

[Chairman: Mr. Kowalski]

[10 a.m.]

MR. CHAIRMAN: Good morning, ladies and gentlemen. It's my pleasure to call to order the second day of meetings of the Alberta Heritage Savings Trust Fund committee. Today we have appearing before us representatives from the Alberta Heritage Foundation for Medical Research. I'd like to introduce to all committee members Mr. Eric Geddes, chairman of the board, and Dr. Lionel McLeod, president of the foundation.

Members will recall that in 1984 the Alberta Heritage Foundation for Medical Research issued its triennial report for the period 1980-83, and for the first time in the history of this committee's meetings, these two gentlemen appeared before the committee. Members will recall that it was an absolutely fascinating several hours' discussion that led to a real interest by committee members in wanting an opportunity to meet with these gentlemen on an annual basis to find out what is ongoing with respect to the foundation.

It's perhaps a bit unique that this week in the city of Calgary, one of the members of our committee, Mr. Gogo, who is the chairman of AADAC, successfully brought to our province the international congress on alcohol and addiction. I'm pleased that Mr. Gogo found time from his busy schedule as honorary chairman of that particular international convention to be here this morning. It's certainly a reflection of his interest in medical research.

As well, I think both Mr. Geddes and Dr. McLeod have had an opportunity to meet Mr. Gurnett, who is a new member of our committee.

Perhaps I can now turn it over to you, Mr. Geddes, for an opening statement, and then to Dr. McLeod.

MR. GEDDES: Thank you, Mr. Chairman. Ladies and gentlemen, we appreciate very much the opportunity to appear before you this morning. With the permission of the chairman, I think we'll follow the same format as last year. I will make an opening statement, followed by a statement by Dr. McLeod, and then we hope the discussion that follows will be equally as fascinating as it was last year. We don't have any material to provide to you this

morning, but we think our presentations are not such that we will get into any degree of refinement of any financial estimates that will be discussed. The Provincial Auditor has completed the examination of our accounts for the year ended March 31, 1985, and we expect to have the published annual report ready for submission within a short number of weeks.

Mr. Chairman, nearly five years elapsed from the legislative sitting of November 9, 1979, when Premier Lougheed moved second reading of Bill 62, the Alberta Heritage Foundation for Medical Research Act, until our first opportunity to appear before this standing committee on September 6, 1984. You will recall that it was intended that the operations of the foundation would be reviewed by the standing committee every three years. Furthermore, the Act provides that an international board of review, consisting of not fewer than six members, would be appointed to review the operations of the foundation at intervals of six years after the coming into force of our Act and to provide an assessment to this standing committee in order that the standing committee, in turn, could provide recommendations to the Legislature as to the need for any increase in the endowment fund.

So today's appearance, which is slightly less than one year after our last appearance, is not a scheduled visit in strict conformance with the statutory requirements. As I've said, at the end of March 1985 we completed five full years of operations and are one-third of the way through our sixth year. So the International Board of Review process is now in the course of being formed, and members will be appointed. They will be commencing their work during the course of this year and will be reporting on the operations for the six-year period concluding March 31, 1986.

In our opinion, however, there are compelling reasons why we should appear before you now: first, to provide further evidence of the impressive progress being made toward those objectives outlined by the Premier in his historic presentation to the Legislature on November 9, 1979, in introducing the legislation which established our foundation; to give you a picture of what we see developing in the next five years; and finally, as the direct result of our projected expenditures over the next five years, to provide you with our forecast as to the

projected level of expenditures we will reach at the end of this decade and, as a result of that, the amount by which we now feel the endowment of the foundation should be increased.

Last year, on behalf of the trustees of the foundation, I reported to you on two important initiatives. The first of these related to the decision taken by the trustees to provide \$30 million to each of the two Alberta universities with medical schools to permit each institution to develop between 5,000 and 5,500 square metres of net usable space for clinical medical research. To the end of March 1985, \$1,050,000 was provided to the two universities for the purpose of preliminary costs of planning and design, and I'm advised that construction will probably commence at the facility in Calgary in October of this year. Planning, of course, is in the very final stages in Edmonton. As you know, there was some delay with respect to the selection of the site, which has now been settled on as being on 87th Avenue just slightly west of 112th Street, just slightly off centre from facing the Education Building at the University of Alberta. I'm sure Dr. McLeod will want to say something to you about the nature of the arrangements that have taken place between the foundation and the universities governing the use to which that space will be put and the steps we have taken to ensure that that space is used for the purposes we have agreed upon with the universities.

For my part, I would simply like to observe that at this time in Canada, when research funding is under such pressure everywhere, the ability for us in Alberta to have state-of-the-art facilities for clinical research constructed in this province provides a significant edge to the Alberta academic community, and it is a tribute to the farsightedness of our Alberta Legislature in establishing this foundation and providing it with the funding to make these initiatives possible.

The second matter I referred to last year relates to the issue of the potential commercialization of university-based research. Last year I advised that we hoped to be able soon to announce the shape and nature of a technology transfer program which we will establish. During the last 12 months our trustees have expended a considerable amount of time on the development of programs which will encourage the commercialization of

medical research. I am pleased to be able to advise you this morning that a technology transfer program has been approved by the foundation, and we expect to be in a position to review funding proposals by the end of September. Our conviction is that this technology transfer program will provide significant long-term benefits to our Alberta universities and to medical research generally. They should of course be viewed as being supportive of our general programs of basic and clinical medical research. Those objectives remain basic to our foundation. Embarking on these programs of technology transfer will in no way impinge upon our ability to continue to fund our existing programs. Furthermore, in our considered judgment these programs complement and round out the existing programs which are in place. I again wish to stress that these initiatives in no way detract from the fundamental mission of our foundation.

Another matter which I think the committee will be interested in has to do with the activities of the foundation in bringing to the general public of Alberta an awareness of the scope and nature of the funding activities through the medium of our newsletters, which I trust each member of the committee receives, the attention paid to the preparation of press releases and the wide dissemination of those press releases across Canada ensuring the availability of foundation-funded scientists to the media for interviews, the care taken in ensuring that newspaper articles appear in Alberta weeklies, participation in science fairs, and many other ways. We believe this to be a very important part of our activity to ensure that the public of Alberta is clearly aware of the scope and nature of these programs. We have been very rewarded by the feedback we have received and the intense interest that is shown by the Alberta public in these matters.

Perhaps just a word about our participation in Alberta school science fairs might be of interest to you. This participation extends to providing financial assistance to the organization of the fairs, including the provision of awards for the best medically related projects across the province. By and large, of course, this relates to high school students. Should one of our winners be selected for presentation at the national exhibition of science fairs, the foundation provides further

financial assistance. The student from each of Alberta's six districts who receives an award supported by the foundation is sponsored to a day in a medical research laboratory in either Calgary or Edmonton with a view to encouraging that student along a medical research pathway. Again, we would like to say how gratified we have been by the very positive response we've received from those involved in science fairs and in encouraging young Albertans to seek careers in research activities.

We want to stress very strongly that our foundation has uppermost in our minds the need to ensure that the Alberta public understands our work. It has been made clear to us that the success to date of foundation-funded activities is regarded as one of the most important accomplishments of this Legislature.

I would like to conclude by returning to a matter I briefly touched upon, and that is the question of supplementation of our endowment fund. The financial statements which you will receive in a few days covering the first five years of our operations will reveal that we have expended \$100 million in grants and awards in five years. The forecasts covering the next five years, which have been prepared by foundation officials, indicate that there will be a threefold increase in the amount of funding. The amount of funding in the next five years is projected at \$300 million, a threefold increase over the \$100 million expended in the first five years. This is a very dramatic increase by any standards. Having regard for the effect foundation-funded activities have already had on medical research in this province through the expenditure of \$100 million, one can easily envisage the importance that will result from these increased funding levels over the next five years.

In making this comparison, it should be noted that something just under \$60 million is to be provided for clinical research space through the provision of \$30 million for two buildings. However, even after eliminating those expenditures -- and they are important and significant ones which make a tremendous contribution to the ability of our Alberta medical scientists to flourish in the right kind of atmosphere -- the expenditures for the next five years amount to \$240 million.

In the 10th year of foundation activities -- that is, after the expiration of five further years, including the year in which we are currently operating -- the level of expenditures

is projected to be \$51.8 million. We seem to be approaching a point of some levelling off. None of us is so wise as to be able to predict what inflation might be in the future, and no extravagant scaling up of costs is taking place as the result of any expected inflation in excess of the currently prevailing rates. Perhaps that is some word of caution, but there does appear to us to be a levelling off in that range of approximately \$51 million to \$52 million at the end of the 10th year. However, by that time the endowment fund, originally established at \$300 million, will have been reduced to \$354 million. In order to produce an income flow to handle future activities on a level basis, it would appear to us that the foundation's endowment fund should be supplemented by the amount of approximately \$150 million.

