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International Federation for Information Processing

Editor:
Dr. Jack L. Rosenfeld

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COUNCIL MEETS IN SINGAPORE

Activity Development Board Also Convenes

The IFIP Council and several **IFIP** committees met in Singapore 9-12 March to discuss a large number of **IFIP's** concerns. Among the more important areas covered were the activities of **IFIP** Technical Committees (TCs), work in developing countries, the 1 1 th World Computer Congress **(IFIP** Congress '89), and the relationship between Affiliate Members (AMs) and **IFIP.**

The week began with meetings of the Executive Board and several committees. Then the Activity Development Board (ADB) met for two half-day sessions immediately prior to the Council meeting. Its membership comprises all TC chairmen and AM representatives, as well as several General Assembly (GA) members and **IFIP** officers. Because the ADB is responsible for overseeing all of **IFIP's** technical activities, many participants consider the ADB meeting to be the most important one of the week. Unfortunately, only three of the nine TC chairmen were able to be present in Singapore. Following the ADB, the Council met for 1% days.

Mr. Ashley Goldsworthy (AUS) called to order the first Council meeting he has chaired since becoming president of **IFIP** last September. Council was welcomed by Mr. Robert Iau (Singapore), the representative of the South East Asia Regional Computer Confederation (SEARCC) to **IFIP,** and an **IFIP** trustee. Welcome was also extended by Mr. T.-L. Wee, president of the Singapore Computer Society. During the week, attendees had an opportunity to meet members of the host organizations and representatives of the computer industry in Singapore.

State-of-the-Art Seminars

TC activities were the focus of the ADB and Council meetings. An unusual request came from the Technical Committee on Programming (TC2), for approval of two "state-of-the-art" seminars—one, *Formal Description of Programming Concepts,* organized by the Working Group on Formal Description of Programming Concepts (WG2.2), and the other, *Database Principles and Concepts,* organized by WG2.6 on Database. The proposed seminars will be presented by members of the organizing WGs who are noted contributors to in-

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GALLAIRE IS CONGRESS 89 IPC CHAIRMAN

At the March meeting of the **IFIP** Council in Singapore, **IFIP** president Mr. Ashley Goldsworthy (AUS) announced the appointment of Dr. Hervé Gallaire (F) as chairman of the International Program Committee for **IFIP** Congress '89, the 11th World Computer Congress. (The appointment of Prof. Stephen Yau (USA) to the chairmanship of the Organizing Committee was reported on page 3 of the March 1986 ***IFIP*** *Newsletter.)*

Dr. Gallaire was a member of the International Program Committee for IFIP Congress '86 and is well qualified to lead the IPC for Congress '89. He graduated from the Ecole Nationale Supérieure des Arts et Métiers and obtained Master and Ph.D degrees from the University Of California (Berkeley) in theoretical computer science. In 1970, he was named Professor of

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formation processing; the seminars will summarize the state of the art in their fields; and they will be presented to information processing professionals in developing countries. For each seminar, the speakers will prepare publications, which may serve as text books and important reference works. These seminars will differ from typical **IFIP** events, which are organized for scientists at the frontiers of information processing. Preliminary plans call for the seminars to be delivered in Latin America in 1988 and Southeast Asia in 1989. ADB and Council expressed approval for these activities, subject to the resolution of funding issues.

Dr. Richard Mason (CDN), TC2's chairman, also presented a proposal for a new WG on Functional Programming (a field related to expert systems). ADB and Council supported the proposal, which will be presented for approval by the GA in September.

Another proposal, advanced by **IFIP** trustee Prof. Alex Verrijn-Stuart (NL), called for establishment of a WG on Artificial Intelligence. Dr. Mason was appointed chairman of a Task Group that will investigate this matter and report to the ADB in September.

Other actions related to TC activity included an ADB recommendation that the annual reports of the TCs contain material summarizing the major technical issues and the current state of **IFIP's** work in their areas. These reports could be reproduced by GA representatives and distributed to their constituents as appropriate. This action was taken in response to a request from Mr. Chris Potter, GA representative of New Zealand. TC chairmen were also asked to appoint TC members to provide liaison with the Publications Committee and serve as Correspondents to the ***IFIP*** *Newsletter.* Conference Officer Mr. Jean Navez (B) reported on a database he is accumulating that contains names, addresses, and areas of interest of individuals who receive the ***IFIP*** *Newsletter* or have attended recent **IFIP** events.

Activities in Developing Countries

Mr. Luis Penedo **(P), IFIP** trustee and chairman of the Developing Countries Support Committee (DCSC), formerly called **IFIP** Committee: Informatics for Development (ICID), presented its report. Regional Coordinators have been appointed for the developing countries (DCs) in five geographical areas. Country profiles are being assembled to determine the needs of all DCs and how **IFIP** can help satisfy these needs. Support to the DCs will be provided primarily by IFIP's human resources rather than monetary resources. (See the article on DCSC on page 4.)

Plans for **IFIP** Congress '89, to be held in San Francisco 28 August-1 September 1989, were put forward. Newly appointed International Program Committee chairman Dr. Hervé Gallaire (F) presented his proposal for the Congress program, which gives a much greater stress to applications than prior Congresses. Organizing Committee chairman Prof. Stephen Yau (USA) presented a timetable for events related to the Congress. He also proposed a tutorial program to be held immediately prior to the Congress, and tours to major research laboratories, universities, and industrial plants in the San Francisco area. (See the article on Congress '89 on page 1.)

Mr Dudley Dolan **(IRL),** Organizing Committee chairman of Congress '86, reported to Council on the financial outcome. While there was a very high international attendance, the numbers fell well below the organizers' expectations, resulting in a substantial loss for the organizers. **IFIP** is working with them to ameliorate the financial situation.

Mr. James Finch (CDN), chairman of the Site Selection Committee, reported that formal proposals have been received for holding Congress '92 in Amsterdam, Madrid, Singapore, and Sofia. The committee will request further information and then present its recommendation to the GA, which will make the final choice in September.

Affiliate Members

The relationship of **IFIP** with its Affiliate Members (AMs) is a major concern and was deliberated extensively by the ADB. Mr. George Glaser (USA), **IFIP** vice-president and chairman of the ADB, will serve as chairman of a committee that will determine what services **IFIP** might provide for its AMs. (See the article on page 9.)

Concern was expressed regarding **IFIP's** financial situation. Mr. Owen Dalton (IRL), **IFIP's** treasurer, reported a loss of approximately 88 000 Sfr. in 1986 and the potential for a larger loss in 1987. Since the assets of **IFIP** amount to approximately 1 000 000 Sfr., the Federation can tolerate a year or two of losses, but clearly not indefinitely. An automatic dues increase for 1987 of approximately 11% (related to the cost-of-living in Switzerland) and the upward reclassification in the dues structure of 7 Full Member nations will increase the income. Also, royalties are expected to increase in 1987. Procedures are to be established to encourage rapid repayment of loans granted by **IFIP** for technical meetings. Discussions in the Publications and Marketing Committees were concerned with expanding the distribution of **IFIP** books, as means both of promulgating **IFIP** work and increasing **IFIP** revenues. Finally, Mr. Dalton will request more accurate budget figures from committee chairmen, so that **IFIP** can plan its finances more accurately.

Marketing Committee Proposal

A controversial proposal was presented by Mr. Hennie Leroux (ZA), **IFIP** trustee and chairman of the Marketing Committee (formerly called the Public Information Committee). It suggests that a corporation be formed to market **IFIP** "products," in order to better disseminate the technical work of **IFIP.** Increased income is required to support further **IFIP** growth. Moving into areas of new products (e.g., the state-of-the-art seminars proposed by TC2) will call for additional resources—people and finances—not available in **IFIP.** The company would operate full time, utilizing existing **IFIP** resources and developing new products based on these resources. The company would be formed with a suitable partner on a 50-50 ownership basis, and the net income would be split 50-50. **IFIP's** contribution would be the ownership of a vast wealth of expertise in information technology; the partner would contribute the working capital. **IFIP** would retain control by appropriate representation on the board of directors. The benefits accruing to IFIP would include a greatly increased worldwide distribution of the results of **IFIP's** work, financial strength to extend **IFIP's** work, especially to developing countries, a full-time executive director, enhanced secretarial facilities, and an "umbrella" for Affiliate Members. This proposal will be deliberated by the GA in September.

