International CODATA Conference, Jerusalem, Israel, 24-28 June 1984). Edited by Phyllis S. Glaeser.^c

Books for the Bookshelf . . .

Thermodynamic Data for Mineral Technology.^d

Enthalpies of Vaporization of Organic Compounds A Critical Review and Data Compilation. Chemical Data Series No. 32. Edited by V. Majer and V. Svoboda.^e

Handbook of Thermodynamic and Transport Properties of Alkali Metals. Chemical Data Series No. 30. Edited by Roland W. Ohse.^f

Handbook of Data on Organic Compounds. Edited by Robert C. Weast.^g

An Interactive Environment for Data Analysis and Graphics. Richard A. Becker and John M. Chambers.^h

Graphical Methods for Data Analysis. John M. Chambers, William S. Cleveland, Beat Kleiner, Paul A. Tukey.ⁱ

The Elements of Graphing Data. William S. Cleveland.^j

Interim Report on Quality Assurance to the Environmental Protection Agency.^k

Information Technologies & Social Transformation. Edited by Bruce R. Guile.^l

*Further details on content, identification, price, source, etc. for above items (if available) are referenced below.

(Evans, continued from page 5)

thermodynamic literature. He was usually able to provide a ready response to questions without having to "look it up" or asking the requester to call back later. During his many years at NBS, Dr. Evans trained many young scientists in the skills of data evaluation, some of these scientists now form the core of the present Data Center at NBS.

Dr. Evans was born February 26, 1921 in Salem, Oregon, the son of William David and Sibyl Harrington Evans. After graduation in chemistry, physics, and mathematics from Willamette University (B.A., 1942), he attended Graduate School at Iowa State University (1942-44). After a brief period of employment at the U.S. Naval Ordnance Laboratory, Washington, D.C., he returned to graduate study under Professor E.C. Gilbert at Oregon State College, and was awarded the Ph.D. in 1947. His professional memberships included the honorary scientific society, Sigma Xi, the American Chemical Society, and the American Physical Society.

An avid devotee of science fiction, Dr. Evans was a member of "First Fandom", an organization of SF fans who started reading or collecting science fiction before January 1, 1938.

Dr. Evans co-edited two books in the science-fiction field: "The Worlds of E.E. Smith" with the late Ron Ellis and "The Index of Science Fiction Fanzines" with the late Robert K. Pavlat.

A man of many interests, Dr. Evans was a philatelist, numismatist, a book and record collector, a railroad buff, a lover of classical, operatic, Dixieland jazz, and folk music and of the theatre. He was interested in art prints and paintings with a special interest in American Indian arts and crafts. He was a member of the Washington Performing Arts Society, the American Civil Liberties Union, the Audubon Naturalist Society of the Central Atlantic States, The Nuclear Freeze Campaign of Maryland, SANE, and the Smithsonian Resident Associate Program.

Survivors include his wife, Buddie Jacoby Evans, two daughters: Toni Dwight of Bentonville, Arkansas and Peggy Rae Pavlat of College Park, Md., four grandchildren and two great grandchildren.

a. Fundamental Physical Constants and Standard Reference Data, Physicochemical Property Data, and Phase Equilibria. 1983, 1st edition, 16.5 x 24 cm, xiv + ca. 300 pp., ca. 60 figs. ISBN-93-00-00891-8. Order from the CODATA Secretariat.

b. Trends and Methodology in Data Handling, Organization of Data Banks in USSR and Poland, Design and Processing Operations in Databases, Specialized Data Banks, and Computer Aided Design in Organic Synthesis. 1984, 1st edition, 16.5 x 24 cm, xii + 194 pp. ISBN-83-00-00890-x. Order from the CODATA Secretariat.

c. 1985. Elsevier Science Publishers B.V. (North-Holland), P.O. Box 1991, 1000 BZ Amsterdam, The Netherlands; Elsevier Science Publishing Company, Inc., 52 Vanderbilt Avenue, New York, N.Y., 10017, U.S.A. 549 pp. ISBN-0-444-87703-7.

d. U.S. Bureau of Mines, Superintendent of Documents, U.S. Government Printing House, Washington, D.C., 1984. 360 pp. Cloth, \$16.00. S/N-024-004-02141-1.

e. This databook results from a project of the IUPAC Physical Chemistry Division Commission on Thermodynamic's, Subcommittee on Thermodynamic Tables whose members are: H.V. Kehiaian (France) Chairman, H.J. White, Jr. (USA) Secretary, S. Angus (UK), F. Kohler (FRG), S. Malanowski (Poland), K.N. Marsh (USA), W.A. Wakeham (UK), K. Watanabe (Japan). The project collected and critically evaluated all calorimetrically determined data on the enthalpy of vaporization, ΔH_v , of organic compounds to generate a set of recommended values and to evaluate standard enthalpies of vaporization and cohe-

sive energies. Autumn 1985. 320 pages. USA about \$38.00. Pergamon Press, London. ISBN-0-632-01529-2.

f. This Handbook summarizes and assesses the available data and provides both the practicing engineer and basic research worker with a comprehensive survey of current knowledge on structural thermodynamic and transport properties of alkali metals.