We need to provide evidence to the scientific community in Alberta that we can continue to administer our programs with great confidence through the late 1990s into the next decade. It's a matter of very great importance. It's important because if we want our universities to be able to continue to recruit first-class people to Alberta, with the ability to provide assurance to them that there is a stable funding base and that they're coming to an environment of certainty and confidence, it's exceedingly important that those who are charged with recruiting further personnel to this province or, equally important, retaining talented young Albertans within our system be able to speak with the utmost conviction and confidence about the level of future funding. If the foundation's endowment fund is not augmented, there would clearly have to be a significant scaling down in future expenditures.

So we make this point to you, Mr. Chairman, and to members of the committee as a major recommendation resulting from our appearance this morning, based upon the need for us to provide assurance in the longer term that we can confidently deal on the basis that we can continue to round out our programs in Alberta in such areas as patient-based research, technology transfer, and others.

With those opening remarks, I would like to ask my colleague Dr. McLeod to make some further remarks.

DR. McLEOD: Mr. Chairman, ladies and gentlemen, my purpose this morning is to provide some comments on one or two of the

points raised by my chairman and also to provide you with some footnotes to the past year's activities in terms of research development. Firstly, I wish to comment on the building program. The building program really comes because early and very extensive consultation proposed that we have approximately 200 new scientists in place in the province of Alberta. That became a long-term objective. One would expect that kind of number to supplement those emerging areas of nationally and internationally recognized strength in Alberta but, more important, also bring brand-new, multidisciplinary research groups those kinds of research settings from which we really anticipate receiving the greatest benefits in the long term. The number 200 was fashioned from that kind of thinking.

Multidisciplinary groups of that sort require available open spaces into which one can move collegial arrangements for anywhere from 5 to 15 to 20 principal investigators. Accommodating that in the setting, that kind of space being absolutely absent in Alberta at the present time, became the basis upon which the trustees decided to make this infrastructure grant to the two participating universities. In doing so, they requested that the space be sited, designed, and constructed to fit into that set of objectives which had been determined by the foundation; namely, that it would facilitate building on those strengths that we have presently, also allowing for those new groups and ensuring that it was located and sited in a way that would facilitate development in both clinical and applied research and also spill over quickly and effectively into patient care programs.

The infrastructure grants have been allocated, and there is a cash flow that relates to the universities' needs. The foundation is entering into agreements with the universities such that on a long-term basis we can have assurance that the use of the buildings will be appropriate to the objectives of the foundation. We've also required that the universities undertake the responsibility for the so-called basic occupancy costs of those buildings in order that it conform with the principle that the buildings will be owned by the universities and that we are able to continually and maximally place our funds into the direct support of research and not into other elements.

I'm delighted with the sites that have been

chosen. The foundation is very happy with the sites, as Mr. Geddes indicated. They have excellent access to library resources and are in places where the scientific community, the physicians of those facilities, and the students that are participating in educational programs can move back and forth and be exposed to the activities of the area. We're quite happy with the arrangement we have worked out.

Mr. Geddes also referred to the foundation's new technology transfer program. I wish to emphasize that we believe there is a medical research benefit from a direct interplay between the scientific community and those responsible for the commercialization of new ideas and concepts. In fact, our program is designed to take the very initial steps from basic and clinical research and allow the scientists to make those sorts of efforts that will cause a new idea or concept to be more attractive to the serious, risk-taking capital investor. We have acquired experience from elsewhere. The small business innovation research program instituted in the United States, especially through its National Institutes of Health, suggests most strongly that our program will allow that kind of development; in other words, development to the stages that do attract the interest of the serious investor. I'm sure that if you wish more detail on that, Mr. Geddes and I would be happy to try to respond.

There are a number of projects that have been identifiable in the work of the foundation to date that may lend themselves to commercialization. I offer just two as examples, but there are others. One of our scholars currently working with a number of other scientists has developed a method by which there is a time reduction in the production of antibiotics and improvement in the efficiency with which the raw materials are employed. This new technique not only produces a reduction in the cost but also opens new ways to try to fashion new antibiotics. I think that lends itself to the kind of thinking we hope will be pursued by applicants to this new program.

Another scholar, who is a biophysicist and computer expert, has developed a modified CAT scanner that allows the examination of bone density at about one-twentieth of the normal radiation exposure that is employed in conventional CAT scanners. It allows the determination of change in bone density over

time. This is a most important development, not only from the standpoint of examination of patients and evaluation of treatment programs but it could also represent an opportunity for commercialization. As evidence of the fact that this machine may prove useful, it is already being employed in studies in co-operation with the Medical Research Council of Canada and the National Cancer Institute of Canada. It's being used locally for evaluation of vitamin supplementation of those people who are suffering from thinning of the bone. I found it fascinating that following an article in the Edmonton Journal on this work, the scientist received over 300 telephone calls from women in the Edmonton area who were prepared to participate in the clinical research on a voluntary basis. This is important because bone thinning, or osteoporosis, is a normal accompaniment of the postmenopausal condition.

I offer those as a couple of examples selected from other opportunities. We're hopeful that not only will the medical scientists of our universities be interested in this program but that the medical scientists of Alberta companies will find it of assistance.

With your permission, I'd like to review the status of some of our main programs for your interest. Again, I apologize that because of the auditing process our report is not available for you, but I will try to highlight it.

In our studentship program we are now sponsoring something in the order of 241 students per year at any one time. This is an increase from last year of something in the order of 70 students, so that program is continuing to grow. I believe it is now approaching its maximum. This summer we supported 166 students in medical research opportunity in the course of the interim between their studies. At the fellowship level — these are individuals who have either a PhD or a medical, dental, veterinary medicine, or any health-related degree — we now have 240 people at any one time, an increase of approximately 30 positions over the previous year.

There is a special program in which we offer fellowship support for those who have completed their postgraduate clinical training, the individual who has become a surgeon or a physician or a psychiatrist and has completed that clinical training. We now have 21 people

who are in research training. We consider this to be one of our most important programs, because there lies one of the greatest deficiencies in manpower needs of the future in Canada. Those people, by the way, are studying all over North America, some are in the United Kingdom, and one is in Montpellier, in southern France. They're in some of the finest institutions in the world, so we're very hopeful that that program will bear fruit.

MR. R. SPEAKER: Are they all Albertans?

DR. McLEOD: Most of them are, Mr. Speaker. As an example, in response to that question, we now have a number of people who've cycled the whole system even though we've been in place for but five years. There is an orthopedic surgeon in Calgary who was a graduate of the University of Calgary Medical School, did his graduate training in orthopedic surgery, and then completed a research training program, funded by the foundation, in San Diego, a very prestigious place for studies on ligament healing and ligament injury. He's now back doing studies as a full-time physician scientist at the University of Calgary, which seems appropriate if the Olympics are going to be held in Calgary. We've found it very rewarding to begin to see that kind of cycling of young Albertans through to active research careers. Last year we mentioned that we wished to try to provide further assistance for those people who are active clinicians of the sort I've described, who complete research training but have failed to take enough research training in the last 10 to 15 years. They're taken up prematurely by universities because they're very able. They're good teachers; they're good clinicians. They're posted to positions. They don't have the depth of research training that allows them to compete for grants on the national scene. What we put in place was a special funding program which allows those people to take a university position but in a protected environment in which they are allowed a further three to five years of modified dependence. We support them while they do research, but they must do research in close collaboration with an experienced scientist. We hope this will allow them that greater depth and hence a greater possibility of completing a full career in medical research.

Again, I can't overemphasize the fact that

the clinician who does competitively funded research is becoming the scarce beast in our society, both north and south of the 49th parallel. So we're hoping that by this mechanism we can ensure better opportunity. We have five people in place in that program. That's about twice as many as I thought we would have at this point, and I'm quite delighted with the spread. They're not limited to a particular group of physicians. One is a plastic surgeon, another is an immunologist concerned with cancer, another is interested in transplantation of the pancreas for those people with diabetes, and another is interested in GI disease. They're spread over a good range, so we feel this program is showing some promise.

You may recall that our most important program from the standpoint of long-term numbers is our scholar program. These are people who have acquired training and perhaps up to about 10 years of research experience. These are the people for whom one has the greatest hope. These are the young, the energetic. Historically, as I believe you know, many of the great advances in medical research are by people in that important age range of 25 to less than 40. This is the group on which we place our greatest hopes. Last year we had 57 in place, and today there are 88 people in that category. This is equal to the entire complement of the University of Calgary Medical School at the time they graduated their first class.

The heritage medical scientists are the senior people, those with 10 or more years of experience who have established reputations nationally and internationally. We had five last year; we have 10 this year.

Perhaps these basic statistics could be made more important if I could highlight some of the more direct developments. From the point of view of an Alberta patient there are quite a few answers that could be given to the question: what have you done? I can only draw some examples. From the point of view of an Alberta diabetic, the diabetic's physician has a greatly expanded source of counsel and information and education now compared to what he or she had five or six years ago. This comes from these scientists who are struggling with causes of diabetes, new kinds of treatment for diabetes, whether they're juvenile or adult in onset.

