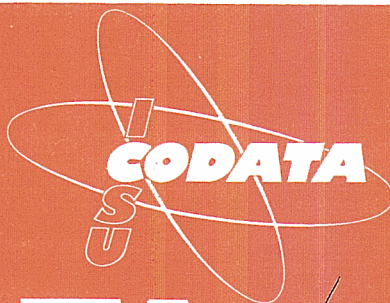


INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS
COMMITTEE ON DATA FOR SCIENCE AND TECHNOLOGY



15 CODATA / NEWSLETTER

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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 international,
interdisciplinary basis,
CODATA seeks to improve
the quality, reliability and
accessibility of data of
importance to science and
technology.*

INTERNATIONAL UNION OF CRYSTALLOGRAPHY

The International Union of Crystallography held its 10th General Assembly and Congress in Amsterdam 7-15th August, 1975. Various items of interest to CODATA were discussed and these are summarised below: -

1. List of Current Information Activities

During 1972-75 a Working Party on Information Services conducted a study of the information resources and needs of the crystallographic community. As part of this study a list of existing resources was compiled and it is hoped to publish this in compact form in a Union publication. This list will form a substantial part of the material being collected for the first "chapter" of the updated CODATA Directory of Data Sources for Science and Technology.

2. Check List for Editors of non-IUCr Journals

Over the years the IUCr, through its Commissions on Data and Journals, has issued check lists or recommendations to assist the authors of primary papers. These were cited in the CODATA Bulletin No. 9, "Presentation of Data in the Primary Literature of Numerical Data Derived from Experiments". In addition a few other leading journals have issued guidelines. The Data Commission has assigned to Dr. I. D. Brown (Canada) the task of reviewing these various documents and attempting to produce a paper which embodies the best features of each. This could then, hopefully, be circulated to editors of non-IUCr journals and be used by them to improve and standardise the presentation of crystallographic data.

3. World Directory of Crystallographers

During 1972-75 efforts had been made to find an economic way of setting up a machine-readable file of names and addresses etc. of crystallographers, with a view to producing a new edition of the World Directory. It seems likely that this project will now go ahead.

4. Production Methods for Union Journals

An extensive survey has been carried out by Prof. R. A. Young (USA), Dr. J.N. King (UK), Dr. D.G. Watson (UK) of the various methods of typesetting of journals. This study was prompted by the need to compare costs of the various methods.

5. Inorganic Structural Data Files

Whereas the field of organic structural data is systematically covered by the Cambridge Crystallographic Data Centre, the field of inorganic structural data is very segmented. A number of files are reasonably well-known but there is considerable overlap and there could well be important gaps in the coverage. The Data Commission has undertaken to investigate this problem and to obtain details of these various files in time for the next meeting of the European Crystallographic Association (Zurich, September 1976). It is hoped that it will be possible to rationalise the situation and devise a suitable interchange format. This latter problem is very important since it seems unlikely that a single world centre for this file will be established.

6. Data Commission Membership

At the 10th General Assembly the following persons were elected to serve on the Commission for Crystallographic Data:

Dr. R. Allmann
FB Geowissenschaften
Lahnberge
D 355 Marburg
German Federal Republic

Dr. G.C. Bassi (ex-officio)
Département de Recherches Fondamentales CPN
Centre d'Etudes Nucléaires de Grenoble
B.P. No. 85
38041 Grenoble Cédex
France

Dr. G. Bergerhoff
Anorg. Chem. Inst.
D 53 Bonn
Max-Planck-Str.
German Federal Republic

Dr. I.D. Brown
Institute for Materials Research
McMaster University
Hamilton, Ontario
Canada

Prof. G.G. Johnson, Jr.
164 Materials Research Laboratory
Pennsylvania State University
University Park, Pennsylvania 16802
USA

Dr. A.D. Mighell
Institute for Materials Research
National Bureau of Standards
Washington, D.C. 20234
USA

Prof. M. Nardelli
Istituto di Chimica Generale della Università di Parma
Via M. D'Azeglio 85
43100 Parma
Italy

Dr. E. Parthé
Laboratoire de Cristallographie aux Rayons X
University of Geneva
32 Boulevard D'Yvoy
CH 1211 Geneva 4
Switzerland

Dr. N.L. Smirnova
Moscow State University
Geological Department
Leninskiye Gory
Moscow
USSR

Prof. J. Trotter (ex-officio)
Department of Chemistry
University of British Columbia
Vancouver, B.C. V6T 1W5
Canada

Dr. D.G. Watson (Chairman)
University Chemical Laboratory
Lensfield Road
Cambridge CB2 1EW
England

Prof. A.J.C. Wilson (ex-officio)
Department of Physics
University of Birmingham
Birmingham B15 2TT
England

David G. Watson
IUCr Delegate to CODATA

CODATA/UNISIST INTERNATIONAL TRAINING COURSES IN THE HANDLING OF EXPERIMENTAL DATA

As a joint effort of CODATA and UNESCO, and in co-operation with the Yugoslav government, two one-week international summer courses (August 9-13 and August 16-20, 1976) on the handling of experimental data will be held at the University of Zagreb.

The objectives of the courses are twofold. Firstly, participants will be informed of the most recent developments in the statistical design of experiments and the analysis of data primarily in the fields of physics and chemistry. Secondly, they will be introduced to the services offered by those data centers established for the critical evaluation of data. These courses are directed to university teachers and scientists who through these courses could further promote this newly acquired knowledge.

The following main topics will be emphasized:

1. Importance of Critically Evaluated Data
2. Treatment of Experimental Data
3. Critical Evaluation of Data

4. Sources of Evaluated Data and Presentation of Data in the Primary Literature

A distinguished panel of internationally-known speakers has been arranged, composed of persons who have been selected not only for their expertise in the area, but also for their ability to communicate this information to others.

Teaching material will be distributed which will eventually form the basis for a book on this important subject of evaluation of experimental data.

Some of the participants will be offered, upon their application, financial support for travel and subsistence. Formal application forms (available until March 1, 1976) can be requested by writing to:

CODATA Secretariat
51 Boulevard de Montmorency
75016 PARIS
France

Professor Karl Egle, a botanist of world-renown, and Secretary-Treasurer of CODATA 1972-1974, died on the 26th October 1975 at the age of 63.

After studying in Heidelberg he went to Frankfurt in 1939 and apart from the period 1953-1959 when he was Professor in Hamburg, his life and work were centered in Frankfurt. He was largely responsible for reestablishing there after the war the teaching of botany and took a prominent part in the planning of the Biology Complex of the University of Frankfurt including the "Botanisches Institut" to which he returned in 1959.

His research covered many aspects of photochemistry, e.g. photosynthesis, chloroplast fluorescence, etc., but he was also a practicing botanist to the core. The Frankfurt Botanical Gardens, of which he was Director from 1959 till his death, owes much to his enthusiastic and efficient guardianship.

Professor Egle became Secretary-Treasurer of CODATA at a time when two major events occurred in our organization, namely the expansion of the scope of our activities to include Life and Earth sciences, and the transfer of the office from Frankfurt to Paris. His vast knowledge and his interest in data was a great help in formulating our new interests, while the smooth transfer of the Secretariat owed much to his political acumen, tact and understanding.

He was a man of great personal charm and warm humanity and with his death, the world has lost a distinguished scientist, CODATA a devoted past-officer, and his colleagues all over the world a trusted and much loved friend.

N. Kurti

DATA BANK DEMONSTRATIONS

An interesting and somewhat unusual feature of the Xth International Congress of Crystallography held in Amsterdam (August 7-15th 1975) was a variety of on-line demonstrations of searching crystallographic data files. The demonstrations, which were held through the period of the Congress and were linked with poster exhibits, attracted a large number of participants, who used the facilities provided both for experimenting with the various systems and obtaining answers to real queries related to their own researches.

The U.S. National Bureau of Standards took this opportunity to announce the general availability of the "Crystal Data File" on magnetic tape. The tape contains data for about 24,000 crystalline compounds selected from the NSRDS publication "Crystal Data Determinative Tables", 3rd Edition (J.D.H. Donnay, H.M. Ondik, 1972, 1973). For the purposes of the Congress demonstration the files were stored on two UNIVAC 1110 computers, one in London at the European division of SPERRY UNIVAC and the other at the Hague headquarters of SHELL International. The computers were accessed over commercial telephone lines.

The files were searched by a subsystem of a general purpose data management system, TODARC, developed at the NBS Office of Standard Reference Data by Joseph Hilsenrath and Bettijoyce Breen Molino. The search system is user-oriented and requires the minimum of prior information for effective use. The user interacts with the system and acquires information about it as the search progresses. Amongst the number of search options provided, a very popular one proved to be the BROWSE module which provided the user an easy introduction by browsing through the file one data vector at a time.

