

# Government and Industry

(Remarks by the Honourable James A. C. Auld, Ontario Minister of Natural Resources, at the Dinner Meeting of the Ninth Annual Conference of the Canadian Council on Surveying and Mapping held at the Inn-on-the-Park Hotel in Toronto on Wednesday, September 24, 1980 at 8:00 p.m.)

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refought more vividly and more heroically.

John has a penchant for tilting at windmills. During the postal strike he drew up a petition and set up signs in Peterborough Square, obtaining thousands of signatures, later dropped into the hands of Secretary of State Hugh Faulkner. He printed four hundred copies of a brief on **Strikes Against Essential Services** and sent copies to politicians in every province, getting replies from a surprising number of prominent people.

He is also keenly interested in Canadian Unity, and was deeply involved in the "People to People Petition" which collected over a million signatures from all parts of Canada. He and others presented that expression of good will and hope for unity to the people of Quebec just prior to referendum time in May of 1980.

He is a Trustee of Trinity United Church in Peterborough, and is involved with the Boat People project as Chairman of the church Refugee Committee, which brought over a family of seven in February 1980. This year he is in charge of the 75th Anniversary celebrations of Peterborough Rotary Club. He cooks his own meals, but modestly says he has not yet achieved gourmet cooking status.

He leads an active life, involving canoe trips, and cross country skiing. He won a bronze medallion in the Canadian Ski Marathon and a silver and bronze one from the Kawartha Nordic Ski Club of which he is a founding director. In July of 1980 he spent three days working as a deck hand on a "fish packer" plying the waters of B.C.'s coast and in September he is off to the Swiss border on a mountain hiking expedition.

Aside from John Pierce's excellent reputation as a surveyor, his widely-ranging interests and friendly manner make him a popular man, in demand as a speaker and as a chairman who gets things done. ●

Council members and guests, I am delighted that this year it is Ontario's turn to play host to the Annual Conference of the Canadian Council on Surveying and Mapping. I understand that, strictly speaking, this is the first time we have had that honour. The last occasion when Ontario entertained a meeting like this, back in 1969, the present Council had not been formed. The gathering was simply called the Annual Conference of Federal/Provincial Survey Officers.

More realistically, however, you are the contemporary expression of a continuous and distinguished tradition that goes back many years, and you continue to make an essential contribution to the modern world. So whatever name or alias you take, you will always be on our "Wanted" list - and always welcome in our province. I extend that welcome tonight in my official capacity as Minister of Natural Resources in this Province, and on behalf of two other participating Ontario Ministries, Transportation and Communications, and Consumer and Commercial Relations. I also bring a personal greeting from our Premier, the Hon. William G. Davis.

I do not propose to talk to you this evening on any of the technical aspects of your professions. You are doing that all day with each other, and I am sure you are learning more that way than you could from me.

Instead, I have chosen a topic that has a direct connection with Surveying and Mapping, but has much wider application as well. I would like to discuss some aspects of the partnership between Government and Industry in the development of technology in Canada and in Ontario, in particular.

One facet of this partnership is a process known as "Technology Transfer". This phrase is becoming the latest buzz-word, the fashionable catch phrase in certain levels of Government and Industry. And there seem to be as many definitions of "Technology Transfer" as there are people using the phrase.

For the purposes of my remarks tonight, let me give you the definition I am using. "Technology" is generally understood to signify advanced instrumentation, or "Hardware", but that is only one aspect of it. It also includes such associated "Software" as blueprints, programming, film stock, operating manuals and the like, and extends to such intangibles as methods, processes, expertise and ideas.

The "Transfer" part of Technology Transfer occurs when the knowledge required to apply a particular technology is passed from the source of the technology to others who propose to put it to practical use. The essence of transfer is that not only a new service or product is acquired, but that a new ability is attained.

That is Technology Transfer in the abstract. How does it apply to us in practical, work-a-day terms? Here in Canada, a number of large and medium sized manufacturers have facilities for original research and development on new hardware. In the wider sense of technology, however, there is a larger number of companies and individuals offering special services and professional expertise.

Nevertheless, in our country by far the largest concentration of research and development capability for high technology is in Federal and Provincial research centres, and in Government-supported University and Hospital research units. That is true in many countries. Even in the United States, where the giants of private industry have large research and development facilities, more than two-thirds of all scientific and technological activity is undertaken by the Federal Government or supported by Federal money. In Canada, there is less capacity for the development of high technology because of the dependency of many of our industries on their foreign parents. Therefore, a greater proportion of research and development is done in or by the Government.

The bottom line is that, as Governments at both the Federal and Provincial levels possess by far the greatest capacity for developing advanced technologies, they must take primary responsibility for Technology Transfer.

Over the years, it has been both natural and sensible for Government to develop its own in-house research and development bodies. It has also been natural, although perhaps not quite so sensible, for individual sections of Government to guard their acquired expertise somewhat jealously. This attitude came from a sincere, and often well-founded belief that the same work could not be performed at that time as successfully or economically elsewhere. The result, however, has been the development of centres of technology isolated, to a certain extent, from the practical areas of endeavour where their results could be applied.