From the point of view of a patient with a heart attack, their physicians can now look to a

cadre of people, both clinical and basic, who are looking into the cause and prevention of sudden cardiac death, developing new methods of diagnosis and treatment of heart attacks. Most importantly there's activity in testing new drugs, which in turn assures Albertans of opportunity to the best at the earliest possible date.

Patients who are hospitalized for viral infections have sources of expertise that were simply not present in Alberta five years ago.

Another example: a new clinic has been established to aid in the diagnosis and pursue the causation of Alzheimer's. This could potentially be a very valuable source of help to those who care for patients who suffer that most debilitating disease, whether they're physicians or patients' families and relatives.

That's one look at the cut of the last year. Another way of looking at it might be to offer to you some of the newer edges that were introduced in the past year. I'd like to present two or three of those. One, a highly productive heritage scholar, Dr. Thomas Clandinin, was a graduate of the University of Alberta. In fact, his father was an eminent member of the Faculty of Agriculture at the University of Alberta. He's recently been recruited from Toronto to establish a multidisciplinary program which will integrate foods and nutrition into the health profession areas, whether they're dentistry or pharmacy, and including agriculture. His research focusses on a range of human problems. One can look through his work and literally see the cradle to the rocking chair in the potential outcome of his work. We're most happy with this development, because it's an important area which has been difficult to address in the past.

We have experienced a sour gas problem in the province of Alberta. Dr. William Hulbert, one of the new scholars at the University of Alberta, is actively studying the effects of sour gas on the structure and function of the lung and its airways. We're hopeful that perhaps that kind of work will foreshadow the basis of further studies that might improve the treatment of exposed persons.

It may sound a bit humorous but there is a study that involves snoring, an uncommon disturbance to the members of our committee, I'm sure. This can be a symptom of a serious breathing disorder. In Calgary, Dr. John Remmers, who was the first to identify a

disease associated with this symptom while working at the University of Texas, is continuing that pioneering work at the University of Calgary and has a number of studies into infant respiratory distress syndrome, otherwise known as sudden crib death.

Those are examples of new edges that have occurred in the past year. If I could look briefly to where edges established earlier have been expanded, a number of instances come to mind. At the University of Calgary there've been two valuable additions in heart disease. A graduate of the University of Calgary who has been in Calgary working under the auspices of the Alberta Heart Foundation has undertaken a scholarship position to further the evaluation of drugs used in arrhythmias, or electrical disturbances of heart beating. He's using drugs that have been studied in detail by those responsible for molecular and cellular studies. There is a native of Holland, Dr. Henk ter Keurs whose work at the molecular level of the heart muscle is adding very considerable strength to both basic and clinical research in that setting.

In another area, reproductive medicine, in the past year Dr. John Maloney, who is the former director of Monash University Centre for Early Human Development in Melbourne, was attracted to head a reproductive medicine group in Calgary. This is a natural outgrowth of the high-risk pregnancy projects which have been ongoing in that centre and some infertility studies. This thrust adds remarkably to one of the stronger groups in the province, a growth and development group, which now consists of some 22 scientists. It must rate amongst one of the best in the country at this time. I could go on.

I would like to mention one further before concluding this part of my presentation. In 1984 we also recruited Dr. Aimo Salmi of Finland. Dr. Salmi is a world authority on the persistence of measles virus beyond childhood into adulthood and some of the difficulties that are encountered. He is also deeply concerned for the causation of multiple sclerosis, because he believes those patients have early contact with viruses which persist, producing an immune disturbance in later times and hence the disease.

A major initiative taken in collaboration with the Alberta Cancer Board was the recruitment and establishment of Dr. Malcolm Paterson at

the Cross Cancer Institute. We're looking to Dr. Paterson not only to further his research but to develop a group that will deal essentially with the environment and its relationship with heredity and the causation of cancer. We've committed in excess of a million dollars to that program and look forward to a very prestigious group of scientists addressing what must be one of the most important approaches to the cause of cancer at the present time.

The role of the foundation in funding medical research has greatly increased in this province as resources have become more scarce on the national scene. There are one or two examples which I wish to call to your attention, because I believe they will be called to your attention from other sources. The establishment of training programs by the foundation in Alberta has unquestionably reduced the flow of applications from Alberta scientists to the national agencies and hence the funding of those programs in Alberta by the national agencies. On the other hand, only small numbers of positions are created on any provincial base by national agencies if you compare the level of opportunity with that created by the foundation. While there may be a change that on the surface would appear to be disadvantageous to Alberta, on balance the program of the foundation is markedly to the benefit of the young Alberta person who seeks training in medical research. That is one example of that interplay which you raised last year.

With the mounting pressure on nationally based dollars, the foundation has become the most important source of funding for technology and equipment of a medical research nature in the province. There are developments in the province that simply could not and would not take place in the absence of foundation funding. I can refer to computer networking of major research facilities or the development of the nuclear magnetic resonance machine at the University of Alberta with its high level of research capability. We're presently studying with the University of Alberta the question of whether or not we should introduce positron emission tomography, PET scanning, a mechanism of identifying alteration in brain function and other organ function by very sophisticated means. I offer those as two examples of the interplay that's important between the provincial and national research



agencies.

On the other hand, the flow of dollars and cents to Alberta in support of the operating costs of medical research is increasing rapidly. Those are the kinds of funds that are required to pay technician salaries, to provide equipment and supplies. Last year our scholars attracted to the province \$3.86 million of those kinds of funds. That is a reflection of a small percentage of the total scholar pool, and it's certainly a small percentage of the total that we project over the next five years. The balance in funding flow is toward the province of Alberta.

The foundation has not put in place operating-grant funding programs. It has not done so for a number of reasons, one of which, of course, is that it's very difficult to mount sound, good quality evaluation programs for grants that range over such a remarkable distribution of effort. It is done with much greater quality on a national and international basis than it can be done on a provincial basis. It becomes very important to us that the scientists we fund and put in place compete in that national scene in order that you and I and the public have assurance that the kind of science that's accomplished within the province not only is first class but is maintained at first-class levels. It is only in this way, I believe, that the investment the public has made in medical research in Alberta can be maintained at high value levels over the long haul.

I'd like to conclude with a comment that flows from the result of the five years' experience. In addition to strengthening medical research in Alberta, we are acquiring very considerable clinical patient-oriented expertise. I've tried to demonstrate that in my opening comments. This kind of expertise will assist our medical community to ensure the application of new concepts and ideas to patient care as quickly as those ideas and concepts are demonstrated to be safe and helpful. Similarly, that strength in clinical research is contributing to the development of attitudes, the infrastructure, and the environment essential to safe, effective patient-based research for clinical trials, epidemiological studies, programs to evaluate the usefulness of new and old diagnostic and treatment programs -- so called cost/benefit studies. We are most anxious that the foundation position itself to support and assist these developments as they

become useful in the future.

Secondly, the quality of the new additions to Alberta's medical research ranks along with the development of the laboratories committed to multidisciplinary groups working on frontiers are clearly very powerful magnets to both the young and well trained and the experienced and adventuresome.

We are most anxious but confident that we will continue to attract first-class people by ensuring that stability of funding referred to by my chairman. Stability and continuity, as originally emphasized by Premier Lougheed, clearly remain the biggest element in the success we've experienced to date.

The experience gained in Alberta and elsewhere continues to compel our attention to the support of basic medical research -- research at the molecular and cellular level, albeit influenced by physician scientists concerned for patient care. This attack, we believe, remains the one most likely to result in clear-cut prevention of disease. In the process by which we approach that, the research productivity results in improved quality of care and life. While those elements are most important, clearly the hope of medical research in the late '80s and the early '90s remains prevention, tomorrow's equivalent of yesterday's introduction of penicillin, polio vaccine, or knowledge of the adverse effects of smoking.

I've selected but a number of examples of our progress over the past year, but I hope I've conveyed to you something of the enthusiasm and the commitment that is contained within Alberta's medical research community. It's moving to very first-class levels, and our hope is that it will move onward. I'd like to thank you, Mr. Chairman, for the opportunity.

MR. CHAIRMAN: Mr. Geddes and Dr. McLeod, thank you very much. We'll now move to questions from members of the committee. Five members have indicated their interest at this point: Mr. Hyland, Mr. Zip, Mrs. Cripps, Mr. Musgreave, and Mr. Thompson. We'll begin with Mr. Hyland. Perhaps the question might be directed through you, Mr. Geddes, and either you or Dr. McLeod will determine to respond.

MR. HYLAND: Mr. Chairman, my question is related to the recent heart transplant we read about that happened in this city. According to



Hansard, page 119 of our hearings last year, you talked about a native Albertan who took training elsewhere and came back and is doing some work on individual cells and management of drugs and chemicals. I'm not sure if that's the same person you talked about again this morning in your outline; maybe that's somebody else. I'm wondering if these two people who are heavily involved in this kind of operation had something to do with the calibre of people it attracts to do the surgery, to carry out something like the heart transplant that occurred here two weeks ago or whatever it was.