Changes in **IFIP** membership were reported: Sri Lanka has joined SEARCC, becoming its ninth member; Algeria has been dropped from membership in **IFIP;** Centro Latinoamericano de Estudios en Informatica (CLEI), a regional confederation approved for membership in **IFIP** in 1984, has yet to

join **IFIP.** At present, **IFIP** has 42 Full Members, including the regional member SEARCC, and 7 Affiliate Members.

Other items of interest covered by Council include the following:
- A complete bibliography of **IFIP** publications will be ready for distribution in September.
- The Executive Board ruled that all events co-sponsored by **IFIP** must adhere to the policy established for events organized solely by **IFIP:** the organizers and the host country must guarantee the possibility of attendance by all bona fide participants, from all nations, and all **IFIP** personnel. (See the article *IFIP Reaffirms Policies,* on page 3 of the September 1986 *IFIP Newsletter.)*
- It was reported that **IFIP** vice-president Acad. Blagovest Sendov (BG) was appointed as one of the six vice-presidents of the Intergovernmental Informatics Committee (IIP) of the United Nations Economic, Scientific and Cultural Organization (UNESCO). He is serving as Bulgaria's representative. **IFIP** was invited to be an observer to IIP. (See the article about I on page 10.)
- The Council approved the hiring of a full time assistant to Mme. Gwyneth Roberts (CH), Administrative Manager of the **IFIP** Secretariat.
- A new edition of the **IFIP** Statutes and Bylaws was distributed in February.
- *IFIP Newsletter* editor Dr. Jack Rosenfeld (USA) reported that a recent survey of *Newsletter* recipients indicated a high degree of satisfaction with the publication. Council encouraged him to expand the distribution well beyond the current 2300 recipients.

The Council meeting was closed by Mr. Goldsworthy with many thanks to the SEARCC hosts for providing excellent accommodations for the meeting and superb hospitality to the participants. Mr. lau thanked those present for having come so far, quoting a Chinese saying: *The greater the distance travelled, the greater the friendship.*

The first Council meeting of 1988 will be held in Auckland, New Zealand 29 February-4 March. No invitation has yet been tendered for the March 1989 Council meeting. Council is considering holding that meeting in Geneva.

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IFIP NEWSLETTER

Editor:
Dr. Jack L. Rosenfeld
IBM Corporation
Thomas J. Watson Research Center
P.O. Box 704
Yorktown Heights, NY 10598, USA
tel. 1 (914) 789-7633
telex (023) 137456 ibmresrch ykhg
or (025) 9102400632 ibm yorktown labs
CSNET: ROSENJ@IBM.COM
BITN ET: ROSENJ @YKTVMH

Assistant:
Mrs. Doris Engel

Published quarterly by-
IFIP Secretariat
16 Place Longemallc
CH-1204 Geneva, Switzerland
tel. 41 (22) 28 26 49
telex 428 472 ifip ch

CORRESPON DENTS
TC3 U. Brauer
TC5 L.H. Fransson
TC6 D. Khakhar

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Kindly submit material for the *Newsletter* three months before the publication date.

Please send the following **IFIP** information directly to the Secretariat: announcements of conferences, workshops, and other meetings; calls for papers; appointments to committees and other positions; changes of address; and new publications. The Secretariat is the clearinghouse for all such information; it will forward it to the *Newsletter.*

CONGRESS '89 continued from page 1

Mathematics and Computer Science at Ecole Nationale Supérieure de l'Aéronautique et de 1' Espace and worked on the development of an operating system in the computer science department of the Centre d'Etudes et de Recherches de Toulouse (CERT). In 1972, Dr. Gallaire was named head of the Computer Science department of CERT. He held both positions until 1980, when he joined the Corporate Research Laboratories of Compagnie Générale d'Electricité to create the research division for computer science. In 1984, he was named—and remains—Managing Director of the European Computer-Industry Research Centre in Munich, the joint research center sponsored by Bull, ICL and Siemens.

Dr. Gallaire's work ranges from theoretical computer science to artificial intelligence. He is associated with developments in logic and databases. He has written a book on compiling techniques and edited, with others, a series on Advances in Database Theory. He is a member of various French national advisory committees on computer science.

11th World Computer Congress

The I I th World Computer Congress will be held in San Francisco 28 August-1 September 1989. The previous Congress took place in Dublin in September 1986. Reports of it can be found in the December 1986 and March 1987 issues of the *IFIP Newsletter.*

The program will emphasize the Evolution of Information Processing. Its scope and organization will be geared toward EDP professionals and application systems designers and developers. It will have several components, organised around a small number of topics, covering research and developments in these fields. Involvment of IFIP's Technical Committees will be sought for a special stream of the program.

Prof. Yau, OC chairman, told the Council of the tutorial program to be organized immediately prior to the Congress. Three tutorials will be held on each of the two preceding days. In addition, tours to research laboratories, universities, and industrial plants will be conducted.

IFIP
PUBLICATIONS AVAILABLE

New **IFIP** workers should he aware of the availability of the following **IFIP** publications from the **IFIP** Secretariat:

- Information Bulletin
- Statutes and Bylaws
- Standing Orders
- *What Is* ***IFIP?***
- Annual Report
- articles about Technical Committees

DEVELOPING COUNTRIES SUPPORT COMMITTEE

New Programs Planned

The first report of the Developing Countries Support Committee (DCSC) was presented by its chairman, Mr. Luis Penedo (P), an **IFIP** trustee, at the March meeting of the Council in Singapore. (See the article on page 1.) The DCSC, formerly called the **IFIP** Committee: Informatics for Development (ICID), was organized at the time of the **IFIP** General Assembly (GA) in August 1986. The following material, prepared by Mr. Penedo, is taken from the minutes of the organizational meeting.

Following are the main points covered in our meeting:

- The support **IFIP** can channel to developing countries (DCs) has two distinct levels: the academic level, providing state-of-the-art information in pertinent subjects; and general level, satisfying basics or literacy needs, at an educational or tutorial level.
- Our main **IFIP** resource is knowledge and experience, but not money. Money shall be used with care, always to promote the use of our main resource.
- Technical Committee (TC) chairmen, Cognizant Officers, and Affiliate Members will be contacted, to synchronize DCSC operations. We do not want to interfere with ongoing, planned activities that may not require our support. We would like, however, to have all pertinent information related to TC and Working Group (WG) events happening in DCs or appropriate to them.
- **IFIP's** publishers will be contacted for information on available **IFIP** hooks, to evaluate their usefulness to DCs.
- The DCSC structure includes Regional Coordinators for various regions of the world, but, for the sake of efficient operation, we will limit the Regional Membership to a maximum of 12. This way, we will have an opportunity to conduct Fast, creative, and efficient meetings. Coordinators will assemble country/region profiles and will promote informative sessions with representatives of countries in their regions at local or regional events.
- Regional Coordinators are responsible for-

1. identifying resources or experiences in their own areas that are potentially applicable to other countries equally or less developed. These should be resources connected with **IFIP,** from TCs, WGs, other **IFIP** volunteers, including resources from **IFIP** member societies.
2. identifying needs that can be answered through **IFIP**
3. identifying possible new **IFIP** activities that are needed in developing areas
4. coordinating the work to be done. This will include participation in a meeting at the time of the **IFIP** GA.

- Regional meetings will take place as appropriate.
- Future activities might include a DCSC newsletter and a series of **IFIP** books covering specific DCs and/or regional problems and concerns.

DCSC Aim and Scope

The proposed Aim and Scope of the DCSC is given here (to be presented for the approval of the GA in September, after discussion and possible amendment).

The Aim of DCSC is to promote the cooperation of **IFIP** with DCs through the use of **IFIP** experience, technical information and knowledge and to help DCs/areas in their specific needs and requests.

The scope of the Committee includes:

1. Furnishing useful and applicable information required by countries for their development and available in **IFIP** or by means of **IFIP** organization and structure, including member societies.
2. Gathering information related to specific needs in the DCs/areas, and potentially answered by specific **IFIP** or IFIP-related projects to be created.