Access to the files of the Cambridge Crystallographic Data Centre was provided by two different routes em-

ploying different search strategies. Mr. R.J. Feldmann of the U.S. National Institutes of Health demonstrated his fully interactive search system, based on inverted files. The tapes were stored on a PDP 10 computer at Wageningen Agricultural College which was linked to a Tektronix visual display unit. Various aspects of the system including substructure searches based on the available crystallographic connectivity tables were demonstrated. Here the fragment diagram is built up on the screen according to the user's requirements and the connectivity tables are then scanned to match this fragment.

The Centre itself demonstrated a sequential bibliographic search package designed for use on a variety of computers. At the Congress, the Amsterdam University's CDC 6600 computer was made available through a terminal complete with a 120 character line printer so that the search results could be distributed as hard copy. The bibliographic files used for the demonstration were specially created from the main files to incorporate the results of check procedures on the numeric data corresponding to each bibliographic entry. Interest and usage of both systems was well sustained throughout the Congress and over 200 searches were run.

Mr. Feldmann also demonstrated the Global Protein Atlas on microfiche. This Atlas contains information on over 50 proteins. For each protein both text and illustrations are provided with the graphics derived directly from stored coordinates.

As a part of the Crystallographic Data Centre's demonstration, a variety of manual indexes and listings were made available to the Congress participants, including a keyword in context (KWIC) compound name index. This gave users an opportunity of comparing manual and automated methods and to get a feel of the type of search questions for which one or other of these methods is best suited.

MASS SPECTRAL AND CRYSTALLOGRAPHIC DATA AVAILABLE ON MAGNETIC TAPE

Two data tapes have recently been released through the National Bureau of Standards Magnetic Tape Series. These are:

NBS Magnetic Tape 8 - EPA/NIH Mass Spectral Data Base, 1975 Edition, by Stephen R. Heller, Henry M. Fales and G.W.A. Milne (price \$500).

and

NBS Magnetic Tape 9 - Crystal Data Tape Derived from the Third Edition of Crystal Data Tables, by H.M. Ondik and A.D. Mighell (lease price \$1,000).

The former tape contains about 11,300 mass spectra which constitute a part of the data base of the Mass Spectral Search System, an on-line system available on yearly subscription. The data on the tape include

molecular weight, formula, conditions under which the spectrum was generated, and the actual spectral data.

The Crystal Data Tape presents selected data from the Third Edition of the Crystal Data Determinative Tables, by J.D.H. Donnay and H.M. Ondik. The tape contains data for about 24,000 crystalline compounds, both organic and inorganic. These data include lattice parameters, space groups, density, determinative ratio and formula.

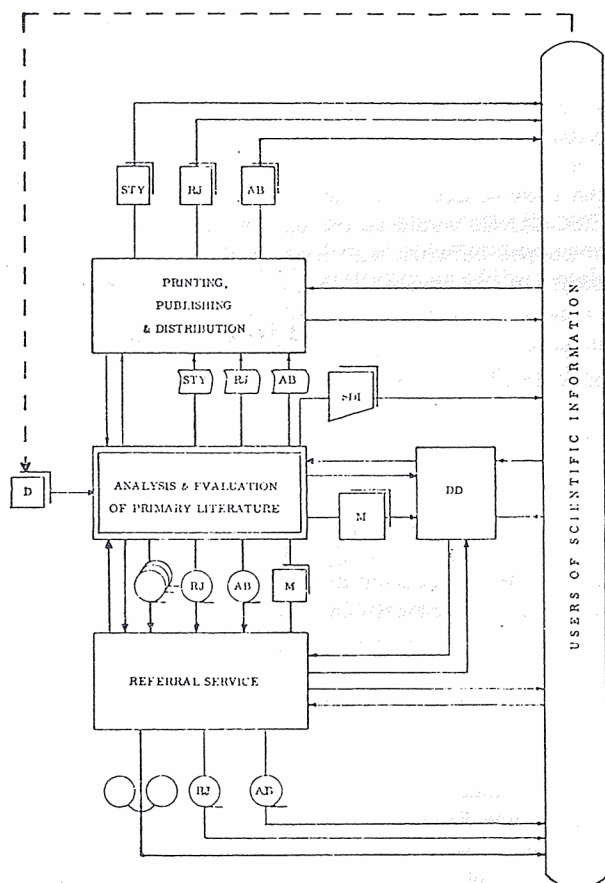
These tapes are available in various formats from:

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161 U.S.A.

U.S.S.R. ANNOUNCES NEW COMPUTERIZED INFORMATION RETRIEVAL PROJECT

VINITI (the Soviet State Institute for Scientific and Technological Information) has announced its assigned task of putting into operation a project for a new automatic reference information system for science and technology called ASSISTENT. Capable of storing 2.5 million articles annually, ASSISTENT's utility was exposed at the Presidium of the Soviet Academy of Science in March 1975 where it was stated that, in 1974, there were more than one million scientific and technological articles being published each year and where it was predicted that this figure would reach two million by 1985.

The system using the ES-1050 and Digiset 50T-1 bases, would be designed to provide full analysis, indexation and eventually multidirectional utilization by member countries of the Council for Mutual Economic Assistance. Direct on-line search is envisaged although the sites for the location of ASSISTENT have not yet been determined.



AB = Abstracts Bulletins
D = Documents
DD = Documents Distribution
M = Microfilm and Microfiches
RJ = Reference Journals
SDI = Selective Dissemination of Information
STY = Scientific & Technological Yearbooks

NEW PERIODICAL

The All-Union Scientific-Research Center of the State Service of Standard Information Data, in conjunction with the Soviet National Committee for the Collection and Assessment of Numerical Data in the Field of Science and Technology of the Presidium of the USSR Academy of Sciences, began the publication of 'INFORMATSIONNYY BYULLETEN' of the GSSSD (Information Bulletin of the State Service of Standard Information Data). The bulletin, under the editorship of Professor V.V. Sytchev, will illuminate problems connected with obtaining and disseminating reliable data on the physical constants and properties of substances and materials -- information on the study of the requirements of various scientific and technological sectors for standard information data -- on scientific programs for the elaboration, assessment, and certification of data, and on automated information systems for the storage and distribution of data. The bulletin will carry methodological materials on the organization of GSSSD functioning, on the assessment and certification of data, on the submission of data for information literature, and so forth. Significant attention will be devoted to information announcements on new books and magazines. The pages of the bulletin will express the activity of international and national organizations in relation to numerical data.

Issue No. 1 contains 'Activity of the Scientific Information Center for Molecular Spectroscopy of the Siberian Department of the USSR Academy of Sciences', 'Centers for Data on the Thermophysical Properties of Hydrocarbons and Their Mixtures and Petroleums and Petroleum fractions', 'Standard Regulations on Head and Base Organizations for Working Up Standard Information Data', 'Quantitative Data for Science and Technology -- CODATA's 9th General Assembly' and 'Recommendations on Presenting Numerical Experimental Data in Primary Literature'.

For further information write to:

VNITs of the GSSSD
Yezdakov per., 1
117334 Moscow V-334
USSR

FUNDAMENTAL MEASURES AND CONSTANTS FOR SCIENCE AND TECHNOLOGY

This is the title of a new book by Frederick D. Rossini, one of the founders and the first president of CODATA. Major chapters deal with the fundamental structure of the measurement system, temperature and pressure scales, atomic weight scales, the evolution of units of energy measurement, and the fundamental constants of physics. An extremely useful reference source, this new 132-page volume can be obtained from CRC Press, 18901 Cranwood Parkway, Cleveland, Ohio 44128 U.S.A. (\$29.95)

A NEW FRENCH SERVICE IN INFORMATION RETRIEVAL: CONVERSATIONAL ACCESS TO DISTRIBUTED DATA BASES

Since September 1975, the French scientific community has a new information tool: conversational access to several data bases maintained in geographically-separate locations. The data bases are operated by the Space Documentation Service (SDS) of the European Space Agency (ESA, formerly ESRO) and by THERMODATA, a data bank on thermodynamical properties in "dry chemistry" developed and run by the University of Grenoble, now an independent outfit.

These two "host" systems are accessed through the French network "CYCLADES" from any terminal connected to one of the network concentrators. CYCLADES is a pilot project designed to test on full scale the functioning of a general network of computers. Several French organizations are cooperating in this joint venture, the two major ones being the Telecommunications and Postal Service (PTT) and the Research Institute for Information and Automation (IRIA) under the general supervision of the Department of Electronic Industries (DIELI).

The present cost of accessing these hosts is quite reasonable. For example, in 1975 one hour of access to SDS/ESA costs approximately 200 F. A terminal can be rented for less than 1 000 F per month. This price includes the terminal proper, the modem and the line.

Bringing Together the Users and the Available Data Bases

The demand for scientific and technical information in France is ever more pressing and, in addition, originates from many geographically-scattered sites, which is far from being the case with the supply.

Existing information services, consisting mainly of abstract bulletins, SDI services or retrospective bibliographies, respond imperfectly at best to this demand. In many cases, users would like to have a means of direct interrogation to supplement the other services already available.