DR. McLEOD: The individual who was involved in the transplantation has had a relationship with the foundation, though not a prominent one. During his training at Stanford University in California we had many interactions with him. I think the direct answer to your question is that those kinds of programs which are patient-based, which are now of clinical benefit, and which are not seen as research endeavours can really only be accomplished in a safe and successful fashion in settings where there is an infrastructure that contains those other kinds of people. I indeed support the view that in the absence of a research infrastructure those kinds of program developments would be inadvisable. So I'd like to think that the research thrust in Alberta is a mechanism by which Albertans can gain access to those kinds of developments.

MR. HYLAND: I find it interesting that such a thing happened in Alberta. I think we read about it in the papers for two days and maybe two days at the most on television. It happens in the U.S.A. and we read about the person's progress daily in our papers and on our television or their television. I don't know what happened, but it seems to me there's something lacking when the same thing can happen here and it's worth only two days of response to let people know what's happening, and then it ends.

I would also like to thank you two gentlemen for copies of the newsletters and the information you have sent us, more so last year than even previously. I find most of those very interesting, and although they're tough to understand, it's interesting to read this material. I hope, as you outlined, that it's being widely circulated, whether in doctors' offices or

wherever these newsletters are being circulated. I for one wouldn't mind having a copy sent to my constituency office so that the people who come in can read this sort of information and really know what's going on and what this fund is doing for medical research in Alberta.

MR. GEDDES: That's a very important issue, as I said earlier, and we're very happy to expand our mailing lists and propagate our material in whatever way we can.

MR. HYLAND: Just a final comment, and I'm not sure if it can be answered. I have some very good friends who have a son who has a hole in his heart, and just a little under a year ago they spent a couple or three weeks in Toronto. Now, because things have changed — and maybe as Dr. McLeod said, it's because of the research that backs it up — I understand that the same operation that was to have been performed in Toronto will now be performed in Edmonton at the centre. It's just one step, I think, that we're accomplishing with this.

MR. ZIP: I am truly impressed with the rapidly expanding scope of the medical research foundation and the impact it's having on medical practice in Alberta. I have my contacts with the medical profession. I get frequent references to the impact and beneficial effect it's having on health care in this province. The foundation certainly needs to be complimented for this reason alone — the side benefits that are coming out of it.

I'm a bit concerned about the treatment of researchers. They're obviously the most valuable commodity we have in medical research. Of course, there's the ongoing problem that these people — who are highly skilled and knowledgeable and take years to acquire that skill and knowledge, with the extreme cost to both the public and the persons themselves of acquiring that knowledge — sometimes face very serious health risks in doing certain types of research. When you look at the rewards they get in private practice against the risks they face in medical research and also the much lower remuneration, what are you doing to overcome this problem?

MR. GEDDES: I don't think there's anything that can be done to overcome that. I think

we're just fortunate in society that there are men and women who will pursue research careers with the disadvantages they might face, particularly if they're physicians, against those engaged in clinical practice. There's really not a great deal that can be done by our foundation. Perhaps people who are driven to careers in research and science gain their own rewards through satisfaction in pursuing their careers. We try to be as supportive as we can to give them the kind of environment that will maximize the rewards they will get from pursuing their chosen careers.

If it comes down to matters of stipends for investigators, for example, that's pretty much a matter within the hands of the universities. I think our concern has to continue to be to provide them with the infrastructure, equipment, and right kind of environment to do their work and at the same time be grateful that there are men and women who will undertake careers in research. I talked earlier about the science fairs. It's only a small matter, but perhaps there's an area of investigation there, to continue to try to encourage young men and women to seek careers in medical research. We should perhaps always be alive to that possibility.

MR. ZIP: There's another question I'd like to ask regarding interfacing with medical research worldwide. I'm one of the sincere believers in no need to reinvent anything. To what extent are you developing this close contact, with an interface with worldwide medical research so that there's no duplication taking place?

DR. McLEOD: There are two ways of approaching what is a very good question. One approach is that we recognize that science being science, a certain degree of duplication is essential; it requires confirmation. So as long as the duplication is seen to be contributing to the strength of a new point of view, fine; we think that's a good idea. Of course, that is a limited perspective. What we try to do is to encourage communication in the scientific world as best we can on a local basis. Obviously, this is an immense problem of international stature, not one that is limited to a provincial perspective, but we take those steps that we think help at the provincial level. For instance, we provide an annual grant to each of the universities that have scholars

and active scientists that we fund. That allows two matters: it allows them to invite scientists with new findings and matters to contribute to come and visit a university in Alberta for a short but sufficient period of time that they can communicate and talk about their findings. Secondly, we ensure that the scientist in Alberta who has a worthy presentation has an opportunity to go to international and national meetings and present that information so that it reaches the largest possible forum. Thirdly, we have a conference fund, which currently spends approximately \$300,000 per year, which is used to create conferences within the province to which distinguished outsiders are attracted. So again it's a mechanism of creating communication.

The next level is that we are contributing quite significantly to the library resources of the province in medical areas to ensure as best we can that a reasonable amount of material is always available to the scientific community. With the help of the director of library services at the University of Calgary and the director of libraries at the University of Alberta, we are studying the possible role of facsimile arrangements with larger libraries elsewhere. We are ensuring that there is quick and easy access for the scientists to the National Library of Medicine in Washington through computer linkages.

I think that summarizes our position at present. It's a good question. I hope we're doing enough. With the size of the world and the numbers of scientists, I suspect it will never be perfect.

MR. ZIP: One more question, if I'm allowed, Mr. Chairman. With the amount of travelling that the people of Alberta do at the present time, not just for pleasure but the amount of travelling engineers do to foreign countries, for example, where they do projects and so forth and get exposed to various unknown diseases that we're not familiar with here in Alberta and come back with those diseases, to what extent are we directing our attention to this area to alleviate this problem? For example, the tropical diseases centre in Atlanta, Georgia, is a long way from Alberta.

DR. McLEOD: There are two things that have happened. One is the development of expertise within Alberta in the discipline of infectious

diseases. As a matter of fact, it is moving to quite advanced levels in both medical schools. We're hopeful that those people, with their linkage to a major infectious diseases unit at the University of Toronto and also to Atlanta, are aware of not only current diagnosis but current treatment programs. We have a number of people in training in infectious diseases who are in some of the better centres studying the kinds of diseases of current interest, including not only travel but life-style alteration.

MRS. CRIPPS: Mr. Chairman, first I'd just like to say that I really do support the Alberta Heritage Foundation for Medical Research and really appreciate the report we got, because I think it is so important to the future health of this province, Canada, and hopefully worldwide.

My questions are basically unrelated. The first is the development of the Alzheimer's clinical studies, which you indicated earlier. I understand that clinic has been established in Calgary specifically because of some of the advantages because of the Alberta Heritage Foundation for Medical Research. There are many conditions with similar symptoms, especially in aging. Would you see other clinical studies likely to take place because of the development of this clinic? Is that a major possibility?

DR. McLEOD: I think so, Mrs. Cripps. You're quite correct. The Alzheimer's clinic was established because, for a variety of reasons, neurosciences has developed rather quickly in Calgary. The neurophysiology group in Calgary is now probably the strongest in Canada. I think one could argue that in any other centre in Canada. It has expanded into the clinical sphere, as one anticipated when it was originally struck. It is moving in a number of different directions. It has a resource which is uncommon; namely, it has strength in the pathology of the nervous system. Pathology is again a threatened discipline in our country due to manpower deficiency, but Calgary happens to have acquired recent strength. That then acted as a magnet and allowed the interest of a very expert person from Johns Hopkins University to move into that unit, and that person has a very considerable background in Alzheimer's. In order that that person's research can flourish, it's important that there be patients in the vicinity, and the clinic is a mechanism of not

only providing services to patients but also acquiring observation opportunity for the scientific community. That whole thing came in that fashion, so you're quite correct.

With respect to the other facets of aging, I can see several areas now where there is that bolus of basic science strength that is now beginning to attract its next level. I would anticipate that in the bone disorders of aging, for instance, that will flourish at the University of Alberta not entirely but in part because of the work of this young man and the use of this sophisticated technology. I think there will be a number of developments that will impinge directly on aging problems in the next five years.

MRS. CRIPPS: I'd like to follow through with that, but I can't, with other areas I want to touch on.

When you talked about the technology transfer program, and I suppose you're talking in the long term about commercialization of such technology, has any process been put in place so that there is a return of any kind of dividend to the Alberta Heritage Foundation for Medical Research? Is that part of your development?

MR. GEDDES: Yes. Our application forms, which are in the final stages of completion and will be going out, provide that the foundation may require — that is to say, it's permissive; it won't be mandatory in each case — the repayment to the foundation of a multiple of the sums of money advanced by the foundation. Having said that, that's just the tip of the iceberg. An investigator who is housed within the university will perhaps have carried out his work at more than one university. It's more than likely that during his academic career he would have been housed in two, perhaps three, institutions. Grants will have been received from a number of external granting agencies: the Medical Research Council of Canada, the Red Cross. Significant operating funds will have been provided to that investigator from his home university. That investigator will likely have relationships with a number of colleagues who might claim some interest or ownership of the intellectual property that would be the subject of commercialization. So with that background, the amount of funding that our foundation would provide would be very, very modest

indeed. The grants that we are providing under these programs will help bridge the problems that university-based scientists have in commercialization. We expect the largest part of the risk to be assumed by people in the private business community.