Specific tasks of the DCSC will include:

a. to identify needs and requests from DCs/areas that may be answered by information and skills available at present in **IFIP**

b. to keep track of **IFIP** events in DCs/areas, in order to try to maximize the results of resources and efforts already being used by **IFIP**

c. to identify possible new contributions of **IFIP** and IFIP-related organizations, in fields of particular interest in DCs/areas

d. to promote membership of DCs not yet in **IFIP,** as a result of this cooperation

e. to interface with the IFIP-Unesco Liaison Committee and the **IFIP** Committee for International Liaison (ICIL) whenever appropriate and convenient for the success of joint initiatives with Unesco and other external entities

f. to interface with **IFIP** TCs, WGs and Affiliate Members whenever necessary, convenient or requested, in order to discuss and provoke actions addressed to DCs' identified needs and requests

g. to give financial starting support to initiatives of cooperation between **IFIP** and DCs/areas, within reasonable limits

h. to ensure internal and external visibility of this **IFIP** cooperation, and promote its continuous improvement and updating

At Council meeting in Singapore (sec article on page I), from left to right: G. Glaser, J. Fourot. A. Goldsworthy, K. Ando. BI. Sendov, A. Melbye

TELETEACHING '86: REMOTE EDUCATION AND INFORMATICS

From 20 to 25 October 1986, IFIP's Technical Committee on Education (TC3) held a Conference, *Teleteaching '86: Remote Education and Informatics,* in Budapest. The participants included 53 individuals from Hungary and 44 from 20 other countries. Registrants came from as far away as Thailand, U.S.A., South Africa, and Japan. Also, 50 students and teachers from elementary and secondary schools in Hungary attended.

Mr. Györzö Kovacs (H), chairman of the Program Committee, characterized teleteaching as follows: *In teleteaching, or remote teaching, the subject matter (courseware) reaches the student by means of technical tools. During the course of training, teacher and student, in general, do not meet each other directly*.

The program comprised 43 papers from 16 countries. In addition to the presentation of papers, there were demonstrations, a video film, and a small exhibit. The Conference was followed by a short course on MProlog, a logic programming language.

Mr. Peter Braun (H) was chairman of the Organizing Committee. The Proceedings, which were published in March by North-Holland, were edited by Dr. Frank Lovis (GB), Prof. Hermann Maurer (A), Mr. Kovacs, and Mr. Huba Bruckner (H).

At the end of the Conference, participants expressed interest in organizing a TC3 Working Group (WG) on "Distance Learning" and selected Mr. Kovacs as the acting chairman of the proposed WG. Dr. Wichit Srisa-an (Thailand) offered to organize *Teleteaching '87* in Bangkok in November or December 1987, and the participants chose him as Program Committee chairman for that Conference. Approval of the **IFIP** General Assembly (to meet in September in Budapest) is required before a new WG may be established.

Creative Teaching

Among the papers presented at the Conference was one that discussed very innovative programs in elementary schools, which illustrate how informatics can significantly enhance traditional educational material. The paper, *Telematics Services, Education and Culture,** written by Mr. Gerard Loiseau **(F), began** as follows:

> Open learning [remote education—Ed.] with the aid of audio-visual methods often makes use of Computer Aided Instruction (CAI). In France, however, forms of open learning are increasingly being developed which take advantage of on-line electronic information services (telematics) operating according to public standards. The advantage of these standards lies in their ability to make both text and graphics widely available. Such educational applications are newcomers. Although increasingly numerous, such educational uses still seem relatively hesitant about adopting telematics services, not only for wide distribution of information but also for creative teaching and technical training.

Mr. Loiseau then proceeded to discuss a particularly fascinating educational application:

> To speak of creative teaching in connection with telematics services would certainly have brought a charge of heresy only three years ago. Since it was well known that telematics provided information services, it was difficult to think of it as an instrument of creative teaching. Yet, examples have made it possible to measure the attraction of this new form of creativity in teaching, fully involved as it is in aspects of communications, since the children are increasingly aware that their work can be referred to by their friends, parents and acquaintances, or simply by anyone with a Minitel [a videotex terminal—Ed.].

The Story of a Very Funny School

Some schools used the mailbox concept to start a school telematic novel which was to be the first of the genre. The theory was as follows:

From the technical point of view, the provider of the telematics service suggested a single mailbox entitled *Novel* and a password to be shared by the schools wishing to take part in the experiment. From the educational point of view, the pupils, aided by their teachers, used one or more screens for drafting contributions on a jointly chosen theme, *The Story of a Very Funny School.* Every pupil involved was allowed complete editorial freedom and wrote when he or she wanted to and in no fixed order.

In January 1986, three schools put this new messaging system to the test on the common theme of *Pere Noel* [Father Christmas—Ed.]. During the experiment, the children (average age 10) input 19 screens of text.

This type of production has a number of advantages:

• It makes it possible to have a different approach to reading, almost like looking at a newspaper. Pupils learn to skip from page to page. There is no more painstaking, line-by-line reading as with school text books.

• Children learn to express themselves in writing more easily. The text of the novel is first of all prepared on a sheet of paper or on the board, and then transcribed on Minitel. For *Pere Noel,* the children had no constraints at all. They were allowed total freedom of expression. This independence in their writing, combined with the novelty value of the device and the ability to communicate their own work to other people, led to some unexpected results. Quite apart from the general air of excitement and interest which it generated, thanks to the *Pere Noel* novel, two children who had been two years behind in their writing skills, and thus making no progress, actually contributed compositions of their own.

• It becomes an exercise in original and logical thinking. The way in which the screens for the telematic novel and the data bank in general are organised can be used to encourage pupils to carry out their own research into tree-like information structures.

• It throws the school wide open. Telematic novels make it possible to exchange ideas between school groups. This makes it easy to set up face-to-face meetings to discuss the work which has been done. In addition to the school-to-school contact, communication now also exists between school and the home, even though there are still too few homes with a Minitel.

Further Innovations

For the future, these innovations have been suggested:

- From the technical standpoint, to use a videotex graphics software package installed on schools' nano-networks to allow novels to be illustrated, since it is very easy for children to produce graphic designs by composing directly onto the television screen with a light-pencil. The software also makes text editing more flexible than is possible on the Minitel.

- From the educational standpoint, perhaps a rather more tutor-led approach to future novels, with a more precise choice of theme.

The paper concluded with these words:

> This swift overview of the French experience in telematics leads us to think that this tool opens fresh horizons in the areas of education and culture. In certain cases, managing to handle the telematic tool may lead a wide public to express itself and to participate more fully in its daily environment. ■

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MEDINFO 86 HELD IN WASHINGTON

Medical Informatics Congress Is Largest Yet

The Fifth World Congress on Medical Informatics, MEDINFO 86, met in Washington, D.C. 26-30 October 1986, with 2856 attendees from 56 countries. The countries with the largest number of participants were U.S.A., The Netherlands, Canada, United Kingdom, and France. Some 275 papers comprised the program, selected from approximately 650 papers submitted from 41 countries. "This was the largest and most important meeting ever convened on the applications of computers in health care," said Dr. Thomas Piemme, chairman of the MEDINFO 86 Operations Committee.

Dr. Donald Lindberg, chairman of the MEDINFO 86 Organizing Committee, presided over the opening ceremonies, which included major addresses by Dr. Edward Feigenbaum (USA) and Sir Walter Bodmer (GB). Dr. Feigenbaum is known for his work in applying the principles of artificial intelligence to science and medicine, leading to the formation of the Stanford Heuristic Programming Project. Sir Bodmer is an expert in human and population genetics.

Transition in Medical Informatics

In the Foreword to the Proceedings, Profs. Jan van Bemmel (NL) and Edward Shortliffe (USA), chairmen of the Scientific Program Committee, made the following remarks: *

> The Fifth World Congress on Medical Informatics, MEDINFO 86, marks a special transition in this field: medical informatics is no longer in its infancy, but reaching adulthood; no longer just an art, but becoming a science. For that reason, MEDINFO 86, with its thousands of participants, has become a true scientific congress and not just a marketplace for the exchange of ideas.
>
> In this Foreword we will clarify the growing impact of medical informatics on medicine and health care, the increase of the scientific level of this discipline, and the proliferation of systems and methods around the globe. The MEDINFO Congresses, held every three years, are an excellent offering of the International Medical Informatics Association (IMIA), the Special Interest Group of IFIP.