Situations may still occur today in which security considerations demand that technological developments must be kept under close wraps until those considerations no longer apply. We can also

expect to encounter unusual challenges urgent enough to require close study and experiment before the likeliest approach to their solution can be seen. There are good reasons why such work will always be kept within a close circle of as small a radius as is practicable. Apart from exceptions of that kind, however, Government research bodies have begun concerted efforts, particularly within the last few years, to make the results and ongoing progress of their work accessible to the private sector.

It is never easy to introduce complex and specialized techniques into operations with firmly entrenched traditional methods. On the part of potential users, there must be an openness to new ideas and a willingness to expend the effort to learn. The specialists themselves must understand the conceptual difficulties which new users encounter, and must appreciate the overall impact of the new technology.

Technology Transfer, therefore, can only succeed in an atmosphere of co-operation of partnership in the exciting process of turning ideas into reality. We must keep in mind that Technology Transfer can be achieved only by a conscious effort to get Government's own technology out to people who can commercialize it.

Technology is of no economic value in itself. Technology only pays off in dollars when it is transformed into goods and services.

Some remarkable successes in Technology Transfer are being achieved. A study issued last month by the Federal Ministry of State for Science and Technology and the Federal Department of Communications describes eight innovations developed by D.O.C.'s Communications Research Centre, all of which proved to have a commercial potential.

The most striking is the Telidon System which may well revolutionize the world of communications. Telidon transforms an ordinary television set into an information service displaying information and diagrams on a virtually unlimited number of subjects selected at will. By pushing a button, the viewer can obtain more detail on any particular item, or even place an order for consumer products. Telidon is not the only system developed to fulfill that kind of function in the offices and homes of the future, but its special features have caused several Federal agencies in Washington to choose it for a field test in preference to rival systems developed in England and France.

This is something to be proud of. It is particularly significant as an example of a product with huge commercial

potential that would never have existed without the successful transfer of Technology from a Government laboratory to a private enterprise. I am also proud to report that my own Ministry is making some contributions to Technology Transfer. One example is the work of the Ontario Centre for Remote Sensing, which was established within our Surveys and Mapping Branch in 1973. Since that time, the Centre has undertaken close to 300 Research projects to develop methods of applying the analysis of aerial photography, other aerial imagery, including thermography, and satellite data to programs of resource management, environmental protection and energy conservation. The Centre has collaborated not only with several different Ministries to produce new remote sensing applications but also with Universities and private companies.

Last year, the Centre launched a comprehensive program of Remote Sensing Technology Transfer, directed simultaneously toward Government agencies, Universities and private industry in the Province. The program offers training in applied remote sensing, the preparation of special teaching materials, collaboration on projects and consulting services. By offering the fruits of its experience freely to all three sectors of the economy, the Centre more effectively promotes Remote Sensing as a practical tool of resource management in Ontario.

Another of our specialist bodies, the Ontario Geological Survey, has earned considerable renown for the technology it has developed in reconnaissance and in detailed geological, geophysical and geochemical surveying. The recipients of this technology are mineral prospectors and developers in all parts of the world, and manufacturers of geophysical equipment.

It is probably fair to say that the technology the Ontario Geological Survey has evolved, and the skills it has developed in transferring it, have played a large part in securing a worldwide reputation for Ontario geophysicists and geophysical equipment manufacturers as technical leaders in their fields.

Another example - perhaps a more direct and simple one - in our Ministry is the recent development in the wildlife branch of a more humane trap for the fur trapping industry. Tests have proved that the new "invention" of the footsnare trap causes little or no injury to the trapped furbearing animals. And it can be manufactured quite simply. The new trap, which will benefit Ontario's \$10 million furtrapping industry, is being patented by the Province but its production and sale will be by the private sector.

This example of "Technology Transfer" combines the initiative and ingenuity on the part of Government specialists and the manufacturing and distributing expertise of private companies for the benefit of the industry as well as those concerned about the treatment of animals.

It is evident that the benefit of Technology Transfer is mutual.

Government research agencies can fulfill their function more effectively with direct access to the operational segment of the field. The development of expertise in private industry stimulated by Technology Transfer can also provide a source of support services and complementary research. Companies benefit directly from the commercial value of new capabilities.

Finally, the public at large benefits firsthand from the strengthening of private industry, and from the commercial availability of new products and processes. Formal programs of Technology Transfer, however, are only one aspect of the role of Government in the development of technology. Government is also the largest consumer of research which, in the process of satisfying its own needs, provides industry with an opportunity to push back the frontiers of technology.

Examples of this phenomenon are to be found associated with the Ontario Basic Mapping Program. In 1973, the Ministry contracted with a private company to develop a computer program called "Manor" for designing, adjusting and auditing horizontal control survey networks.

More recently, a contract with the private sector was made to develop a data bank for the storage and retrieval of control survey information. Also, the University of Guelph entered an agreement with us for the development of a geographical referencing system. This system is to provide a framework, the standards, and a common means of referencing, accessing and displaying information relating to the land and its resources across our Province.

Many other instances of this form of support for technology development could be cited from other Ontario Ministries, other Provinces, and from Federal programs. The development of high technology, and the transferring of whatever can be transferred from Government to the private sector, are vital to Canada's economic future. Technology Transfer is much more than a way to help prevent Government from growing too big, although that is one of its assets.

It is, first and foremost, a most effective way to share and use Canada's brainpower, innovative thinking, and a wealth of expertise, for our common good. ●