

Life and Death

Research and scholarship for academics as members of the University is not just a matter of life and death, it is more important than that. A recent study funded by the U.S. National Institute on aging, at the University of California, Riverside, which spans 70 years suggests that, all else being equal, scientists live longer than non-scientists. Anyone for research? The author Dr. Howard Friedman, suggests that scientists may suffer less stress, because they have found the right career niche for their interests and personalities. Sociability has long been associated with long and healthy lives. The study shows that non-scientists are 26% more likely to die at any given age than scientists. A sample of 600 men born around 1912 indicated that only 67% of non-scientists were still alive by age 70 compared to 72% of the scientists. The study tracked the lives and deaths of youngsters first identified as gifted in 1922. Using death certificates and interviews with survivors, the research team was able to find out what happened to nearly all of those in the study. If you are searching for a good excuse to do more research you now have one, good health and long life to you.

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Summer Student Researchers

Eleven students are engaged in summer research projects.

Amrit Singh (2nd yr)

- (1) Medical and drug history of patients treated at Dalhousie Dental Clinic in 1993/94. A two part investigation to establish:
- (2) a sampling method for the collection of anaerobic bacteria from gingival pockets and
- (3) an investigation to establish the most efficient method of applying a liposome gel containing chlorhexidine in the mouth.

Clare Champoux (2nd yr)

Electronic Curriculum Project to prepare electronic Dental Biomaterials Science Teaching Materials for self-paced learning.

Paul Miller (2nd yr)

Clinical Epidemiological Research - Diagnosis of the early caries lesion.

Jerome Johnson (3rd yr)

The effect of laser irradiation on acid/laser etched smooth surface enamel in a demineralizing solution.

The effect of preventive laser irradiation on smooth surface enamel surrounding orthodontic brackets in a demineralizing solution.

Robin MacLean (1st yr)

Trigeminal autonomic regulation in the hypertensive rat and cardiomyopathic hamsters.

Vivian Ke (2nd yr)

The chemical relationship of the metal/metal oxide/porcelain interface and percent porcelain retention.

Susan Bermingham (2nd yr)

Chemical and physical properties of experimental bioactive glasses synthesized by spray-drying.

Elastic moduli and tensile strength of experimental mullite/(SiO₂-ZrO₂-Y₂O₃)/resin composite materials.

Jocelyn Burke (1st yr DH)

Survey of Dalhousie Dental Hygiene graduate satisfaction with perio curriculum.

Paul Hurley (3rd yr)

The measurement of occlusal force: assessment or function.

Cranial predispositions to malocclusion in cleft lip/palate and non-cleft patients.

Darryl Smith (1st yr)

Clinical outcomes assessment of orthodontic patients.

Paul McLaughlin (1st yr)

Monitoring pollution in the environment using dental enamel.

Foong Commended

Choong Foong steps down on July 1st having served his term as Chair of the University Committee on Laboratory Animals. At the rap-up session of the recent site visit by the Canadian Council on Animal Care. The Chair of the site visit committee commended Choong on his contribution to the UCLA activities during the past three years.

Highway to Research

Derek Jones and Stan Cameron of the Department of Chemistry exchanged E-mail messages in the mad scramble to finalize an NSERC Collaborative grant application during the period between January and April 1994. This may not seem to be a very remarkable achievement, except when you note that Stan Cameron was first in Texas and later in India while these messages were being exchanged. It is amazing how readily we take this for granted. Networking by computers which is now becoming an increasing part of our life as researchers and academics. Like many technological breakthroughs it came into being in order to satisfy the needs of the US military, during the cold war. In 1960 the Rand Corporation consulting group reported to the US government on "distributed computing." Nine years later the US Defence Department decided to build a network that would be impervious to nuclear war. As a result the first computer network **ARPANet** (Advanced Research Projects Agency) came into being. The network nodes were at UCLA, University of California Santa Barbara, University of Utah and SIR international. One year later in 1970 Alohanet was set up to link together academic establishments throughout the Hawaiian islands. By 1972 this consisted of 40 academic and military computers linked together, with at a speed of 9.6 kilobits/second. In 1973 an unofficial link was established between University College London, UK and the U. S. (Arpanet). In 1976 an official linkage was established via Norway. In 1977 "Theorynet" was created at the University of Wisconsin which provided E-mail linkages for 100 computer science researchers. In 1979 the NATO allies in Europe decided to

support a digital satellite system to provide computer linkages. The developments followed fast and furious. The following year in 1980 Berkeley University was funded to develop a standard language (Unix) allowing all computers to communicate with each other. In 1981 the City University in New York introduced "Bitnet" (Because It's Time). In 1982 Transmission Control Protocol (TCP) and Internet Protocol (IP) were released, the software was given away free to all who wanted it. Consequently it became the universal language of networking. In 1983 the National Science Foundation in the US took over the responsibility of funding the network links (Arpanet) between 60 US universities with one in Norway and two in Britain. At the same time many universities were now also using a local network language developed by DEC and Xerox called "Ethernet" which was also given away free. The same year researchers at the University of Wisconsin invented "Name Servers," which did not require the sender to know the exact pathway required to reach a recipient. During 1982-83 the use of desktop computers mushroomed and the emphasis switched to networks linking little computers through big computers. Ten years ago the number of computers on the network exceeded 1,000. The following year a major change took place when the US National Science Foundation introduced phase one of NSFnet. Thus at the flick of a switch local networks could become part of one big network at transmission speeds of 2 megabits/sec on both the US NSFnet and the British Joint Academic Network (JANet). In 1986 the dedicated lines linking the network were transferred to public service lines. By 1987 the number of computers linked into

