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CODATA

NEWSLETTER

CODATA CELEBRATES 25TH ANNIVERSARY

NOVEMBER 1991

HIGHLIGHTS 1966-91

CODATA Reflects

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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.

CODATA Marches Into the Future

A quarter of a century has passed by since the birth of CODATA. Time is one of several all-important factors in human life, with one distinction: while all other factors can be either re-created, or rectified, or replaced, time cannot be substituted or reclaimed; once it has passed—it has gone forever, into history and oblivion. Hence, it is most important to utilize our time as best we can. Thus, we have to think wisely beforehand, and plan well our deeds in the future, for fruitful and useful accomplishments in time.

The Executive Committee of CODATA devoted an evening, 26 March 1991, as part of its customary meeting in Paris, for the discussion of future directions for CODATA, to guide it in the 1990's. A previous larger-scale attempt by CODATA to direct its future was undertaken at its Long Term Planning Meeting, held in La Gaillarde, France, 1983, which was instrumental in shaping its activities in the 1980's.

The March 1991 evening discussion brought up a long list of topics and issues, bearing interest and importance to CODATA. These topics have been compiled in a report which was disseminated by the Secretariat to all CODATA National Members and International Scientific Unions. Though no attempt was made to prioritize the topics during the discussion evening, many of them will serve as very useful suggestions and recommendations for the future. There is no space nor need to enumerate and detail them all here. Some of the principal guidelines are stated below.

The scientific inter- and cross-disciplinary nature of CODATA, in the use and handling of data, dictates its thoughts and activities. The international character of CODATA affects its policies in data storage and dissemination; it is to stay aloof of predominantly national, local, or regional tendencies. Emphasis is to be put on access to data for everyone.

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CODATA should encourage interdisciplinary coordination between the main categories of data: data for scientific research, data for industrial utilization, and data for other needs.

CODATA should continue to stress the importance and benefits stemming from greater accuracy and reliability of data.

In addition to continuing and enhancing its traditional data activities in the physico-chemical, earth, and life sciences, CODATA is to go strongly into the data problems associated with Global Change, and it should endeavor to act in the energy, communications, and space fields.

CODATA should enhance its role in the field of education and training. It should intensify its activities in creating new Task Groups and in organizing more workshops, conferences, and symposia. It should improve its effort in publishing—both printed and electronic media—scientific periodicals and books, users' manuals, directories, etc.

CODATA should increase its cooperation and joint ventures with relevant international scientific and technological organizations and with other institutions. It should strengthen its communications and efforts with ICSU and the relevant International Scientific Unions. It should further improve and integrate its ties and mutual relations with national member countries, and increase their number.

CODATA has accomplished much in its 25 years of existence. The nature of its work has been revolutionized over the years by computerization and electronic communication. Even the individual scientists have had to do data science with the aid of personal computers. CODATA will also have to go into new forms of data handling, database integration, and database management to take into consideration very large data sets such as those emerging from collection and continuous monitoring of data by remote sensing from space or from sequence data banks.

And so, on we go into the 1990's and towards the 2000's!

--David Abir; President, CODATA

CODATA's Inception

The year 1966 is usually taken as the birthdate of CODATA and technically this is correct. But, of course, the idea of a large, comprehensive collection of a critically evaluated data system gleaned from the world literature of science had been in many peoples' minds. A number of sporadic and partial efforts were in progress and had great usefulness and some stability. Witness the Landolt-Börnstein-Tabellen in Germany, the Tables de Constants Sélectionnée in France, and the Kaye and Laby Tables in the U.K.

World War I, of course, was a great shock to all such efforts and pointed up the need for a coordinated effort to collect, evaluate, and publish all of the acceptable data in the world literature of science and make this available. With the recommendation of IUPAC at its organizational meeting in 1919 the creation of The International Critical Tables (ICT) was initiated. The enterprise enjoyed the patronage of the International Research Council (now the International Council of Scientific Unions, ICSU). The

United States accepted editorial and financial responsibility with the cooperation of the American Chemical Society and the American Physical Society. Under the editorship of Edward W. Washburn, assisted by dozens of corresponding editors helped by hundreds of individuals around the work, the work went forward and the six volumes plus a comprehensive index were published by 1933. Its success has been phenomenal. It sold briskly for many decades and is still useful. However, plans for its revision were quite inadequate.

In the early 1960's, within ICSU, Harrison Brown strongly urged a study be made of the non-revision of the ICT. The response was the appointment of a six man Working Group under the leadership of Harrison Brown to study the problem. The designated members of the Working Groups were:

France	Professor B. Vodar
Germany	Professor W. Klemm
Japan	Professor M. Kotani
United Kingdom	Sir Gordon Sutherland
USSR	Academician W.M. Kirillia
USA	Professor Frederick D. Rossini

The Working Group had been asked to report back to the Executive Committee of ICSU in 1965. The report was submitted. It unequivocally recommended that ICSU, as the largest, most broadly based, non-governmental, scientific organization should accept and implement a plan for searching out, examining, critically evaluating, and making available in suitable ways all published quantitatively expressed property values.