The short answer to your question is: yes, we have made provision that there will be a return to us of a multiple of the amounts of money provided by us. That, in any event, will likely be small in the context of the entire undertaking that is going to be completed.

MRS. CRIPPS: My last question has to do with the new drugs you were talking about that allowed the heart operations to take place in Edmonton. In testing new drugs, are you having problems getting approval from the Canada food and drug commission for the testing, or are you only testing approved drugs? If you're not testing approved drugs, are you testing such things as the drug for cancer that some people go to Mexico for? Is that a possibility? I'm particularly interested in whether you're developing drugs and how you get around this Canada food and drug restriction.

DR. McLEOD: Let's see. How to approach that? There are people within the medical research community of Alberta who are developing new drugs. They're taking molecules and manipulating the setting of the molecule. They occur in the departments of chemistry, in the faculties of science, and pharmacology departments of medical schools. There are a number of people. So there is action at the level of the development of the new drug as a raw material.

Then there is a group of people who are using drugs in both cell and animal models in which they can contribute to the information pool on those new compounds, whether they're produced here or elsewhere, such that the food and drug people are in a better position to decide at what time in the development of a drug it can be moved into the human area.

The people I referred to earlier are dealing with humans, so they are limited to two categories of drugs: those that are approved for general use and those that are approved for experimental use only. I think Canada's ability to use "for experimental purposes only" drugs is, in fact, more to the advantage than is the case south of the border. Canadian approval, while

it's not easy and one wouldn't wish it to be easily obtained, is obtainable after a very rigorous examination of the drug. So there is the opportunity to test new drugs at a relatively early phase but not as early as would occur in many other parts of the world. Those other parts of the world are not the areas I think we would wish to emulate in any event.

I think that at the moment the system is a fairly healthy one. It is possible to get approval for most drugs that have had a reasonable examination. The reason I'm optimistic about Alberta in this area is the fact that within one unit, it's possible to take a drug through a molecular phase, through a cell phase, and through an organ evaluation phase before you confront the human setting. It's quite possible that Alberta can become a focus for a thorough evaluation of at least cardiac drugs at the present time and be less dependent upon a bit of information from here and a bit from there. So I think there is a mechanism that can make a real contribution.

MR. MUSGREAVE: I'd like to address my first question, Mr. Chairman, to Mr. Geddes. I think he will appreciate where I'm coming from.

You are conscious of the fact that some parts of the fund are not generating income like we had anticipated because of the economic recession we're coming out of and also because 16 percent, I think, of our current budget is being met by the earnings of the fund, which was formerly going into the fund, and we've reduced the capital input from 30 percent to 15 percent. From your background at the university, I'm sure you are also aware that there are requests for other foundations to be established similar to the medical foundation.

My question is: knowing the kinds of demands that are on the heritage fund, do you feel that we should be anticipating an increased funding of the foundation? Bearing that and the problem of surplus oil and OPEC's unstable nature in mind, should we look at expansion of the fund at this time, or should we wait until the international review has been completed before we make more substantial investments in the fund?

MR. GEDDES: I believe the process by which further amounts can be added to the fund will take some time. There's the process which ensues from this hearing today and your

recommendations that proceed. I imagine that the results of the International Board of Review will be very supportive of our case. I think it would not be part of the mandate of a blue-ribbon committee of scientists to be able to provide advice on the financial aspects. Rather, they will provide you with an evaluation of the programs, the adequacy of them, the appropriateness of them, and the results that have taken place. I am quite confident that the report will be encouraging and supportive and will encourage you to provide a recommendation that the endowment be supplemented. But that will take some time.

It's my understanding that the process we're engaged in this morning, even at best, might take as much as a year to result in recommendations going forward and perhaps even a longer time until the appropriate steps are taken to increase the amount of our endowment fund. That speaks only of the timing problem. We will take every step to ensure that the results from the International Board of Review come before you on a very timely basis. We think the two events might more or less coincide.

Speaking to the other problem that you alluded to, and I acknowledge it to be a very serious one, I can only say this: when this foundation was established, it was done after a great deal of deliberation. This was a step that needed to be undertaken in the interests of medical research in this province, and I don't think we can stop now. I think we have to see it through to the full maturing of the programs. I would argue very strenuously in that direction, that we must see the job through to its completion. After all, the results of this foundation have an impact now on the lives of all 2.4 million Albertans. It's not selective in any sense of favouring one citizen over another. It deals with the lives of all Albertans and indeed with the lives of future generations of Albertans yet unborn. I think it is of such over-riding importance that the legislators must view it from that point of view. I think they will and will be supportive of the need to increase our endowment.

MR. MUSGREAVE: Well, I hope you're right. I'm sorry; I admit it.

I want to congratulate you on your support of the science fairs. As Dr. McLeod knows, part of our struggle is to try to encourage our young

people to become involved in things of a scientific nature.

Mr. Geddes, I would like you, not Dr. McLeod, to answer the next question I have, because I know he would have difficulty answering this one. Perhaps you might too. Do you think extra billing by the medical profession in our province has helped your program in some ways or not?

MR. GEDDES: I'm not a physician . . .

MR. MUSGREAVE: That's why I asked you.

MR. GEDDES: . . . and I don't think I've been extra billed either. I don't think it has ever been a matter of any discussion at any of our deliberations. It has not been a matter that has concerned us to any extent. It's a matter that affects the medical profession and the public of Alberta, and it's not one that we see as having any direct linkage to our mission. It does not either detract from what we're doing or support it.

MR. MUSGREAVE: Could I ask one more, Mr. Chairman?

MR. CHAIRMAN: Certainly, if it's within the context of the debate.

MR. MUSGREAVE: Dr. McLeod, I'm glad to see that when you — the only concern I have is that I feel you're doing so many things in so many fields; I just hope you can keep it up.

You touched on my favorite subject right at the end, and that was life-style. You just mentioned smoking, and I notice that one of the people you have is working on better food. I think it was Clandinin. I'm sure there is enough scientific evidence to indicate that if people didn't smoke, we would have much better health in our society, and I'm sure Mr. Gogo would admit that if we didn't drink so much, there would be some of us with fewer problems. Has anybody come to you with a request to study how we could convince people to have a more satisfactory way of living that would reduce the need? Doctors love to have sick people. I shouldn't say that, but I mean that what you're doing is trying to find out why they're sick, and many of your colleagues agree that if we changed some of the things we do, so many of us wouldn't be so sick.

DR. McLEOD: We are participating in studies on obesity at the present time. If one asks why, we are doing that because a proposal was received that was carefully refereed. It was determined that there was a real basis, a sound basis, to try to support that particular approach to that particular problem. That would be one example along those lines that comes to mind.

A second one is a little more esoteric but terribly important. We were approached by the Department of Paediatrics of the University of Alberta and by the Glenrose hospital to consider supporting a person who, it was argued, was very capable of learning new ways of managing autistic children. That application was reviewed by experts in the field, and it was determined that this person indeed had a strong promise of showing new information and new ways, and that was a purely behavioural approach. That was funded and is in place today, as was noted in the Edmonton Journal recently.

The more direct answer to the question is: no, we haven't been approached by an applicant who would address "why I have quit smoking and some other people have not" or problems along those lines. The rule in the foundation is that the definition of medical research shall remain broad but that we will do our level best to fund those people and projects that show the greatest promise of a positive return and that we will be tough-minded about those applications that are deemed to be less promising and unlikely to produce a successful outcome. So I suppose the answer is that we are prepared, as one of my colleagues has said, to look at good science wherever it's medically related. We're not concerned whether it's hard or soft in that old classification, but we are concerned that it be first-class.

MR. CHAIRMAN: Mr. Thompson, I hope that you'll rally to the defence of some of us.

MR. THOMPSON: That wasn't my question.

Mr. Chairman, I am delighted to have these gentlemen come today and meet with the committee, not only to inform us but possibly to enhance public awareness of what is going on over there. I think you are really to be commended for taking the time to do that.

I hope to set a trend here and ask only one question, but I doubt if that will be a trend. Anyway, my point is this. I was on a select

committee for workers' compensation last year, and we toured across Canada. There are about 2,000 new chemicals being interjected into the industrial scene every year. I feel that out there hanging in a black cloud over us are some real problems in industrial disease. Has there been any attempt, or have you people looked into doing any research in industrial disease itself and how it affects the workers in the plants, et cetera?

DR. McLEOD: The Scientific Advisory Council of the foundation, supporting the concept of good science wherever it is, has encouraged me and others related to the foundation to in turn encourage and try to stimulate interest in the scientific community in a number of facets, one of which is epidemiology, which does relate fairly closely in a broader way to the question and to the kinds of studies you mentioned. At the present time I think our efforts are beginning to bear some fruit. I referred to the establishment of Dr. Malcolm Paterson, with his interest in environment, heredity, and cancer. Obviously, with the current knowledge of the dangers of environmental chemicals, the need to try to determine whether there are at-risk populations who need extra protection and so forth is intimately tied up in that project. We are working with a scientist at the University of Alberta whose interests bear directly upon occupational medicine, and we are working to try to assist him in establishing his programs.

