

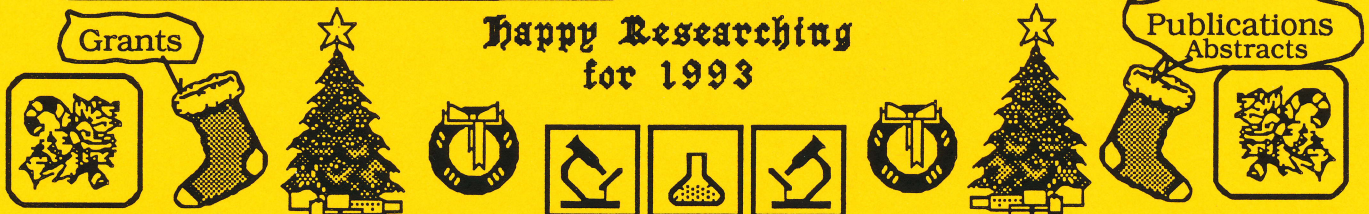
Dental DECEMBER 1992 Research News

Stimulus & Challenge

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The voice of Dal Dental research

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What a Year That Was!

As 1992 draws to a close we can look back with pride and satisfaction and say that our research efforts within the faculty during the past year exceeded our best expectations and were exceptional when measured by any standard. We have received for the first time an MRC University/Industry Grant, a major achievement in these tough economic times. We have submitted a record number of grant applications to MRC. The number of research papers submitted to and presented at international research meetings are an all time record. Never before in the 82 year history of the Dental Faculty have we had such a volume of research funding, with so many of our members involved in genuine scholarly and research activities. Who said we didn't believe in miracles? In times of constraint, as we look to a new year, it is important that we preserve the very qualities and values of our international scholarship and research which set us apart from other institutions.

Clinical Research

"...clinical research has much to offer to the dental profession, to the academic community, to the university, and to the general public. It has an important and inherent value to all constituencies. Furthermore, it can be demonstrated that clinical research, when properly conducted, is the equivalent of basic research in terms of its fidelity to the scientific method and to the principles of good science. In this way, dental schools and their faculties can truly be seen as an important component of the university's academic and scientific communities as well as of the dental professional community." N. Mohl.

See page 2 for details on *Clinical Trials*. An exciting initiative has been put forward to develop a clinical trial facility in the Halifax region.

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GREETINGS OF THE SEASON AND  
BEST WISHES FOR A HAPPY NEW  
YEAR TO ALL READERS.

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### A CLINICAL TRIAL FACILITY

The Faculty of Medicine has initiated the development of an umbrella organization to interface with the drug industry to support the setting up of a clinical trial facility. The organization would bring together the Faculties of Medicine, Dentistry, the College of Pharmacy and the various hospitals in the region. Such an organization would provide a focused approach to enhance linkages with the business community. The umbrella organization would be able to provide support, advice and encouragement for the development of collaborative research endeavors between various units in the hospital and university sector. The Faculty of Dentistry are pleased to be playing a role in developing the organization. The advantages of such an organization are the collective strength in expertise, knowledge, facilities and patient numbers and opportunities for collaborative clinical trials and research within the group. We have pointed out that care should be taken to ensure that the administrative structure of such an umbrella organization does not become too elaborate. It is vital to ensure that the system does not strangle the enthusiasm it's energy must not be sapped by too much red tape. Researchers have to be in control of the aims, objectives and direction of the organization. The main objective should be to enhance the development of clinical research in Atlantic Canada. We need to ensure that we increase the numbers of individuals involved in the clinical research rather than just increasing the amount of research being conducted by a few.

What do we have to offer to such an organization? We have the only Faculty of Dentistry east of Quebec. Arguably the finest Dental Clinic Facility in North America. Our dental clinic has screened well over 4,000 patients in the past five years,