The Proceedings were edited by Drs. Roger Salamon (F), Bruce Blum (USA), and Mogens Jorgensen (DK) and published by North-Holland.

Approximately 15% of the papers presented at MEDINFO 86 were devoted to topics related to artificial intelligence (AI), up from 5% at MEDINFO 83. Dr. Feigenbaum's address, entitled *Autoknowledge: From File Servers to Knowledge Servers,* discussed the importance and future of AI methods to medical informatics and society, in general. Parts of it are quoted here: *

> It has been said that when people make forecasts, they overestimate what can be done in the short run and underestimate what can be achieved in the long run. I have worked in medical informatics for twenty years and confess to being chronically optimistic about its progress. The gains have been substantial, even impressive. But we have hardly begun, and we must not lose sight of the point to which we are heading, however distant it may seem.
>
> We are beginning the transition from data processing to knowledge processing. Though the computer is a universal symbol-processing device, we have exploited to date only its mundane capabilities to file and retrieve data (file service) and to do high-speed arithmetic. The researchers in artificial intelligence have been studying the techniques for representing human knowledge for computer use and the methods by which that knowledge can be used to reason toward the solution of problems, the formation of hypotheses, and the discovery of new concepts and new knowledge. These researchers have been inventing the knowledge servers of our future.

Knowledge Is Power

At Stanford, Lederberg and I chose reasoning in science as our task, and began work with Buchanan and Djerassi on building a program that would solve chemical structure elucidation problems at a high level of competence: the DENDRAL program. What emerged from the many experiments with DENDRAL was an empirical hypothesis that the source of the program's power to solve chemical structure problems from spectral data was its knowledge of basic and spectral chemistry. For DENDRAL, knowledge was power. Obvious? In retrospect, perhaps. But the prevailing view in AI at the time ascribed power to the reasoning processes—in modern terms, to the "inference engine," not the knowledge base. The knowledge-is-power hypothesis stood as a contrahypothesis, awaiting further test and the accumulation of evidence.

Much evidence came in the 1970s. Medical problem solving provided the springboard. The MYCIN program of Shortliffe and others at Stanford was the prototype of the expert-level advisory system, now known as the expert system. The core of MYCIN was its knowledge base of rules for infectious disease diagnosis and therapy. Its reasoning process was simple (backward chaining), even ad-hoc in parts. But it was built as an integrated package of intellectual abilities. It could interact with a professional in the professional jargon of the specialty. It could explain its line of reasoning. And it had a subsystem that could aid in the acquisition of new knowledge by guiding an expert to find defects in the stored knowledge. Overall, MYCIN provided strong confirmation to the knowledge-is-power hypothesis.

At nearly the same time, other efforts in medical problem solving were providing similar results. At the University of Pittsburgh, the focus of the INTERNIST project was the construction of an enormous "electronic textbook" of the knowledge of internal medicine (Pople and Myers). With its current knowledge base of 572 diseases, nearly 4500 manifestations, and hundreds of thousands of links between them, INTERNIST has provided the strongest confirmation yet of the knowledge-is-power hypothesis.

High Levels of Competence

Thus, the dream of the computer that performs at a high level of competence over a wide variety of tasks that people perform well seems to rest upon knowledge in the task areas. The knowledge-is-power hypothesis has received so much confirmation that we can now assert it as the Knowledge Principle: a system exhibits intelligent understanding and action at a high level of competence primarily because of the specific knowledge that it contains about its domain of endeavor. A corollary of the Knowledge Principle is that reasoning processes of an intelligent system are generally weak and are not the source of power that leads to high levels of competence in behavior.

We have learned how to build intelligent artifacts that perform well, using knowledge, on specialized tasks within narrowly defined domains. An industry has been formed to put this technological understanding to work, and widespread transfer of this technology has been achieved. The first era of the intelligent machine is ending, but with many problems remaining to be solved.

continued on page 7

* © IFIP

ARTICLE PUBLISHED ABOUT TC9

IFIP has just published *Computers and Society, In Search of Benevolence.* This is the ninth in a series of articles describing the work undertaken by IFIP's Technical Committees (TCs) and Special Interest Group. It describes the activities of TC9, which is concerned with the Relationship between Computers and Society.

One citation expresses the essence of TC9:

> TC 9's work...is intrinsically controversial. Issues of morality, ethics and politics arouse strong emotions within TC 9, as in the world. Individuals wish to state their position on key issues; some believe TC 9 also should make its views known; how can this be reconciled with the constraints of IFIP as an international organisation with national members of all political ideologies?
>
> Harold Sackman [chairman of TC9] sees no real problem here. More professional discussion of these issues has developed steadily over the past decade as social pressures have grown, he says, and this discussion is now much more acceptable. TC 9 is free to act as a forum for scholarly, balanced, open inquiry of relevant issues, following established methodologies of the social sciences and interdisciplinary research.

Earlier articles in the series discussed education, data communication, digital systems design, information systems, medical informatics, programming, industrial applications, and computer security. The author of all nine, working on behalf of IFIP, is the respected British journalist, Mr. Kenneth Owen.

Copies of the new article, as well as many of the other eight, are available from the IFIP Secretariat.

MEDINFO 86 continued from page 6

> As we move toward the post-industrial period of the 21st century, as work becomes increasingly the work of professionals and knowledge workers, the power tools are digital computers. The economic and social well-being of the advanced societies increasingly is the result of working "smarter" rather than working "harder," and computers are the agents of that change. Knowledge is power in human affairs, and knowledge systems are amplifiers of human cognition.

Additional information about MEDINFO can be found on page 3 of the June 1986 ***IFIP*** *Newsletter.*

AAD VAN WIJNGAARDEN
(1916-1987)

On February 9, 1987, Adriaan van Wijngaarden, one of IFIP's founding fathers, died at age 70. It was a very sad occasion for us, losing not only a distinguished scholar, but also one of the nicest and kindest persons to be imagined.

Educated as a mechanical engineer at the Technical University of Delft, where he also obtained his Ph.D., van Wijngaarden joined the Mathematical Centre in Amsterdam on January 1, 1947, shortly after its founding. It was the start of a distinguished career, which was to continue there until his retirement in 1981. Professor van Wijngaarden once explained his philosophy for the Centre as follows. *A three-pronged approach is needed: one must engage in the theory of computing, one has to be in the forefront of computer languages research and one must always do "something in the field of computer hard-ware."* He himself considered natural languages an additional challenge.

His first assignment for the Centre was touring the U.K. and the U.S.A., finding out to what extent that new invention, the automatic calculating machine, might be of importance to a mathematical institute. If perhaps some eminent mathematicians of those days predicted that the computer would soon prove to have been only a momentary fashion, van Wijngaarden helped correct this view in a very decisive manner. Upon his return, he convinced the Centre's management that computing power is essential to applied mathematics and stimulating to the emerging discipline of computer science. And there was no better way to acquire such power than to build ones own machine! The result was ARRA (an electric relay machine). It was commissioned in 1952 by the group he headed at that time, of which G.A. Blaauw, E.W. Dijkstra, W.L. van der Poel and others would be members, themselves to become trailblazers in the world of computing. After ARRA there would be ARMAC and finally the fully transistorised Xl.

By the late fifties, however, it was recognised that designing computers was a job for industry. Developing ideas and concepts rather than their immediate practical implementation would henceforth be the guideline. Meanwhile, two new features had been conceived that are commonplace nowadays: the channel and the interrupt.

Being one of the pioneers in a field gives rise to excitement and curiosity. The rapid development of the computer's capabilities triggered an interest in the design of machine-independent, general purpose algorithmic languages. It was this area that van Wijngaarden turned to after the Centre gave up its immediate involvement with building computers as such. The outcome was to leave the world changed permanently. First a member of the international group that designed Algol 60, he subsequently became the major architect of Algol 68. Although not successful in the commercial sense, its conceptual depth is outstanding and its consequent influence widespread.