MR. R. SPEAKER: Mr. Chairman, could I just ask a supplementary seeing as Mr. Thompson isn't going to ask a supplementary on his own question. It relates to agricultural chemicals. Is Dr. Paterson working in that area as well, on the effects of agricultural chemicals in terms of possible cancer-causing agents?

DR. McLEOD: Mr. Speaker, Dr. Paterson's own personal work is directed to the hereditary component, to try to determine ways and means by which the individual may be susceptible to external chemicals, one of which would obviously be the agricultural community. But I anticipate that his group, which we hope will expand over the next five years, will include those people who will begin to look at it from the other side also. At the present time I would say -- I can't speak for the whole of the medical research community of Alberta, obviously, but

those which we are currently funding -- that we are just in the initial stages of that approach.

MR. GURNETT: I want to thank both of you for a lot of interesting information. The first question I would like to ask is a fairly general one, because this is my first chance to hear about the foundation in a little detail. I want to preface it by commending the obvious commitment that both of you have to the foundation and what it's going at. I think it's very impressive to see that you really believe in what's happening. I wonder if you would, in a general or global way, look at the work over the past year and over the whole history of the foundation and share what you see as the thing you're proudest of or what you think its greatest strength is and conversely what you see as the area you have the greatest concern about or where you see the potential greatest weakness or area that needs more attention. Just let me get a more generalized view of how you evaluate the program than we've had in talking about some of the specific items up till now.

MR. GEDDES: I think one of the most rewarding things for me has been the relationships we've been able to establish with the Alberta scientific community. I think one has to be on the receiving end of these experiences to really understand the intensity of them. We're really proxies, I suppose, for the Legislature and the people of Alberta in the positive feedback we get from the Alberta scientific community. These are dedicated, hardworking people who've devoted a life to a very important cause. To be the recipients of those very strong feelings that come out of the university about this important work is very encouraging. For me and the other trustees I think that has perhaps been the most important thing for us to experience.

We also are very appreciative of the statutory basis of our operations, the very high degree of freedom and independence that has been entrusted to us to administer the affairs of the foundation in co-operation with the universities. It has been a very rewarding experience to have been entrusted with that degree of independence to act. I think it has made it possible for us to act very expeditiously and in ways that other granting bodies can't perform.

Having said that, we appreciate that

independence, but I think it carries with it a responsibility on our part which is very much in our minds all the time. Having been given that amount of freedom to expend very significant amounts of public funds brings with it a very intense feeling of responsibility. So I think those two matters would be those which most of my fellow trustees would relate to.

On the negative side, I can only express perhaps a personal feeling of restlessness. There are so many challenges out there to get on with that I find it difficult to believe that five years have elapsed and we're into our sixth year. As I said, there are just so many human problems that come forward. Perhaps disease-specific complaints: why isn't more being done about this or that? It's difficult to translate to the layperson -- indeed, we're laypeople ourselves but perhaps have a degree of understanding and knowledge of these problems that others don't have an opportunity to possess -- on behalf of the scientific community the important work that's being done in basic medicine directed toward the cure of specific ailments. There's a level of frustration from time to time in trying, as laypeople, to translate to our fellow citizens the important mission of basic research and the way in which that ultimately, in all our hopes and expectations, will lead to the cure and control of disease.

Maybe Dr. McLeod has some others.

DR. McLEOD: I'd love to look at it. I've watched the trustees. I can appreciate the reasons for Mr. Geddes' comments. I think they're well put. Your question is a very good one. As someone who has laboured in the medical academic practising community of Alberta since 1957, I was amongst those who could not understand why Alberta, and the western provinces largely, had such limited resource in medical research and hence in its impact on the education of the future physician or health professional of any sort. So the thing that has given me the most remarkable shot, I suppose, is the fact that there are so many very bright young people -- some of the brightest young people I can recall entering the area have come in under this program.

With respect to the concerns, I think Mr. Geddes has addressed it. Whatever it is that the economic future of Alberta holds, I fervently hope it continues to be possible for us



to look into the late 1990s, at least, with a solid structure that says to the outside scientific community that this is a great place to be, because I think from that environment comes the sorts of things that you and I as individuals might wish to see happen.

MR. GURNETT: Particularly in relation to the comments both of you have made about the funding aspect of it and the advantages of the independence and so on, could I ask for you to comment a little more on how you analyze the system that the foundation exists under, with the endowment and having the revenue from the endowment, as compared, for example, to a system where each year some group of people through the Hospitals and Medical Care department, I guess, would try to sell the legislators on how much money should be committed to research in that given year.

MR. GEDDES: That's a very important question. I can say without any hesitation that the endowment system is the one which has given us the great strength to proceed with the confidence we've had in the past five years and in the five years ahead. It is much preferable. Certainly an annual allotment would not be appropriate, but even if allotments were made on periodic bases, I think that again would not be nearly as satisfactory as the system we operate under. To attract good people to Alberta means that we have to deal with them with the utmost confidence. We have to be able to say to them that our funding is in place. We can attract good people and keep good people here only on that basis. So it's very, very important to maintain that sense of confidence. That can only come if we ourselves have the level of confidence that comes from knowing that those endowment funds can be counted upon, that we can count on the income coming from those, and that we can project into the future with the endowment we have.

DR. McLEOD: I think if one were contemplating a program which was limited to the support of students in research, they're there for two or three years and they're off. If one contemplated operating grant programs, as long as you're talking about four or five years at a block, the mechanism becomes arguable on other grounds. For instance, the experience elsewhere: the push and pull of society moves

research from profitable areas to less profitable areas, so that becomes the basis of the argument against annual sorts of discussions.

I'd like to emphasize the point Mr. Geddes raised. When you're talking about recruiting some 200 people that are first-class, they look at the system and say: what is my probability of career option? So whatever the system is, it must provide that level of assurance. The thing that's fascinating about it is while we don't have tenure — we don't have indefinite assurance; we only have five-year, renewable-on-evaluation opportunities — nevertheless because there's an endowment, it becomes very persuasive to the person who sits in another major centre who we hope to attract to Alberta.

MR. GEDDES: Let me just follow up, Mr. Gurnett, by saying that we meet each year with our scholars who are the most senior people. I can tell you that at our meetings with them — we have an opportunity for a dinner meeting and a lengthy discussion following — the most important matter to them relates to their personal financial future, the security that can be given to them. When I make, as I always do, some remarks about our endowment fund and our projections for the future and the confidence with which I can say to them that our projections reveal that we have the income for the ensuing period of time to fund all the stipends and the equipment grants, I can tell you that that is the most important consideration in the minds of these scientists who, in line with that earlier question given about the sacrifices they make, are generally younger men and women who are on the way up. Financial considerations have to play a big role in their lives.

MR. GURNETT: I appreciate your experience with that. As was alluded to earlier, some of us are very concerned that, for example, in agriculture it's time to look very seriously at that approach. It's interesting to hear people who have dealt with that approach compared to the more year-by-year basis and hear how you look at it from your perspective. I appreciate your comments and the chance to translate them, because I suspect people doing research in other areas have much the same kinds of feelings.

The other question I'd like to direct is about some of the comments you made, Dr.

McLeod, about frontiers. It sounded like you had a particular interest in the edges of research and the directions it might go. Within your operations in the foundation I wonder how and who evaluates priority areas to give particular consideration to. One specific example I'm thinking of in these times is that there has been an ongoing interest in the province in the idea of a northern Alberta children's hospital. I wonder if political decisions are made in relation to a children's hospital in northern Alberta, if there is a relationship between a higher priority being placed, for example, on pediatric research, if there are connections in those kinds of ways, or otherwise how those priority areas to support might be identified and supported.

DR. McLEOD: We use the external scientific world to a great extent in the evaluation of all the applications that come to us, whether they are for an individual applicant and so on. The Scientific Advisory Council, made up of some four senior Alberta scientists and seven or eight external people from the United States, eastern Canada, and the United Kingdom, are the individuals who attempt to advise us on the major policies, the programs, how we're operating, and whether we are operating within good terms.

The fact that we deal with medical research allows us to not address a number of issues which become political, social issues within the province, such as children's hospitals and the development of new facilities for patient care, because the medical research component does its best to fit in to the clinical needs of the new developments in science. So it really is a matter of the scientist who we have determined, to the best of our ability, is a first-class scientist. It becomes their problem to try to move into those areas where they can be most productive.

Having said that, the issue of frontiers is rather the question of whether or not you have a cadre of good people who are working where there is common knowledge in the scientific community that there is opportunity for breakthrough. For instance, there are areas right now in neurobiology, in the development of the central nervous system, where because of recent advances it's possible to push the frontier much further on. The use of biotechnology, the debates in immunology, and

the discovery of the immune system as it relates to cancer, AIDS, and a whole range of interests are the kinds of priority areas that are important to the development of medical research.