Thanks to the time-sharing networks, users are able to have easy access to one of the host systems, and a dialogue can thus be initiated between a host and several remote users. Conversely, a single user is able to access several remote hosts.

Number of Queries Multiplied by 10 in 3 Years

This new kind of service is developing quite rapidly and in the United States, for instance, over the last three years, the number of queries directed to various data files has increased from 100,000 a year to 1,000,000 a year.

Waiting for TRANSPAC

It is clear that the real answer to the problem of data transmission over a public network will be provided by TRANSPAC, a network to be operated by the French PTT from 1977 onwards. In the meantime, the only way to keep potential customers of TRANSPAC from going over to private American networks operating in Europe, such as Tymshare or G.E., is to make CYCLADES available. French authorities have guaranteed the compatibility of CYCLADES and TRANSPAC.

CYCLADES' availability to the French scientific community is creating a great deal of interest in other sectors: more than thirty industrial firms and public organizations have announced their intention to use the system.

One Terminal to Dialogue with Several Hosts

In a first phase, two hosts would be connected to CYCLADES: the data bases of SDS/ESA and those of THERMODATA.

In the case of SDS/ESA, what would be connected to CYCLADES would be the entire ESA network (a star-shaped network with its hub at Frascati, near Rome). In the case of THERMODATA, the computing center of the University of Grenoble is already connected to CYCLADES, so that the only requirement to be fulfilled for THERMODATA to serve as host in the network is the development of appropriate software.

Any user having an asynchronous terminal (a teleprinter or a bit-mode video console) can hook his circuit to one of the CYCLADES concentrators and thus have an interactive access to the data bases of SDS/ESA and THERMODATA.

A Test Model for the Future Euronet Network

This experiment can be envisaged as a test model for the future European network (EURONET) which will be set up with the help of the various European PTT's, but not in the immediate future. In the meantime, the present demand is so pressing that it was deemed necessary to set up a specialized network at this time.

The connection of SDS/ESA and THERMODATA into CYCLADES provides the opportunity to put a preliminary model of EURONET to an actual test.

Contents of the Data Bases

SDS/ESA: The following data bases are being exploited:

FILE	NUMBER OF CITATIONS	DENOMINATION/SUBJECT MATTER	STARTING DATE
NASA	720,000	STAR + IAA: aerospace, geophysics, electronics, Earth resources, biotechnology, thermodynamics	1962
METADEx	160,000	Metals Abstracts: metallurgy and allied subjects	1969
COMPENDEX	380,000	Engineering Index: civil engineering, pollution, transportation problems	1970
NUCLEAR	420,000	Nuclear Science Abstracts: nuclear science and technology	1968
NTIS	250,000	Government Report Abstracts: technological and social problems	1964
INSPEC	530,000	Physics Abstracts A,B,C: physics, electronics, computers	1971
CHEMABS	1,728,000	Chemical Abstracts Condensates: industrial chemistry, research chemistry	1969
ESCI	40,000	Environment Sciences Citation Index: environmental problems, pollution	1971
ELECOMPS	16,200	Data bank on electronic components: ESA data base	1970

THERMODATA is a data bank of selected and evaluated data covering the field of inorganic and, more particularly, metallurgical thermodynamics, with an elaborate software designed to solve the numerous and complex problems involving equilibrium between substances distributed among several phases. THERMODATA is able to answer (almost) any query concerning the application of thermodynamic data to industrial processes of ferrous or non-ferrous metallurgy or of the metallurgy of nuclear reactors.

The terminal concentrators presently available for accessing CYCLADES are located in Paris, Grenoble, Lyon, Toulouse and Rennes. In 1976, a second concentrator will go into operation in Paris.

New Data Bases Accessible in 1976

Two more hosts are scheduled for connection into CYCLADES in 1976. These are:

- The data base of the Institut Textile de France (ITF) with its multilingual file on textile information.

-The data base of CATED (acronym of Centre d'Assistance Technique et de Documentation de l'Union Technique Interprofessionnelle des Fédérations Nationales du Bâtiment et des Travaux Publics!) on building materials.

Both these hosts can be accessed in an interactive mode and on a time-sharing basis.

For Further Information ...

BNIST (Permanent Secretariat), 97, rue de Grenelle, 75007 Paris

IRIA (CYCLADES Department), Domaine de Voluceau, Rocquencourt, B. P. 5. 78150 Le Chesnay

THERMODATA, Bibliothèque universitaire des Sciences, Domaine universitaire, B. P. 22, 38402 Saint Martin d'Hères

SDS/ASE, c/o ESRO, 114 avenue Charles-de-Gaulle, 92522 Neuilly-sur-Seine

RE M I N D E R

THE SECRETARIAT IS NOW ACCEPTING ORDERS FOR 1976 SUBSCRIPTIONS TO THE CODATA BULLETIN (LIMITED COPIES OF THE 1975 ISSUES ARE STILL AVAILABLE).

ORDER YOUR SUBSCRIPTION NOW FROM THE CODATA SECRETARIAT, 51 Bd. DE MONTMORENCY, 75016 PARIS, BY ENCLOSING A CHECK FOR \$20.00 (PERSONAL* SUBSCRIPTIONS \$8.00).

* PERSONAL MEANS PAID FROM SUBSCRIBER'S OWN POCKET.

I. Objectives of the Data Information System

The ever increasing number of publications poses serious problems for scientists and engineers, first when they want to extract data relevant to their work from the primary scientific and technical literature and then when they want to assess the accuracy of these data. They may, at best, do so in their special field of research, but in all other cases they have to rely on critical data compilations. Critical data compilations are defined here as compilations in which the data are not only collected and arranged in a special way, but also evaluated by means of definite criteria, resulting in some recommended values for the user.

In many fields of physics, such data compilations either are lacking or do not fulfil the requirements of the users, either because they are out of date or because they are being published in places that are not well-known. This unsatisfactory situation has been confirmed by an inquiry recently performed by the German Physical Society.

Therefore the Zentralstelle für Atomkernenergie-Dokumentation (ZAED) located at the Karlsruhe Nuclear Research Center has been commissioned by the German Federal Ministry for Science and Technology to improve this situation in a substantial way by establishing an information system for physical data. For this purpose, data compilations will be provided for a number of subfields of physics which will be updated regularly. In addition a bibliography of world-wide data compilations will be published.

II. Scope of the Data Information System

Data from all fields of physics will be entered into the data information system. The data can be of experimental or theoretical type and may be represented in the form of tables, curves or parametrized formulae. In special cases, an index of bibliographical references will be accepted. The following list gives representative examples of needs for data which were indicated by the inquiry of the German Physical Society. This list is not meant to be exhaustive.

High-field superconductors (e.g. transition temperature, critical fields, critical current density, penetration depth, coherence length).

Low temperature properties of materials (e.g. specific heat, thermal conductivity, thermal expansion).

Glasses and amorphous solids (e.g. expansion coefficients, electrical properties, optical properties from the infrared to the ultraviolet range).

Laser materials (e.g. wavelengths of laser transitions, spectroscopic properties of rare earth ions in different host lattices).

Surfaces and thin films (e.g. adsorption properties of gases at surfaces, work functions of metals, sputtering data under ion bombardment).

Properties of semiconductors (e.g. transport properties, band edges, optical constants, exciton energies,

photoconductivity, lifetimes of charge carriers).

Thermal and thermodynamic properties of solids (e.g. thermoelectric coefficients, phase diagrams of multi-component systems, thermodynamic properties at high pressures).

Magnetic properties of solids (e.g. magnetization and susceptibility of alloys and of intermetallic compounds, temperature dependence of magnetic properties, especially at phase transitions and at critical points).

Optical properties of solids (e.g. data of nonlinear optical crystals as a function of voltage, temperature and frequency; optical constants of solids and liquids in the infrared range; most important properties of widely used luminescent materials).

Hard metals (e.g. high temperature behavior, thermal conductivity, thermal expansion, electrical conductivity).

Atomic nuclei and elementary particles (e.g. anisotropy coefficients of beta and gamma transitions, nuclei radii, lifetimes of isomeric states, mass yields and fission fragment distributions in nuclear fission, coupling constants and scattering data).

Atoms (e.g. lifetimes of excited states, isotope shifts, g-factors, polarizabilities, electron collision cross sections for excitation and ionization, hyperfine structure data).

Molecules (e.g. dipole moments, cross sections for excitation and ionization, reaction cross sections, interatomic potentials, electron affinities, dissociation energies).

Macromolecules and polymers (e.g. viscoelastic, thermal, electrical and optical properties, long-time behavior, diffusion constants).

Plasma (e.g. broadening of spectral lines in plasmas, excitation and ionization cross sections of gases, ion mobilities, transport coefficients).