The Executive Committee accepted the recommendation and asked for a detailed plan to be presented to the General Assembly of ICSU meeting in Bombay, India, in January 1966. The plan was adopted. It was named the Committee on Data for Science and Technology of the International Council of Scientific Unions. At a meeting, at Enunclair, Washington, that summer, I had the pleasure of proposing and having accepted the semi-acronym "CODATA." It should be pointed out that ICSU was a very useful and powerful organization with a dozen or so Member Unions and possessing great flexibility because of its non-governmental structure.

A few words about the structure of CODATA are in order. The Constitution of CODATA was a part of the package approved by the General Assembly of ICSU at Bombay in 1966. It provided for a four-man Bureau later increased to six with a President, two Vice-Presidents, and a Secretary-Treasurer. Union Representatives—one from each Union wishing to participate—originally numbered eleven; National Representatives originally numbered six, which became seven and is now more than twenty. Also, there were other ICSU representatives such as the ICSU Abstracting Board and the Federation of Astronomical and Geophysical Services (FAGS).

This type of structure immediately gave CODATA much input concerning data compilations in progress and current information about recommended values of physical constants, atomic weights, nomenclature, and the rapidly changing terminology of new areas of science and technology. Then, too,

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provision was made for the formation of Task Groups to care for specialized areas such as (1) a Task Group on Computer Use,

(2) a Task Group on Key Values for Thermodynamics, and (3) a Task Group on Accessibility and Dissemination of Data, etc.

With the foregoing framework in place we were then ready to begin implementation of the plan. First, the establishment of the Central Office. With prescience, the National Academy of Sciences - National Research Council (NAS-NRC) of the USA had formed the Office of Critical Tables to do at the national level what was needed at the world level. The NAS-NRC offered CODATA office space in its new building in Washington, DC and the services of an Executive Director, half-time. The offer was accepted, Dr. Guy Waddington became CODATA's first Executive Director, and additional staff was found in the persons of Dr. Christoph Schäfer of the Institute für Dokumentation, Frankfurt, Federal Republic of Germany, Mrs. Simone Kyropoulos of French birth who had editorial experience with the American Chemical Society, and Miss Annigret Kundrat on leave from the International Atomic Energy Agency of Vienna. The space in the NAS building was only available for two years. Then the operation would be shifted to a European location.

The work of the Central Office began in July 1966. The Constitution of CODATA had clearly specified that a high priority be given to the preparation of a "International Compendium of Numerical Data Projects" and work on this project went forward vigorously beginning in late 1966. The Office of Critical Tables of the NAS-NRC had published a similar volume for the American market a year or two earlier and turned over the files of information from that work to the staff of CODATA. This time the search for input information was truly world-wide. Every Union, every nation with vigorous science activities and all other organizations were carefully scanned for data activities. The work was essentially completed in Washington and copy was taken to Frankfurt. Publication was arranged with Springer-Verlag in 1969.

During this period in Washington, Dr. Schäfer spent a good deal of time visiting some of the existing centers in the US that produced compilations of good data on a continuing basis, thus gaining some idea of the magnitude and nuances of such work.

The three or four year period beginning about July 1, 1966, was very busy and CODATA became well known. The Bureau of CODATA met seven times between June 1966 and September 1970 with the management gradually shifting from Washington, DC, to Frankfurt, Germany, where the Central Office was located. The location of these Bureau meetings were, in succession, Paris, Enunclair (Washington), Moscow, Frankfurt, London, Frankfurt, St. Andrews (Scotland). Some of these were held in conjunction with annual General Assemblies of the entire membership. These were business meetings. Dr. Schäfer became Executive Director 1 July 1968. [At that time Dr. Guy Waddington became CODATA's first—and only—co-opted individual member. With the passage of time "Co-opted Members" have been typically ICSU Affiliated Members. The unique honor of being CODATA's only *individual* Co-opted Member is well deserved! *Editor.*]

CODATA also organized and managed two International Conferences in this period. The first designated as The First International DATA Conference at Arnoldshain, Federal Republic of Germany, July 1-5, 1968, and the second at St. Andrews, Scotland, September 9-11, 1970.

Other conferences occurred in this interval related to but outside of CODATA management. For example, (a) Gordon Conference on Numerical Data for Science and Technology—Its Production and Critical Evaluation, at Enunclair, Washington, August 22-26, 1966; (b) Discussion Meeting on Data for Science and Technology, Royal Society, London, June 5, 1967; (c) Gordon Conference on Numerical Data, Tilton, New Hampshire, July 21-25, 1969; (d) International Symposium, Numerical Data for Science and Technology, Warsaw, Poland, August 29-30, 1969.

