Member Societies

Royal Australian Chemical Institute
Bangladesh Chemical Society
India Chemical Society
Himachal Pradesh Chemical Society
Hinduja Chemical Society
Indian Chemical Society
Himmapun University
Iranian Chemical Society
Chemical Society of Japan
Jordanian Chemical Society
Korean Chemical Society
Kuwaiti Chemical Society
Institute of Kreta, Malaysia
Nepal Chemical Society
New Zealand Institute of Chemistry
Chemical Society of Pakistan
Punjab National Chemicals
Institute of Chemistry
Integrated Chemists of the Philippines
Singapore National Institute of Chemistry
Chemical Society of the South Pacific
Institute of Chemistry Sri Lanka
Chemical Society of the South Pacific
Chemical Society of Thailand
Chemical Society of Vietnam

The FACS Council 1993/95 having its first meeting in Kuala Lumpur.

FACS Exco Meeting in Manila
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1993/95

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For the last two decades the Asia Pacific region is experiencing rapid economic development. Japan has emerged from the ruins of the 2nd World Wars to become one of the economic super powers. This is followed closely by the four "small dragons" of Hongkong, Singapore, South Korea and Taiwan. More recently, Southeast Asian countries like Malaysia, Thailand and Indonesia are also experiencing rapid economic growth. The latest to join the line are China, and possibly Vietnam, India and the Philippines.

Chemistry plays a central role in economic development. Chemical knowledge and technologies are key components in industrial and agricultural development. Chemical knowledge is also crucial to good nutrition and health, and the overall quality of life. The latest applications of chemical principle are in the areas of environmental protection and conservation. The Federation of Asia Chemical Societies (FACS), being a confederation of 24 national chemistry organisations in the Asia Pacific region, has a key role to play in the rapid economic development of the region. Being a regional organisation of chemists, it has to ensure that chemistry plays a functional role in industrial development. New processes, technologies and innovations are necessary to ensure that the developing nations in the Asia Pacific region are able to compete in international market. On the other hand, chemistry must also be used to ensure that industrial development does not threaten the life of people and the environment. In other words, chemistry must play a pivotal role in harmonising industrial development with the quality of life. It has to ensure that the industrial development be made sustainable, and the threats to the environment and conservation be minimised. FACS also has a key role to play in the education of the people, to ensure that the politicians make the decision with the correct information, and the consumers are aware of the consequences of their decisions. I, therefore, see that FACS has to play a more pro-active role in the life of the Asian-Pacific people.

Dr. Soon Ting Kueh
The Editor
The 5th Asian Chemical Congress on "Chemistry for Development - The Global Perspective" as well as the 2nd ANAIC International Conference on "Materials Sciences and Environmental Chemistry of Main Group Elements" was successfully held on 8-12 November 1993 at the Ming Court Hotel and Wisma MCA, Kuala Lumpur.

In conjunction with these two events, a Chemical & Industrial Exposition (CHEMINDEXASIA '93) was held at the Wisma MCA.

The 5th Asian Chemical Congress was organised by IKM on behalf of the Federation of Asian Chemical Societies (FACS) and the Commonwealth Science Council (CSC). Malaysian Airlines was the official carrier for the Congress.

The Congress comprised 6 Symposia, a Regional Workshop and a Training Course, namely:

- Training Course on Atomic Spectroscopy, 8-12 November
- Symposium on Analytical Chemistry & Instrumentation, 9-11 November
- CREN-IKM Regional Workshop on Environmental Analytical Techniques, 9-10 November
- 2nd Regional Symposium on Industrial Safety & Occupational Chemistry, 9 November
- Symposium on Computational Chemistry, 11 November
- Symposium on Chemical Education for the Community, 10-11 November
- Synthetic Chemistry Symposium, 9-11 November
- Symposium on Recent Advances in Natural Product Chemistry, 9-10 November

A Joint Opening of the 5th Asian Chemical Congress and 2nd ANAIC International Conference was held on 8 November 1993 at Wisma MCA and the Opening was officiated by the Honourable Minister of Science, Technology and the Environment, Y.B. Datuk Law Hieng Ding.

A total of 299 participants from 21 countries attended the Congress. The largest number of foreign delegates were from China and Australia.

113 delegates from 30 countries attended the 2nd ANAIC International Conference.

Five plenary lectures were presented. They are:

- Advanced photovoltaic technologies and the GENESIS (Global Energy Network Equipped with Solarcells and International Superconductor Grids) Project
  By Dr Shoichi Nakano (Japan)
- Present and Future Contributions of Electroanalytical Chemistry to solving Scientific Problems
  By Prof. Alan M. Bond (Australia)
- Chemicals, Polymers and Ceramics from the Beach
  By Prof. Richard M. Laine (U.S.A.)
- Molecules to Materials: Engineering at the Nanometer level
  By Prof Pradyot A. Agaskar (U.S.A.)
- New Materials and Nanoscale Structures derived from Biominerals
  By Prof. John Webb (Australia)

196 papers were received for presentation at the 5th Asian Chemical Congress while 82 papers were received for presentation at the 2nd ANAIC Conference.

A Welcome Reception was held on 8 November 1993 at the Royal Selangor Club for participants of the Congress and ANAIC Conference. At this Reception, the IKM Annual Chemistry Awards and Merit Awards were presented. The Guest of Honour was the Deputy Minister of Science, Technology and the Environment, Y. B. Enck Peter Chin.

A Joint Conference Banquet as well as Malam Kimia 1993 were held on 11 November 1993 at the Ming Court Hotel, Kuala Lumpur. The Banquet was officiated by Y. B. Datuk Law Hieng Ding who presented certificates to winners of the IKM Good Laboratory Practice Awards 1994. Certificates were also presented to Fellows of FACS.

During the Congress, IKM hosted the FACS Biennial General Assembly on 9-10 November 1993.
NEW OFFICE-BEARERS

At the Biennial General Assembly held in Kuala Lumpur on 9 - 10 Nov 1993 the following Office-bearers were elected:

President: Dr. M. Mohinder Singh (Malaysia)
President-Elect: Dr. Fortunato Servilla III (Philippines)
Past-President: Prof. Guang-Xian Xu (China)
Secretary-General: Mr. Lim Teck Thai (Malaysia)
Treasurer: Dr. Philip J. Marriott (Australia)
Chairman of Publications Committee: Dr. Soon Ting Kueh (Malaysia)
Coordinator of Projects: Dr. Barry N. Noller (Australia)

Projects Directors:
Environment/CREN: Dr. Barry N. Noller (Australia)
Natural Products: Dr. Avijit Banerji (India)
APFAN/Food Analysis: Dr. J. H. Bradbury (Australia)
ANAIC: Prof. John Webb (Australia)
ChIN: Prof. Zhizhong Xu (China)
Low Cost Equipment: Prof. K. V. Sane (India)

Present at the General Assembly were the following delegates/observers of Member Societies:

RACI (Australia)
Dr. T. Spurling (Past President)
Dr. B. N. Noller (Project Coordinator)
Dr. Philip Marriott (Treasurer)
Dr. Neil Galbraith (Delegate)
Dr. John Webb (Observer)
Dr. Ross Sadler (Observer)

BCS (Bangladesh)
Dr. A. H. Khan (Delegate)

BCS (Brunei)
Dr. Hj. Ibrahim A. Rahman (Delegate)

CCS (China)
Prof. Guang-Xian Xu (President)
Prof. De-He Zhang (Secretary-General)

ICS (India)
Prof. Avijit Banerji (Delegate)

HKI (Indonesia)
Mr. Anton J. Hartomo (Observer)

CSJ (Japan)
Prof. Hitoshi Ohtaki (Delegate)

JCS (Jordan)
Prof. Zakaria Fataftah (Delegate)

KCS (Korea)
Prof. Ikchoon Lee (Delegate)

IKM (Malaysia)
Dr. M. Mohinder Singh (President-Elect)
Mr. Lim Teck Thai (Publication)
Dr. Soon Ting Kueh (Observer)

PNG (Papua New Guinea)
Dr. Jeremiah Tamate (Delegate)

ICP (Philippines)
Dr. Fortunato Servilla III (Delegate)
Dr. Benigno D. Peczon (Observer)
Dr. Ishmael D. S. Ordonez (Observer)

SNIC (Singapore)
Prof. Sim Keng Yeow (Delegate)

SCS (Taipei)
Prof. Ta-Shue Chou (Delegate)
Prof. Tsung-Tsan Su (Observer)

CSV (Vietnam)
Mr. Quach Dang Trien (Delegate)
Prof. Chu Pham Ngoc Son (Observer)

CSC (United Kingdom)
Dr. J. A. J. Perera (Observer)
ADDRESS BY Y.B. DATUK LAW HIENG DING, MINISTER OF SCIENCE, TECHNOLOGY & THE ENVIRONMENT AT THE OFFICIAL JOINT OPENING OF THE 5TH ASIAN CHEMICAL CONGRESS, THE 2ND ANAIC INTERNATIONAL CHEMICAL CONFERENCE AND CHEMINDEX ASIA '93 8 NOVEMBER 1993, KUALA LUMPUR

I wish to express my sincere appreciation to the Organising Committee for inviting me to open three major chemistry events, namely the 5th Asian Chemical Congress, the 2nd ANAIC International Chemical Conference and the 'CHEMINDEX ASIA '93' Exposition. My Ministry and I are indeed pleased that Malaysia has been selected as the venue for this major chemical activity which I understand is held every two years. On behalf of my government and the people of Malaysia, I wish all our foreign participants "Selamat Datang" to the fair city of Kuala Lumpur, I hope those of you who are here for the first time will take time off your busy schedule to see and experience some of the fascinating attractions around Kuala Lumpur and nearby towns like Malacca.

The large attendance of nearly 500 delegates, both from outside the country and within bears ample testimony that this is an important event in the chemical calendar of the region. I am told that there is keen competition among national chemical societies to host this biennial chemical event. I therefore wish to congratulate the Instititi Kimia Malaysia for being given this singular honour.