Algol 68 was an IFIP project, which brings one to van Wijngaarden's contributions to this international body. In the most literal sense, he stood at its cradle. Vice-president of the precursor International Conference on Information Processing in 1959, representative of the Netherlands in the General Assembly (1960-1971), IFIP vice-president (1962-1964), and trustee (1967-1970) are only some of the activities which earned him the Silver Core in 1974. The professional involvement with TC1, Terminology (chairman 1967-1974), and TC2, Programming (member 1962-1971), probably meant even more to him. It is only fitting that in 1981 he should have been honoured at his retirement as the Director of the Mathematical Centre by an **IFIP** International Symposium on Algorithmic Languages.

Of the many honours he received, election to the Royal Dutch Academy of Sciences in 1959, selection as the first Honorary Member of the Dutch Computer Society in 1972, and receipt of the IEEE Computer Pioneer Award in 1986 (for his Algol 68 work) should be mentioned. But his most important distinction is the legacy he leaves behind. As a scientist, yes, but above all, as the wise and lovable person we shall always remember.

*Alex Verrijn-Stuart **

* Prof. Verrijn-Stuart is the Netherlands' representative to IFIP's General Assembly and an IFIP trustee.

Who's Who in IFIP: MR. AAGE MELBYE

IFIP's vice-president Mr. Aage Melbye was born in Copenhagen in 1933, educated in Denmark, and completed a Masters degree in Econometrics and Operations Research at the University of Copenhagen in 1957.

He began his professional career with Regnecentralen (Danish Institute of Computing Machinery) under the leadership of Mr. Niels Bech, Denmark's first representative to the **IFIP** General Assembly. Mr. Melbye was involved with pioneering computer applications in both the private and public sectors. He spent the 1964-65 academic year at Carnegie-Mellon University (U.S.A.) as a visiting research scientist in information systems.

In 1971 he joined Sparekassernes Datacenter, the Danish savings banks' data center, and became its General Manager in 1973, with a staff that grew to nearly 500. He implemented the first large, on-line system in the Danish banking industry and then became responsible for the development and implementation of a truly distributed system, with 6000 workstations, for the entire Danish savings bank industry.

Mr. Melbye became an independent consultant in 1984, specializing in the managerial and organizational aspects of informatics.

He is the author of a dozen papers on computer applications. In addition, he has served as a teacher and external examiner in computer education at several Danish universities.

Mr. Melbye began his official association with **IFIP** in 1978 as the representative of the Danish member society, the Danish Federation for Information Processing (DANFIP, which was created to provide the liaison between the Danish information processing societies and IFIP). His previous, informal relationship was that of a participant in the first four **IFIP** Congresses. He has been active in **IFIP** as chairman of the Admissions Committee, Finance Committee, and as acting chairman of the Statutes and Bylaws Committee. He was elected trustee in 1980, and in Dublin last September, the General Assembly elected him vice-president. (See the article on page 1 of the December 1986 ***IFIP*** *Newsletter.)*

Mr. Melbye lives in Holte, north of Copenhagen, with his wife Ellen and their four children. He enjoys listening to chamber music and—in the company of his closest friends—playing the cello.

VIEWS ON INFORMATION SYSTEMS RESEARCH METHODS

*by Dr. Hans-Erik Nissen (S) **

In September 1984, the **IFIP** Working Group on on the Interaction of Information Systems and the Organization (WG8.2) held a colloquium in Manchester on *Information Systems Research—a Doubtful Science?* (See the article on page 5 of the June 1985 ***IFIP*** *Newsletter.)* After the colloquium, the Working Group decided that the debate that had started should be stimulated to go on. To this end, a Task Group on Information Systems Research Methods was formed. In order to get more material for such a debate, the Task Group undertook a questionnaire investigation. Its results are summarized in the report *Views in 1985 on Information Systems Research Methods.* A copy of the report can be obtained from—

Dept. of Information and Computer Sciences
University of Lund
Solvegatan 14 A
S-223 62 Lund, Sweden.

The questionnaire was sent to 257 researchers. Completed questionnaires were returned by 112. Others commented on the investigation without returning the questionnaire. The response indicates that many researchers share a concern about information systems research and the methods employed in such research. Many respondents took care to include parts of the field of information systems research outside their current, personal interest. In a similar fashion, many took a broad view of potentially useful research methods. A dilemma was exposed—namely, striking a balance between addressing relevant problems on the one hand and insuring reliability of research findings on the other.

The variety of views was large. In a number of instances, the views of respondents apparently contradicted each other. This suggests a number of additional questions to ask.

Taken as a whole, the responses and comments to this investigation indicate that debate is needed on relevant and valid information systems research and fruitful methods to perform it. To the extent that the investigation stimulates this debate and furnishes some material for it, it has been worthwhile.

The Task Group has considered producing a monograph on research methods. One of its purposes would be to make researchers aware of the variety of research methods which have recently emerged and which may be needed to gain a sound and thorough understanding of the many unresolved issues of the use and development of information systems. In May 1986, it was decided that a feasible way to produce such a monograph would be to make these and related issues the topic of a Working Conference entitled *The Information Systems Arena of the 90s: Challenges, Perceptions, Alternative Approaches.* Suggestions and questions about this Working Conference, to be held in May 1988 in Ithaca, N.Y., U.S.A., can be forwarded to the chairman of WG8.2:

Richard J. Welke
Methodworks Inc.
33K5 Harvester Road
Burlington, Ontario L7N 3N2, Canada

or to the vice-chairman:

Hans J. Oppelland
Faculty of Economics, Chair of Info. Systems
Erasmus University Rotterdam
Postbus 1738, NL-3000 DR
Rotterdam, The Netherlands.

* Coordinator of WG8.2 Task Group on Information Systems Research Metbods

THE ROLE OF IFIP AFFILIATES

Many Views Presented

The role of Affiliate Members (AMs) within **IFIP** has long been a matter of discussion. Some AMs keep close ties to **IFIP,** regularly send representatives to **IFIP** meetings, and co-sponsor events with **IFIP**. Others have virtually no contact. **IFIP** would like to maintain close and productive relations with its AMs.

Following a discussion of the relationship of **IFIP** with its AMs at the August 1986 Activity Development Board (ADB) meeting in Dublin, the AM representatives present were requested to prepare a paper suggesting how the relationship might be improved. In response to this, Prof. Herbert Freeman (USA), representative of one of the AMs, the International Association for Pattern Recognition (IAPR), sent a memorandum to the ADB. This was discussed at length at the March ADB meeting in Singapore, which preceded the Council meeting. (See the article on page 1.)

Prof. Philip Enslow (USA), representative of the International Council for Computer Communication (ICCC), and **IFIP** president Mr. Ashley Goldsworthy (AUS) presented other aspects of the topic. Almost all agreed that an important component of cementing a good relationship is the degree of service that **IFIP** can provide the AMs. Mr. George Glaser (USA), **IFIP** vice-president and chairman of the ADB, is heading a committee to determine what services **IFIP** might provide.

The following is taken from Prof. Freeman's memorandum. He has had a long relationship with **IFIP,** including serving as the International Program Committee chairman for **IFIP** Congress '74, so his thoughts deserve careful consideration.

Origins of Affiliate Membership

The IAPR was the first AM of **IFIP,** and the membership category of "Affiliate Member" was created largely at my urging. IAPR was a new organization at the time, and I believed that it was in the interests of both **IFIP** and IAPR to establish some kind of relationship. I felt that in time more and more special-interest organizations would be created, and that **IFIP** would be able to assume a kind of overall umbrella role if it invited these new organizations to become AMs. In this umbrella role, **IFIP** could help the new organizations establish themselves internationally, foster interaction among different such organizations, help to minimize unnecessary overlap of interests among the new organizations, maintain a central meeting calendar, and generally serve as a friendly "big brother" to them. The benefit to **IFIP** would be an increased importance as an international scientific coordinating organization whose interests and influence would continue to span the entire information processing field.

I felt that if **IFIP** did not accept this umbrella role, the new organizations would bypass **IFIP,** perhaps in time create their own central coordinating organization, and IFIP's role in the world scientific community would diminish.

Today, information processing has become so specialized that most people in the field no longer want to attend just a "computer conference." Instead they attend meetings on computer architecture, on computer communications, on pattern recognition, on computer graphics, etc. Many of these international meetings are today larger than the early **IFIP** Congresses. I am sure that eventually these meetings will in turn become too large and further specialization will take place. We already see this happening in IAPR. There is no use in bewailing this phenomenon; it is part of the natural development of our modern technological society, and it will happen whether we like it or not.