Thus we see that by 1970 the field of critically evaluated data had become very lively, interest was widespread, and geographic coverage was considerable. Obviously, many more people were involved. CODATA was carrying out one of its main missions—namely to increase communication on a world-wide basis among workers in the field.

At the conferences, small informal meetings of specialists took place to begin the work designated for attention. At Arnoldshain the Task Group on Thermodynamics and Thermochemical Values had met, organized itself and planned its work. The Task Group on Computer use under the chairmanship of Dr. Franz Alt also met for the first time at Arnoldshain.

--Guy Waddington

An Eyewitness Report of CODATA's Birth

It is my pleasure to contribute a paper to *CODATA Newsletter* on the occasion of the quarter century of our CODATA. As I am one of the oldest members of CODATA, I should like to write about the birth of this organization in the 1960's. As I am not aware of the preparatory efforts made in 1964-1965, I have to depend on documents, mainly the record of ICSU General Assembly in 1966. I am sure Dr. Guy Waddington must be aware of activities during this preparatory period. The other difficulty for me is the deterioration of my memory so that I have depended on older documents, and my notes.

In January 1966 at Bombay, India, the eleventh General Assembly (G.A.) of the International Council of Scientific Unions (ICSU) was to be held, and I happened to attend it. Japan was a national member of ICSU with the Science Council of Japan (SCJ) as the adhering body, and Prof. Y. Fujioka was the Japanese Delegate to ICSU. At that time I was a member of SCJ and rather accidentally chosen to attend the ICSU General Assembly, accompanying Prof. Fujioka. I was familiar with the International Union of Pure and Applied Physics (IUPAP), but had never attended meetings of ICSU, so this was a fresh experience for me.

Leaving Haneda airport on January 3rd, we reached Bombay on the next day. This G.A. met in Bombay at the invitation of Dr. Bhabha, a famous Indian physicist, and was the first ICSU G.A. held in Asia. The meeting place was a special room of the Tata

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Institute of Fundamental Research and I felt very relaxed. After Dr. Bhabha's greeting, the General Assembly started with the Opening Address of the President, Prof. H. W. Thompson.

Early in this G.A., a new Union named "International Union of Pure and Applied Biophysics (IUPAB)" was admitted to ICSU. This was expected, because this body had started in 1960 as "International Organization of Pure and Applied Biophysics (IOPAB)", and I had been a member of its council. According to the Rules of ICSU, the scientific body must have existed and been active for at least six years before admission, and we had been expecting admission at this 1966 G.A. On voting admission of IOPAB to IUPAB became definite, and, of course, I was very happy. But that is another story, though IUPAB is now a member Union of CODATA.

On the program of this G.A. I found an agenda item *Critical Tables* near the end. At first I could not understand it, but on reading a comprehensive report entitled *Report of the Working Group on Critical Tables* presented by Dr. Harrison Brown, I was excited realizing that this item was the fruit of two years endeavor of a Working Group with Dr. H. Brown as Chairman for establishing an "International Committee on Data for Science and Technology" (hereafter CODATA) within ICSU. CODATA is the acronym later designed by Dr. Guy Waddington.

During two years before the 1966 G.A., this Working Group (W.G.) had met twice, at Washington, D.C. in 1964 and at Frankfurt in 1965. The Report was a very substantial one, describing details of the two meetings of the W.G., and requesting approval by ICSU for establishment of an international Committee on Data for Science and Technology. A draft of a "Constitution" and a "Proposed Membership List" were attached to the Report. Initial funds of \$10,000 was requested of ICSU for supporting the Committee for its initial two years.

I was surprised upon realizing that this very thoughtful preparation was already done in 1964-66, under the initiative of Prof. H. Brown, and that the Executive Committee wanted to organize a CODATA.

I had started as a theoretical physicist, and gradually developed interest in chemical physics and molecular biophysics. When I carried out a theoretical work, I looked for observed data to compare with my theoretical values, usually scattered over many papers. Considering that such difficulties would generally increase throughout the scientific community, I heartily welcomed the birth of this Committee, CODATA. I had known Prof. F. D. Rossini by name, since I used a concise booklet for data of various simpler molecules, and his name appeared in the report as USA representative.

Further, on the proposed Membership List attached to the Report, four officers, a Chairman, two Vice-Chairman, and a Secretary-Treasurer were indicated, but their names were left open for election by the committee, but the name of Dr. Guy Waddington appeared as Executive Director. For seven of the twelve Unions the names of Representatives were written, such as Prof. W. Klemm for IUPAC and Prof. Boris Vodar for IUPAP. Six countries were listed and names of Representatives were designated as Sir Gordon Sutherland (U.K.), Prof. F. D.

Rossini (U.S.A.), Prof. W. Klemm (Germany), but for France, Japan, and U.S.S.R., the legend read "to be nominated," although Japan had not send a member to the Working Group.