of which 95% were accepted for treatment. We have 25,000 patient visits a year. The clinic thus provides an ideal opportunity to conduct clinical trials. Some of our Faculty members have conducted drug company funded clinical trials (\$161,000) comparing Spiramycin and Tetracycline during the adjunctive treatment of periodontal disease. Our Faculty of Dentistry has an established world class epidemiological programme involving aspects of dental disease and the efficacy of fluoride. We are the 'Regional Centre' for a major national dental epidemiology programme. We have strong linkages with the dental profession within Atlantic Canada providing excellent opportunities for clinical trials of drugs and therapeutics as well as new materials and techniques. Significant potential exists for clinical trials associated with dentistry. An oral pathology mouth clinic is operated which serves the whole of Atlantic Canada. It should be noted that dentists do prescribe drugs. The total cost of dental pharmaceuticals used in Canada has been estimated at \$700 million per year. We have one of only three Dental Hygiene programmes in Canada which are located in a University. We have an internationally established biomaterials research facility undertaking synthesis of polymer and ceramic biomaterials as well as drug release from biomaterials (over \$1.4 million MRC and industrial support in the past 4 years). We are conducting research in biomechanics and orthopedics. We have extensive experience in biocompatibility testing using animal and *in vitro* studies of biomaterials. We have world class microbiology research being conducted which can support clinical trials this provides an opportunity to develop interaction with the pharmaceutical industry in the area of anti-microbial therapy.

## Evaluating Research

The following item dealing with seven questions for evaluating research was adapted from *The Developing Child*, 6th ed., H. Bee, 1992, and was thoughtfully supplied to the Dental Research News by Elliott Sutow.

**1) Clarity of the Project:-**

Can you understand what was done and what was found?

**2) Importance of Findings:-**

Does the study have some obvious practical relevance? Does it help to untangle a theoretical puzzle?

**3) Promotion of New Ideas:-**

Does the study generate new ideas, questions or shed light on old questions?

**4) Consistency:-**

Are the findings consistent with those of similar research?

**5) Reproducibility:-**

Are the findings reproducible?

**6) Choice of Subjects:-**

Is the sample representative or selective in some way? Does the choice of subjects limit the generalization of the conclusions.

**7) Appropriateness**

Did the design method allow the research question to be addressed?

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The above questions can be helpful in reviewing research in the scientific literature as well as critically evaluating our own research projects. Thank you Elliott for providing this thought provoking item. If any other Faculty members come across research information or ideas which they would like to share with others please forward it to the RDO, preferably on a disc.  
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## Exponential

"Discovery. Application. Impact. Discovery. We see here a chain reaction of change, a long, sharply rising curve of acceleration in human social development. This accelerative thrust has now reached a level at which it can no longer, by any stretch of the imagination, be regarded as 'normal.'"

Alvin Toffler.

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## Increase in Research Recommended

The accreditation report of Dalhousie University Faculty of Dentistry recommended that more research should be undertaken. It stated that "Every dental school has some responsibility in the pursuit of research and in the provision of graduate, post-graduate and refresher courses." This was the report of the accreditation team of 1951. In 1994 we shall again have an accreditation visit to our Faculty. As we contemplate preparation for the 1994 accreditation visit we can reflect on the need to preserve the excellence of our research and scholarship as well as the innovative teaching programme introduced as part of our new curriculum. The excellence and quality of our current research programme are at a level undreamed of 40 years ago in 1951. In terms of our research we have clearly come a long way in 40 years, amazingly most of this progress has been achieved in the past 5 years. During difficult financial times we need to ensure that the quality of our scholarship and research are maintained at an international level.

## **Avoid Complacency**

Page 1 of this edition reflected on the wonderful progress made in the growth and development of our research in dentistry. However, we must avoid complacency in looking at these wonderful achievements. As previously reported we presented the highest number of papers of any Canadian Dental Faculty at research meetings in 1992, 75% more abstracts than the nearest rival UBC. In addition we also had the highest number of educational research papers at the 1992 AADS meeting. We have recently managed to bring in over one million dollars of research funding in a period of only 12 months. However, we should take heed of the words of John Gardner, in his book on Self-renewal, "A society that has reached heights of excellence may already be caught up on the rigidities that will bring it down. An institution may hold itself to the highest standards and yet already be entombed in the complacency that will eventually spell its decline." We must apply ourselves with renewed vigour to the task of research and scholarship which have characterized our performance in the past few years. As Dalhousie dental research scholars of 1992 we have a remarkable degree of credibility. This was not always the case. This credibility which we now enjoy, carries with it important social responsibility. As researchers we have to deal with not only today's but also tomorrow's research problems which may affect the dental profession and the general public. The public support our institutions and thus have a right to expect much from us. The details on page 2 which outline the possibility for the setting up of a 'Clinical Trial' facility in Halifax provide an excellent opportunity for future clinical research should this come into existence. The collective availability of data bases and biostatisticians and other expertise would greatly facilitate this type of activity.