You are no doubt aware that the Asian Region represents a very important region, not only because of its huge size and large human population, but also because of the abundance of its natural resources. The Asian Region contains two of the most populous countries in the world, namely China and India as well as several others with large populations. It also comprises the greatest contrast in economic status ranging from highly industrialised countries such as Japan, Korea, Taiwan, Singapore, Australia and Hong Kong, to those struggling economies and also some of the fastest growing economies in the developing world, such as Malaysia, Thailand and Indonesia. The Asian Region is also the home of the largest tropical forests as well as the natural habitat of the largest number of species of flora and fauna. The Region is also endowed with vast natural resources, both land and marine. Hence it is a region of great strategic and economic importance which influences the entire globe.
Hence, the theme of the 5th Asian Chemical Congress cannot but make a global impact on all facets of human activity.

Many countries in Asia today have started to tread the path of development based on the experiences of the developed nations. Industrialisation has become the committed hallmark of every country's Development Plans. Many of them have come to realise that their only solution to uplift themselves from their state of poverty or low level of development is to follow the proven path of industrialisation as well as in the use of their natural resources. They therefore are faced with the dilemma of adding to the world's global woes of environmental degradation and depletion of natural resources, or slowing down their development programmes.

What choice have the poor developing nations got? Their priority certainly is to provide the basic needs of survival for their people, as well as to uplift their quality of life.

The solution can only be a global one. The rich nations and the struggling, less-developed countries must come up with a cooperative agenda to preserve the environment without sacrificing the right of the developing countries to uplift their socio-economic position. This message has been clearly emphasized in many international forums but unfortunately the solutions are not easy but of gigantic proportions.

We the politicians can only give political will and commitment but, as in the past, the responsibility of finding the solutions have to be heavily dependant on the scientists and technologists. The world has not only continued to survive but has progressed in leaps and bounds as a result of the great advances made in science and technology and I am confident that scientists and technologists will continue to provide the solutions for the many technological and economic problems facing the world today. However, while in the past, scientists and technologists the world over could afford to work in isolation, they have today to work in unison and in close cooperation as many of the major problems facing humanity are no longer restricted to a single country or a specific scientific discipline but are global in nature requiring an inter and multi-disciplinary approach.

The Asian Chemical Congress certainly will add to these global efforts to harness science & technology to meet the challenges facing mankind.

I must also congratulate the organisers of the 2nd ANAIC International Conference for selecting a highly topical theme for their Conference. Material Science and Development of New Engineering materials is an area which has been accorded high priority in our industrialisation drive.

You have come at a very exciting time. Malaysia is enjoying one of the fastest growth rates. I am sure you will be able to feel the pulse of development and rapid changes that are taking place. You should find satisfaction that these are being achieved through our Government's support for S&T. Indeed the Government's 5 Year Development Plans in the past two decades have received increasing support not only for R&D but also for all aspects of S&T, be it in education, research or application. Just a few days ago, our Finance Minister, during his Budget speech, announced further attractive incentives to encourage the private sector to step-up R&D and move into areas of high technology.

I am glad the Malaysia is not the only developing country to do this - indeed many of our neighbours have done likewise. All this heralds a bright future for the Asian region in particular and the world as a whole.

I also wish to take this opportunity to express my appreciation to Pantai Maju Sdn. Bhd. for putting together the 'CHEMINDEX ASIA' Exposition which I am sure will prove most valuable to the participants as well as the Malaysian scientists and industrialists.

I wish your meeting every success and eagerly look forward to a fruitful outcome of your deliberations.

I now have much pleasure in declaring open the 5th Asian Chemical Congress, the 2nd ANAIC International Chemical Conference, and the Chemical and Industrial Exposition 'CHEMINDEX ASIA '93'.

Participants at Opening Ceremony
The Instituti Kimia Malaysia or IKM is a Founder Member of the Federation of Asian Chemical Societies (FACS). The present President of FACS, Dr. M. Mohinder Singh, is the President of IKM and the FACS Secretariat is located at the IKM Secretariat. We produce here a write-up on the Instituti Kimia Malaysia for information of FACS members.

The Malaysian Institute of Chemistry or Instituti Kimia Malaysia (IKM) is the national organisation of chemists in Malaysia.

IKM was inaugurated on 8 April 1967 with a total of 31 Founder Members as shown in Table 1.

0001/67/70 R. D. Amarasingham, FMIC
0002/67/74 H. M. Collier, FMIC (deceased)
0003/67 Eric Crowther, LMIC
0004/67 G. F. de Witt, FMIC
0005/67 I. N. Dickson, AMIC
0006/67 I. H. Duckworth, FMIC
0007/67 A. D. T. Gorton, LMIC
0008/67 Dr R. C. H. Hsia, AMIC (deceased)
0009/67 Prof R. L. Huang, FMIC
0010/67 K. Kanapathy, AMIC
0011/67/86 Henry Lee, FMIC
0012/67 Dr Lee Kheng Hoon, AMIC
0013/67 Leong Pak Cheong, FMIC
0014/67 Lim Chin Kuan, FMIC (deceased)
0015/67 Dr Lim Chin Lam, AMIC
0016/67 Prof Loke Kwong Hung, FMIC
0017/67/79 A. Maheswaran, FMIC
0018/67/73 Dr Mohinder Singh Malhotra, FMIC
0019/67/74 J. E. Morris, FMIC
0020/67 Prof F. Morsingh, FMIC
0021/67/85 Ng Weng Kwong, FMIC (deceased)
0022/67/72 Dr Ong Kim Chye, FMIC
0023/67 Peh Teik Bin, AMIC
0024/67 D. Y. M. Picken, FMIC
0025/67 Tan Sri Dr B. C. Sekhar, FMIC
0026/67/72 Dr Surinder Singh, FMIC
0027/67 Tan Tong Teck, FMIC
0028/67/80 H. S. Tara, FMIC
0029/67 R. Venkatachalam, AMIC
0030/67/91 Yeo Hock Siew, FMIC
0031/67 Yeo Oon Keong, AMIC

IKM was incorporated under the Chemists Act 1975 on 1 November 1977. IKM Branches were established on the following dates:

Sarawak Branch 22 March 1986
Southern Branch 15 September 1986
Northern Branch 6 December 1986
Sabah and Labuan Branch 23 July 1993

IKM acquired its own buildings on 6 June 1979 and the IKM Secretariat moved to its own premise at No 129, Jalan Aminuddin Baki, Taman Tun Dr Ismail, Kuala Lumpur on May 1983.

Some of the major establishments of IKM are as follows:

* Established Education Fund on 20.3.1979 and Benevolent Fund at the A.G.M. in 1974.
* Established IKM Merit Awards on 28 September 1986.
* Published IKM Newsletter since October 1977 & Kimia Kini 1.1.85
* Published 1st Directory of IKM members in August 1974.
* Published Kimia from 1970 to 1985.
* IKM Membership Examination held since 1978.
* Set up National Laboratory Accreditation Scheme on 1 January 1986.
* Set up IKM Good Laboratory Practice Award in 1993
Several Regional Conferences, Workshops and Training Courses were also held as follows:

- **UNESCO Working Party Meeting on "Utilisation of Renewable Resources", 7-10 November 1979.**
- **1st Asian Chemistry Seminar on "Priorities in Chemistry in Development of Asia", 23-25 April 1981.**
- **Asian Chemical Conference (PROCHEM ASIA 1984), 29-31 March 1984.**
- **2nd Asian Conference on Technology for Rural Development (jointly with MSA) on 4.7.1985.**
- **1st Malaysian Chemical Congress, 17-20 November 1986.**
- **Regional Workshop on Low Cost Instrumentation, 11 August 1988.**
- **Regional Training Course on Recent Advances in Techniques and Applications of gas Chromatography, 15-19 November 1988.**
- **1st A.N.A.I.C. International Chemical Conference on Silicon and Tin, 23-26 October 1989 in conjunction with the Malaysia Chemical Conference, 1989.**
- **Asia-Pacific Regional Seminar on Analysis of Trace Constituents in Foods, 15-17 November 1990 in conjunction with the Malaysian Chemical Conference 1990.**
- **ASCA-UNESCO-ISESCO Training Course on Advance Instrumental Techniques and Maintenance, 10-22 June 1991.**
- **Malaysian Silver Jubilee Chemical Congress, 17-19 November 1992.**
- **5th Asian Chemical Congress and 2nd ANAIC International Conference, 8-12 November 1993.**
- **Branches also hold seminars and Workshops Held FACS Secretariat from 1981-1983 & 1993-1995.**

**Established IKM Sections as follows:**

- Analytical Chemistry Section established in March 1984
- Organic Chemistry Section established on 5 June 1987
- Oils & Fats Section established on 17 October 1984
- Education Section established in November 1984
- Polymer & Industrial Section established in November 1984
- Physical Chemistry Section established in 1992

**Current Subcommittees**

- Examination Board
- Building & Finance Committee
- Professional Affairs & Employment Committee
- Publications Committee
- Benevolent Fund Committee
- Chemical & Occupational Safety Committee
- Research Award Committee
- Malam Kimia Organising Committee
- Membership Admission Committee
- Analytical Section Committee
- Environment Section Committee
- Oils & Fats Section Committee
- Education Section Committee
- Polymer Section Committee
- Organic Section Committee
- Physical Chemistry Section Committee
- IKM Quality Award for Laboratory Committee
- Chemistry for SMIs Committee
- Computational Chemistry Committee
- Quality Assurance Committee
- Entrepreneurship and Management Committee
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COUNCIL 1994/95

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A number of chemistry societies exist in the Philippines; however, most of them include in their membership non-chemists. In order to gather under one solid body all the registered chemists in the country, the Integrated Chemists of the Philippines (ICP) was formed in 1974. It drew its membership from all the existing chemistry organizations and consolidated the interests of the chemical profession and the efforts of chemists to contribute to national development.

