



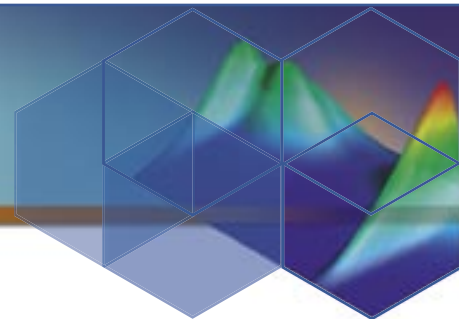
VISITING FELLOWS (POST-RETIREMENT)

There are eight post-retired staff members of the RSC who are continuing independent research programs and have been appointed as Visiting Fellows by invitation of the School:

Emeritus Professor Athelstan L J Beckwith AO BSc WA DPhil Oxford, FRACI, FAA, FRS (retired 1996) is continuing his work on the structure, stability and reactions of organic free radicals. Papers published during this year describe a number of highly stereoselective radical reactions of considerable synthetic utility. The factors that underlie such high diastereoselectivity are being studied, as is the utility of ESR spectroscopy for the estimation of radical stability. A major collection of ESR data for organic radicals is in the hands of the publisher. During the year, Athel was invited to attend a major symposium held in Ottawa to honour Dr K U Ingold. The award of Officer of the Order of Australia (AO) was included in the Queen's Birthday Honours list for '*Service to science in the field of organic chemistry as a leading researcher and through advice to government and the wider community on scientific matters*'.

Emeritus Professor Martin A Bennett BSc PhD DIC DSc London, ARCS, FRACI, FAA, FRS (retired 2000) During 2004, Martin continued collaboration with Professor S Bhargava at RMIT University. He has also been co-supervising a PhD student, Steven Privér, who submitted his thesis a few months ago, and was awarded the PhD degree. A full paper based on part of this thesis work has just appeared in *Inorg. Chem.* Also, as part of this collaboration, a PhD student, Kunihiko Kitadai, from the group of Professor Takahashi, Toho University, Japan, spent three weeks with Martin carrying out experiments on gold-tertiary arsine complexes. Martin continues to work through the backlog of publications resulting from work done by his previous co-workers. An invited review based on the work of Matthew Byrnes and Ivan Kovacic has just appeared in the 40th anniversary issue of *J. Organomet. Chem.*, in honour of (the late) Professor Colin Eaborn. Martin also continues to referee extensively for international journals, including *Organometallics*, *J. Chem. Soc.*, *Dalton Trans.*, *Inorg. Chem.*, *J. Organomet. Chem.*, and *Inorg. Chim. Acta*.

Dr Richard Bramley MSc Sydney, PhD London, MRACI (retired 1997) During the year, Richard has had consultations with Ms Joanne Harrison, PhD scholar in the Laser Physics Group, RSPHysSE, on colour centres in diamonds, a project concerned with coherence times in candidate materials for quantum cubits. He has also consulted with, and provided facilities for, Ms Harrison and Dr Andrei Rode (also Laser Physics Group) in their studies of carbon nanofoam, a fascinating new form of carbon. Consultations have also taken place with staff at Caltech in their attempts to pursue zero-field EPR spectroscopy, a field in which the RSC is a world leader. Comments on the theory underlying the relevance and complications of using standard Hamiltonians were provided along with instrument design features. Richard continues to collaborate with UNSW College ADFA, and indirectly with the Quantum Computing group, UNSW, on ways of reading out data bits without destroying them in the



process. Work has focussed on electric field rather than magnetic field readout in P doped silicon. Experiments are in hand to circumvent an effect which has thwarted an initial simple experiment, an effect which is now understood and has been proven experimentally. A simple way around the problem will be tried shortly. Richard has been consulted and provided assistance in setting up a vibrating sample magnetometer in the Physics, Environment and Mathematical Science Department at UNSW College ADFA. A condition of the transfer to ADFA was that RSC would have access to the instrument and its extended facilities at low temperatures.