## **Research Transfer Payments**

Research funding is an important component in the economy of the region. The acquisition of research funds by our Dental Faculty and other researchers at Dalhousie University, represents a unique and special form of transfer payments into the province. The importance of research grants to the Halifax/Dartmouth region can be judged by the fact that some 400 full and part time research personnel at Dalhousie University are supported by grant and contract funding with a total payroll of some \$10.4 million. These funds have been brought into the region from outside agencies and industrial sources. Clearly Dalhousie researchers are collectively a major factor in the economy of the region. All too often the universities are regarded as a burden on the tax payer, however, the provincial government and the general public needs to clearly understand and appreciate that research at Dalhousie University contributes not only to the intellectual and social needs of the region, but also makes a significant contribution to the economy. It is vital for the economy of the region as well as Dalhousie University that we maintain our critical mass of top class international researchers. The recognition of Dalhousie as a major international research university clearly provides an argument for appropriate funding from the provincial government. As we look at the gloom surrounding the impending budget cuts we should make sure that the quality of our international scholarship and research does not suffer. The above facts need to be clearly understood by the whole of the Dalhousie community as well as being conveyed strongly and vigorously to the provincial government. Once the top intellectual quality researchers depart from Dalhousie we will not be able to replace them. Dalhousie will become a third rate institution.

## Clinical Research

The quotation on page 1 from Norman Mohl, states that clinical research has much to offer to the dental profession, to the academic community, to the university, and to the general public. Clinical research is the most neglected phase of dental research in Canada. We should aim to ensure that it becomes an important component of our scientific programme at Dalhousie. In this way we will be fulfilling our role as true academics as well as serving the dental professional community. This is the reason that we are aiming to participate in the 'Clinical Trial' initiative being put forward by the Faculty of Medicine (see page 2).

Research design, clinical protocols and the epidemiologic methods to be used are key factors in the development of successful dental clinical research projects. The most important part of a clinical research project is the planning which goes on before the research is even started. The importance of a protocol is well recognized by laboratory scientists. However, although epidemiologists have used protocols for many years they have not always reaped the full benefits. Until quite recently, there has been little acceptance among epidemiologists about what constitutes a good protocol.

A paper by Tomenson and Paddle<sup>1</sup>, examines some of the benefits to be derived from a good protocol and the importance of a pre-study review. The authors suggests that peer review cannot substitute for a competent principal investigator supported by a strong study management team. The

authors state that "if such a study management team exists, the most important contribution of the external peer reviewer should be to ensure the impartiality of the study."

A further paper published in the same journal by Ott<sup>2</sup> also addresses the importance of a study protocol in epidemiological research. The author states "The overall quality of an epidemiologic research project depends on how well both the design and execution phases of the project have been accomplished. The written pre-study protocol, by serving as a bridge between these two project phases, plays a pivotal role in determining the success of the total research effort." The paper by Ott<sup>2</sup> presents ideas for enhancing the scientific integrity of a study and for providing improved documentation, efficiency, and communications. It is claimed that this can all be achieved by careful pre-study planning. If you are planning to conduct a clinical research project you may find these two papers to be of some value. As the budget crunch is upon us, our first priority is to ensure that our role as true academics is maintained. We all have to recognize that research and scholarship are the foundation upon which the future of our Faculty depends. This is what makes us a University discipline, rather than a trade school.

### References:

- 1) Tomenson, J. A & Paddle, G. M., Better quality studies through review of protocols, *J Occup Med.* 33,12, 1240-1243, 1991.
- 2) Ott, M. G., Importance of the study protocol in epidemiologic research, *J Occup Med.* 33, 12, 1236-1239, 1991.

### **Why was an Anaerobic Workshop recently held at Dalhousie. ?**

Periodontal diseases and a large variety of soft tissue infections are caused by anaerobic bacteria. For this reason, Drs. Haroun Shah and Saheer Gharbia have initiated a major research programme to study the physiology, metabolism and molecular basis of pathogenicity of anaerobic bacteria involved in periodontal diseases. Such studies necessitate the development of a variety of highly specialized anaerobic techniques.