Objectives

The general objective of the ICP is the elevation of the standards of the chemistry profession in the country and the safeguarding of the professional interest of chemists. It is the organization accredited by the Professional Regulation Commission of the Philippine government and acts as the liaising body between chemists and the national Board of Chemistry.

The ICP aims to provide a venue through which chemists could communicate with their colleagues in their areas of specialization. It promotes the exchange of knowledge and expertise among the Filipino chemists, fostering an awareness of the recent developments in the science of chemistry.

It also aims to ensure, as far as possible, that the expertise and the experience of qualified chemists are deployed and used to the best advantage of the community. It is concerned with all conditions of employment, including health and safety precautions, the status accorded to chemists, remuneration levels and industrial relations problems. It also seeks to assure an efficient enforcement of the rules and regulations, as well as the code of ethics and professional responsibilities, of chemists in the Philippines.

Organization

The national organization is based in Manila. However, chapters have been established in several regions of the country, such as in Cebu, Panay, Negros, Northern Mindanao, Davao and Western Luzon. These regional chapters maintain an autonomy, but coordinate with the national organization.

The ICP is governed by a Board of Directors which consists of elected members holding a term of office for a period of one year. The ICP Board elects among themselves a President, an Executive Vice-President and a Treasurer. Other officers, such as the Executive Secretary, the Vice-Presidents for External Affairs, the Vice-President for Luzon, Visayas and Mindanao, the Auditor and the Press Relations Officers are appointed by the President, with the consent of the Board of Directors.

Activities

The ICP, in cooperation with the other chemistry societies, organizes the annual Filipino Chemistry Congress. This annual gathering of chemists in the Philippines is held during the last week of May. It consists of a scientific programme which involves plenary lectures and invited papers on recent developments in the chemical science, research paper and poster presentations, and round-table discussions on issues of professional concern.

The ICP, in coordination with the other chemistry organizations, conducts special lectures and symposia during the Philippine National Chemistry Week. The last full week of February of every year has been declared by a Administrative Order of the President of the Philippines to be The National Chemistry Week in order to focus public attention to the science.
The ICP acts as the implementing body for the Continuing Professional Education (CPE) Program of the Professional Regulation Commission (PRC). Through its CPE Committee, the ICP ensures that all registered chemists in the country undergo a continuous program of professional development. This requirement of the PRC encourages chemists to remain abreast with the progress of the science.

Through its special committees, the ICP addresses some relevant issues involving and concerning chemistry. A working group on Food Safety has been formed to formulate a program to foster increased awareness and vigilance on the safety of food products. A working group on Chemical Education is established to coordinate with the Technical Panel of the Department of Education, Culture and Sports on the policies and standards for the university training of chemists. A working group on Government Chemists is formed to work out an improved status for chemists in the civil service.

The ICP is an active member of the Federation of Asian Chemical Societies (FACS). It was one of the founding members of FACS, and has been activity involved in several projects of the federation. Through some of its special committees, the ICP maintains close contact with several Asian networks, such as Natural Products, Food Analysis and Analytical Chemistry.

The ICP maintains, in cooperation with the other chemistry organizations, a quarterly publication for chemists in the Philippines. Known as the Philippine Chemical News, this publication keeps Filipino chemists informed on the important events and developments taking place in the country. This news bulletin also incorporates some update articles on chemical science and technology.

Though it does not maintain a scientific journal, ICP coordinates with the Chemical Society of the Philippines (KKP) in the publication of KIMIKA. This journal which is published annually, contains research papers on chemistry, as well as on closely-related technologies.

PHILIPPINE CHEMISTRY CONGRESS

The 10th Philippine Congress will be held on 26 to 28 May 1994 at the Development Academy of the Philippines in Tagaytay City. The Chemistry Congress is an annual gathering of chemists from all over the Philippines. It serves as a forum for the presentation of researches, sharing of knowledge, exchange of ideas and discussion of issues.

The theme of the Congress is "Quality Utilization of Acquired New Technology for the Upgrading of Methods (QUANTUM) IN CHEMISTRY RESEARCH, EDUCATION AND INDUSTRY". It will feature a scientific programme which will consist of plenary lectures and invited papers on recent developments in chemical science and technology, podium and poster presentations of research papers and roundtable discussions on issues of professional concern.

An exhibition on areas relevant to the Congress theme will be put up. Major chemical and equipment suppliers in the country have been invited to participate in the exhibit. Demonstrations of computer softwares for chemists will likewise be held.

The Congress is organized by the Philippine Federation of Chemistry Societies, which is composed of the Integrated Chemists of the Philippines, the Kapisanan ng mga Kimiko sa Pilipinas, the Philippine Association of Chemistry Teachers, the Organic Chemistry Teachers' Association and the Philippine Association of Chemistry Students.

Registration for the Congress, as well as reservation for accommodations, can be made with the Secretariat, c/o Dr. Gerardo Janairo, Department of Chemistry, De La Salle University, Manila.
CHEMISTRY IN MALAYSIA

I was at first a bit hesitant in accepting the invitation of the Institute to write an account of Chemistry in Malaysia on the occasion of the 25th anniversary of its foundation. This is because such an historical account needs time and energy in its preparation, research into archival materials in public and private sectors and synthesis of the diverse pieces of information garnered into a coherent whole. Only then would readers have a feel of how past people and events shaped the present. This task, I think, is best undertaken by a qualified historian. I would therefore like to take this opportunity to suggest that the Institute look into such a possibility on some future occasion. So what I have set out below is rather subjective and is culled more from memory than written records. Errors of fact, if any, are unintentional and hopefully will be excused.

Chemistry as a branch of learning came to British Malaya in 1928 with the establishment of Raffles College in Singapore. We would envisage that the chemistry taught in the course leading to the diploma of the college was, as Sherlock Holmes was prone to say in another context, elementary, when compared to the intellectually demanding and challenging chemistry courses taught in today’s universities. The amount of knowledge transferred to the student was relatively small too, as can be gauged from the fact that a final (third) year science diploma student read three subjects instead of two subjects in the third year of a 4-year Honours degree course taught nowadays.

Be that as it may, these science graduates of Raffles College (and there were, according to records kept at the Alumni Office, National University of Singapore, 85 of them in the period from 1931 to 1949) helped lay the foundations of Science in general and Chemistry in particular in this country, for, the bulk of the science graduates entered the teaching profession and were the pioneers of General Science education in the secondary schools. Thus they were responsible for winning adherents to the new discipline. (My own scientific career stemmed from my interest in science which was kindled by two inspiring Raffles College graduate teachers in the years 1945 to 1947). A small number worked as junior scientific workers in various government departments such as Chemistry, Health, Water, etc, the Institute for Medical Research and as demonstrators in Raffles College and the King Edward VII College of Medicine.

It is obvious that almost all the chemists employed in British Malaya before the Second World War and in the decade or so after it, came from Britain, where they had earlier received their chemical education and professional training. Apart from university degrees, these chemists also held memberships (Associate or Fellow) of the Royal Institute of Chemistry (RIC). These professional qualifications were obtainable by examination or by election. Thus entry qualifications into the Government chemistry service in the late forties and fifties consisted of a degree in chemistry (Pass or Honours) or the Associateship of the RIC. The latter requirement reflected the eminent status of the RIC in matters pertaining to the profession of chemistry in Britain as well as other parts of the British Commonwealth.

Therefore, it is not surprising in retrospect that a section of the RIC was established in Malaya as early as 1924. Known as the Malaya Section, it is one of the oldest overseas sections of the Institute. Unfortunately there are no surviving records with the parent body in London and the Section here that will give us an idea of the history of the Section and hence of chemistry in Malaya from 1924 to 1941.

Chemistry came of age in Malaya with the introduction of university education together with other social, economic and political changes taking place after the second World War. In 1949 the University of Malaya was founded in Singapore through the amalgamation of Raffles College and the King Edward VII College of Medicine to meet the educational needs of Malaya, Singapore, Brunei, British North Borneo and Sarawak. Chemical education up to Honours degree and beyond became available for the first time to people living in these territories without the need to go overseas. The first batch of B.Sc graduates numbered 11 (1950) while two (Miss Lam Lai Cheng and Chia Chooi Leong, both of Singapore) were in the first batch of Chemistry Honours graduates. Since then the supply of chemistry graduates from this university to meet the manpower needs of academia, government departments, research institutes and industry in Malaysia has remained uninterrupted and has been reinforced by those of other universities established later.

The first Asian with a Doctorate degree to join the staff was Dr. R. L. Huang (1950). The honour of being the first holders of the MSc and Ph D degrees in chemistry go to
Lim Chin Kuan and Ang Kok Peng, both of whom were supervised by Prof. R. A. Robinson.

Mention must be made of the scheme of the University of Malaya under which graduates of Raffles College could return to the University to study for the Honours degree within the first ten years of its establishment. A fair number of teachers took advantage of this scheme to return to study and in so doing thus became better equipped to teach at advanced level various disciplines including chemistry in the schools. They and the new graduates subsequently made an effective contribution towards the Higher School Certificate programme introduced in the fifties.

As stated earlier, the Malaya Section of the RIC was established to cater to the professional need of its member chemists. It can be imagined that in the pre-world War II years with a membership, which was small and scattered throughout the country, and poor transport, tortoise-like compared to present day’s, meetings of the Section would be few and far in-between. However, these meetings, when held, were likely to be professionally useful and socially enjoyable ones. This chapter of the history of the Malaya Section ended abruptly and sadly upon the Japanese invasion of Malaya in December 1941.

In a lighting campaign lasting about two months the Japanese army overran Malaya and was closing in on Singapore, where refugees gathered to await evacuation. However, many including several Section members were not evacuated in time before this bastion of British defence in the Far East surrendered and were subsequently interned. It is known that four of the Section members interned did not live to see the end of World War II. These together with another member, who was killed earlier in a skirmish at Batu Tiga, Selangor on 10 January 1942 brought the total dead members to five, which represented a significant percentage of the Section’s small membership.