Physical chemistry (e.g. kinetic parameters for reactions of radicals in the gaseous and liquid phases, equilibrium parameters of multi-component systems, adsorption spectra of short-lived radicals).

III. Form of the Data Compilations

The data compilations will be published as individual booklets within a series called Physikdaten/Physics Data under the authorship of the compilers. The explanatory text of the compilations will be in German and English. This form of single pamphlets has the advantage of being always at hand and allowing easy replacement of older editions by updated revisions. The compilations will be distributed to research institutes, industrial laboratories, libraries and individual scientists.

Future plans envisage a computer-stored data bank in which data compilations will be stored on magnetic tape in a format that allows data retrieval by different search criteria.

IV. Organization of the Compilation Activities

The data information system to be established will consist of a number of groups compiling the data, a central office for the management of the system, and a scientific advisory board.

a) The data will be collected and, if necessary, evaluated by groups of specialists working at research institutions. These groups, which will be established with the assistance of the German Physical Society, should be actively engaged in the same field as that, in which they compile data. They should be responsible for updating their compilations over a longer period of time.

b) The central office of the data information system will be located at the ZAED and will provide the following services:

1. Technical support to the compiling groups such as providing references to the relevant primary literature by means of magnetic tape services (e.g. Physics Abstracts (INSPEC), International Nuclear Information System (INIS), Nuclear Science Abstracts (NSA), Physikalische Berichte (PB) and other abstract services, if necessary). Also, if required by the groups, the full texts of the documents will be furnished.
2. To a certain extent, financial support to the compiling groups, covering expenses and a honorarium.
3. Editing, publishing and distribution of the data compilations.
4. Computer processing of the data and preparation of data tapes.

5. Coordination of the compiling activities of the different groups, organization and management of the whole data information system.

c) A scientific advisory board will be set up to point out fields in which data are needed, to assist in the selection of the compiling groups and to review the data compilations.

V. Bibliography of Existing Data Compilations

In addition to the preparation of new data compilations, an index of already existing compilations will be set up. Such an index of data compilations will be published in book form and maintained as a computer file that will allow rapid access to data compilations with regard to a specific requirement.

VI. International Cooperation

The management of this new information system intends to cooperate with other national and international organizations so that finally an international collaboration of the different groups in the field of data documentation may result.

Further details on this data information system can be obtained from:

Dr. H. Behrens and Dr. G. Ebel
Zentralstelle für Atomkernenergie-
Dokumentation (ZAED)

Kernforschungszentrum

7501 Leopoldshafen

German Federal Republic

Telephone: (07247) 823800

FORMATION PERMANENTE DES DOCUMENTALISTES

L'Association française des documentalistes et des bibliothécaires spécialisés (A.D.B.S.) poursuit en 1976 le programme de formation permanente qu'elle assure depuis plusieurs années déjà. Celui-ci a pour objectifs : de développer les connaissances générales et techniques, de faciliter l'adaptation des professionnels aux changements techniques, de permettre leur reconversion à l'utilisation des méthodes nouvelles, d'aider à leur promotion professionnelle.

Les principaux thèmes retenus pour 1976 sont les suivants : technologie documentaire, introduction à l'informatique, organisation et gestion d'un centre de documentation, bases de données: analyse et lan-

gages: traitement des documents audio-visuels; règles de catalogage; installations et équipements de centres de documentation et de bibliothèques.

Cet enseignement entrant dans le cadre de la formation continue, les droits d'inscriptions sont déductibles de la taxe de formation.

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NEW PUBLICATIONS

ATOMIC AND MOLECULAR PROPERTIES

BIBLIOGRAPHY OF AB INITIO MOLECULAR WAVE FUNCTIONS: Supplement for 1970-1973 (1974, 358 pp, \$29.95, Oxford University Press) by W.G. Richards et al. - Contents: Diatomic molecules. Triatomic molecules. Tetratomic molecules. Abbreviated key to large molecules. Larger polyatomic systems.

BIO-SCIENCES

ATLAS DE MYCOLOGIE MEDICALE (1974, 188 pp, 460 FF, Masson, 120 Boulevard Saint-Germain, 75005 Paris), par J. Delacretaz, D. Grigoriu et G. Ducel. Cet ouvrage présente un panorama très richement illustré (442 photographies dont 432 en couleurs) des champignons, levures, moisissures, etc. responsables des affections fongiques observées de plus en plus fréquemment à l'heure actuelle, non seulement par les dermatologues mais également par les médecins internistes. L'abus des antibiotiques, des corticoïdes et des antimitotiques, lié à une mobilité croissante de la population du globe, suffit à expliquer la dissémination d'un grand nombre d'espèces qui, jusqu'à un passé récent, n'avaient jamais été observées en Europe. L'ouvrage met l'accent sur la classification des champignons, leur identification, leurs localisations dans l'organisme et l'ensemble des lésions, superficielles ou profondes, qu'ils provoquent chez les malades. Le chapitre consacré aux antifongiques n'est pas traité avec autant de profondeur, ce qui s'explique par le fait que ce domaine est actuellement en pleine évolution.

NEW APPROACHES TO THE IDENTIFICATION OF MICRO-ORGANISMS (1975, 466 pp, \$21.50, Wiley. ISBN 0-471-36746-X), C.G. Héden and T. Illéni, editors. - Contents: New technologies in the automation of microbiological identification routines. Computer-assisted approaches to the identification of micro-organisms. Advances in epidemiological surveillance. Current trends in simplified diagnostic tests. List of abstracts. Index.

CHEMICAL KINETICS

INVESTIGATION OF RATES AND MECHANISMS OF REACTIONS 3rd ed. Part I. **GENERAL CONSIDERATIONS AND REACTIONS AT CONVENTIONAL RATES** (1974, 838 pp, \$42.50, Wiley-Interscience, ISBN 0-471-93095-4), Edward S. Lewis, editor. - Contents: General methods of rate and mechanism study. Activated-complex theory: current status, extensions, and applications. Homogeneous gas-phase reactions. Kinetics in solution. Kinetic isotope effects. Tracer methods. Stereochemistry and reaction mechanism. From kinetic data to reaction mechanism. Kinetics of complex reactions. Homogeneous inorganic reactions. Homogeneous-solution catalysis by small molecules and by enzymes. Mechanism in heterogeneous catalysis. Use of computers. Linear-free energy relations. Subject index.

CHEMISTRY

ATLAS OF STEREOCHEMISTRY; ABSOLUTE CONFIGURATIONS OF ORGANIC MOLECULES (1974, 311 pp, \$39.95, Oxford University Press. ISBN 0-19519-747) by W. Klyne and J. Buckingham. - Contents: Fundamental chiral compounds. Carbohydrates. Terpenes (including steroids). Alkaloids. Miscellaneous natural products. Compounds with chirality due to isotopic substitution. Compounds containing chiral axes, planes, etc. Compounds containing chiral atoms other than carbon. Formulae index. Author index. Subject index.

DICTIONARY OF ORGANIC COMPOUNDS 4th ed. (1974, 1156 pp, \$100, Oxford University Press. ISBN 0-19-519808-5) - Contents: Tenth and cumulative volume for all entries in the Sixth, Seventh, Eighth, and Ninth Supplements plus new material published in and before 1973.

ELECTROCHEMICAL DATA Part I ORGANIC, ORGANO-METALLIC AND BIOCHEMICAL SUBSTANCES Volume A. (1974, 727 pp, \$35.95, Wiley-Interscience, NY. ISBN 0-471-59200-5) by Louis Meites et al. - Contents: Arrangement and use of the tables. Electrochemical data. Structural formulas. Courses and mechanisms of half-reactions. Compounds included in table I. Functional-group index. Index of solvents employed. Index of techniques employed. Index of indicator electrodes employed. Key to literature citations. Author index.

HANDBOOK OF ORGANOSILICON COMPOUNDS; ADVANCES SINCE 1961. Volume I (1975, 761 pp, \$75, Dekker, NY. ISBN 0-8247-6259-2) by Bazant, Vladimir et al. - Contents: NMR spectroscopy. Infrared and Raman spectroscopy. π -bonding. Penta- and hexa-coordinated silicon. Stereochemistry. List of literature. List of patents. Author index. Subject index.

Gmelin Handbook of Inorganic Chemistry - Gmelin Handbuch der Anorganischen Chemie

14. CARBON-KOHLNSTOFF, PART C3 The CO_2/CO Equilibrium. Aqueous Solutions of Carbonic Acid, Carbonate Ions and Peroxocarbonic Acids (Springer Verlag, 1973, 160 pp, \$87.10).

PART C4 Selected C-H-O Radicals. Formic Acid. Acetic Acid. Oxalic Acid (Springer Verlag, 1975, 236 pp, \$154.20. Text in German).

PART D2 Carbon-Halogen Compounds (Springer Verlag, 1974, 386 pp, \$212.20. Text in German).

21. SODIUM-NATRIUM SECTION VI Sodium Halides: Preparation, Properties, Chemical reactions (Verlag Chemie, 1972, 402 pp, \$206. Text in German).