the NSFnet system had risen to over 100,000. The current academic backbone of the NSFnet 2 system is located at the University of Michigan. The mission control-like system runs linkages between some 3,500 research institutions at computer speeds of 45 megabits/sec. Five years ago EUnet in Europe and Aussinet in Australia linked into the NSFnet. In 1992 a scientist in Switzerland wrote the first program for the World Wide Web, which provided a very simple way of navigating through the Internet. The number of computers linked to the system reached over 1,000,000 in 1992. In 1993 the U.S. government announced that the CIA had access to all Internet messages and would continue to be allowed to have such access. Meanwhile, in the UK British Telecom funded "Super Janet" connecting 60 British universities at speeds of 34 megabites/sec. The aim is to go to 155 megabits/sec, which is the same as the planned, US National Research and Educational Network. The US aims to link every home on a super highway in which even video pictures can be sent through Internet. This will clearly produce an explosion of commercial interest. Once the wider bandwidth telephone lines are in place the world will never be the same again. The potential for collaborative research with colleagues world-wide will be mind boggling. Dr. George Carruthers our colleague in Medicine, has recently used e-mail to advertise for volunteers for his research into blood vessel function. Never before has science had such an incredible opportunity for research interaction. Dentistry has access to the TCP network (Internet) using Eudora (email), linked through the Vax computer run by the Academic Computing Department of UCIS. (Reference Nick Rosen, The Guardian, May 19th 1994.)

Scientific Exchange

In August a summer Research Seminar is planned by the RDO to provide students and Faculty supervisors an opportunity to present findings from the 1994 summer research projects being undertaken. The session should provide an occasion for meaningful scientific exchange. It should also allow a revelatory overview of the progress and an indication of any problems and future plans for the various research projects. Look out for the announcement.

Developing Guidelines

The Research Development Committee in Dentistry are working on a draft document of Guidelines for Good research Conduct. Initially the draft is based upon the Guidelines produced by the Faculty of Medicine, which in turn are based upon a document produced by the Association of Canadian Medical Colleges. The University Office of Research Services are also working on developing resource material collected from a number of other institutions across Canada. The Research Development Office hope that a document can be produced which will ultimately be approved by Faculty which will provide clear guidelines which all departments will be able to follow in conducting research.

"RESEARCH NEWS ITEMS"

Do you have any research news which you would like to share with your colleagues? If so, please forward such items to the Research Development Office. It would help if submissions were produced on a (Macintosh) disc in Microsoft Word: -or simply call 1675.



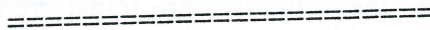
New Funding for

Centres of Excellence

On March 28th, 1994 Dr. Jon Gerrard, Secretary of State for Science, Research and Development, on behalf of Industry Minister John Marleau, announced the renewal of 10 networks funded under phase II of the Networks of Centres of Excellence (NCE) Program. The total budget for the program was \$197 million. What was particularly important about the announcement was that \$48 million of the phase II funding was designated to support a limited number of new Networks of Centres of Excellence in priority areas that are strategically imported to Canada in terms of economic, social and environmental; benefits.

Applications for the new networks are to be submitted in target areas: advanced technologies (materials, software engineering); environment; health research; technology-based learning; trade, competitiveness and sustainability. Depending on the quality of the applications and the available resources networks may be funded in some of these target areas, but not necessarily in all areas. One of the main goals of the new Network of Centres of Excellence will be to support research in advanced materials.

The NSERC announcement for the new program mentions the great potential for the development of biomaterials for Canada's growing medical devices industry. The announcement of the proposed new program offers an excellent opportunity for the Biomaterials research team at Dalhousie in collaboration with colleagues to make an application for funding under the expanded Network of Centres of Excellence program.



Seed Funding

Two sources of research money are available in the Faculty of Dentistry to assist faculty members in developing a research program.

1) MRC Discretionary Research funding which is provided by the Medical Research Council to Faculties in order to supplement or support on-going MRC funded research programmes as well as to provide seed money to allow new projects to get off the ground.

2) A further source of funding available to Faculty members is the Clinical Research fund, provided from Dalhousie University Alumni, sources.

Applications for funding from both of these sources is encouraged and should be made to the Assistant Dean for research, Derek Jones. Acceptable projects will be evaluated by the Research Development Committee which is advisory to the Assistant Dean (Research). Projects involving human subjects must also be evaluated by the human ethics committee. Those projects involving animal experimentation must be approved by the University Committee on Laboratory Animals. Following a successful evaluation and review of a project the Assistant Dean Research will authorize an account to be set up to cover the cost of the proposed project. The funding from both sources is provided to individuals with the expectation that a research grant application to an external agency will be forthcoming, once some data has been generated and published. This seed funding is not intended to completely support an on-going research programme, but is aimed at getting individuals started until such time that they can acquire external funding. Such additional funding can be obtained from the private sector or from one of the federal research funding agencies. Further information and advice on the above funding can be obtained from the Derek Jones.