The Section was revived in 1949 thanks to the efforts of the late Professor R. A. Robinson (the first incumbent of the Chair of Chemistry at the University of Malaya), the then Director of Chemistry for Malaya and other members of the Institute. One of the first acts of the revived Section was to establish a medal, which was endowed by means of the pre-war balance of funds of the Section, to commemorate the five dead members. Called the Memorial Medal in Chemistry, the medal was to be awarded annually to the best Honours graduate in Chemistry from the University of Malaya and the first such award was made in 1953. Several senior members of the Malaysian Institute of Chemistry have been recipients of this medal, which for a number of years was the sole prestigious award which undergraduates of the University of Malaya aspired to win.

Chemistry Honour Class 1950-51 (2nd Batch)

Sitting: Dr R.L. Huang, Dr Green, Prof R.A. Robinson, Dr P.C. Leong, Mr Savasti.
Standing: Chia Hong Hoe, Ang Kok Peng, Chia Chooi Leong (M.Sc.), Francis Morsingh, Gwee Kim Guan, Tan Teik Beng

(Photo by courtesy of Prof. F. Morsingh)
The management committee of the Malaya Section of the RIC was for obvious reasons based in Singapore for several years after its revival. Thus, it followed that activities of the Section and annual general meetings were held in the colony. However, with political changes taking place in the geographical region served by the Section, beginning first with the independence of Malaya in 1957 and then the phased transition of Singapore from colonial status to nationhood, it was perceived that sooner or later the Section would have to undergo reorganization into at least two separate sections. An interim measure was to have the management committee alternate between Singapore and Kuala Lumpur. Thus in 1960 the management committee was for the first time made up of members resident in Kuala Lumpur. A liaison secretary in Singapore, who was charged with the responsibilities of organizing activities and functions for members resident there, was appointed. This scheme of alternation of the management committee turned out to be appropriate and practical when Malaysia was formed in 1963 with Singapore becoming one of the component states of the new federation but came to an end with its secession in 1965. (Following the formation of Malaysia, the Section was renamed the Malaysia Section).

The University of Malaya also underwent evolutionary changes in line with the political developments. In 1959 it became two divisions, with one located in Singapore and the other in Kuala Lumpur, the capital of independent Federation of Malaya. When Singapore later attained independence, dichotomy of the University took place in 1962, with the Kuala Lumpur division becoming the University of Malaya while the other the University of Singapore. The two universities remained separate, autonomous entities upon the formation of Malaysia in 1963.

In the early sixties the Chemical Society of London extended its scientific activities to Malaysia, with Dr. R. L. Huang, Professor of Chemistry at the University of Malaya as its local representative. Thus the Society held lectures jointly with the Department of Chemistry of the University, at some of which new fellows of the Society were introduced to members. Following the amalgamation of the Royal Institute of Chemistry and the Chemical Society of London on 1st June 1980 to become the Royal Society of Chemistry (RSC), the Section became known as the Malaysia Section of the Royal Society of Chemistry.

It became apparent in the early sixties that the Malaysia Section would be unable to cater to the need of increasing numbers of chemistry graduates emerging from the local universities and to fulfil the expected role of a national body of chemists. Accordingly the Section formed a pro-tem committee to carry out the necessary preparatory work of bringing into being a Malaysian society of chemistry/chemists. Thus on 8 April 1967 was inaugurated the Malaysian Institute of Chemistry with a founder membership of 31. The Institute continued with the work of the pro-tem committee in drafting a Chemist Act. After three years of sustained effort, that was supported by the then Ministry of Science and Technology, the Act was finalized and presented to the Malaysian Parliament, which passed it in 1975. The Act was implemented in 1979. Incidentally, the Malaysian Institute of Chemistry holds the distinction of being the first professional body in the country to be governed by an Act of Parliament and entrusted with the task to regulate the professional practice of its members.

The years following the establishment of the Malaysian Institute of Chemistry saw the Malaysia Section play a diminishing role in professional matters relating to the practice of chemistry in the country. However, the Section has continued to be active in promoting fellowship among members and fellow chemists, besides promoting the scientific and educational aspects of chemistry. As can be seen from the foregoing account, the Section has played a key and historical role in the development of chemistry in Malaysia. Therefore, its contribution towards Malaysian chemistry needs to be recognized and merits mention in any annals on the subject.

The progressive industrialization of Malaysia since independence has resulted in an increase in chemically based industries and hence an increased need of manpower trained in chemistry and related disciplines. The Industrial Master Plan 1985-1995 with its emphasis on downstream manufacturing activities has already triggered a further spurt in demand for chemists, who are needed to monitor product quality, manufacturing processes and, last but not least, the impact of these manufacturing processes on the environment. All these developments in the chemical industries have extended the range of activities of the Malaysian Institute of Chemistry e.g. holding seminars and workshops on analysis, quality assurance, laboratory and industrial safety and environmental control, which are drawn up to hone the skills and expertise of its members working in them.

In conclusion the Malaysian Institute of Chemistry has lived up to the expectations of its founder members. The twenty-five years that elapsed since its establishment have witnessed the Institute’s growth from strength to strength.

Loke Kwong Hung/4 July 1992
FACS INDIVIDUAL MEMBERSHIPS

Applications are invited from chemists in the Asia-Pacific region for Individual Memberships of FACS. The annual subscription is USD 5.00 and USD 50.00 for life membership.

The privileges for Individual Membership are as follows:

1. Individual member will be placed on direct mailing list for all FACS publications and circulars including the FACS Newsletter which will be free to individual members.

2. Special discount of registration will be given to individual members for FACS sponsored conferences.

3. Individual member will receive invitation to attend the Biennial General Assembly as observers.

4. Individual member will have their names published in FACS directory of members which will be updated regularly.

5. Individual members will be entitled to a reduction of all proceedings of FACS and FACS endorsed conferences.

6. Life individual members will receive a certificate of their membership.

7. An Application Form for Individual Membership is shown on the next page.

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<th>Name</th>
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<td>Juanita Madriaga</td>
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<td>Mr. A.J.A. Perera</td>
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<td>Dept of Applied Chemistry</td>
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<td></td>
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<td>Australia</td>
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<td>Dr. B. Peczon</td>
<td>Dr. Benigno D Peczon</td>
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<td>Asst. Vice President, Analytical Chemistry Group</td>
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<td>Mr Lim Teck Thai</td>
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All Fellows of FACS, Past Presidents, Award winners are automatic Individual Members of FACS.
FEDERATION OF ASIAN CHEMICAL SOCIETIES

Application for Individual Membership of FACS

Note: Applications are invited for individual membership of the Federation. Applicants must be members of their National Chemical Society, affiliated with the Federation. Application may be for annual or life membership.

Name (Prof/Dr/Mr/Ms) ____________________________________________

Affiliation _____________________________________________________

Address ________________________________________________________

________________________________________________________________

Telephone ___________________________ Facsimile ________________

Name of National Chemical Society ________________________________

Membership Classification _________________________________________

Membership Number _____________________________________________

Category of Membership Applied for

☐ Annual USD 5.00

☐ Life USD 50.00

Signature ___________________________ Date ________________________

Official Use Only

☐ Annual Membership Number ________________________________

☐ Life Membership Number _________________________________
The Sixth
ASIAN CHEMICAL CONGRESS
and The Eleventh
PHILIPPINE CHEMISTRY CONGRESS
22 to 26 May 1995
Manila

MABUHAY!

The Philippines is proud to host the 6th Asian Chemical Congress which will be held simultaneously with the 11th Philippine Chemistry Congress and the 3rd Regional Food Analysis Workshop from 22 - 26 May 1995 in Manila, Philippines. A training course on Theory and Techniques of Chemical Separation will also be offered.

The theme of the 6ACC'95 is:

"FAST-TRACK SUSTAINABLE REGIONAL DEVELOPMENT: LINKING GOVERNMENT, INDUSTRY AND ACADEMIA".

Under the auspices of the Federation of Asian Chemical Societies (FACS), the 6ACC'95 is being sponsored and organized by:

- Integrated Chemists of the Philippines
- Philippine Federation of Chemistry Societies
- Department of Science and Technology
- Chemical Industries Association of the Philippines

The FACS membership comprises of 24 national chemical societies in the Asia-Pacific region.

Kindly return the Letter of Intent to the Congress Secretariat by October 1, 1994 to be placed on the mailing list for future circulars.
INTRODUCTION

Manilla was chosen as the venue for the 6th Asian Chemical Congress during the 1993 Biennial General Assembly of the Federation of Asian Chemical Societies (FACS) held in Kuala Lumpur, Malaysia. The Asian Chemical Congress is the major chemistry conference in the Asia-Pacific region and is held every 2 years. The 6th ACC in Manila, Philippines, 1995, succeeds the highly successful 5th ACC held in Kuala Lumpur in 1993, and will be held simultaneously with the 11th Philippine Chemistry Congress. The 3rd Regional Food Analysis Workshop of APFAN (Asia-Pacific Food Analysis Network) will be held as part of 6ACC'95.

OBJECTIVES

The objectives of the 6ACC'95 are as follows:

- to provide a venue for the exchange of ideas among chemists in the Asia-Pacific region to fast-track sustainable regional development through chemistry;
- to strengthen the linkages among chemists in governmental, industrial and academic sectors for sustainable economic growth.

PROGRAM

Call for papers

Contributions of papers as oral presentations or posters for the program of the Congress are being sought on the following areas:

- Natural Products and Organic Chemistry
- Environmental Chemistry
- Food and Agricultural Chemistry
- Materials Science and Polymers
- Instrumentation and Analytical Chemistry
- Chemical Education
- Computational and Theoretical Chemistry
- Synthetic Chemistry
- Pharmaceutical Chemistry
- Biochemistry and Biotechnology
- Laboratory Quality Management
- Forensic Chemistry
- Industrial R & D
- Cleaner Technology

Prominent scientists will be invited to provide an overview of research fields in chemistry of general interest.