SECTION VII Sodium Halides:
Systems, Solutions (Verlag Chemie, 1972, 351 pp,
\$183. Text in German).

INDEX (Springer Verlag, 1973,
167 pp, \$87.10. Text in German and English).

39. RARE EARTH ELEMENTS-SELTENERDELEMENTE PART A2
Scandium: History, Occurrence (Verlag Chemie, 1973,
181 pp, \$101.60. Text in German).

PART B3
Scandium, Yttrium, Lanthanum and the Lanthanides:
Physical Properties of the Metals (Springer Verlag,
1974, 344 pp, \$186.50. Text in German).

PART C1
Scandium, Yttrium, Lanthanum and the Lanthanides:
Compounds: Hydrides and Oxides (Springer Verlag,
1974, \$241.20. Text in German).

PART C2
Scandium, Yttrium, Lanthanum and the Lanthanides:
Compounds with H + O, alkali metal + O, N as well
as the corresponding alkali double compounds (Springer
Verlag, 1974, 299 pp, \$196. Text in German).

46. TIN-ZINN, PART C2 Compounds from Tin and Sulfur
to Tin and Bismuth (Springer Verlag, 1975, 300 pp,
\$195.60. Text in German).

PART C3 Compounds with Alkali and
Alkaline Earth Metals (Springer Verlag, 1975, 206 pp,
\$155.30. Text in German).

PART D Alloys (Springer Verlag, 1975,
468 pp, \$257.50. Text in German).

47. LEAD-BLEI, PART A1 History (Verlag Chemie, 1973,
218 pp, \$116.40. Text in German).

48-49-50. VANADIUM-NIOBIUM-TANTALUM-VANADIUM-
NIOB-TANTAL Index (Verlag Chemie 1973, 352 pp,
\$182.40. Text in German and English).

49. NIOBIUM-NIOB, PART B4 Alkali oxoniobates. Niobium
compounds with other cations. Carbon compounds of
niobium (Verlag Chemie, 1973, 473 pp, \$256.40. Text
in German).

56. MANGANESE-MANGAN, PART B The element (Verlag
Chemie, 1972, 404 pp, \$216.40. Text in German).

PART C1 Compounds: Hydrides,
Oxides. Oxide Hydrates. Hydroxides (Springer Verlag,
1973, 423 pp, \$218. Text in German).

61. SILVER-SILBER, PART A4 Electrochemistry (Verlag
Chemie, 1973, 394 pp, \$209.60. Text in German).

PART B3 Compounds with S, Se,
Te, Po, B, C and Si (Verlag Chemie 1973, 389 pp,
\$212.40. Text in German).

PART B4 Compounds of Silver and
Phosphorus up to Silver and Copper (Springer Verlag,
1974, 493 pp, \$259.50. Text in German).

PART B5 Organosilver Compounds.
Organic Silver Salts (Springer Verlag, 1975, 187 pp,
\$132.10. Text in German).

NEW SUPPLEMENT SERIES

VOLUME 5 Organic Cobalt Compounds: Mononuclear
Compounds (Verlag Chemie, 1973, 527 pp, \$270.40.
Text in German).

VOLUME 6 Organic Cobalt Compounds: Polynuclear
Compounds (Verlag Chemie, 1972, 243 pp, \$131.60.
Text in German).

VOLUME 7a 7b and 8 Transuranium Elements (Springer
Verlag, Volume 7a, 1973, 178 pp, \$99.60. Text in
English. - Volume 7b, 1974, 370 pp, \$202. Text in
English, German or French. - Volume 8, 1973,
424 pp, \$232.20. Text in English, German or French).

VOLUME 9 and 12 Perfluorohalogeno-organo Com-
pounds of the Main Group Elements. Volume 9, Com-
pounds of Sulphur (Springer Verlag, 1973, 217 pp,
\$114. Text in German). - Volume 12, Compounds of
Sulfur (concluded), Selenium and Tellurium (Springer
Verlag, 1973, 247 pp, \$127.50. Text in German).

VOLUME 10/11 Organometallic Compounds of Zirconium
(= Volume 10, 88 pp) and Hafnium (= Volume 11, 22 pp)
(Verlag Chemie, 1973, 110 pp, \$67.60. Text in English).

VOLUME 13 Boron Compounds, Part 1, Binary B-N
Compounds. B-N-C Heterocyclics. Polymeric B-N
Compounds (Springer Verlag, 1974, 331 pp, \$331.
Text in German).

VOLUME 14 Organo-Iron Compounds, Part A, Ferrocene
(Springer Verlag, 1974, 395 pp, \$210. Text in German).

VOLUME 15 Boron Compounds, Part 2, Carboranes 1
(Springer Verlag, 1974, 288 pp, \$210. Text in German).

VOLUME 17 Organo-Nickel Compounds, Part 2. Mono-
nuclear Compounds (continued). Polynuclear Compounds
(Springer Verlag, 1974, 402 pp, \$253.40. Text in German).

EARTH SCIENCES

COMPUTER-BASED SYSTEMS FOR GEOLOGICAL FIELD DATA
(1975, 100 pp, \$4.80, Geological Survey of Canada,
Paper 74-63), W.W. Hutchison editor, embodies the
proceedings of a 5-day seminar held in Paris in Nov-
ember 1973 and designed to review the current tech-
niques in use for storing and exploiting geological
field data. The two main themes of the seminar were
geological field data systems and geological data
management systems, the logical relation between
the two being that the very complexity, variety and
specificity of the field data necessitate data manage-
ment systems having the greatest possible generality.
Eighteen papers, presented by scientists of 10 Ameri-
can and European countries, describe 31 different
software systems.

COMPUTER USE IN PROJECTS OF THE GEOLOGICAL SURVEY
OF CANADA (1974, 108 pp, \$3.00, Geological Survey
of Canada, Paper 74-60), Terry Gordon and W.W.
Hutchison editors, brings together a sample of current
activities of the Geological Survey of Canada in which
the use of computers plays an important role. This
publication aims at serving the double purpose of

providing users with an overall picture of the latest applications of computers in geology and indicating to the Geological Survey authorities what kind of improvements in both hardware and software are being needed by the users. The 34 papers contained in the book provide a very complete "panorama" of Canadian geology and prove beyond any doubt that geological data, when correctly exploited by means of a computer, can yield very diversified information, extending far outside the traditional domains of geology, e.g., natural resources, cartography, palynology and even aeromagnetism.

GLACIOLOGICAL NOTES (No. 59, Summer 1975. 56 pp, WDC-A, Glaciology). Announced in this issue are: a) a list of 1072 aerial photographs of British Columbia and Alaska available as 10"x10" contact prints at the WDC-A Glaciology Center; b) a list of the library acquisitions of WDC-A Glaciology Center for the period 15 November '74 - 15 April '75. This 23-page list, comprising 476 items, is followed by its own subject index, itself a 24-page affair.

THE INTERNATIONAL GRAVITY STANDARDIZATION NET 1971 (I.G.S.N. 71) (1974, 194 pp, 60F, Publication spéciale n° 4 de l'Association Internationale de Géodésie, 39 ter rue Gay-Lussac, 75005 Paris), compiled by C. Morelli presents the International Gravity Standardization Net 1971, a worldwide network consisting of 24,000 gravimeter measurements, 1,200 pendulum measurements and 10 absolute measurements collected over twenty years and adjusted by a small Working Group of Special Study Group 5 of the IAG. The concept of the IGSN 71 differs from that of earlier gravity reference systems in that datum is determined, not by an adopted value at a single station, but by the gravity values for 1854 stations obtained from a single least-squares adjustment of absolute, pendulum and gravimeter data. Standard errors for IGSN 71 gravity values are less than ± 0.1 mgal. The use and maintenance of the system is discussed. - The International Gravity Standardization Net 1971 has been approved and adopted by the XVth General Assembly of IUGG (Moscow, August 1971) as the international gravity standard replacing the Potsdam datum of 1909.

HANDBOOKS

RESEARCH AND DEVELOPMENT DIRECTORY 13th ed. (1974, Mixed pagination, \$15, Government Data Publications). - Contents: Directory I -- organized by companies. Directory II -- organized by agencies. Directory III -- organized by nature of work.

MATHEMATICAL METHODS AND COMPUTER PROGRAMS

DATA ANALYSIS FOR SCIENTISTS AND ENGINEERS (1975, 513 pp, \$16.95, Wiley. ISBN 0-471-59995-6), by S. L. Meyer. - Contents: Introduction to scientific measurement. Introduction to graphical techniques and curve fitting. Probability. Some probability distributions and applications. Statistical inference. Appendixes. Guide for further reading and bibliography. Index.