IFIP Needs the Affiliates

My view of the role of the **IFIP** AMs is no different than it was ten years ago. **IFIP** needs the AMs much more than vice versa. **IFIP** played an important role in the sixties and seventies. Times have changed. Because of the increasing specialization and fragmentation of the information processing field, there is much less interest in **IFIP** today. **IFIP** has to adapt to the changing conditions. A good possibility is for **IFIP** to move strongly into the position of serving as an international coordinating organization. The Institute of Electrical and Electronics Engineers (IEEE) did something similar in the U.S.A. Today it is the parent organization of a multiplicity of diverse-interest societies (of which one is the IEEE Computer Society with over 75,000 members).

To assume such an umbrella role, **IFIP** must actively recruit AMs and let them play a significant role. Some voting rights must be given, and some membership fees can be charged. Inevitably this means that the role of the present members will appear to diminish somewhat. However, in my opinion, if **IFIP** does not do this, the role of **IFIP** will diminish even more.

Perhaps an AM Council might be created, in which only the AMs participate. They might be able to elect one or two delegates, who would represent them collectively to **IFIP.**

Another role **IFIP** might be able to play is to offer to provide international office facilities to member societies on a competitive, cost-reimbursement basis. Some of the new international organizations are not yet able to set up their own secretariats but might be willing to buy such service from **IFIP.**

In summary, I feel that **IFIP** should actively attract into its fold AMs (or whatever else they might be called) representing the emerging new special-area international organizations. Only in this way will **IFIP** be able to remain a strong international organization, with a well-defined, up-to-date role to justify its existence. ■

VLDB ENDOWMENT JOINS IFIP

The **IFIP** General Assembly, in August 1986, voted to admit the Very Large Data Base (VLDB) Endowment as an Affiliate Member. (See the article on page 1 of the December 1986 ***IFIP*** *Newsletter.)* This Affiliate specializes in data base management, including very large data bases, small data bases, "knowledge" bases, and related topics. The other Affiliate Members are the International Association for Pattern Recognition (IAPR), International Association for Statistical Computing (IASC), International Council for Computer Communication (ICCC), European Associatior for Microprocessing and Microprogramming (EUROMICRO), International Federation of Associations of Computer Users in Engineering, Architecture and Related Fields (FACE), and International Joint Conferences on Ar tificial Intelligence, Inc. (IJCAII).

The VLDB Endowment is an interna tional body, currently composed of a Board of Trustees and an Executive Board. The president of the VLDB Endowment is Prof. Alfonso Cardenas (USA), its vice-president is Prof. Janis Bubenko (S) (who will serve as its representative to **IFIP),** and its treasurer is Dr. Gerald Wilson (USA).

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IFIP Participates

[Mr. Jacques Fourot (F), **IFIP** secretary, attended the initial meeting of the Intergovernmental Informatics Committee (IIP) of the United Nations Economic, Scientific and Cultural Organization (Unesco) 21-23 October 1986, on behalf of **IFIP.** The **IIP** will draw on the experience of industrialized countries and take into consideration the needs of developing countries to promote a more widespread development of informatics and reduce the inequalities in degree of computerization that exist between countries and within countries. (See the article on page 4 of the March 1986 ***IFIP*** *Newsletter.)* The following material is extracted from Mr. Fourot's report to the IFIP-Unesco Liaison Committee.]

The 33 member nations of the Committee convened on October 21, 1986. The Bureau was elected. Mr. Andre Danzin (F) was appointed Chairman of the **IIP,** and **IFIP** vice-president Acad. Blagovest Sendov, Bulgaria's representative to **IIP,** was appointed one of the six Vice-Presidents. **IFIP** was officially invited as observer as well as, among others, **IBI** [Intergovernmental Bureau for Informatics] and ICSU [International Council of Scientific Unions].

The major agenda items which occupied most of the discussion time were participation of member states in the **IIP** and the preliminary draft programme for 1988-1989. The various delegations expressed their views relative to their needs (developing countries) or to their potential contribution to the **IIP** (developed countries).

IFIP's Position

During the debate, I had the opportunity of expressing **IFIP's** position relative to **IIP,** which is summarized below:

• definition of **IFIP's** aims, operational structure, and principal activities (in order to explain the extent and the limits of **IFIP's** potential contribution)

• current level of cooperation between Unesco and **IFIP,** particularly in favour of developing countries; role of **IFIP's** Developing Countries Support Committee (DCSC)

• how to develop IFIP activities in the framework of the IIP:

1. Organize **IFIP** events in developing countries. This is already being done, but probably not actively enough yet. Example: in 1987, of the 50 planned **IFIP** events of all kinds, less than 10 will take place in developing countries.

2. Attract more delegates from developing countries as members of **IFIP's** Working Groups.

3. Organize specific activities upon request: seminars, training courses (e.g., VLSI course in Lisbon), experts, consultants, etc.

• Development of the above activities is predicated on—

a. adequate funding from **IIP**

b. a better knowledge of **IFIP's** resources and capabilities by the potential beneficiaries. To this effect, we suggest using the "focal points" and **IIP** correspondents (to be established in each country) as the official communication link with **IFIP.** As a first action point, we propose to put them on the mailing list for the *Information Bulletin. Six-Year Plan,* and ***IFIP*** *Newsletter.*

As expected, a precise programme could not be established during the meeting, but a document called "conclusions of the debates" was approved. Basically, the detailed programme will be established by the Secretariat and the Bureau during the next few months. Provision is made for the participation of **IFIP** in this work.

IIP Tasks

As a conclusion of the meeting, the Committee gave the Bureau authority to conduct the following tasks:

• appoint the local "focal points"

• prepare a directory of contributing organizations

• study the development of an information system on Informatics

• set up a Working Group to study the intersections of **IIP** with other Unesco programmes

• set up an external experts group

• evaluate the potential resources (financial, human)

• publicize the **IIP**

• launch the priority #1 action in education (especially the Congress "Informatics and Education")

The next **IIP** Committee meeting will take place at the end of 1988. ■

VLDB continued from page 9

The International Conference on Very Large Data Bases, the annual event organized by the VLDB Endowment, is dedicated to the promotion and exchange of research and development among the peoples of all nations of the world in computerized data bases and data base technology and practice, and the many related areas. The first VLDB Conference was held in the U.S.A. in 1975, to help promote the international growth and evolution of this field. Subsequently, the conferences have been held in Belgium, Japan, West Germany, Brazil, Canada, France, Mexico, Italy, Singapore, Sweden, and Japan.

Attention is paid to the quality of the conference, as evidenced by a ratio of close to 6 to 1 between papers submitted for publication to papers accepted for presentation. Also, outstanding professionals have been invited to address the conference in panel sessions and tutorials.

The Conference attendance has grown from approximately 100 participants in 1975 to over 700 in recent years. During the same time, the number of papers submitted grew from 60 to 300. Only approximately 60 papers are accepted.