Due date for Abstracts: January 15, 1995
VENUE

The 6ACC'95 will be held at a prominent conference site in Metro Manila, Philippines.

LANGUAGE

English will be the official language of the 6ACC'95.

TRANSPORTATION

Philippine Airlines will be the official airline of the 6ACC'95, which services all major cities in the Asia-Pacific region. Coupon taxi service (e.g., AVIS) are available at the Ninoy Aquino International Airport of Manila for transport to your hotel at a flat rate of around US$20 (P550).

ACCOMMODATION

Special room rates will be arranged at the venue of the Congress and nearby hotels.

CLIMATE

Warm and humid tropical climate all year round (28° to 32°C).

REGISTRATION FEES

<table>
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<th>Active Participants</th>
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<th>after April 1, 1995</th>
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<tr>
<td>Individual FACS member</td>
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<td>Non-members</td>
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<td>US$275</td>
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<td>Accompanying persons</td>
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* Application for individual membership may be addressed to the Secretariat.

The registration fees entitle participants to the official Congress kit, merienda and lunches, and the Congress banquet. Accompanying persons are invited to all social functions and a special program of visits arranged for them.

All payments must be in Banker's Order or Bank Draft in favor of "INTEGRATED CHEMISTS OF THE PHILIPPINES".

EXHIBITION

An exhibition by chemical and instrument firms as well as government agencies will be featured.

SOCIAL EVENTS AND TOURS

The Social Programme will include a Congress Banquet and cultural presentations. Tours will be arranged for those wishing to see places of historic and cultural interests and experience the warmth of Filipino hospitality.
Letter of Intent

6TH ASIAN CHEMICAL CONGRESS
(22 - 26 May 1995, Manila, Philippines)

Please type or complete in block letters and return to the Congress Secretariat on or before October 1, 1994.

Prof/Dr/Mr/Ms.
Address

Tel. Fax.

☐ I am interested in attending the Congress.
☐ I am interested in attending the Training Course.
I wish to contribute:
☐ Oral Presentation ☐ Poster

Title:

☐ I will be accompanied
☐ I will need hotel accommodation

Date: Signature

Please return to:

6ACC'95 Secretariat
c/o Philippine Federation of Chemistry Societies
U.P. NSRI Bldg.
Diliman, Quezon City 1101 PHILIPPINES
Tel. (63-2) 97-57-36 & 97-57-74
Fax. (63-2) 99-68-68 or 819-3853 (alternate)

FAST-TRACK SUSTAINABLE REGIONAL DEVELOPMENT: LINKING GOVERNMENT, INDUSTRY AND ACADEMIA

6ACC'95

Local Organizing Committee:
Dr. Benigno Peczon
Dr. Ester Albano-Garcia
Dr. Marcella Aniano-Ila
Dr. Wyona Patalinghug
Dr. Lydia Crisostomo
Dr. Fabian Dayrit
Ms. Remedios Rivera
Mr. Jacinto Mantaring Jr.
Dr. Jose Juliano
Dr. Ishmael Ordoñez
Prof. Teresita Hocson
Dr. Lilian Sison
Dr. Aida Agunaño
Prof. Angelita Reyes
Ms. Ruby Castro
Ms. Agnes Torres
Dr. Modesto Chua

International Advisory Committee:
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Dr. Fortunato Sevilla III Philippines
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Dr. P.J. Marriott Australia
Mr. Lim Teck Thai Malaysia
Dr. Soon Ting Kueh Malaysia
Dr. J.H. Bradbury Australia

Please address all correspondence to:

6ACC'95 Secretariat
P.O. Box EA-459
Diliman, Quezon City 1101 PHILIPPINES
Tel. (63-2) 97-57-36 & 97-57-74
Fax. (63-2) 99-68-68 or 819-3853 (alternate)

PHILIPPINE CONVENTION & VISITORS CORPORATION

4th Floor, Suite 10-11 Legaspi Towers 300 Roxas Blvd., Metro Manila, Philippines
Tel. 575631 P.O. Box EA-459 Telex: 40604 Cable PCVC-MNL Fax: (632) 5218185
Code No. 044
FACS AWARDS/CITATION
FOR 1994/95

FACS Foundation Lectureship. A nomination is invited from your society for this lectureship. The Lecturer shall be an eminent chemist who has made distinctive contributions to the profession of chemistry. The 1995 award will be in the field of Inorganic Chemistry. The lecture shall be presented at the 6th Asian Chemical Congress Manila, May 1995. The nomination shall contain: curriculum vitae; contributions to chemistry in the past 15 years; list of important publications; and title of proposed lecture if successful. The nomination shall reach the Secretary-General before the closing date.

FACS Distinguished Young Chemists Award. A nomination is invited from your society for this award. The age of the awardee shall not exceed 40 years of age as on the 1st January 1995. The 1995 award shall be in the field of Inorganic Chemistry. This lecture shall be presented at the 6th Asian Chemical Congress, Manila, May 1995. The nomination shall contain: curriculum vitae; contributions to inorganic chemistry in the past 5 years; list of important publications; and title of proposed lecture if successful. Nominations shall reach the Secretary-General before the closing date.

FACS Citations for Contributions to Chemistry and the Chemical Profession. Nominations are invited for the award of up to 3 citations for 1995. Rules for the selection of awardees are shown below. Please advise nominations before the closing date.

FACS Award for Distinguished Contribution to Economic Advancement. Nominations are invited for this award. Rules for this award are shown below. The contribution shall be judged on evidence including lists of papers, patents, and reports on work covering the period 10 years preceding the award; the major proportion of work is to be undertaken in a member country of the FACS whilst the candidate is a member of a Chemical Society in that country belonging to the FACS. Closing date for all nominations is 30 November 1994.

FACS FOUNDATION LECTURESHIP AWARD RULES

1. FACS shall establish a Foundation Lectureship which shall be awarded during a FACS Chemical Conference or Congress held in conjunction with the Biennial General Assembly.

2. The Lectureship shall be open to members of member societies of FACS.

3. Nominations for the Lectureship shall be called not less than one year and not more than two years before the date of the Conference or Congress. The Ex-Co may specify the subject(s) for the Lectureship in order to reflect the main themes of the Conference or Congress.

4. Nominations may be made by member societies or by their members.

5. The Lecturer shall be an eminent chemist who has made distinctive contributions to the profession of chemistry.

6. The application shall be accompanied by the curriculum vitae and details of the applicant's contribution to chemistry during the previous fifteen years.

7. The FACS Ex-Co shall establish an Awards Committee, consisting of the president, the president-elect and the immediate past president, to recommend the candidate to the Ex-Co.

8. The successful applicant shall deliver the Lecture(s) at the Chemical Conference/Congress. The Lecturer shall be provided with a return economy airticket which will be sponsored jointly by FACS and the Conference/Congress organiser, local travel, board
and lodging. FACS shall present a momento to the Foundation Lecturer.

9. FACS and the Conference/Congress organisers shall seek sponsorships for the cost of the Lectureship. In the event the funds raised are insufficient, the Conference/Congress organisers and FACS shall share the costs equally.

10. The Lecturer shall undertake to provide a written manuscript of the Lecture to FACS who shall reserve the right to publish it in any of the publications of FACS or in the Proceedings of the Conference/Congress.

11. Unsuccessful nominations made in any year can be considered in subsequent selection exercises, if the applicants so wish, together with any fresh nominations that may be received.

FACS CITATIONS FOR CONTRIBUTIONS TO CHEMISTRY AND THE CHEMICAL PROFESSION

There are a considerable number of chemists who make substantial contributions to chemistry and especially to the progress of the profession over a period of many years.

1. To provide recognition of these contributions through FACS, the Federation has initiated a series of citations.

2. Up to three citations may be awarded in each assembly.

3. Nominations may be submitted by Member Societies of the FACS.

4. Nominations for the citation shall include a general statement of the nominee’s contributions to chemistry and/or the chemical profession together with curriculum vitae and any relevant details of publications, patents and other supporting material.

5. The Executive Committee may appoint an adjudication panel to make recommendations. Executive Committee reserves the right not to make a citation if no suitable applications are received.

6. The adjudication panel’s recommendations shall be based upon the significant service to the FACS in any of the following areas:

i) Research, development or applications of chemistry
ii) Chemical education
iii) Promotion of chemistry

7. Nominations should be forwarded to the Secretary General by the closing date.

8. FACS shall supply citation plaques.

FACS AWARD FOR DISTINGUISHED CONTRIBUTION TO ECONOMIC ADVANCEMENT

The Award shall be made every two years to a member of the Federation who, in the opinion of the Executive Committee of the Federation has contributed significantly towards the economic advancement of the Asian region through chemical research. This contribution shall be judged on evidence including lists of papers, patents and reports submitted to the adjudicating panel (who may seek referees’ reports).

The work shall cover the period of 10 years preceding the award, with the major proportion of the work having been done in a member country of the Federation whilst the candidate was a member of the Chemical Society in that country belonging to the Federation.

Nominations, together with supporting documentation from the candidate and/or referees, must be forwarded by the FACS national contact point to the Secretary General before the closing date. The award will be made at a FACS associated meeting. If in the opinion of Executive Committee there is no candidate amongst those nominated who has sufficient merit, the Executive Committee may refrain from making an award.

The successful candidate will deliver a lecture on the occasion of the presentation of the Award and the lecture or an abridged version will be published in the FACS newsletter.

The awardee shall be provided with a round trip air ticket by FACS while the host country shall provide local hospitality.
The International Foundation for Science recently presented the Fourth Sven Brohult Award, in connection with its Seventh General Assembly, held in Antananarivo, Madagascar, from 17 - 21 November 1993. The Award is named in honour of Prof Sven Brohult, former Executive Director and President of the Royal Swedish Academy of Engineering Sciences and Founding President of IFS. Prof Brohult played a key role in establishing the IFS research programme for young scientists in and from developing countries.

Filipino chemist honoured

The 1993 Award went to Prof Lourdes J. Cruz of the Marine Science Institute, University of the Philippines, for her research on the toxins of Conus species, highly venomous marine snails occurring in the Philippines, where the first Conus peptide was isolated.