DATA QUALITY CONTROL AND EDITING (1975, 202 pp, \$13.75, Dekker, NY. ISBN 0-8247-6247-9), by J. L. Naus. - Contents: Organizing a dictionary of deterministic tests. Techniques for probabilistic tests. Related approaches to monitoring and improving the quality of data. Automatic data correction. Locating errors. Cost effectiveness of data validation. Bibliography. Index.

DATA REDUCTION; ANALYZING AND INTERPRETING STATISTICAL DATA (1975, 391 pp, \$24.95, Wiley-Interscience. ISBN 0-471-23399-4), by A. S. C. Ehrenberg. - Contents: Data handling. Lawlike relationships. Statistical variation. Sampling. Empirical generalization. List of exercises. References. Name index. Subject index.

DISPLAY AND ANALYSIS OF SPATIAL DATA (1975, 378 pp, \$34.50, Wiley-Interscience. ISBN 0-471-19915-X), J. C. Davis and M. J. McCullagh editors. - Contents: Theoretical aspects of spatial analysis. Automated cartography. Practical applications of computer mapping. Author index. Subject index.

STATISTICAL ANALYSIS OF SPATIAL DISPERSION; THE QUADRAT METHOD (1974, 164 pp, Price not available, Pion Ltd., London. ISBN 0-85086-045-8), by A. Rogers. - Contents: The fundamental component distributions. Compound and generalized distributions. Parameter estimation. Hypothesis testing: the chi-square goodness of fit test. The structure of retail trade. The spatial dispersion of retail trade in urban areas. Bivariate distributions. Spatial sampling. Conclusion. References. Author index. Subject index.

MECHANICAL AND ENGINEERING DATA

FOUNDATION ENGINEERING HANDBOOK (1975, 751 pp, \$37.50, Van Nostrand Reinhold. ISBN 0-442-29564-2), H. F. Winterkorn and H. Y. Fang editors. - Contents: Subsurface explorations and sampling. Soil technology and engineering properties of soils. Bearing capacity of shallow foundations. Pressure distribution and settlement. Lateral earth pressure. Drainage and dewatering. Compacted fill. Soil stabilization. Injections. Stability of earth slopes. Landslides. Retaining walls. Sheet pile structures. Cellular structures and braced excavations. Spread footings. Combined and special footings. Mat foundations. Floating foundations. Pile foundations. Drilled piers. Pneumatic caissons. Underpinning. Buried structures. Foundation vibrations. Earthquake effects on soil-foundation systems. Appendix. Index.

INTERNATIONAL ATLAS OF CASTING DEFECTS (1974, 337 pp, \$25, American Foundrymen's Society, Des Plaines, Ill.), M. T. Rowley translator and editor. - Contents: Table of defects. Metallic projections. Cavities. Discontinuities. Defective surface. Incomplete casting. Incorrect dimensions or shape. Inclusions or structural anomalies. Bibliography. Index.

AN INTRODUCTION TO ENGINEERING MEASUREMENTS (1975, 193 pp, \$11.95, Prentice-Hall. ISBN 0-13-482406-7), by A.R. Graham. - Contents: Functional elements and operating characteristics Elementary statistics. The static performance of instruments Mathematical models Dynamic performance. Complex instruments and general inputs Selecting an instrument. Where next? Appendix Index.

MECHANICAL PROPERTIES OF METALS (1974, 86 pp, \$1.25, U.S. Department of Commerce - NBS Special Publication 396-1), by R.B. Gavert, R.L. Moore and J.H. Westbrook, provides a detailed critical survey of the existent sources of mechanical property data for commercially available metals and alloys. Among the forty-odd sources thus reviewed are included technical handbooks, data compilations, information centers, foreign information sources, technical societies and trade associations. More than eighty different mechanical properties concerning forty-three metals or alloys are accounted for in the property and substance indexes.

LES MOUVEMENTS DE MONTRES FRANCAIS (1974, 132 pp, Comité Professionnel Interrégional de la Montre, 33 rue de Lisbonne, 75008 Paris) est un document rédigé à l'intention des écoles d'horlogerie françaises et étrangères. Pour chacun des calibres actuellement disponibles chez les 10 principaux fabricants français, une fiche technique donne l'encadrement, la hauteur totale, la liste des fonctions principales, le type d'échappement et une description des particularités propres à chaque modèle, le tout accompagné de dessins au trait à l'échelle 6x. L'ensemble des 75 fiches en question est précédé d'une introduction générale, illustrée de 48 figures, sur les caractéristiques techniques des dispositifs que l'on rencontre dans les calibres de montres français. La brochure existe également en allemand, en anglais, en espagnol et en portugais.

WIND POWER 1975 (1975, 300 pp, \$24.00, Noyes Data Corporation), by Daniel M. Simmons, reviews the three main problems encountered in harnessing the power of the wind. These are: selecting a suitable and sufficiently windy site, designing an efficient windmill and generator to convert the mechanical energy of the wind into electricity, and, thirdly, choosing a suitable means of storing the energy thus produced (electrolysis of sea-water into H_2 and O_2 , manufacture of compressed air, charging batteries, spinning super flywheels, etc.). Three chapters are devoted to current developments in, respectively, North America, the USSR, and a few other windy places (European countries, Israel, Curaçao). The book ends with a description of nine wind machines presently available in the U.S.A.

NOMENCLATURE, SYMBOLS, UNITS, STANDARDS AND CONSTANTS

LE BUREAU INTERNATIONAL DES POIDS ET MESURES 1875-1975 (1975, 230 pp, 115 figures, 32 F). Ce volume est édité par le Bureau International des Poids et Mesures (B.I.P.M.) à l'occasion du centième anniversaire de la signature du traité connu sous le nom de Convention du Mètre. Ce traité, signé le 20 mai 1875

à Paris, donnait naissance au B.I.P.M. - L'ouvrage débute par une brève présentation du B.I.P.M., laboratoire de métrologie de haute précision et centre international de coordination pour les travaux concernant les étalons et les unités, bases de toutes les mesures physiques. - Un chapitre d'introduction, rédigé par le Professeur J. de Boer, secrétaire du Comité International des Poids et Mesures, retrace l'origine et l'évolution du concept de système d'unités, depuis l'antiquité jusqu'au Système International d'Unités (SI), forme moderne et extension du Système métrique. - Un chapitre "historique" précise le rôle et le fonctionnement des divers organes de la Convention du Mètre (Conférence Générale des Poids et Mesures, Comité International des Poids et Mesures, Comités Consultatifs, B.I.P.M.): il rappelle l'oeuvre scientifique accomplie par le B.I.P.M. pendant les cinquante premières années de son existence, puis, pour les cinquante années suivantes, il indique l'évolution et l'extension de ses activités, jalonnées par la création de sept Comités Consultatifs. - La partie principale de l'ouvrage est constituée de dix chapitres qui donnent une vue d'ensemble sur les principaux travaux de laboratoire du B.I.P.M.: masses, longueurs, gravimétrie, manobarométrie, thermométrie, électricité, photométrie, mesure de la radioactivité, rayonnements X et γ , mesures neutroniques. - On s'est attaché à rendre la lecture de ces chapitres accessible aux non spécialistes. On y traite néanmoins des méthodes les plus récentes et les plus précises de la métrologie telles que la stabilisation de la longueur d'onde de radiations laser au moyen de l'absorption saturée, la mise en oeuvre de l'effet Josephson pour la conservation de l'unité de force électromotrice, le raffinement des méthodes statistiques utilisant le comptage de particules pour les mesures de la radioactivité, etc. Dans ces domaines où il se spécialise étroitement, le B.I.P.M. est au niveau des meilleurs laboratoires du monde. - Enfin, quelques annexes donnent notamment le texte de la Convention du Mètre, la définition des unités de base du SI et leurs origines, et la liste des publications des organes de la Convention du Mètre, qui constituent une source de documentation souvent méconnue. - Chaque chapitre est suivi d'une courte bibliographie. - L'ouvrage est disponible chez Offilib, 48, rue Gay Lussac, F-75005 Paris.

SI METRIC UNITS; AN INTRODUCTION Revised ed. (1974, 114 pp, \$3.95, McGraw-Hill Ryerson Ltd.), by H.F.R. Adams. - Contents, abridged: What are SI units? Why use SI units? A brief history of measurement. The seven basic SI units. Multiples and submultiples of SI units. Special notation for SI units. Preferred number systems for SI units. Everyday SI units. Calculations in SI units. Tables. Answers to problems. Index.

TABLES ALCOOMETRIQUES INTERNATIONALES (1975, 70 pp, 40 FF, Bureau International de Métrologie Légale, 11, rue Turgot, 75009 Paris). - Ces tables donnent les valeurs de la masse volumique d'un mélange d'eau et d'éthanol en fonction de la température (entre -20°C et $+40^\circ\text{C}$) et du titre massique ou volumique de ce mélange. Ces valeurs ont été calculées à l'aide de la formule analytique de Wagenbreth et Blanke, adoptée à la IV^e Conférence Internationale de Métrologie Légale en 1972. Afin d'éliminer au maximum tout risque d'erreur, les calculs ont été effectués sur deux ordinateurs

indépendants, fonctionnant à partir de deux programmations différentes, puis les tabulations obtenues ont été reproduites photographiquement afin d'éviter les erreurs risquant de provenir de la composition typographique. Les Tables Internationales proprement dites sont suivies de tables alcomométriques pratiques permettant de faciliter l'exécution des mesurages courants.