The Report, furthermore, listing the plan of the Constitution, in detail, was very comprehensive and convincing. This was the result of the thoughtful work of the Working Group to which I felt sincere gratitude.

Since the Report was very well documented, the session of the G.A. proceeded expeditiously. Only 7 persons, including myself, spoke briefly. As all members supported the establishment of CODATA with minor changes in the Constitution, the establishment of CODATA was decided.

I would add a few words of congratulations on the 25th year of CODATA. I think CODATA must be both international and interdisciplinary. As to the former, at present not only the countries in Europe and the Northern American Continent, but also those in Asia, and in the southern hemisphere as South American, Oceania, and Africa are CODATA National Members. Data information on our Earth will become very easy; moreover, data activities will become more interdisciplinary in many fields. I like to say: *ONLY ONE SCIENCE* and *ONLY ONE WORLD* are important characteristics of data problems.

--Masao Kotani

The CODATA International Conferences

Although Canada was not one of the founding members of CODATA it has the distinction of being the first additional country to join the original consortium. Accordingly, I was invited to attend the first CODATA International Conference at Arnoldshain in 1968. I look back nostalgically on my participation in this and all the subsequent Conferences to 1980, and again to the 1986 Conference here in Ottawa.* Over this period I wore several different CODATA hats, as a National Representative for Canada, several different positions on the Bureau and, in a more technical capacity, as the Secretary of the Task Group on Computer Use.

The early CODATA Conferences are notable for the judicious choice of the locations selected by the various National Committees responsible for their organization. None of them were stereotyped convention centres. Accordingly, each one leaves a distinctive individual memory. The Arnoldshain Conference was held in a small private academy in rural upland country some 30 km north of Frankfurt. At the second Conference, held at the University of St. Andrews, the guests were accommodated at the Old Course Hotel, so close to the famous golf course that some of the hotel windows were protected by netting from the occasional badly-sliced ball played

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*The Conference sites were:

1968 Arnoldshain (FRD.)	1980 Kyoto (Japan)
1970 St. Andrews (Scotland)	1982 Jachramka (Poland)
1972 Le Creusot (France)	1984 Jerusalem (Israel)
1974 Tsachkadzor (USSR)	1986 Ottawa (Canada)
1976 Boulder (USA)	1988 Karlsruhe (FRD)
1978 Santa Flavia (Sicily)	1990 Columbus (USA)

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off the tee of the 17th hole. At Le Creusot our Conference was the first ever to be held in the small town in the centre of the Beaujolais wine district. Some sessions were held in the Chateau of Marie Antoinette, and others inside an old glass furnace, built originally to manufacture the chandeliers for the Chateau and since converted to a museum. At Tsachkadzor we met at the high-altitude Olympic training centre near Yerevan in Soviet Armenia under the shadow of Mt. Ararat. By and large the later Conferences left equally vivid geographic impressions, but here I will dwell only on these early Conferences since they subsequently played an important part in establishing the CODATA traditions retained even today.

The late 1960's were a time when dawn was breaking on the computer age. In most scientific disciplines there were only a few people who had the perspicacity to recognize what was in store. For the most part these people worked within the confines of their own scientific discipline. CODATA—and its progenitor ICSU—were aware of this and one of CODATA's first actions was to establish a Task Group on Computer Use on which I served as Secretary. The Group met briefly in Paris a few weeks before the Arnoldshain Conference. The disciplines represented were computer science, documentation, physics, and spectroscopy. We met as strangers to one another. Later when we met again at Arnoldshain we found ourselves sharing a sense of unreality with many of the other Conference delegates who were also asking each other the rhetorical question "What am I doing here?"

By the time the next two Conferences had come and gone at St. Andrews and Le Creusot the concept of participating in an interdisciplinary profession of data evaluation, management and dissemination had become well established. At Le Creusot it became apparent that those involved directly in these activities would benefit from a more specialized meeting at a higher technical level. Accordingly the Task Group on Computer Use arranged an interim "off-year" conference in 1973 on "Man Machine Communication for Scientific Data Handling" at the University of Freiburg in Breisgau. It was attended by 101 participants from 13 countries and 4 international organizations. It is reasonable to say that this conference consummated the marriage between the computer technologists and the scientific community.

The efforts and enthusiasm of many people were involved in the successful launching of CODATA as outlined above. Here I can cite individually a few who worked most closely with me, based on their membership of the Computer Task Group's Freiburg Conference Program Committee, namely Gordon Black (UK), I. Elieser (Israel), Olga Kennard (UK), Makoto Kizawa (Japan) and Barbara Starck (FRD).

--R. Norman Jones

Makoto Kizawa's 1/4 Century in CODATA

A letter I received unexpectedly in December, 1966, knocked on the door to my involvement in CODATA. The letter, described with thin, small and beautiful handwritten characters, was from Prof. Masao Kotani, whom then I knew little of and had never

seen, requesting me to be a member of the CODATA Task Group (TG) on Computer Use, the first TG which CODATA established almost immediately after its inauguration.