Snail venoms a tool in neurophysiology

Prof Cruz's research has resulted in a number of major publications on Conus venoms. A review of this literature shows that the venoms contain an amazing variety of small peptides which are pharmacologically active. These substances have now become important tools in neurophysiological research. A wide range of pharmacological activities are associated with other peptides from these organisms and some of these may have value as new drugs.

Prof Cruz obtained her B.Sc. degree at the University of the Philippines and her Ph.D. at the University of Iowa. She spends some time every year at the University of Utah to use state-of-the-art facilities in the laboratory of Dr Baldomero Olivera to study the peptides isolated in her laboratory at the Marine Science Institute. Prof Cruz also holds an appointment as Research Professor at the University of Utah.

Prof Cruz has contributed to making her own institution the best of its kind in Southeast Asia and has been able to attract younger scientists to take up research in marine science.

USD 10,000 awarded in Antananarivo

Nominees for the Sven Brohult Award are restricted to scientists (some 2,000 from 92 developing countries) who have received financial support from the Foundation. The Award, in the amount of USD 10,000, is presented every three years in connection with the IFS General Assembly.

The Nominations Committee proposed Prof Cruz's name as recipient of the Sven Brohult Award based upon her considerable scientific achievements, with the further motivation that her research was made possible by IFS grants, which amounted to USD 40,000 from 1977 - 1982.

In choosing Prof Cruz, the IFS Board of Trustees stated: "Prof Cruz was selected for the Award because of her pioneering research on venoms from marine snails. Her work has led to results of fundamental importance in neurophysiology, and substances isolated from the venom have become important tools in neurophysiological research. In the long term her research might result in new drugs for treatment of diseases."

Prof Cruz gave a lecture on her research at the award ceremony in Madagascar, on 17 November.

To her, we would like to say "Congratulations" for a work well done.
1. Name and Nature of Organisation

The Federation of Asian Chemical Societies is a voluntary association of non-profit learned Societies whose membership consists of individual qualified chemists and which are national professional chemical societies of countries in the Asia-Pacific region. Individual chemists in the Asia-Pacific region may become individual members of the Federation.

2. Objectives

2.1 General Objective
The general objective of the Federation is to promote the advancement of chemistry and the interests of professional chemists in the Asia-Pacific region in a way which does not detract from the autonomy of any of the member societies.

3. Membership

3.1 General
Membership of the Federation is open to all non-profit chemical societies whose membership consists largely of individual qualified chemists and which are national professional chemical societies of countries in the Asia-Pacific region.

Individual membership is open to individual chemists from countries in the Asia-Pacific region. Individual membership from countries that have societies within the Federation will be restricted to individuals who are member of a society. Individuals for countries that do not have a society within the Federation will be considered for individual membership on a case-by-case basis. Individual members shall receive all regular publications of FACS and be on the regular mailing list of FACS announcements/circulars.

The Council can on the recommendation of the Executive Committee, elect individuals as Fellows. Fellows will be entitled to use the post nominal letters FFACS. Fellows shall be eminent chemist who have distinguished themselves in the Federation (e.g. Foundation lecturers, Citation awardees, achievement awardees, past presidents). They shall have all the privileges of individual members and the right to attend all meetings of the Council without voting rights.

3.2 Foundation Members
The foundation member societies of the Federation are:
Royal Australian Chemical Institute
Hong Kong Chemical Society
Indian Chemical Society
Himpunan Kimia Indonesia
Iraki Chemistry Union
Korean Chemical Society
Institiut Kimia Malaysia
Integrated Chemists of the Philippines
Singapore National Institute of Chemistry
Institute of Chemistry, Ceylon (Sri Lanka)
Chemical Society of Thailand

3.3 Application for Membership
A society wishing to join the Federation should forward to the Secretary-General an application containing:

- The constitution of the society.
- A summary of the activities of the society over the previous three years.
- Evidence to show that the society is a national professional chemical society of its country.
The Secretary-General will present completed applications to the General Assembly for decision.

Applications for individual membership shall be made on a prescribed form.

3.4 Withdrawal
Member societies can withdraw from the Federation by giving three months notice in writing to the Secretary General.

Individual members can resign from the Federation by giving three months notice in writing to the Secretary General.

3.5 Termination of Membership
Membership of a society may be terminated by a two-thirds majority vote of all members in a postal ballot.

4. Administration and Governance

4.1 The Council
The Federation is governed by the council, which will meet annually to discuss its present and future activities.

4.2 Membership of Council
The Council shall consist of one representative of each member society. Each membership society shall have one vote.

4.3 Observers
Any member society may have up to six observers at the Council.

4.4 Quorum
The quorum for the Council shall be one half of the even number which is equal to or one greater than the number of member societies.

If a quorate Council is not achieved, those members present will constitute an ad hoc meeting of the Federation which can forward recommendations to the Executive Committee.

4.5 Voting
Resolutions of the Council shall be carried by a two-thirds majority of those present at the Council and those member societies who have nominated in writing to the Secretary-General one of the members present to vote as their proxy.

4.6 Function of the Council
The Council is able to decide on all matters concerning the Federation. In particular it shall:

4.6.1 Decide on the acceptance of new member societies

4.6.2 Every two years, at a General Assembly of the Council,
- elect a President and President-Elect who shall hold office for two years and shall not be from the same country or the same country as the immediate Past President.

The President shall be the Chairperson of all meetings of the Council,

- elect a Chairman of the Publications Committee and a Coordinator of Projects, who together with the President, President-Elect and Immediate Past-President shall constitute the Executive Committee. The Executive Committee will administer the Federation between Council meetings,

- decide on any modifications to the Statutes and on the dissolution of the Federation.

4.6.3 Decide on the venue of the next Council meeting.

4.6.4 Appoint Standing Committees to carry out specific functions and receive reports of those Committees.
4.6.5 Establish Projects in various fields of chemistry and receive reports from the Project Directors.

4.6.6 Decide upon the recipients of Federation Prizes, Medals and other Awards.

4.7 Functions of Executive Committee

The Executive Committee is responsible for managing the affairs of the Federation between meetings of the Council. In particular it shall:

4.7.1 Meet as often as is necessary to conduct its tasks. Three voting members from at least two countries shall constitute a quorum.

4.7.2 Appoint, on the recommendation of the President, a Secretary-General and Treasurer. These honorary office bearers shall be non-voting members of both the Executive Committee and the Council.

4.7.3 Appoint the project directors and render whatever assistance it can to them. Project Directors are non-voting members of both the Council and the Executive Committee.

4.7.4 Nominate members for the succeeding Executive Committee.

4.7.5 Resolve issues with the unanimous support of the members present at its meetings.

5. Finance

5.1 The cost of the general administration of the Federation shall be covered by an annual subscription for member societies, and individual members. The levels of these subscriptions shall be decided by the Council.

5.2 Each member society shall be responsible for the travel cost and living expenses of its delegates to all meetings associated with the Federation.

5.3 The expenses of organising meetings of the Council shall be the responsibility of the host Society.

5.4 The Executive Committee shall operate such bank accounts as necessary, and authorize at least two signatories for each bank account. The Treasurer shall prepare annual financial statements for presentation to the Council.

5.5 The financial year of the Federation shall end on 31st December.

5.6 The Federation may, from time to time, request a voluntary contribution from its member societies in order to carry out specific activities agreed to by the Council.

6. Amendments of the Statutes

Proposals for amending these Statutes must be submitted in writing to the Secretary-General at least six months before the General Assembly of the Council.

7. Dissolution of the Federation

7.1 A proposal to dissolve the Federation must be submitted in writing to the Secretary-General at least one year prior to the Council meeting. A resolution to dissolve the Federation requires the agreement of two thirds of all members of the Federation.

7.2 In the event of the dissolution of the Federation, nett assets of the Federation shall be distributed equally to member societies in benefit.

The revised statutes were adopted at the 6th FACS Biennial General Assembly, 27 August 1991, Beijing, China.
The symposium was held on 11th November at the Ming Court Hotel and attracted almost 50 participants from a number of Asian countries. It was the second symposium organized as an Asian Chemical Information Network (Asian ChIN) activity. The first Asian ChIN meeting on this theme was the "Computer Aided Molecular and Material Design '92-93" symposium in Beijing last year. However, this was the first time that a symposium devoted to the rapidly expanding research area of computational chemistry has been included in the program of an Asian Chemical Congress.

The symposium was opened by Prof. Huang of the National University of Singapore. In the first session on chemical applications of computational chemistry, the plenary speaker, Prof. Leo Radom of the Australian National University, set the tone of the meeting by presenting an outstanding talk on the application of ab initio molecular orbital methods to the solution of chemical problems. His presentation was followed by two contributed papers by Dr. Kim (Inha University, Korea) and Mr. Mok (University of Hong Kong) which discussed the application of molecular orbital methods to spectroscopic and structural problems in inorganic chemistry. After morning tea, Dr. Spurling (CSIRO, Australia) presented some work on simulating adsorption of ammonia on graphite and Prof. Duke (Northern Territory University, Australia) discussed his work on predicting structures of organohydrocarbons.

The second session on biological applications of computational chemistry focused on drug design. Prof. Lloyd (Victorian College of Pharmacy, Australia) presented an NMR and computational chemistry study of the structure of α-gliadin peptide and Dr. Winkler (CSIRO, Australia) discussed the use of molecular orbital calculations to explain the activity of some anti-HIV nucleoside analogues. The session ended with Prof. Xu (Academia Sinica, PRC) presenting an outline of the Chinese science and technical network system which contains many useful...
databases of natural products and other bioactive compounds.

The third session was on materials applications of computational chemistry. It began with two plenary lectures giving overviews of the field from two different perspectives. Dr. Erich Wimmer (Biosym Technologies, France) outlined the history of the applications of computational chemistry to materials design and indicated where the field is likely to be by the end of the century. Dr. Yong Li (Molecular Simulations Inc, Switzerland) presented a series of practical materials problems and indicated how these had been solved by computational chemists. The session concluded with an interesting talk by Dr. Michaelewicz (CSIRO, Australia) on his work on simulating microcrystallites using massively parallel computational methods.