It's in that context that the external advisers become most important to us. The university communities have their integrity. They are staffed by able people, so the interaction is between the nuclei of people at the university and our Scientific Advisory Council, where we discuss these options for these new thrusts. Our group says, "Well, that sounds like a good idea, but perhaps you might modify it in the following fashion" and so forth. That's the level of major interaction.

MR. COOK: Mr. Chairman, I'm very excited to hear the report of both gentlemen. What really excites me is that I can now appreciate that we're only working at one-third the capacity you're projecting we'll be operating at in five years' time. If you can consider the remarkable strides being made to date and then consider that that will all be multiplied by a factor of three, we really have assembled a first-rate team and building.

I appreciate that your primary purpose here today is the request for \$150 million. I can assure you -- and I think I can speak on behalf of many of my colleagues here -- that that will be received with warmth and you should get a favourable response. I know that . . .

MR. GOGO: Whenever you speak for me I get in trouble.

MR. COOK: My colleague from Lethbridge West is a man of intelligence and reason, and I'm sure he will be supporting the resolution enthusiastically.

MR. GOGO: You should have said that the first time.

MR. COOK: Mr. Chairman, I wonder if I could ask a couple of quick questions. When will the buildings, the lab space that you're projecting is needed to accommodate the new scholars you're proposing, be concluded? Secondly, is \$150 million the amount that you're really requesting, or is it a request basically for sufficient increase in the endowment funds so that regardless of what inflation generates in

interest rates, you'll have \$52 million more or less in real dollars, regardless of what those dollars' purchasing power is in five years?

MR. GEDDES: Let me deal with that latter question first. It is really that amount of capital which will produce an income in the range of \$51 million to \$52 million. Since that is rather nebulous, we have indicated that the sum of \$150 million would, in our judgment, if brought into play within the next year or two, provide the fund managers with an opportunity to invest in longer term financial instruments which will provide that level of return. So the answer really is in the way you've expressed it: we're requesting that amount of endowment fund that will produce the level of income suggested. But to give it more concrete expression, we've chosen to provide a precise sum. That's the first question.

On the timetable for the two buildings, clearly the one in Calgary will be completed first, but our judgment is that it would be 1988 or 1989 before the buildings will be completed.

MR. COOK: The second question, Mr. Chairman, relates to biotechnology, a forefront area. Are we starting to assemble a critical mass? I know the Alberta Research Council has acquired a team of researchers, and I know they would be helped if there were other researchers, perhaps funded by another agency, to have a collegial relationship with. Is the foundation trying to identify some forefront areas like that? I guess I'm phrasing it this way: up until now I think you've largely reacted on the basis of proposals received from researchers. Are you also considering commissioning work, if you like, so that you can identify areas you'd like to be in? If we don't have the personnel or the quality people here now who will generate the proposals, can you go out and recruit those people and bring them here? Is that a strategy you're embarking on?

MR. GEDDES: The answer is that it would be unlikely that we would commission studies to identify areas of potential activity. We have a very important, ongoing relationship with the deans and senior officials of the two medical schools. Within the last year both deans have met with us to describe their game plans, if I may use that word, for the future. The process has been a very supportive one with good

dialogue between ourselves and the two medical schools. We understand their priorities and we're in agreement with them. I suppose that through our funding mechanisms there would be the opportunity to make choices if it came down to that. As to whether or not we would ever mount studies to specifically pinpoint areas of research, the answer is no.

DR. McLEOD: In fact, the interplay allows a joint venture, if you wish, to emerge. The example that came to mind as Mr. Geddes spoke is the presentations from one of the medical schools that had a wide range of opportunity. Our Scientific Advisory Council, by dialogue and discussion, obviously pinpointed the frontier areas that need exploitation and focussed the minds of the members of the medical schools upon those areas. It wasn't a necessary step because those medical school administrators already knew that those were the frontiers. It's very clearly becoming a joint venture, I think a successful one.

MR. COOK: A final question, Mr. Chairman. You discussed the technology transfer program you're developing. Is there any priority given to trying to get Alberta entrepreneurs to participate in that program as opposed to an entrepreneur perhaps based in another province or another jurisdiction? Have you had a chance to look at the white paper section on science policy and technology transfer, and can you make any suggestions to us that might enhance the overall environment, not only of your endeavours but creating an environment where those kinds of people are encouraged to develop here in the province?

MR. GEDDES: Several questions are involved there. First of all, we spent a great deal of time last summer — in fact, two of our meetings were largely taken up with an examination of those sections of the white paper that had to do with technology transfer. At that time we brought in some outside experts to be part of our deliberations to gain the widest possible exposure from the outside in the course of our deliberations. We studied the white paper recommendations very, very carefully.

In the last six months we've had a number of meetings with representatives of major Alberta-based venture capital funds, so I take it

that would be the community you refer to. We believe that is the community that is going to have to carry the mail from here on. We've had nothing but the most enthusiastic support from that community, I might say. In fact, just in the discussions in the last 48 hours with Dr. McLeod, I have said to him that in the course of examining applications for our technology transfer program, it suggests to me that we might fast-track the whole process by having members of this community involved right at the outset, right at the point of application, so if there are any difficulties that we haven't identified, we can deal with them immediately and not wait for the entire process to unfold.

We think we're going to have some important results to report to you. We believe very strongly that we're going to be able to identify the difficulties that are faced in the technology transfer process. We think we're going to see them firsthand within a few months. We're going to do everything we can to overcome those difficulties and bring about the state of affairs that we want to achieve in this province, of seeing the results of university-based research moved out into a commercial mode for the benefit of the people of Alberta. Perhaps at our next appearance that might be an important subject for us to discuss with you.

In that way, we believe the results of this process should be made widely known, and we intend to do that. We intend that the technology transfer officers at the two universities with medical schools understand what these problems are, that the venture capital community understands, and that the business community generally understands what these problems are. Of course, in that process the legislators should be aware — those who form opinions at such levels as the Department of Economic Development of the Alberta government, with whom, I might add, we have also been in very close contact over the last 12 months.

MR. R. SPEAKER: Mr. Chairman, this morning as I observe things, first of all, we're reviewing where the endowment fund is and where the heritage foundation is at the present time, and I appreciate that. Secondly, we look at the decision as to whether or not we supplement the endowment fund by \$150 million. I'd like to raise questions with regard to the second matter and comment on the first. I know from

my own experience and certainly my observations here that when we try to evaluate what happens in research in concrete terms, it's often difficult. I really appreciate the points that were made aiming at that objective this morning in trying to define for us as a committee what has happened in concrete terms. I'd like to thank you for that.

On the other hand, though, I'd like to say secondly that we as legislators certainly have to have faith that good things are going to come out of the research. That's certainly there. As a member of the Legislature, I know that's the way I look at the fund. We must have faith that good things will come out of research. One thing may happen that could affect not only Alberta but certainly the whole world community. On that basis I'm very supportive of the presentation this morning.

I would like to know a little bit more about the \$150 million in terms of the timing. As a committee would we be expected to make a recommendation to the Legislature that the \$150 million be made available in 1986, or are we looking at a point in time further down the road?

MR. GEDDES: Mr. Speaker, if the funds were in place in the '89-90 financial year of the foundation, which is also the government financial year, since we're in the '85-86 year now, they would be in place in the third year from the year in which we are now operating.

MR. R. SPEAKER: In terms of, let's say, the \$500 million in the endowment fund at that point in time, is that projected to expand the capabilities of the endowment fund? Is it expected to maintain programs at that point in time? What would be the objective?

MR. GEDDES: It is more or less intended to maintain programs at a level state. In human affairs, a level state is very difficult to achieve at any time. It perhaps suggests a lack of progress if we stay at a level state. I wouldn't wish the impression to be left with you that in the decade beyond '89-90 we'd simply continue to do the same thing. Rather, I think that as circumstances change, the foundation's programs would have to be modified and changed in the light of circumstances as they're seen toward the end of this decade. There may be a change in the emphasis and direction of the

funding programs, and that remains for those who are administering the programs at that time to judge in co-operation with the universities. As I have said, there appears to us to be, in our planning documents, some sort of levelling off taking place toward the end of the decade.

Dr. McLeod, anything you'd like to add to that?

DR. McLEOD: Yes, I think that's a fair statement, Mr. Speaker. That would maintain approximately 200 positions in some flexible state because there would be people coming off, coming in, coming in junior, leaving senior, and so forth. It would leave a plateau of 200 positions. It would also allow a continuation of the quite excellent levels of studentship and fellowship support. It would then leave those other programs we have, which are, of course, the lesser amount of our total expenditures, with a degree of flexibility. I foresee that the growth in clinical expertise is going to allow Alberta to become a real centre in clinical trials, cost/benefit studies, and so forth. It would then leave those other programs we have, which are, of course, the lesser amount of our total expenditures, with a degree of flexibility. I foresee that the growth in clinical expertise is going to allow Alberta to become a real centre in clinical trials, cost/benefit studies, and so forth. I can see that coming, and that would also allow a modest but nevertheless flexible position to deal with that advent.