The first accomplishment of this TG, chaired by Dr. F. L. Alt, was the state-of-the-art survey of the automated information handling in data centers. Its result was published in the *CODATA Bulletin* Nos. 1 and 4. It should be noted that the decision to create the *CODATA Bulletin* was made at the Fourth Annual Meeting of CODATA (equivalent to the present General Assembly), Rome, 1969, motivated by the receipt of this TG's report.

At the Third International CODATA Conference, Le Creusot, France, 1972, the TG, now chaired by Prof. G. Black, composed a session, which I had the honor to chair, entitled "Computer Topics of Special Interest to Data Analysis Centres," in which four scientists (one with a demonstration of transatlantic data communication) gave presentations.

Another notable TG event was the Symposium on Man-Machine Communication for Scientific Data Handling, Freiburg, FRG, June 22-27, 1973. It was attended by more than 100 scientists from fourteen countries and four international organizations, and its summary was published in *CODATA Bulletin* No. 15.

In the meantime a new TG, "... on Accessibility and Dissemination of Data" (CODATA/ADD) was started in 1972. I left the Computer Use TG four years later to help Prof. Kotani—originator and the chairman of the TG—as secretary. The first task of this TG was the study on accessibility and dissemination of data which the chairman tackled ambitiously under a Unesco contract. Because of the limited time, the original draft of its report had to be prepared by the chairman and myself with the help of Etsuko Ushijima, a Japanese information scientist. It is now a happy memory that I translated the Japanese text which Prof. Kotani prepared for the major part of the report, wondering if some day I might have to retranslate the same text back into Japanese. The draft was discussed and revised by the Members of the TG at several meetings, and its final one was presented to Unesco as "Study on the Problems of Accessibility and Dissemination of Data for Science and Technology," Unesco, SC.74WS/16. The report was then again revised, with comments from geo- and bioscience scientists added. This report gives a basic concept of data handling in science and technology, and it may not, I believe, be too much self-admiration to call it a "Bible" for data handling.

After Prof. Kotani took the Presidency of CODATA in 1978, Dr. D. G. Watson succeeded to the chairmanship. The biggest event in his term was the Training Course on Data Dissemination, Tsukuba, Japan, 1980, for which I also struggled as a local organizer. This Training Course, in which sixteen students and eleven teachers participated, was the first attempt of this kind.

My term of office having expired, I left CODATA/ADD in 1980; but my eight years as Secretary of this TG under the guidance of Prof. Kotani and Dr. Watson, were the most significant period of my CODATA involvement.

In 1987 I became a member of the Working Group on East-Asian Data Sources. It was later upgraded to a TG and subse-

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quently renamed the TG on the Survey of Data Sources in Asian-Oceanic Countries. This TG, proposed and first chaired by Prof. Jiro Osugi, aimed to familiarize the data sources in and around East Asia which are not widely known beyond the Orient owing to such difficulties as language barriers. The members from China, Japan, and Korea continued in spite of the unexpected demise of Prof. Osugi, and the results were published as *CODATA Special Report* No. 12 and *CODATA Bulletin* Vol. 21 No. 3, Vol. 22 No. 3, and Vol. 23 No. 3. It should also be noted that this TG enhanced the development of data activities in Asian-Oceanic countries and promoted new CODATA affiliations of Korea and China Taipei. Affiliation of yet other countries is expected.

Looking back at the past quarter century, I am very happy to say that I could learn much by seeing and talking with many prominent scientists, international and interdisciplinary, through CODATA Conferences and meetings. I feel unhappy, however, that some of them are already away. I cannot forget Prof. Frederick D. Rossini, Prof. Boris Vodar, Sir Gordon Sutherland, Dr. W. W. Hutchison, Dr. E. L. D. Brady, Prof. Stig Sunner, Dr. S. A. Rossmassler, Prof. M. Carapezza,..... I also miss Mr. Bertrand Dreyfus, the first Executive Secretary in the Hotel de Noaille (Paris) Secretariat.

At present I have served CODATA as a member of the Nominating Committee since 1986, but will continue to contribute to CODATA for at least three more years.

--Makota Kizawa

CODATA, Paris

When the CODATA Secretariat moved its Headquarters from Frankfurt to Paris in December 1973, Prof. Boris Vodar, an eminent French physicist was then President of CODATA. He showed dynamic interest in CODATA which resulted in obtaining offices for the Secretariat at the ICSU Headquarters recently established in Paris on Boulevard de Montmorency where office space was graciously offered by the French Ministry of Education. ICSU had just moved from Rome, Italy.