*Dr Desmond J Brown BSc MSc Sydney PhD DSc London (retired 1986), formerly of the JCSMR, is nearing completion of a critical review of research in the cinnoline and phthalazine areas of heterocyclic chemistry during the last 30 years, for publication as a companion volume to his book *Qinoxalines: Supplement II*.*

Dr John K MacLeod BSc PhD Queensland, FRACI (retired in 1999) continued to be involved in writing papers resulting from work carried out by two of his former PhD students and from a collaborative project with Dr Murali Nayudu, Division of Botany and Zoology (BOZO), School of Life Sciences, ANU.

*Emeritus Professor Rodney W Rickards BSc Sydney FRACI, FAA (retired in 1999) is also a Visiting Scientist at CSIRO Entomology, and continued his research collaboration there with Dr Stephen Trowell. The work is directed towards the discovery of new antibiotics for human use from novel sources such as termites, sawflies, and other insects and terrestrial invertebrates selected from Australia's unique biodiversity. The four million species of insects which exist on Earth constitute a virtually untapped pharmaceutical resource, in contrast to plants and microorganisms which have long been targets for drug discovery. Work to date has resulted in two international patent applications, and was continued during 2004 by Professor Weiping Yin, a Visiting Scientist from China. Collaboration continued with Dr Geoffrey Smith in the Division of Biochemistry and Molecular Biology (BaMBi), Faculty of Science, on biologically-active cyanobacterial metabolites. The highlight of this work was the isolation and structural analysis of the calothrixins, pentacyclic heterocycles unique among natural products, with potent antitumor and antimalarial activity which is currently being explored for possible application by an international pharmaceutical company under agreement with ANU. Research on a possible aggregation pheromone of the unusual velvet worm *Onychophora* continues in conjunction with Drs David Rowell of BaMBi and Judith Reinhard of the Research School of Biological Sciences. This material is available only at mass spectrometric levels, and presents a major structural challenge. Joint research also continued with the University of Queensland and the Australian company Bio-Care Technology Pty Ltd on the characterisation of complex cyclic peptide antibiotics produced by certain biocontrol bacteria. A Commemorative Issue of *ARKIVOC* [2004, Part x, 1–177], Archive for Organic Chemistry, with a forward written by a previous RSC Research Fellow Dr Melvyn Gill, was published in recognition of Rod's 70th birthday.*



Emeritus Professor Alan M Sargeson BSc PhD DipEd Sydney, FRACI, FAA, FRS (retired 1996) is collaborating with Dr S V Smith, ANSTO, Biomedicine and Health, and with Professor B T Golding, University of Newcastle-upon-Tyne, UK, on the development of detecting therapeutic agents for cancer. Currently, Dr Sue Smith and Alan are also collaborating with Addenbrook's Hospital of Cambridge University, UK, on developing reagents to image breast cancer with the SarAr technology. A recently initiated project with Dr Kevin Brindal, Biochemistry Department, Cambridge University, UK, is aimed at imaging apoptosis with the Cu-reagent. In addition, a study has also commenced with the Boston Children's Hospital, Harvard Medical School, to label a humanised antibody to target neuroblastoma. This last project is also in collaboration with Lexigen, a subsidiary of Merck.

Emeritus Professor John F Williams MSc PhD NSW MA Oxford DSc ANU, FRACI, FAIFT (retired 1992), formerly of the Department of Biochemistry, The Faculties has completed an invited article entitled *Pentose Phosphate Pathway, History of*, which has been published by Elsevier Science in the *Encyclopedia of Biological Chemistry*, a new four-volume encyclopedia covering *all* contemporary Biochemistry (Normal and Pathabolic) and Molecular Biology. He has also completed Paper 1 of a two paper set, with Dr John MacLeod, describing biochemical studies on Octulose phosphates in the path of carbon in photosynthesis. Paper 2 is well advanced following a time consuming recalculation of most of the primary data. Both papers are planned for submission in the New Year to *Photosynthesis Research* for side-by-side publication.

Publications arising from work conducted by these Fellows and their groups are listed in the **Publications Section**.