MR. R. SPEAKER: I know that sometimes we don't like to raise the other consequence, but let's say the Legislature did not provide the extra \$150 million in 1989. What are the implications of that? I think we as a committee should understand that as well. That's sort of the negative side. I hate to raise that, but I think we should be aware of it.

MR. GEDDES: I suppose the first consequence might be some perception of lack of support at the legislative level, as seen by the scientific community, because the first result would be a significant reordering of the foundation's programs and a scaling back. The number of scientists in place would have to be scaled back and the programs reduced. I think it's something of concern to all of us as Canadians

that in our neighbouring province to the west there has been a very detrimental result from cutbacks in funding to postsecondary institutions. Those effects are seen in lack of morale, difficulties in recruiting new people, and just a general loss of forward thrust that has taken place. It's a matter of great concern in academic circles in that province. I think that same kind of effect could be predicted here.

I don't wish to overstate the case. It is conceded that the amount of endowment funds provided in Alberta is a distinctive situation in Canada. It's not found anywhere else. This kind of initiative was not mounted by any other province. There's still a great deal of satisfaction on the part of universities that the legislators did take this initiative some years ago, and clearly all that goodwill would not be dissipated overnight. But there would be that perception of lack of support, lack of confidence in the future, and concern that perhaps with inflation and so forth the base might be further eroded in the years ahead.

MR. R. SPEAKER: In another area that's somewhat but not directly related, there was a comment made that scholars have brought into Alberta some \$3.8 million. Is that money from private drug companies? Where does that support come from?

MR. GEDDES: Mr. Speaker, most of it is from the Medical Research Council of Canada, with a proportion from the National Cancer Institute, which is a reflection of the activities of the Canadian Cancer Society and its public collections. It also has some from the muscular dystrophy foundation, smaller amounts from cystic fibrosis, and a package from the Canadian ileitis foundation. So it's that collection of funding. Some of it is also from the heritage applied cancer trust fund.

MR. CHAIRMAN: Members of the committee, we have now passed the scheduled time for this committee meeting. There are still two members, however, who are on my list. Would it meet with the approval of the committee and gentlemen to extend the time frame?

HON. MEMBERS: Agreed.

MR. CHAIRMAN: Then we'll go to Mr.

Musgreave and Mr. Gurnett.

MR. MUSGREAVE: My questions are very quick but again, unfortunately, on money. Mr. Geddes, I think the intent of the foundation originally was that you would not get involved in bricks and mortar, and now you are in it. I cautioned the Provincial Treasurer yesterday that we shouldn't be making any recommendations involving spending of money that we're not so sure we're going to have. But I would like to suggest that if we funded these two labs that are now in process, the plus or minus \$60 million, that would reinforce the position of the Legislature as to the integrity of the fund, and it would certainly help you. Obviously, it isn't \$150 million, but it would make a substantial sort of commitment and may help in that regard.

The other concern I have, and Dr. McLeod may remember this, is that about 18 months ago Dr. Larkin Kerwin, Dr. Berlinguet, and Dr. Smith of the Science Council of Canada visited our province. One of the things I think Dr. Kerwin said was that we had not been getting as much support for summer students through his programs because they hadn't been applying, which kind of surprised us at the time. Dr. McLeod mentioned the fact that there was a certain backing off of national funding on some programs, and perhaps we should monitor that because, as Dr. McLeod knows, there are other areas where the federal government is backing off in its contribution to Alberta. I think it's not fair and it's not equitable. I don't think we should be carrying the burden entirely. I'm glad you're doing what you're doing, but I don't think we should be unaware of what it's costing us as a province.

MR. GEDDES: I think we should monitor that, and the people at our Alberta universities ought to monitor it most carefully. I agree completely with what you've said about that.

As far as having funding for the buildings, we would be pleased to have those initiatives taken. As we indicated in the past, we took the steps of providing institutional grants only with, I might say, reluctance but at the same time with complete conviction that it was a necessary step critical to the success of our programs. If we didn't have this kind of support, we would not be able to enter into the types of clinical research activities that are so

desperately important to the fulfillment of our objectives.

MR. GURNETT: Mr. Chairman, let me quickly ask one more money-related question just to continue the sequence we've had here. Even though I know the report will be coming soon, could you give me some ballpark figure of what proportion of your revenue in, say, the last year, was used for the administrative side, for offices?

MR. GEDDES: The amount of administrative expense related to total was 3.78 percent in the year concluded March 31, 1985, which compares to 4.42 percent in the preceding year. Included in those expenditures are significant amounts for the evaluation work done by our scientific advisory committee. There are very significant amounts included for those purposes. I think the figure of 3.78 is one we're content with. Because of the scale of our operations, it is considerably less than similar granting agencies.

MR. GURNETT: It's a very good ballpark figure too.

Let me finish with one other question that's a little more general. I'm thinking back to some of the comments that were made — I think, Dr. McLeod, by you — about your looking for areas where there's a fairly good chance that there's going to be some good progress made. I'm wondering how the people who evaluate projects and proposals distinguish and whether there's any danger that the foundation ends up favouring sort of high-profile, kind of exciting-looking things. We've heard some talk about it happening at different places in the United States in connection with artificial hearts, for example. How do you tread a line between wanting not to waste money on projects that, realistically, probably don't have much chance but, on the other hand, not just starting to be headline hunters?

DR. McLEOD: I think that is accomplished by this process of external review, not only by the members of the council. Everything we do is farmed out not just to peer review, not just the expert within the narrow discipline, but also to a broader based group of reputable and well-recognized scientists. When I'm talking about frontiers, in fact, it is sometimes difficult to sell the frontiers from the point of view that

public visibility is not necessarily easily attracted. So I don't think the risk is in that regard. I think our major risks are the overall consistent quality of the whole review process. I don't think we're going to be into highly visible areas in the context alluded to by your question, but rather: can we consistently maintain, year in and year out, a first-class review process that avoids that very problem?

The frontiers I'm talking about are frontiers that are known within the scientific community, where there has been technological breakthrough and the next step is so evident that if you can put a very well-trained person on it, you know it's going to go.

MR. GURNETT: I think I understood in the earlier context. I guess that question came more from the perspective of thinking, for example, about the priority you put on public communications and making sure people understand. I wonder whether there is an element within the decisions you have to make of saying, "Well, after all, this is basically money that came from a public source, and we need to be able to look like we've done a good job with it" and whether that would influence decisions.

DR. McLEOD: I believe this is the benefit of the establishment of the foundation. I look upon our public relations affairs as an attempt to ensure that Alberta people are aware of the processes of medical research, the long-term benefits that are likely, the time lag that's required, and so forth. I think that is one of the benefits of the foundation structure.

MR. CHAIRMAN: Mr. Geddes and Dr. McLeod, on behalf of all members of the committee, I think I'm very safe in saying that this morning's discussion with respect to the success of the Alberta Heritage Foundation for Medical Research was very fruitful once again. I thank both you gentlemen for the co-operation in arranging for this meeting and for the frank responses that you've given this morning. If at any time you feel there's a need to discuss further matters with members of the committee, kindly convey such a need through me, and I'll pass it on to committee members. Can I just wish both of you the very best of success in the upcoming year.

MR. GEDDES: Thank you very much, sir, and thank you for giving us the opportunity to appear before you this morning.

MR. CHAIRMAN: Thank you very much.

Committee members, the meeting that we had originally scheduled for Monday will no longer take place as per the discussion we had yesterday.

There is a normal administrative detail that usually finds itself as the last item on the agenda. So if you wish to participate in that decision-making, kindly come up at the conclusion of this meeting. I really am disappointed that each year I have to come to you on hands and knees and beg you to consider the efforts I have made on your behalf in setting up the annual schedule. But there are three days in which some efforts were conveyed, and I certainly hope committee members will want to participate in the recognition of that once again. So I have to ask you for your support for three days of efforts prior to the initiation of this summer's meetings beginning on Tuesday of this week. Is there such a motion?

MR. COOK: So moved.

MR. CHAIRMAN: Is it unanimous?

HON. MEMBERS: Agreed.

MR. CHAIRMAN: Thank you very much. Well, let's adjourn today, and we'll reconvene on Tuesday morning at ten.

MR. GOGO: Do we adjourn the meeting arbitrarily, or do you want a motion?

MR. CHAIRMAN: Well, we've never really been too uptight about formality.

MR. GOGO: I had a point of order I wanted to raise with you, Chairman.

MR. CHAIRMAN: Okay.

MR. GOGO: Has consideration been given to perhaps scheduling an on-site visit to the \$300 million foundation?

MR. CHAIRMAN: That has not been done yet, but we would certainly look forward to such a



thing.

MR. GOGO: I think Dr. McLeod would probably welcome it, and I'd be interested if the Chair would consider it.

MR. CHAIRMAN: We can certainly arrange it. Thank you.

[The committee adjourned at 12:12 p.m.]