One of the founding fathers of CODATA in 1966, Professor Vodar was Director of the Laboratory of Molecular Interactions and High Pressures. His intense desire to bring scientists together from all over the world and his accomplished conference organizing allowed him to excel in animating CODATA even after his Presidency ended in 1974. He was responsible for organizing six international conferences in France including the 3rd International CODATA Conference at Le Creusot in 1972. In 1974, he organized the 4th International CODATA Conference in Tsachkadzor, Soviet Armenia, where the first online demonstrations with the Computer Center in Novosibirsk were held. A connoisseur oenologist, with a garden housing a unique collection of trees from all over the world, Professor Vodar's vitality, warmth, generosity and scientific interests reflected upon CODATA until his death in 1982.

Professor Vodar proceeded with the help of Secretary General Edgar F. Westrum, Jr., and Treasurer Nicholas Kurti, and Norman Jones to staff the new Secretariat.

Bertrand Dreyfus, a physicist, was chosen as Executive Secretary, a position he held from March 1974 until May 1979. As Nicolas Kurti wrote of Bertrand Dreyfus shortly after Bertrand's death in 1979, "thanks to both his experience in scientific information and, even more, to his wide interests and solid knowledge, Bertrand Dreyfus was the obvious and unanimous choice for the post of Executive Secretary. As Edgar Westrum, our Secretary General remarked, interviewing Bertrand was not a dry, stereotyped affair, but a stimulating and enjoyable experience, an animated yet thoughtful discussion on many scientific and organizational matters conducted in impeccable French and English."

I had the great pleasure of working with Bertrand from his beginnings at CODATA and admired his thorough scientific knowledge and his meticulous editing of the CODATA Proceedings. He had the great gift of being able to explain the most complicated subjects in a clear fashion.

During my 17 years at the Paris Secretariat, I have had the unequalled pleasure of working with outstanding scientists such as Prof. Westrum, Secretary General for 9 years, an accomplished thermodynamicist, culinary master, photographer, stamp collector and canoeist, a veritable "force de la nature." Prof. Nicholas Kurti, who was Treasurer for 8 years, brought his great scientific knowledge, wit, culinary arts, music appreciation, and concern for having CODATA's limited resources cover as much scientific activity as possible. Prof. Paul Melchior, President of CODATA from 1974 to 1978, brought his worldwide reputation as an outstanding astrophysicist to help bring CODATA into the Earth Sciences under his leadership. Prof. Masao Kotani, one of the founding fathers of CODATA and father of the classic report on Accessibility and Dissemination of Data, involved CODATA in the World Data Referral Center under his Presidency and approved the idea of extending CODATA's activities into the life sciences with the establishment of the Hybridoma Data Bank during his term of office.

William W. Hutchison ("Hutch") succeeded Prof. Kotani as President, and his untimely death did not enable him to follow through completely on the "Long Term Program" he had fostered in La Gaillarde, France. He and Richard Sinding-Larsen brought CODATA further along in the Earth Sciences with their project on Multisatellite Thematic Mapping. "Hutch" was succeeded by David Lide, an outstanding physical chemist who was Chief of the Office of Standard Reference Data at the National Bureau of Standards (now NIST) and present editor of the *Handbook of Physical and Chemical Reference Data*. Also active in CODATA during this period were Professors V. V. Sytchev, Lev Gurvich, N. Rambidi, Vadim Medvedev, and more recently, Fedor Kuznetsov from the U.S.S.R. Prof. Jacques Emile Dubois from France illuminated CODATA with his comprehensive scientific expertise and human qualities, both at the Secretariat and throughout CODATA internationally, along with Dr. H. Viellard, B. Keil, and Prof. Alain Bussard from France. From the United States such people as Arnold Bondi, Yeram Touloukian, Ed Brady, Howard White, Don Wagman, Dave Garvin, Steve Rossmassler, Marjorie Courain, and Malcolm Chase brought their expertise and diplomacy to CODATA.

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Dr. E. Richard Cohen has been as much a benchmark in CODATA as the CODATA Fundamental Physical Constants—which he chaired for almost 20 years—has been to science. The U.K. supported CODATA with gentlemen like Sir Gordon Sutherland in the early days of the Secretariat, Selby Angus, David Watson as a Treasurer, and, in still more recent years, James Crease, our current Treasurer. Dr. Heinrich Behrens from Germany contributed largely to CODATA for nearly 15 years. Italy was represented by the warm, generous Prof. Marcello Carapezza until his death in 1988; Sweden with Stig Sunner who headed the Key Values for Thermodynamic Data Task Group through its early years; Japan contributed also through Professors T. Shimanouchi, Y. Mashiko, M. Kizawa, and J. Osugi; Australia with Guy White, Jim Morrison and, lately, Clyde Garrow; Israel in the persons of Steven Kertes and David Abir; Canada with its scientist-poet C. B. Alcock and present Secretary General, Gordon Wood. Poland contributed two active Vice-Presidents to CODATA, Professors Thomasz Plebanski and Andrzej Bylicki.

I was aided by Arlyne Semiloff, Cynthia Binder, Gerard Emptoz, Catherine de Hennezel, Sarah Levasseur for eight years of her life and later by Jordan Berger.