Advances in this area are occurring rapidly and the "First North American Conference on Anaerobic Bacteria and Anaerobic Infections" in Los Angeles in July this year provided testimony to this. Following the conference an Anaerobic Society of North American was formed. Our faculty was represented by Drs. Shah and Gharbia who delivered the opening address entitled, "Ecophysiology and Systematics of *Bacteroides* and related bacteria." The new Society plans to hold conferences biannually and periodically organize workshops. The first workshop following the meeting was held in our Faculty of Dentistry at Dalhousie from the 25th-26th September, 1992. The meeting was sponsored jointly with the Department of Microbiology and Immunology at Dalhousie, the UCLA School of Medicine and Anaerobe Systems (San Jose). The meeting comprised both lectures and laboratory sessions delivered by representatives of the three institutions. A total of twenty-five participants from various parts of Canada and the USA attended. The workshop was considered a major success and a further workshop is planned for the summer of 1993.

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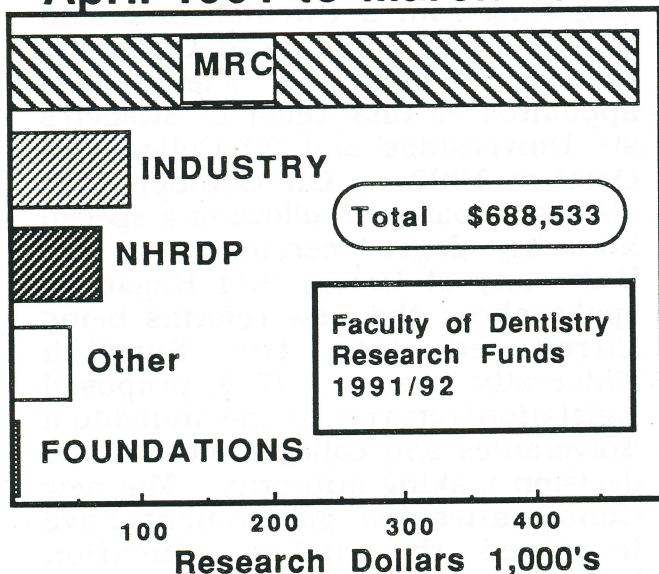
### **Cause for Celebration in Sweden.**

Stig Hagstrom a Swedish-American who is a former Stanford University Professor of Materials Science, was appointed as Chancellor of Sweden's six Universities and 29 Colleges in October 1992. On October 10th 1992 at a banquet following a special honorary degree ceremony, at the University of Umeå, Stig Hagstrom spoke about the new reforms being introduced into the Swedish University system. The proposed legislation returns to the individual universities and colleges most of the decision making authority. The new Conservative led government have increased the higher education budget by 10% (about \$120 million). They plan to spend a total of \$4.3 billion on higher education over the next three years. The government have stated that only through advanced education and research can Sweden hold its own against tough international competition. Donald Cameron please take note!

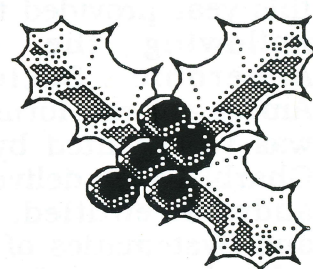
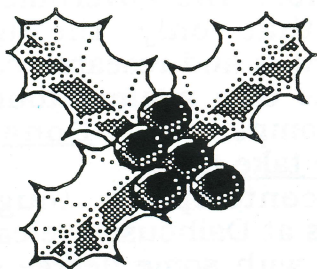
As we contemplate tough budget decisions at Dalhousie we can look to Sweden with some degree of envy. It is important during these difficult times that we do not destroy for ever the quality and world leadership that is present in many of the teaching, research and scholarship offerings at Dalhousie. Let us hope that we can learn from the Swedish emphasis which has been placed on the quality of scholarship and research. As pointed out on page 4 research funding which is acquired by faculty members at Dalhousie University plays a key role in the economy of the region. Sweden has clearly recognized that it is important to build on the strength of the intellectual power of the nation. We should ensure that we do not adopt short term policies to solve economic woes which may well sow the seeds of destruction for the quality of our institution.

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## Faculty Research Funds April 1991 to March 1992



The total on the left shows the actual research funding received by our Faculty of Dentistry from all sources during the period April 1st 1991 to March 31st 1992. The interesting point to note is that funding from the industrial sector comprises over 13% of the total. This compares to almost 70% from MRC. Previous figures reported in the April Edition of the Dental Research News stated that almost 52% (\$1.57 million) of the total 32 year research funds awarded to our Faculty of Dentistry from federal agencies only (i.e. MRC & NHRDP) had been realized in the 12 month period (April 1991 to March 1992). These awards of federal research funds as reported are in fact received by our faculty members over periods of three to five years.



This is the last edition for 1992

**Happy New Year**  
to all our readers