SOLID-STATE PROPERTIES

DIFFUSION AND DEFECT DATA (1974, 356 pp, Price not available, Trans Tech, Bay Village, Ohio, USA), F.H. Wöhlbier editor. - Contents: Materials. References by subjects. New books. Subject index. Cumulative materials index: Vols. 8-9.

LAUE ATLAS; PLOTTED LAUE BACK-REFLECTION PATTERNS OF THE ELEMENTS, THE COMPOUNDS RX AND RX₂ (1974, 432 pp, \$49.50, Halstead, Div. of Wiley, NY. ISBN 0-470-69685-0), by E. Preuss, B. Krah-Urban and R. Butz. - Contents: Periodic arrangements of atoms. Crystal diffraction. Crystal structures of the elements. Crystal structures of the compounds RX. Crystal structures of the compounds RX₂. Plot programme for Laue diagrams and stereographic projections. Orientation of single crystals. Plots of Laue back-reflection patterns of the elements. Plots of Laue back-reflection patterns of the compounds RX and RX₂. Index.

SOLUTION PROPERTIES

LANDOLT-BORNSTEIN NUMERICAL DATA AND FUNCTIONAL RELATIONSHIPS IN SCIENCE AND TECHNOLOGY New series, Group IV **MACROSCOPIC AND TECHNICAL PROPERTIES OF MATTER** Vol. I **DENSITIES OF LIQUID SYSTEMS Part A NONAQUEOUS SYSTEMS AND TERNARY AQUEOUS SYSTEMS** (1974, 716 pp, \$200.90, Springer-Verlag. ISBN 0-387-06269-6), Kl. Schäfer, editor. - Contents: Nonaqueous systems of two inorganic components. Nonaqueous systems of one inorganic and one organic component (arranged according to the inorganic component). Nonaqueous systems of two organic components. Nonaqueous systems of three or more components. Index for 1. Inorganic-inorganic systems containing water. Inorganic-organic systems containing water. Organic-organic systems containing water.

SPECTRA COLLECTIONS

ABSORPTION SPECTRA IN THE ULTRAVIOLET AND VISIBLE REGION Vol. 19 (1974, 400 pp, \$33.30, Academic Press, NY. ISBN 0-12-436319-9), L. Lang, editor. - Contents: Figures (diagrams). Subject index. Formula index. Author index. Figure (diagram) index. Literature.

ASSIGNMENTS FOR VIBRATIONAL SPECTRA OF SEVEN HUNDRED BENZENE DERIVATIVES Vols. I and II. (1974, Vol I: 462 pp, Vol. II: 206 pp, \$60, set, Halstead, Div. of Wiley. ISBN 0-470-90330-9), by G. Varsanyi. - Contents, Vol. I: Tangential vibrations. Radial vibrations. Out-of-plane vibrations of substituents. Information to the tables. References to the tables. Order of materials. Tables. Vol. II: Spectra. Index of substituents.

INDEX DE SPECTRES DE MASSE-COMPILATION OF MASS SPECTRAL DATA (2nd edition, 1975, Volume 1, 450 pp, \$42.00; Volume 2, 680 pp, \$78.00, Heyden and Son, Ltd., London), par A. Cornu et R. Massot. Cet ouvrage bilingue (anglais et français) a été réalisé à partir d'un fichier comprenant 10.000 spectres de masse de composés organiques, rassemblés depuis une dizaine d'années au laboratoire de spectrométrie de masse du Centre d'Etudes Nucléaires de Grenoble. - Il reprend, après un certain nombre de corrections, les données spectrales parues successivement dans l'Index de Spectres de Masse et ses deux Additifs, édités respectivement en 1966, 1967 et 1971: plus de 3.000 données spectrales nouvelles ont été ajoutées. Les données rassemblées par les auteurs se présentent selon 3 classifications :

Section A : par masse moléculaire

Section B : par formule moléculaire brute

Section C : par masse des principaux fragments ioniques.

- Le Volume 1 comporte deux parties : la partie A présente l'ensemble des données, classées par ordre de masses moléculaires croissantes et la partie B reprend ces mêmes données avec un classement par formules brutes. - Le Volume 2 (partie C) rassemble toutes les données spectrales, classées en fonction des masses des principaux pics. Ce dernier classement permet de trouver rapidement tous les composés dont le spectre de masse présente, à une masse donnée M, d'abord le pic le plus grand, puis les pics de rangs 2 et 3: il est particulièrement utile pour identifier un composé à partir de son spectre de masse lorsque la masse moléculaire n'est pas connue avec certitude.

ION MASS SPECTRA (1974, 432 pp, \$20.95, Wiley-Interscience. ISBN 0-471-94965-5), by R.G. Wilson. - Contents: Ion source and manifold. Experimental conditions. Collection and presentation of data. Ion mass analysis and identification. Experimental sensitivity and errors. References. Data tables. Index of ions. Data pages.

ORGANIC ELECTRONIC SPECTRAL DATA (1968, Vol. X, 1034 pp, \$40.00, Wiley-Interscience ISBN 0-471-68801-0), J.P. Phillips, H. Feuer and B.S. Thyagarajan, editors. - Contents: A compilation, in formula form, of the ultraviolet-visible spectra of organic compounds presented in the journal literature.

THERMODYNAMIC PROPERTIES

COMPREHENSIVE INDEX OF API44-TRC SELECTED DATA ON THERMODYNAMICS AND SPECTROSCOPY 1974 (2nd edition, 1975, 752 pp, \$30.00, TRC Data Distribution Office, Texas A & M University, F.E. Box 130, College Station, Texas 77843, USA), B.J. Zwolinski, R.C. Wilhoit and C.O. Reed, Jr., editors, is a ready reference for the nearly 9700 compounds found in the 12 publications of the Thermodynamics Research Center. Included are data in 50 kinds of thermodynamic and physical property tables and in 5 distinct categories of spectroscopic data: infrared, ultraviolet, mass, Raman and nuclear magnetic resonance. In addition to data from the spectral catalogs, the Index also covers

the numerical tables in the physical and thermodynamics AP144 and TRC Data Project Tables. The entries are alphabetized by both CAS Compound Name and Formula sections. Two features have been added to the new edition of the Index -- the Wiswesser Line Notation (WLN) to all entries and the Chemical Abstracts Services (CAS) Registry Numbers for 1200 of them.

HANDBOOK OF METAL LIGAND HEATS AND RELATED THERMODYNAMIC QUANTITIES (2nd edition, 1975, 485 pp, \$25.00, Dekker. ISBN 0-8247-6317-3), by J. J. Christensen, D. J. Eatough and R. M. Izatt. - Contents: Use of table and indexes. Table. Empirical formula index. Element index. Synonym index. Reference index.

HYDROGEN BONDING (1974, 622 pp, \$45.00, Dekker. ISBN 0-8247-6211-8), by M. D. Joesten and L. J. Schaad. - Contents: Detection of hydrogen bonds. Theory of the hydrogen bond. Thermodynamics and kinetics of hydrogen bonding. Correlations. Intramolecular and homomolecular hydrogen bonds. Appendix. Annotated bibliography. Author index. Subject index. Included, but not mentioned in the table of contents except as an Appendix, is a unique and vital 89-page set of tables of thermodynamic data and A-H frequency shifts for hydrogen bonds between reference acids and Lewis bases.