Space unfortunately does not permit me to mention all the fine people who contributed to CODATA's reputation of excellence. I have been privileged to have been at 51 Bd. de Montmorency where I could humbly contribute to helping scientists share their wisdom. I often wonder who has ever read the CODATA Proceedings from cover to cover. Though I can appreciate tables of data, lists of names are more difficult because "science" is carried out by men and women, and behind each name on a list is a complex human being or one organization. The implementation of cooperation is never clear cut. It can be a phone call, a fax, an E-mail, a conference, a mailing, and no one human being can be aware of all the work going on in laboratories, offices, in the field, and in space nor of the hundreds of scientific meetings taking place each day throughout the world. CODATA is one of many small families, part of the larger family of ICSU, but I would also like to think part of the even larger family of man, seeking to make the planet a better world for our children. I cherish the friendships I have made and will work to the best of my capacity to help CODATA into its next quarter of a century.

--Phyllis Glaeser, Executive Secretary

.....And.....

Although several of the reflections comment on the effectiveness of the CODATA multidisciplinary conferences—and workshops and training courses as well—and the "cross-fertilization" that they engender between data treatment in different disciplines, CODATA also provides *Proceedings* of these Conferences to share these insights with other scientists unable to be participants. In fact, CODATA has an extensive publication program which began with *Compendium*.... mentioned by Dr. Waddington and under which are issued quarterly *Newsletter* and *Bulletin* series. *Special Reports* as well as a number of aperiodical brochures and

CODATA Calendar

1992

March

- 2-5 International Geosphere-Biosphere Program Commission on Data. Chambéry, France
- 5-7 CODATA Biological Macromolecules Task Group. Paris, France
- 9-10 Two-dimensional Electrophoresis Subgroup of CODATA TG on Biological Macromolecules. Paris, France
- 14 Task Group on CODATA Referral Database. Paris, France
- 14 CODATA Publications Committee. Paris, France
- 16-18 Executive Committee Meeting. Paris, France

April

- 13-15 Materials Regularities Workshop. Como, Italy

October

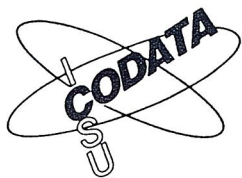
- 17-18 Asian-Oceanic Data Sources Task Group. Beijing, China
- 19-22 International CODATA Conference. Beijing, China
- 23-24 CODATA General Assembly. Beijing, China

monographs are also produced. Some Task Group developments are issued in several channels of scientific journals as are the *Fundamental Physical Constants*. A CODATA Task Group of experts in physics and metrology establishes the recommended values of the fundamental constants which are adopted by most national and international bodies. Other results of Task Group deliberations appear as hard and/or soft bound books; e.g., *Key Values for Thermodynamics*, the *CODATA Thermodynamic Tables*, and the forthcoming *Geothermodynamic Data* series are examples. CODATA has established an effective mechanism for collaboration of thermochemical data centers in five countries. Database formats have been standardized and data are being exchanged in computerized form.

Some biologists used to think that computers were of little use in the life sciences. But all that is now clearly passé! The Hybridoma Data Bank, a joint pilot project of CODATA and the International Union of Immunological Societies, was established in 1983 with financial support from a number of countries. Data on hybridoma characteristics can be obtained from the established nodes in the United States, France, and Japan. Moreover, the Biological Macromolecules project seeks to improve coordination among several hundred institutions that compile protein and DNA sequence data. The Task Group has developed standard formats to facilitate interchange among these data banks.

Diskettes provide another form by which databases may be distributed. The CODATA Referral Database, a computer-

(cont'd. on p. 9)



Task Group on Materials Database Management

Materials Database Newsletter November 1991, Number 15

The CODATA Task Group on Materials Database Management held its 8th meeting, on 12th and 13th September last, at Downing College, Cambridge. Ongoing items of business, and services provided by the Group to the materials database community, were reviewed; these included this Newsletter, the Register of Materials Database Managers, the various Directories produced by CODATA or associated bodies (see also item under "Directories" below), and proposals for workshop type meetings. With some regret the Task Group has had to postpone indefinitely the Symposium and Workshop on data exchange planned to take place in Moscow in 1992 which was announced in Newsletter No. 12. A proposal for a new Workshop addressing costs, benefits, the economic consequences and marketing of materials property databases was discussed in outline; a date in 1993 seems possible for this event. It would bring together a number of themes recently introduced into the Task Group's discussions concerning costs of database building and supply, and standardization of database descriptions.

DATABASES

The PLASPEC materials selection database is now available online through DIALOG Information Services (File 321). This full-text database with numeric search fields contains detailed specification, property, supplier and pricing information on nearly 12,000 commercially available plastics materials. FURTHER INFORMATION: DIALOG Information Services, 3460 Hillview Avenue, Palo Alto, CA 94304, USA. Tel +1 800 334 2564.