The oral sessions were followed by a poster session and trade display where three molecular design software companies, Cray Malaysia (UniChem molecular orbital interface program), Biosym Technologies (Insight, Discover and several other molecular modelling packages) and Molecular Simulations Inc. (Xplor, CharmM, Quanta) demonstrated their packages.

Prof. Duke (Northern Territory University, Australia) also conducted a workshop on the teaching of computational chemistry the preceding day. The meeting attracted a good audience and covered such areas the integrating of computational chemistry teaching into other courses, the availability of teaching notes and materials, computer hardware, software, electronic mail and Internet access in Asia. The take home message was that the provision of Internet access in Asia needs to be expanded as soon as possible in order to facilitate interaction and collaboration between Asian chemists and other researchers throughout the world. It would also enable access to teaching and research materials and data and computer software from Internet archive sites and other resources. The ASCHIN-LIST list server recently set up at the National University of Singapore should facilitate interaction between Asian chemists.

At the business meeting of the Asian Chemical Information Network (Asian ChIN), who organize the computational chemistry symposium, activities were planned for the following years. In 1994 there will be a meeting on chemical databases and computer networks as part of the Natural Products and Medicinal Plants meeting in Malacca. In 1995 there will be computational chemistry symposium as part of the 6ACC in the Philippines. There will also be an International Molecular Design meeting, organized by the RACI and the US/European Molecular Graphics Societies, in Queensland in mid 1995. In 1996 the Asian ChIN plans to participate in the FACS chemical education meeting in Brisbane.
GLYCERIDES THROUGH THE AGES*

Ian D. Rae
Dean of the Faculty of Science, Monash University
Clyton, Vic 3163, Australia

How will you feel when you are one hundred years old? A truly hypothetical question, I suppose, since most of us won't make it that far. I am speaking in a statistical rather than a personal sense, of course, so perhaps we should have a look at the statistics and see what our chances are.

That turns out to be easier said than done. The latest Australian data I could find in our library showed the following.

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>53</td>
<td>192</td>
</tr>
<tr>
<td>101</td>
<td>28</td>
<td>109</td>
</tr>
<tr>
<td>102</td>
<td>14</td>
<td>59</td>
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<td>103</td>
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<td>31</td>
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<td>104</td>
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<td>15</td>
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<td>105</td>
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<td>7</td>
</tr>
<tr>
<td>106</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>107</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

Population: 4,546,118 4,440,412
Total: 8,986,530
(Source: Australian Bureau of Statistics, Census 1954)

I would draw your attention to several things. First, that women seem to survive to great age more often than do men. This is something that my feminist friends are always keen to have me acknowledge, and this I do although I am somewhat surprised that their dominance is in ratio almost four to one. Second, the proportion of the population aged over 100 is extremely small, being just 0.002% of men and 0.009% of women. To put it in terms more familiar to chemists, those aged 100 years or more are found in our society, or were in 1954, to the extent of 58 parts per million.

In Britain, the Queen sends a special message to anyone reaching their hundredth birthday and I thought we did something like that in Australia. However, Government House in Melbourne knew nothing about it, and the Bureau of Statistics only uses a 90 + category. There was even less information available for Papua New Guinea, and the best I could find was the fact that people over 65 comprised 1.5% of the population in 1971.

I did better with American statistics, because I found the 1979 census data in a book by Osborn Segerberg Jr, Living to be 100 (New York: Scribner's 1982). The numbers are much larger in this case, so I have summarised them in my table.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-104</td>
<td>3082</td>
<td>8539</td>
</tr>
<tr>
<td>105-109</td>
<td>512</td>
<td>855</td>
</tr>
<tr>
<td>110-114</td>
<td>85</td>
<td>143</td>
</tr>
</tbody>
</table>

Total population: 219.5 million

Notice that this time the female dominance ratio is only about three to one, and that it falls off in the higher age groups. The combined number of centenarians, expressed in scientific terms, amounts to 60 parts per million, or about the same as the Australian figure.

Segerberg went a little further with his statistics, however, and pointed out that although there was one centenarian for every 16,610 Americans alive in 1979, a more meaningful expression was the proportion of those born in 1879 who were still alive a century later, and that's a much more comforting number - one in 335. Can we assume that nothing much has changed? If so, then we can predict that at least one of us here today will make it to 100.
Sociologists are fascinated by people who live to great age. The obvious question - nature or nurture - is difficult to ask because one of the possible answers has overtones of racial superiority, so most of the investigation has concerned lifestyle. It's popular to ascribe longevity to the healthy outdoor life, and the farmer is a popular archetype since it is often pointed out that men and women both work hard and long at subsistence farming.

The real determinant, however, seems to be the adoption of an ordered life style together with a readiness to change when and only when it is really necessary. Don’t get too fussed about it. It seems to be the message: in my vernacular, ‘she’ll be right, mate.’ If that is right then Australians are peculiarly well-placed to enjoy long lives. However, as I have shown, there is nothing special about the proportion of centenarians in our society.

A survey of the longevity of scientists as compared to that of a peer group was conducted a few years ago in America, and scientists came out slightly but only slightly ahead. Given the nasty things we chemists are often exposed to, that was quite comforting. A more extensive survey is currently under way in Britain, and Australian data are also included, so we will know more about ourselves in a statistical sense before too long.

If scientists really live longer, then where are the centenarian chemists? I could think of only two, E.E. Reid and Michel-Eugene Chevreul, and since my own chemistry has drawn on their work I thought I would tell you a little bit about each of them.

Emmet Reid was born in Virginia but grew up in South Carolina and always regarded himself as a southerner. He took his doctorate at Johns Hopkins University, studying under Ira Remsen and graduating in 1898. Some of his dissertation work concerned the rates of hydrolysis of substituted benzamides, and in the case of o-nitrobenzamide he found that a by-product accompanied the expected product of the reaction.

When he left Johns Hopkins, Reid took a teaching position at the College of Charleston, South Carolina, but because there were no research facilities there he spent his summers at other places where he could get back to the bench. In 1900 he was in Chicago where he noted I spent my time in the chemistry laboratory trying to identify an unexpected by-product of the alkaline hydrolysis of o-nitrobenzamide, but without success.'

Many years later we repeated this reaction in the course of other work, and found that the by-product was none other than benzoic acid, formed by a curious piece of chemistry which involves reductive loss of the nitro group. Of course we didn’t know about Reid’s work because it was never formally published, but I came across it when I read his biography at about the time that our work was in progress. You can imagine what a coincidence!

Reid gave his autobiography the catchy title of ‘My First One Hundred Years’ and accompanied the frontispiece with a photograph of himself at age 99 years and six months. The book is full of fascinating chemical and personal details. Reid moved quiet a bit in his early days, teaching at Charleston and then Baylor University in Texas, researching for three years at Johns Hopkins, and then taking a job with the Colgate Company where he worked on the hydrogenation of cottonseed oil over nickel catalysts. Finally he accepted an academic appointment at Johns Hopkins where he was to remain for the rest of his life.

At the time of this appointment in 1914 he was still living with his mother, but shortly after, he married at the age of 42. Nothing that this was unusual, Reid said ‘I was forty three when I married, and lived to see a great-granddaughter;’ The stability I mentioned earlier was certainly evident in this second half of Reid’s life, because he lived in Baltimore for 57 years, 54 of them in the one house, and his marriage lasted for 51 years until the death of his wife.

Apart from his academic work with sulfur chemistry, Reid contributed to the US war effort in World War I - poison gases - and again in World War II, years after his formal retirement, when he worked on synthetic rubbers. Throughout his
career, however, he was a consultant to the chemical industry, often spending his summers in industrial laboratories, and serving to introduce American chemists and chemical companies to the fruitful interchanges which had helped develop chemistry in Germany.

Reid did not survive more than a few months of his 102 years, but my other centenarian lasted well into his 103rd year. He is Frenchman Michel-Eugène Chevreul, who was born 1786 just three years before the publication of Lavoisier's famous Treatise. He studied at a local school and then went to Paris to work with Nicolas-Louis Vauquelin at the Museum of Natural History where he worked on natural dyes such as indigo for his doctorate. He stayed at the museum, becoming professor of chemistry in 1830 and pursuing his researches on fats for many decades. His last communication was read before the Academy of Sciences in 1888 when he was 102 years old!

From 1824 he was also director of dyeing - that's dyeing with an 'é' - at Gobelins's national tapestry workshop. The photograph of Chevreul which I have to show you comes from those years, when he was at the height of his powers. Commercial dyeing was still, in those times, a craft rather than a scientifically-based industry, but Chevreul did a lot to bring about the transition. Taking up his position, he found 'neither barometer nor thermometer nor accurate balances nor platinum ware nor mercury trough nor reagents; the laboratory was a sort of stable or kitchen, paved and damp.'

Chevreul was a teacher. He quickly mastered the dyeing business and published his lecture notes so that others could benefit from his experience. But he was also a first class researcher, his first published work on colour coming in 1830, entitled 'Memoir on the influence that two colours can have on each other when seen separately.' No doubt the dye works had trouble with their chemistry, but their major problems were those of perception, and I have gathered a few examples to show you what the trouble was. A single colour, reproduced against several backgrounds, seems to take on a range of hues.

As well, he prepared one of the first colour circles, and extended the idea to three by superimposing a black-to-white transition upon each colour. There were a number of such schemes proposed in the nineteenth century and they form the basis today of sophisticated colour maps and computer-based systems used in commercial colouring and dyeing.

Chevreul's ideas of the psychology of colour were taken up by painters who, following his rules of harmony and contrast, applied their colours in the form of small dots and thus became known as pointillists. They were part of the neo-impressionist or scientific impressionist movement whose work followed that of impressionists such as Manet and Monet, and is familiar to us from the latter part of the nineteenth century. Chief among the pointillists was Georges Seurat (1859-1891) whose work appears in some of the slides which accompany this lecture.