The thirteenth VLDB Conference will be held in Brighton 1-4 September. For information, contact—

Miss Christine Edginton, Conference Manager
BISL Conferenee Dept.
The British Computer Society
13 Mansfield St.
London W I M ()BP, United Kingdom
tel. +44 I 637 0471
telex 262284 ■

National Abbreviations Used in Newsletter

A	Austria	F	France	P	Portugal
AUS	Australia	GB	United Kingdom	PRC	China
B	Belgium	H	Hungary	S	Sweden
BG	Bulgaria	I	Italy	SEARCC	South East Asia Regional Computer Confederation
CDN	Canada	IRL	Ireland	SF	Finland
CH	Switzerland	J	Japan	SU	U.S.S.R.
DK	Denmark	N	Norway	USA	U.S.A.
E	Spain	NL	The Netherlands	ZA	South Africa
		NZ	New Zealand		

CHANGES IN IFIP

NEW APPOINTMENTS

GA MEMBERS

Mr. A. Maharaj
Computer Solutions Ltd.
P.O. Box 355
Suva, FIJI
tel. 679.314 717
telex FJ 2127

Prof. M. Tienari
Helsinki University
Tukholmankatu 2
SF-00250 Helsinki, FINLAND
tel. 358 (0) 90-410 566
(suceeeding H. Haglund)

Mr. M. Gotlieb
IPA
P.O. Box 919
Ramat-Gan 52109, ISRAEL
(succeeding J. Raviv)

TC AND WG OFFICERS

TC3 Vice-Chairman

Rojlevangen 40
DK-2630 Taastrup, Denmark
tel. 45 (2) 52 77 58

WG5.3 Chairman
Prot. G. Oiling
Chrysler Motors
2000 Chrysler Drive
Park. MI 48288-1118, U.S.A.
(sueeeeding J.P. Crestin)

WG10.4 Vice-Chairmen
Prof. Y. Tolima (previously secretary)
Prof. J. F. Meyer

TC MEMBERS

TC3 R.M. Aiken (USA) (succeeding S. Charp)
TC5 D.A. Wilson (NZ)
TC6 K. Rahko (SF) (succeeding J. Ekberg)
L.R. Hunt (NZ) (succeeding P. Cooke)
TC8 A.-G. Wang (PRC)
TC9 K. Thoresen (N) (succeeding E. Barca)

ADDRESS (and other) CHANGES

GA Member from Australia (and president)
Mr. Ashley W. Goldsworthy
Managing Director
Jennings Industries Limited
690 Springvale Road
Mulgrave, Victoria 3170, Australia
tel. 61 (3) 566 8888.
telex AA 31532
eables JENNINGSCO
fax. 6 I (3) 566 8189

GA Member from U.S.A. (and vice-president)
Mr. George Glaser
telex 650-3105119

GA Member from Spain
Prof. Angel Alvarez Rodriguez
tel. 34 (I) 4299108
telex 23870 upmad e (c/o Facultad de Informat.)
42608 usef e
fax. 34 (1) 455 0413

Honorary Member
Dr. Richard I. Tanaka
President
Lundy Eleetronics and Systems, Inc.
1 Robert Lane
Glen Head, NY 11545, U.S.A.
tel. 1 (516) 671 9000
telex 650 264 6767
fax. 1 (516) 671 9412

SEARCC
c/o National Computer Board
NCB Building
71 Seience Park Drive
Singapore 05 I I , Singapore

SEARCC representative
Mr. Robert lau
Institute of Systems Science
National University of Singapore
Heng Mui Keng Terrace
Kent Ridge
Singapore 0511, Singapore
tel. 65 7722094
telex rs 3998
fax. 7782571

VLDB Foundation Representative
Dr. J. Bubenko
Syslab
Dept. of Information Processing and Comp. Sci.
University of Stockholm
S-106 91 Stockholm, Sweden

Publications Officer
Dr. Karen Duncan
telex 650-3105119

CALLS FOR PAPERS

TC6 and TC8 Symposium on Network Information Processing Systems
9-13 May 88, Sofia, Bulgaria
papers due: 1 Oct 87
contact: Prof. K. Boyanov
Bulgarian Academy of Sciences
Center of Informatics and Computer Technology
acad. G. Bontchev str., bl. 8
1113 Sofia, Bulgaria

WG8.2 Conference on Information Resource Management
3-5 May 88, Noordwijkerhout, The Netherlands
papers due: 15 Sep 87
contact: Prof. dr. Henk G. Sol
Information Systems Group
Delft University of Technology
P.O. Box 356
2600 AJ Delft, The Netherlands

WG5.3 7th Conference on Software for Discrete Manufacturing—PROLAMAT 88
4-17 Jun 88, Dresden, G.D.R.
papers due: 15 Sep 87
contact: Prof, Koehan
Technische Universität Dresden
Sektion Fertigungsteehnik and Werkzeugmascbinen
PROLAMAT 88
Mommsenstrasse 13
Dresden, Dem. Rep. of Germany 8027
tel. 463 3339
telex 022 78

TC3 Symposium ECCE '88—European Conference on Computers in Education
24-29 Jul 88, Lausanne, Switzerland
papers due: 30 Oct 87
contact: EECE 1988
Prof. Bernard Levrat
Centre Universitaire d'Informatique
2 rue du Lac
207 Geneva, Switzerland ■

NEW IFIP PUBLICATIONS*

CONFERENCE PROCEEDINGS

Program Specifications and Transformation
Procs. of the IFIP TC2 Working Conf.
Bad Tölz , F.R.Germany, Apr 86
L.G.L.T Meertens, Ed.

Microcomputers in Secondary Education
Proes. of tbe IFIP TC3 Regional Conf.
Tokyo, Aug 86
S. Moriguti, S. Ohtsuki, T. Furugori, Eds.

Computer-Aided Techniques in Manufacturing, Engineering and Management
Procs. of the IFIP TC5 Seminar
Beijing, Apr 87
Q.S. Sun, A. Rolstadas, Eds.
special issue of *Computers in Industry,* vol. 8, nrs. 2 & 3, 1987

Information Network and Data Communications, I
Procs. of tbe IFIP TC6 International Conf.
Ronneby Brunn, Sweden, May 86
D. Kbakhar, Ed.

Office Systems: Methods and Tools
Proes. of the IFIP WG8.4 Working Conf.
Pisa, Oct 86
Bracchi , D. Tsichritzis, Eds.

Stochastic Modelling and Filtering f
Lecture Notes in Control and Information Seiences, vol 91
Procs. of the IFIP WG7.I Working Conf.
Rome, 84
A. Germani, Ed.

Advanced Programming Environments
Lecture Notes in Computer Science, vol. 244
Procs. of the IFIP WG2.4 Workshop
Trondheim, Norway, Jun 86
R Conradi, T.M. Didriksen, D.H. Wanvik, Eds.

IFIP ANTHOLOGY

Computer and International Socio-Economic Problems
H. Sackman, Ed.

JOURNALS

Computers in Industry, Tbe International Journal of IFIP TC5
six issues per year

Computers and Security, The International Journal of IFIP TC 11
four issues per year ■

** published by Elsevier/ North-Holland in 1987, unless otherwise noted*
f *published by Springer-Verlag*

FUTURE IFIP MEETINGS

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

GA	1-6 Sep 87	Budapest
Council	29 Feb-4 Mar 88	Auekland, New Zealand
GA	5-9 Sep 88	New Delhi
GA	last week Aug 89	San Francisco

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

WG2.2	1-5 Jun 87	Sopbia-Antipolis, France
TC3	21-23 Jul 88	Lausanne
WG3.5	Jul 87	Gent, Belgium
TC5	13 Jun 88	Dresden
TC6	11-12 Sep 87	Harare, Zimbabwe ?
TC7	Sep 87	Tokyo
TC9	27-28 Jun 87	Amsterdam
TC 10	2 Jun 87	Rochester, NY, U.S.A.
WG 10.5	3 Aug 87	Vancouver ?
TC11	Oct 87	near Vienna

* Some meetings are scheduled in conjunction witb Working Conferences, for wbicb tbe eonference dates are listed.