TABLES ON THE THERMOPHYSICAL PROPERTIES OF LIQUIDS AND GASES, in normal and dissociated states, including Alkali Metals and Mercury (Second edition, 1974, 772 pp, \$49.50, Hemisphere Publishing Corporation, 1025 Vermont Avenue, N.W., Washington, D.C. 20005), by N. B. Vargaftik, is an important reference volume containing the following features: - Thermophysical properties of water and steam (steam tables) are given in SI units on the basis of new International Tables. For dissociated steam, data are given up to 6000 K and 1000 bar taking into account properties of dissociated steam. - New, detailed data are listed for para and normal hydrogen, both in the liquid and in the gaseous states. The present tables contain data up to 6000 K and 1000 bar, that is, include the region of high temperatures where hydrogen exists in a dissociated state. New tables of transport properties of hydrogen are provided for both the liquid and the gaseous states as a function of pressure up to a temperature of 2000 K. - The thermophysical properties of nitrogen, oxygen, air and argon are given over a wide range of parameters. New data at high temperatures are listed for both the liquid and gaseous states, ranging from extremely low pressures up to 1000 bar. - The tables of thermophysical properties of carbon dioxide (CO₂) contain reworked, expanded and more accurate information. This section contains new data for liquid carbon dioxide at high temperatures (up to 4000 K) in the critical region, where it exists in the dissociated state. - Very detailed tables are given for alkali metals and mercury. Thermodynamic properties have been determined on the basis of new, more accurate data on the dissociation energy of diatomic molecules of alkali metals. The thermodynamic properties tables have been extended to 3000 K, taking into account both dissociation and ionization. Thermodynamic properties for ionized lithium at high temperatures are given in a separate set of tables. Viscosity and thermal conductivity of alkali metals in the gas phase

are reported here for the first time. - Information on thermophysical properties of monoatomic substances is presented in an expanded form. New tables for helium include data for both liquid and gas phases at extremely low and high temperatures (up to 3000 K) at different pressures. Thermophysical properties of neon, krypton and xenon are given over a wide range of temperatures and pressures. - New data are cited on the diffusion in binary gas mixtures, on viscosity and thermal conductivity of mixtures and solutions; data at different pressures are included. - A four-part, extensive, cross-referenced index should prove helpful to the reader in locating any substance or property. - Many of the tables are preceded by introductory explanatory material. All the thermophysical properties are given in SI units.

THERMODYNAMIC AND THERMOPHYSICAL PROPERTIES OF COMBUSTION PRODUCTS; Vol. 1, COMPUTATION METHODS (1974, 433 pp, \$28.00, Israel Program for Scientific Translations, Jerusalem. ISBN 0-7065-1471-8), V. P. Glushko, editor. Translated by R. Kondor and Ch. Nisenbaum. - Contents: Data on propellants. Ideal systems of combustion products. Representation of the results of calculation of ideal systems of combustion products. Special features of real systems of combustion products. Appendixes. Bibliography.

MISCELLANEOUS

IT HAPPENED LAST YEAR! EARTH EVENTS-1973 (1974, 250 pp, \$3.95, Collier Books, Div. of Macmillan.), J. Cornell, editor. - Contents: The short-lived events of 1973. Special report: the Tasaday Manobo tribe discovery. Tables of reporting sources. Selection criteria for events reported. Correspondents of the center. Events of 1968-1972. Reports issued by the center. Index.

GEMSTONE AND MINERAL DATA BOOK: A COMPILATION OF DATA, RECIPES, FORMULAS AND INSTRUCTIONS FOR THE MINERALOGIST, GEMOLOGIST, LAPIDARY, JEWELER, CRAFTSMAN AND COLLECTOR (1974, 346 pp, \$4.95, Collier Books, Div. of Macmillan. ISBN 0-02-094100-5), by J. Sinkankas. - Contents: Weights, measures, conversions and mathematical formulas. Chemicals, useful miscellaneous materials and formulations. Lapidary equipment. Abrasives, polishing agents, buffs and laps, and their uses. Metals and jewelry data. Coloring gemstones and minerals. Physical properties of minerals and gemstones aiding in identification. Chemical testing of minerals. Mineralogical miscellany. Cleaning mineral specimens. Nomenclature. Optical properties of minerals and gemstones.

MAN-MADE CRYSTALS (1973, 109 pp, \$5.95, Smithsonian Institution Press. ISBN 0-87474-141-6), by J. E. Arem. - Contents: Crystals: an introduction. The roots of the crystal-growing art. Techniques for growing crystals. Man-made gems. Transistors, lasers and bubbles. Case histories. The future. Appendixes. Glossary. How to grow crystals at home. Index.

CODATA PUBLICATIONS

International Compendium of Numerical Data Projects

Springer-Verlag, Berlin, Heidelberg, New York, 1969, 295 pp, DM 48.—, US \$20.—, FF 120.—.

The "CODATA Compendium" provides a comprehensive world-wide survey and analysis of the organisation, coverage, services and publications of the existing data analysis centres in the physical and chemical sciences. In addition to its usefulness as a directory, the book provides a "key" or index to the substance-property content of the published data compilations. A descriptive brochure is available on request.

Proceedings : Third International CODATA Conference : I.e Creusot, France, 26—30 June, 1972

CODATA, Frankfurt Main, F.R.G., Aug. 1973, 100 pp, 297 × 210 mm, DM 30.—, US \$15.—, FF 75.—.

CODATA Newsletter

No. 1 (Oct. 1968), 12 pp; No. 2 (Aug. 1969), 12 pp; No. 3 (Dec. 1969), 8 pp; No. 4 (May 1970), 16 pp; No. 5 (Dec. 1970), 28 pp; No. 6 (June 1971), 20 pp; No. 7 (Dec. 1971), 20 pp; No. 8 (May 1972), 16 pp; No. 9 (Dec. 1972), 12 pp; No. 10 (June 1973), 12 pp; No. 11 (March 1974), 20 pp; No. 12 (Aug. 1974), 24 pp; No. 13 (Sept. 1974), 20 pp; No. 14 (June 1975), 12 pp.

CODATA Bulletin : Annual subscription : US \$ 20 or 100 French Francs

- No. 1 (Oct. 1969), 12 pp, *Automated Information Handling in Data Centers*, US \$ 1.50
(Report of the CODATA Task Group on Computer Use, June 1969), superseded by Bulletin No. 4.
- No. 2 (Nov. 1970), 6 pp, *Tentative Set of Key Values for Thermodynamics - Part I*, US \$ 1.50
(Report of the CODATA Task Group on Key Values for Thermodynamics, Oct. 1970), superseded by Bulletin No. 5.
- No. 3 (Dec. 1971), 28 pp, *A Catalog of Compilation and Data Evaluation Activities in Chemical Kinetics, Photochemistry and Radiation Chemistry*
(Report of the CODATA Task Group on Data for Chemical Kinetics, Sept. 1971).
- No. 4 (Dec. 1971), 12 pp, *Automated Information Handling in Data Centers*, US \$ 1.50
2nd Edition (Report of the CODATA Task Group on Computer Use, Nov. 1971).
- No. 5 (Dec. 1971), 6 pp, *Final Set of Key Values for Thermodynamics - Part I*, US \$ 1.50
(Report of the CODATA Task Group on Key Values for Thermodynamics, Nov. 1971), superseded by Bulletin No. 10.
- No. 6 (Dec. 1971), 8 pp, *Tentative Set of Key Values for Thermodynamics - Part II*, US \$ 1.50
(Report of the CODATA Task Group on Key Values for Thermodynamics, Nov. 1971), superseded by Bulletin No. 10.
- No. 7 (Aug. 1972), 4 pp, *Tentative Set of Key Values for Thermodynamics - Part III*, US \$ 1.50
(Report of the CODATA Task Group on Key Values for Thermodynamics, June 1972), superseded by Bulletin No. 10.
- No. 8 (Dec. 1972), 32 pp, *Geological Data Files: Survey of International Activity*, US \$ 3.50
(Report of COGEOCODATA, Committee on Storage, Automatic Processing and Retrieval of Geological Data of the International Union of Geological Sciences (IUGS).
- No. 9 (Dec. 1973), 6 pp, *Guide for the Presentation in the Primary Literature of Numerical Data Derived from Experiments*, US \$ 1.50
(Report of the CODATA Task Group on Publication of Data in the Primary Literature, Sept. 1973).
- No. 10 (Dec. 1973), 12 pp, *CODATA Recommended Key Values for Thermodynamics, 1973*, US \$ 1.50
(Report of the CODATA Task Group on Key Values for Thermodynamics, Nov. 1973).
- No. 11 (Dec. 1973), 8 pp, *Recommended Consistent Values of the Fundamental Physical Constants, 1973*
(Report of the CODATA Task Group on Fundamental Constants, August 1973).
- No. 12 (Sept. 1974), 12 pp, *Energy Data Accessing and/or Retrieval*, US \$ 1.50
(Report on Data Tagging, compiled by a Panel of Experts at the Energy R&D Data Workshop held at Gaithersburg, Md., May 6-7, 1974).
- No. 13 (Dec. 74), 8 pp, *The Presentation of Chemical Kinetics Data in the Primary Literature*, US \$ 1.50
(Report of the CODATA Task Group on Data for Chemical Kinetics)
- No. 14 (Feb. 1975), 180 pp, *Proceedings of the Fourth International CODATA Conference on the Generation, Compilation, Evaluation and Dissemination of Data for Science and Technology* (Tsakhkadzor, U.S.S.R., June 1974), US \$ 17.00.
- No. 15 (March 1975), 32 pp, *Man-Machine Communication in Scientific Data Handling*, US \$ 5.00
(Proceedings of the Symposium sponsored by the CODATA Task Group on Computer Use, Freiburg im Breisgau, F.R.G., July 1973).
- No. 16 (October 1975), 32 pp, *Study on the Problems of Accessibility and Dissemination of Data for Science and Technology*
(Report of the CODATA Task Group on Accessibility and Dissemination of Data), US \$ 5.00

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