1985. 1020 pages. USA \$120.00. Pergamon Press, London. ISBN-0-632-01447-4.

g. A compilation of data on approximately 24,000 organic compounds, presented in a number of useful formats. Volumes I and II contain an alphabetical listing of compounds, giving the following information, where applicable, for each: common names and synonyms, melting and boiling point, molecular formula and weight, line formula, refractive index, density, color, crystalline form, specific rotation, and solubility (greater than 10%). Since Beilstein and CAS numbers are given wherever possible, these references will also serve as a means to more in-depth research. In addition, Volume II contains separate tables which group the compounds by melting point, boiling point, empirical formula, and structural formula. A separate table lists the infrared, UV, NMR, and mass spectroscopy reference numbers for major sources of curves and other spectroscopic data. Due 1985. 2000 pp. 2 volume set, 7.5 x 10. CRC Press Inc., 2000 Corporate Blvd. N.W., Boca Raton, FL. U.S. \$200.00/Outside U.S. \$230.00. ISBN-0-8493-0400-8.

h. A volume in the Wadsworth Statistics/Probability Series. The 1984 edition of this manual provides documentation for users of the statistical software system S.

1984. 576 pp., \$24.95 paper. Wadsworth Advanced Books & Software, 555 Abrego St., Monterey, CA 93940. ISBN-0-534-03313-X LC 84-3654.

i. A volume in the Wadsworth Statistics/Probability Series. This book presents graphical methods for analyzing data. The material is relevant for applications in physics, chemistry, business, economics, psychology, sociology, medicine, biology, quality control, engineering, education, and any other area in which there is data to be analyzed. 1983. 395 pp. cloth, \$28.95. Wadsworth Advanced Books & Software, 555 Abrego St., Monterey, Ca 93940. ISBN-0-534-98052-X LC 83-3660.

j. The goal of this book is to improve graphical communication in science, technology, and business. The author, one of the leading developers of graphical methods for data analysis and presentation, describes and illustrates many graphical methods, and sets out the fundamentals of graphical perception. The graphical methods provide a wide variety of types of graphs. 1983. 350 pp. (est) Wadsworth Advanced Books & Software, 555 Abrego St. Monterey, Ca 93940. Cloth, \$27.95. ISBN-0-534-03729-1. Paper, \$18.95. ISBN-0-534-03730-5.

k. The purpose of data. The rules of quality control and quality assurance in EPA. National Academy Press, Washington, D.C., (1985).

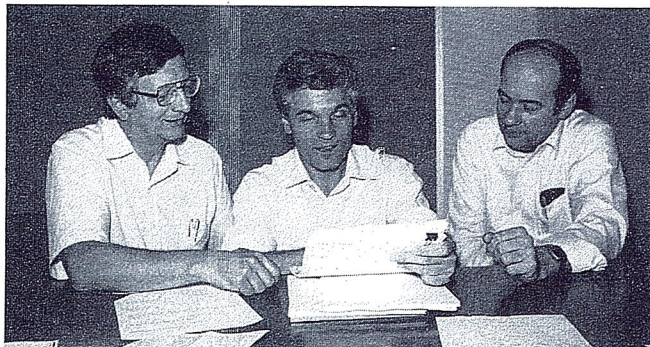
Available from Numerical Data Advisory Board, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C., 20418.

l. National Academy Press. PB Book, viii + 173 pp. ISBN-0-309-03529-5.

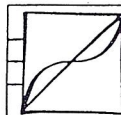
Geothermodynamic Data Meeting

Progress on formulation of guidelines for prototype geothermodynamic tables on minerals and mineral forming substance occupied the participants from the Task Group on Geothermodynamic Data, in mid-August at the United States Geological Survey, Reston, Virginia. Differences in user needs, and tabulation modes were of most concern to the group. Hence, recommendations concerning presentation of thermodynamic properties of aqueous solutions, magmas, and solid solution are paramount.

The guidelines intended to provide input from the community will probably be ready for dissemination by early 1986. Interested geoscientists are urged to indicate their willingness to provide comment and should contact either the chairman of the committee, Professor Igor L. Khodakovsky, Vernadsky Institute of Geochemistry and Analytical Chemistry, USSR Academy of Sciences, Kosygin Street, 19, Moscow 117 334, USSR or the Newsletter Editor.

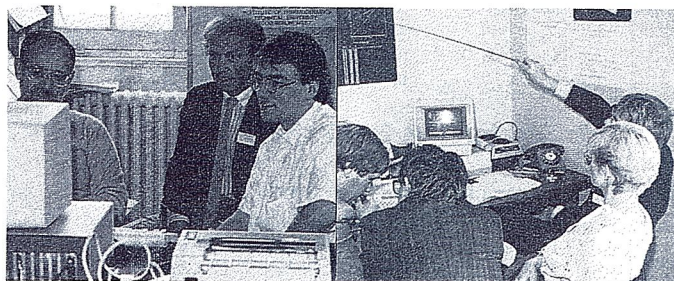


Three members of TGGTD (l to r: Staples, Khodakovsky, and Hemingway) debate the fine details of curve fitting thermodynamic data at Reston.



THERMO FESTIVAL

(Festival, continued from page 4)



Thermodynamics Databases demonstrated for interested participants at all hours.

and eventually with other interested bodies. Social programs were not neglected; time to eat was often not programmed. All in all it was a remarkable precedent in a computer-organized French meeting.

For the benefit of those who were unable to participate, at least two publications will be available on the meeting. First, a special issue of Fluid Phase Equilibria early 1986, will incorporate papers from Meeting No. 1 on Vapor - Liquid - Equilibrium and No. 3 on Critical Evaluation and Prediction of Phase Equilibrium in Multicomponent Systems edited by Professor H. Renon. Second, a special issue of the CODATA Bulletin will detail the discussion on thermodynamic and thermophysical databases.

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Published four times per year (January, April, July, and October)

Associate Editor: Phyllis Glaeser

CODATA Secretariat, 51 Blvd. de Montmorency,
75016 Paris, France

Telephone: 4525-0496 / Cables: ICSU Paris 016/ Telex: 630553

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