IMIA

General Meeting	17-18 Oct 87	Buenos Aires

CALENDAR OF EVENTS

Event	Date	Location	Organized by
Workshop on *CAD Engines*	8-9 Jun 87	Tokyo	TC10/WG 10.5
Third Intl. Conf. on *Data Communication Systems and their Performance*	22-25 Jun 87	Rio de Janeiro	TC7/TC6/WG7.3
Work. Conf . on *Recent Advances in Communication and Control Theory*	23-26 Jun 87	Washington, DC	TC7
Work. Conf. on *Social Implications of Home Interactive Telematics (HIT)*	24-27 Jun 87	Amsterdam	TC9/NGI
Intl. Workshop on *LAN Management*	2-3 Jul 87	West Berlin	TC6/WG6.4A
Work. Conf. on *Optimal Control of Systems Governed by Partial Differential Eqns.*	6-7 Jul 87	Santiago d.C., Spain	WG7.2/CAYCIT
Work. Conf. on *The Primary Curriculum and New Technology-Ways and Means*	6-9 Jul 87	Gent, Belgium	TC3/WG3.5
Workshop on *Architecture for Knowledge Engineering*	Jul 87 ?		WG10.5
Workshop on *Wafer Scale Integration*	Jul 87	Uxbridge, U.K.	WG10.5
Workshop on *Information Flow in Automated Manufacturing Systems*	7-8 Aug 87	Milwaukee	TC5/WG5.7
Intl. Conf. on *Very Large Scale Integration-VLSI 87*	10-12 Aug 87	Vancouver, Canada	WG10.5
Tbird Intl. Conf. on *Advances in Production Management Systems-APMS '87*	12-14 Aug 87	Winnipeg, Canada	WG5.7/IFAC
Workshop on *Knowledge Representation, Management and Utilization in the Office*	17-19 Aug 87	Toronto	WG8.4
Thirteenth IFIP Conf. on *System Modelling and Optimization*	31 Aug-4 Sep 87	Tokyo	TC7/IFORS
Intl. Workshop on *Hardware Design Verification*	Aug 87	Edinburgh	WG 10.2
Work. Conf. on *Opportunities and Risks of Artificial Intelligence Systems*	Aug 87	Hamburg	TC9/GIS
Second Intl. Conf. on *Human-Computer Interaction-INTERACT 87*	1-4 Sep 87	Stuttgart	IFIP/INTACT
Work. Conf. on *Diagnostic and Preventive Maint. Strategies in Manufac. Systs.*	1-4 Sep 87	Dubrovnik	WG5.3
Intl. Conf. *A FRICOM'87-Towards the 21st Century Planning for Information Communication in Developing Countries*	8-10 Sep 87	Harare, Zimbabwe	TC6/CSZ/ ARCC
Work. Conf. on *Governmental and Municipal Information Systems*	8-11 Sep 87	Budapest	TC8/JvNSCS/HCSO/ Unesco
Conf. on *Functional Programming*	14-16 Sep 87	Portland, OR, U.S.A.	TC2/ACM
Intl. Conf. on *Coping with Computer-Age Vulnerability*	28-30 Sep 87	Amsterdam	TC9/NGI
Work. Conf. on *Computer System Design Methodologies*	Sep 87	9	WG10.1
Intl. Workshop on *Techniques and Algorithmic Complexity of Simulation*	Sep 87	Torino, Italy	WG 10.2
Intl. Workshop on *Tool Integration and Design Environments*	Sep 87	Paderborn, F.R.G	WG10.2
Work. Conf. on *Distributed Processing*	5-7 Oct 87	Amsterdam	WG10.3
Workshop on *Intelligent CAD*	6-8 Oct 87	Boston	TC5/WG5.2
Workshop on *Partial and Mixed Computation*	18-24 Oct 87	Ebberup, Denmark	TC2/DDC
Work. Conf. on *Smart Card 2000*	19-20 Oct 87	Vienna	WG 11.6
Work. Conf. on *Software for Factory Automation*	19-21 Oct 87	Tokyo	WG5.3/IFORS
Work. Conf. on *Computers and the Law: A Technologist's Guide Through Legal Pitfalls and Pathways*	21-23 Oct 87	Santa Monica, U.S.A.	TC9
Work. Conf. on *Vocational Training for Informatics*	Oct 87 ?		WG3.4
Workshop on *Local Area Network Management*	Oct 87 ?	Zurich	TC6/WG6.4A
Working Seminar on *Information Networks and Data Communications (INDC-87)*	16-19 Nov 87	Malmo, Sweden	TC6/SDF/SSI
Workshop on *Process and Design for 3D Chips*	Nov 87		WG10.5
Symp. on *Achieving Safety and Reliability with Computer Systems*	Nov 87	Manchester	TC5/WG5.4/BSRS
Conf. on *Training for Tomorrow*	Nov 87	U.K.	TC5/IEE/IFAC
Intl. Symp. on *Computer Performance Modelling, Measurement and Evaluation-PERFORMANCE '87*	7-9 Dec 87	Brussels	WG7.3/ITC/FNRS
Work. Conf. on *The Social Implications of Robotics & Advanced Indus. Automation*	13-17 Dec 87	Eilat, Israel	TC9/IIPA
Work. Conf. on *Computers as Tools for the Teacher-New Dimensions for the Teaching Profession*	87		WG3.3
Worksbop on *Human Factors in CAD*	87 ?	The Netherlands	TC5/WG5.2
Work. Conf. on *Large Scale Computation in Science and Engineering*	87 ?	Dublin	TC7
Work. Conf. on *Geometric Modelling*	87 ?	New York	TC5/WG5.2
Work. Conf. on *Impact of Information Systems in Developing Societies*	Jan 88	Ahmedabad, New Delhi	TC9/TC8
Work. Conf. on *Teleteaching'88*	Jan 88	Bangkok	TC3
Work. Conf. on *People. Society and Computing Landscapes*	Jan 88 ?	Namur, Belgium	TC9/WG9.2
Workshop on *Concepts and Characteristics of Declarative-Based Environments*	Feb 88		WG10.1
Intl. Synip. on *Information Systems as a Resource for Management*	29 Feb-2 Mar 88	Sydney, Australia	TC8/WG8.3/ACS
Work. Conf. on *Info. Technology Mgt. for Productivity & Strategic Advantage*	7-8 Mar 88	Singapore	TC8/NUS
Work. Conf. on *Computational Issues in Combinational Optimization*	Mar 88	Capri '	TC7
Work. Conf. on *Artificial Intelligence, Data Bases and Information Systems*	4-8 Apr 88	Guangzhou, China	WG2.6/WG8. 1
Synip. on *Software for Computer Control-SOCOCO 88*	26-28 Apr 88	Johannesburg	IFIP/IFAC
Work. Conf. on *Parallel Computing: Algorithms, Languages and Architectures*	Apr 88	Pisa	TC10/WG10.3
Symp. on *Network Management*	Apr 88	U.S.A.	TC6/WG6.6
First Intl. Conf. on *Information Resource Management*	3-5 May 88	Noordwijkerbout, NL	TC8/WG8. I /DUT
Work. Conf. on *Network Information Processing Systems*	9-13 May 88	Sofia, Bulgaria	TC6/TC8/BAS
Fifth Intl. Conf. on *Computer Security-IFIP/Sec '88*	19-21 May 88	Gold Coast, Australia	TC1I/ACS
Eighth Intl. Synip. on *Protocol Specification. Testing, and Verification*	24-27 May 88	Atlantic City	WG6.1/AT&T-BL
Work. Conf. on *The Information Systems Research Arena in the Nineties*	May 88	Ithaca, NY, U.S.A.	TC8/WG8.2
Work. Conf. on *Optimization of Stochastic Systems*	May 88	Budapest	TC7
Intl. Conf. *EURINFO 88: Information Technology for Organizational Systems*	May 88	Athens	IFIP/CEC
Eighth Intl. Conf. on *Analysis. Design and Evaluation of Man-Machine Systems-MMS 88*	14-16 Jun 88	Oulu, Finland	IFAC/IFIP/ IFORS/IFA
Seventh Intl. Conf. on *Software for Manufacturing-PROLAMAT 88*	14-17 Jun 88	Dresden, G.D.R.	WG5.3/IFAC
Work. Conf. on *Organizational Decision Support Systems*	20-22 Jun 88	Como, Italy	TC8/WG8.3
Work. Conf. on *Computer in Nursing*	22-27 Jun 88	Dublin	IMIA
Work. Conf. on *The Role of Artificial Intelligence in Data Bases and Info. Systs.*	4-8 Jul 88	Canton, China	WG2.6/WG8.1
European Conf. on *Computers in Education-ECCE'88*	25-29 Jul 88	Lausanne	TC3/SCS
Work. Conf. on *Mathematical Software for Asynchronous Computation*	16-20 Aug 88	Palo Alto, CA, U.S.A.	WG2.5/IEEE
Work. Conf. on *Knowledge-Based Production Management Systems*	23-25 Aug 88	Galway, Ireland	WG5.7
Joint Conf. on *Open Communication Systems for Applications in Office and Manufacturing*	Aug 88	Vienna	TC5, 6, & 8/WG8.4/ GI/OCG
Work. Conf. on *Management Aspects of Information System Development*	Aug 88	Noordwijkerhout, NL	TC8/WG8.2
IFIP 89 - Ilth World Computer Congress	28 Aug-1 Sep 89	San Francisco	IFIP

Please see page 11 for schedule of IFIP administrative meetings.