Seurat was not close to Chevreul and he learned of the chemist's theories only from other people and by reading summaries of it written by other painters. Indeed, it was only in 1884 that Seurat and his colleague Paul Signac visited Chevreul, by which time a biographer noted that 'at the age of ninety eight the chemist was probably of little help.'

Perhaps that was artistic licence, because Chevreul certainly had all his marbles. The celebrations which accompanied his hundredth birthday lasted for three months through the Parisian summer, and included a dinner and a reception by the Academy. An exhibition of industrial products which had been improved through Chevreul's researches had to be abandoned because so many materials were submitted that insufficient space was available! In his sixties, Chevreul had published an expose of the diving rod and other psychic and spiritualistic claims, in his seventies he was busy with history of chemistry, and in his eighties he published a study of the aging process.

His work with glycerides, however, began soon after he graduated and continued for many years. The idea that an ester was the product of chemical combination between an acid and an alcohol came from another of Vauquelin's students, Louis Jacques Thenard (1777-1857).
Thenard likened the esters to salts, with alcohols instead of metals being the species which neutralized the acids. Chevreul showed that fats belonged to this class and his first work in the field was the preparation of a crystalline fatty acid - he called it margaric acid - from the potassium soap prepared by saponification of pig fat. In this way he was able to prepare a number of what he called fatty acids, naming them after the sources of the corresponding fat: butyric (C4), caproic (C6), capric (C10), palmitic (C16), stearic (C18), oleic (C18) and margaric acids. In his quest he examined and saponified the fat of sheep, cow, jaguar, goose, dolphin, fish and man.

I must avoid giving the impression that Chevreul got everything right, because later researches by Heintz showed that butterfat also yielded another acid, which he called caprylic (C8), and that as Chevreul had suspected, his margaric acid was a mixture of stearic (C18) and palmitic (C16).

For the separation of his solid fatty acids, Chevreul used the technique of fractional crystallization, and he monitored the purity of his products by measuring their melting points. This is the simplest precise physical measurement used by organic chemists and Chevreul is largely responsible for its widespread adoption as a criterion of purity.

In the case of stearic acid, known as stearine, he and Gay-Lussac shared an 1825 patent describing the process and the use of the product for candle-making. Stearine candles, lacking the glycerol moiety, did not produce the irritant vapours associated with the burning of tallow candles, and they ruled the roost for fifty years or so until candles of petroleum (paraffin) wax took over.

The complementary product of hydrolysis, glycerol, was also isolated by Chevreul although it was well known from earlier work with fats. Showing that he wasn’t just a potboiler, Chevreul noted that the combined mass of glycerol and fatty acid was 4 - 6% greater than that of the fatty precursor, and that the increased mass came from additional hydrogen and oxygen, but not carbon, in the products. He thus deduced correctly that the saponification involved ‘chemical fixation of water’ and that the soaps were true salts of the fatty acids in which alkali had replaced glycerol.

This hypothesis was elegantly confirmed, some years later, by Pierre Eugene Marcellin Berthollet (1827 - 1907) - no relation to Claude-Louis Berthollet (1748 - 1822) - who heated glycerol and one equivalent of fatty acid in a sealed tube to produce the mono-esters of a number of fatty acid. Repeating the treatment with further acid, he obtained di- and tri-glycerides, the latter closely resembling natural fats.

It is the diglycerides on which I now wish to focus attention. A few years ago I was approached by one of our Monash biologists, Dr Dennis O’Dowd, with an interesting problem which required some joint work by a chemist and an ecologist. Some Australian plants, notably those from the family Leguminosae, produce seeds which carry on their outside a small fatty body known as an elaiosome. Good examples are the seeds of our national emblem, the golden wattle Acacia pycnantha, and Tetratheca pilosa.

The elaiosome plays no direct part in germination of the seed, but these seeds are eagerly collected by ants, and it was thought that the material in the elaiosome might be the thing that the ants were really after. The ants take the seeds with their elaiosomes down into their nests, and in a few cases the seeds have been found there, or nearby, lacking the elaiosome. Taking up the project, then, student Christine Brew was soon able to establish that it was the elaiosomes that the ants wanted: whole seeds, or separated elaiosomes were soon removed from forest sites in the hills east of Melbourne. Seeds from which we had removed the elaiosome were of no interest to the ants.

It wasn’t just some ants, but rather all of the ants in this part of the forest seemed to like what we had to offer them. We used two of the local plant species, Acacia myrtifolia and Tetratheca stenocarpa which had different sized elaiosomes, but we got similar results for both species - it was the elaiosomes that the ants wanted. The elaiosomes contained a good deal of fatty material and analyses of the fatty acids showed that,
at least for the A. myrtifolia about 70% of the fatty acid was oleic. We did not analyse the other elaiosomes because they were too small and our supply was meagre.

Next we extracted the crushed seeds of both species with a series of solvents: cyclohexane to remove non-polar lipids, methanol for polar lipids, and distilled water for sugars and amino acids. For each fraction we put a small amount on dried fungal pith and set up experiments to test ant response, and in each case it was the polar lipid which induced the response.

The hydrogen n.m.r. spectra of the different fractions were then examined for evidence of the constituents, and of course the spectra were dominated by the signals of the fatty acid chains and the glycerol backbone. What we were searching for was the presence of diglycerides, because 1,2-diolein had been shown to induce gathering behaviour in northern hemisphere ants who collected seeds of such species as violets. It is possible to distinguish the signals for hydrogen on the middle carbons of glycerol molecules, depending on the number of acyl groups that are present and so we were able to be sure that at least some 1,2-diglycerides were present.

When we soaked our pith decoys with 1,2-diolein, sure enough the ants took them away at about the same rate that they went for the real elaiosomes. Untreated pith and the isomeric 1,3-diolein were not at all attractive to them. It was surprising to find how isomer-specific the effect was, especially in view of the fact the triolein also induced the removal of treated pith. This triester commonly produces necrophoresis or corpse-carrying behaviour in ants and it is evident that the chemical induction of behaviour must be a very subtle business.

Our work was published in *Oecologia*, 1989, 80: 490-497. If you wish to read a less-technical article then try the excellent treatment in the August 1990 edition of *Scientific American*. Why do the ants take the seeds away? Frankly, we don't know. The conventional argument is that in co-evolution the plant has found it advantageous to treat the ants to some highly nutritious feasts in return for what they do. The advantage for the plant might be that its seeds are distributed well away from the parent, and possibly into fertile environments like ant rubbish dumps or shallow nests. Certainly the general article I referred to has some graphic photographs of this result, but we haven't found any yet in Victoria. Still, it's probably taken many millions of years for this coevolution to produce such a finely tuned ecology, so we can't expect to learn all about it in just a few years. With a bit of luck there will be interesting problems to work on, not just for years, but for millenia to come.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date &amp; Venue</th>
<th>Contact</th>
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<tbody>
<tr>
<td>1. UNESCO/COSTAM SFRR-ASIA WORKSHOP ON NUTRITION, LIPIDS, HEALTH AND DISEASE</td>
<td>1-3 September 1994 Penang, Malaysia</td>
<td>Mr Lim Teck Thai, c/o Institut Kimia Malaysia, 129B, Jalan Aminuddin Baki, Taman Tun Dr Ismail, 60000 Kuala Lumpur, Malaysia. Tel/Fax: 603-7189909</td>
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<td>2. OILS &amp; FATS INTERNATIONAL CONGRESS 1994 (OFIC '94)</td>
<td>5-8 September 1994 Kuala Lumpur, Malaysia</td>
<td>Dr. Soon Ting Kueh, OFIC '94 Secretariat, 14, Lorong Utama A, P.O. Box 48, 46700 Petaling Jaya, Malaysia. Tel: 603-7582393, Fax: 603-7567511</td>
</tr>
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<td>3. INTERNATIONAL OILS &amp; FATS TECHNOLOGY EXPOSITION 1994 (OPTEX '94) (in conjunction with OFIC '94)</td>
<td>5-8 September 1994 Kuala Lumpur, Malaysia</td>
<td>Trans-Event Sdn. Bhd., 78, Jalan SS 22/21, Damansara Jaya, 47400 Petaling Jaya, Malaysia. Tel: 603-717 2612, Fax: 603-717 2616</td>
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<tr>
<td>4. 4TH EURASIA CONFERENCE ON CHEMICAL SCIENCES</td>
<td>17-21 December 1994 Kuala Lumpur, Malaysia</td>
<td>Mr Lim Teck Thai, c/o Institut Kimia Malaysia, 129B, Jalan Aminuddin Baki, Taman Tun Dr Ismail, 60000 Kuala Lumpur, Malaysia. Tel/Fax: 603-7189909</td>
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<tr>
<td>5. CONFERENCE ON CHEMICAL RESEARCH AND ENVIRONMENTAL NEEDS (CREN '94)</td>
<td>17-20 December 1994 Kuala Lumpur, Malaysia</td>
<td>Mr Lim Teck Thai, c/o Institut Kimia Malaysia, 129B, Jalan Aminuddin Baki, Taman Tun Dr Ismail, 60000 Kuala Lumpur, Malaysia. Tel/Fax: 603-7189909</td>
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<td>6. FIFTH SYMPOSIUM ON OUR ENVIRONMENT</td>
<td>5-8 June 1995 Singapore</td>
<td>The Secretariat, 5th Symposium on Our Environment, c/o Dept. of Chemistry, National University of Singapore, Kent Ridge, REPUBLIC OF SINGAPORE 0511, Fax: (65)-779-1691</td>
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<td>9-4 July 1995 Darwin, Australia</td>
<td>Symposium Secretariat, 13AC/4EC Convention Catalysts Int, GPO Box 2541, Darwin NT 0801, Australia. Tel: 61 89 811 875, Fax: 61 89 411 639</td>
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