NACE (National Association of Corrosion Engineers) has announced the availability of CHEM COR 2 and CHEM COR 2PLUS, expert systems that provide guidance on the selection of materials for shipping, handling and storage of acetic acid environments. CHEM COR 2 is a rule-based expert system module which includes a discussion of acetic acid, materials descriptions, a glossary of terminology and literature references. CHEM COR 2PLUS allows users to customise their systems by adding their own data and information that may be unique or proprietary. FURTHER INFORMATION: J N Hooper, NACE, 1440 South Creek Drive, Houston, TX 77084, USA. Tel +1 713 492 0535.

DIRECTORIES

A new Directory of Numeric Databases has been issued by the International Council for Scientific and Technical Information (ICSTI). CODATA provides several members of the Numeric Data Group of ICSTI which produced this new work. The Introduction to the Directory acknowledges that it represents a first attempt and should not be considered as providing a complete coverage of all numeric databases. Even so, it includes over 300 numeric databases on Astronomy, Chemistry, Crystallography, Energy, Engineering Materials, Geosciences, Physics, Spectroscopy and Toxicology. The largest single group, with 70 entries, is that on Engineering Materials. Each entry includes the title/acronym of the database, the name of the organization producing it, the form in which it is available, and gives names, addresses and telephone numbers of contacts who can provide information on access or technical matters. Entries are indexed by title, name of producer and subject(s) of contents. The Directory is priced at 50 French francs/US\$10 and may be obtained from: Marthe Orfus, Executive Secretary, ICSTI, 51 Boulevard de Montmorency, 75016 Paris, France. Tel +33 1 45 25 65 92; FAX +33 1 42 88 14 66.

RECENT PUBLICATIONS

CALENDAR

Butterworth Heinemann have recently published **Materials Information for CAD/CAM** by Philip Sargent. This book discusses the use of materials information in engineering design and manufacture and how computerized CAD/CAM systems change the ways in which this information can be effectively used. Contents include Materials Selection; Representing Information; Data Exchange Technologies; Decisions and Selection; Information Quality; Knowledge Base Systems; and CAD/CAM Environments. The book includes a review of database and related development programmes, such as the Versailles Agreement on Materials and Standards (VAMAS) and initiatives under the Commission of the European Communities, National Institute for Standards and Technology and the Materials Property Data Network. **Materials Information for CAD/CAM** (August 1991/234 X 156mm/160pp/illustrated/Hardback/0 7506 0277 5) is available from: Reed Book Services Ltd, PO Box 5, Rushden, Northants NN10 9YX, England (Tel +44 933 58521; FAX +44 933 50284), price £25.00.

28 November 1991: London, UK

MATERIALS SELECTION BE DESIGN. CONTACT: Conference Department, The Institute of Metals, 1 Carlton House Terrace, London SW1Y 5DB, UK. Tel +44 71 839 4071; FAX +44 71 839 3576.

19-22 October 1992: Beijing, CHINA

13th International CODATA Conference **NEW DATA CHALLENGES IN OUR INFORMATION AGE.** CONTACT: Chinese National Committee for CODATA, No 4 Nan 4th St., Zhongguancun, Haidian District, Beijing 100080, CHINA.

Future meetings of **ASTM Committee E49** have been scheduled as follows:

4-7 November 1991:
18-20 May 1992:
16-18 November 1992:
May 1993:
November 1993:

San Diego, CA, USA
Pittsburgh, PA, USA
Miami, FL, USA
Atlanta, GA, USA
Fort Worth, TX, USA

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.....And..... (cont'd. from p. 7)

searchable file of worldwide sources of data in all fields of sciences, has been developed in collaboration with Unesco. This includes data centers, repositories, and other institutions which provide data to the technical community. It is distributed in diskette form for personal computers. Directories to ongoing fields of endeavors are released as *CODATA Bulletins*. From artificial intelligence, computer graphics, provisions of guidelines for data presentation, glossaries for data-related terms, Asian-Oceanic data sources, etc., CODATA strives to enhance the quality of data throughout the world and to facilitate accession of reliable data for scientists and engineers.

CODATA's role in the 1990's has not diminished; rather the challenges are increasing, and areas which once seemed beyond the pale of CODATA's province have proven to be those in which CODATA was especially needed.

--The Editors

A very brief catalog of CODATA breadth and diversity are attested to by the names of recent *CODATA Bulletins*:

1991
Information Integration for Biological Molecules, 23(4)
A *Glossary of Terms Relating to Data, Data Capture, Data Manipulation, and Databases*, 23(1-2) 1991
1991
Database Developments in Asian-Oceanic Countries, 23(3)
The *Provision of Materials Property Data via Computerized Systems*, 22(2) 1990
22(4) 1990
New Perspectives in Scientific Complex Data Management,
A new series:
International (Prototype) Geothermodynamic Data Tables, now undergoing β-review.