

## SESSION II

A LOOK INTO THE FUTURE OF THE  
LAND SURVEY PROFESSION IN ONTARIO

Status in Overall Survey Community.

H. D. CURRIE

The purpose of my remarks this afternoon is to forecast the position of the status of members of this profession in the foreseeable future, and my foreseeable future is getting smaller listening to Willis. I compared it with persons who might be called a scientific surveyor.....in other words, I must also look into a crystal ball. And in order to forecast, we should examine our present position and compare it somewhat with other branches of surveying with which we may have to compete for recognition. Generally fields of surveying include land surveying or cadastral surveying, geodesy, cartography, photogrammetry - all of these branches of surveying are concerned with measuring, whether it is by means of a steel tape, by electronic measuring device or by sophisticated equipment used in the fields of photogrammetry. The cadastral surveyors are concerned with establishing boundaries after they've disappeared. His work is governed by legislation, most of which has been enacted to cover the growth and development of a particular Province. At this stage of our growth, the cadastral surveyor is required to re-establish more so than to establish, and in doing so, leans towards principles of evidence rather than towards science. The cadastral surveyor's training includes a number of legal subjects which widens his field considerably. In fact, he becomes a legally oriented surveyor rather than a scientific surveyor. In the interpretation of evidence and in the reconciliation of dimensions, one could say that his work almost became an art. One very important feature of this legislation, he is very often required to be on the ground. His area of action is generally small and his methods classical.

The geodesist, the cartographer, and the photogrammetrist are different again. They can make a small measurement go a long way. They are working with electronic equipment or with precise optical equipment, they are working in the realms of science and are not too interested in which corner or even which brick of a building was noted 85 years ago. They do not need to replace accurately monuments that have been destroyed, they merely create new ones with a new set of values. They cover the earth's surface by leaps and bounds rather than by metes and bounds as we do. Their scope is not limited nor restricted by legislation, and their methods are the same from sea to sea. One very important feature is that their client is usually Her Majesty. What is the great difference between the two groups? Mathematics?

Theory opposed to practice? Brain work instead of physical labour? Because we all know that the cadastral surveyor sometimes has to dirty his hands, more of this later. Both groups serve the public. Both require education and training. Our Association uses the apprentice system to complete student training after secondary school or university, and in this practice we are not alone. The custom is still used by the Law Society and by Chartered Accountants. I do not share the views of some of our members, that is, it is degrading to be bound under Articles of Apprenticeship. There has to be a system of control by our own members, and it is really up to the student to select the right surveyor to serve under. The most important thing to consider at this Teach-in, Love-in, Symposium ... I'm very disappointed that they didn't have an off-beat name for it..... but the most important thing to consider is whether or not our present curriculum is sufficient and our members capable of carrying out their duties.

The Surveyor has always been in the forefront of development, roads, towns, cities have grown, land has been divided and sub-divided, yet to date there have been very few wars fought over the boundaries in our Province, and that is to the credit of our members, past and present. Where do we presently stand in the survey community? I believe we stand equally with our friends, the geodesist, the cartographer and the photogrammetrist. We are most necessary in this era of development, because we provide service to the entrepreneur, legal profession, the engineering profession, to the architects, to the builder, and what is more important to the citizen and owner. We do this from resources of information established a long time ago by our predecessors in this Association and without the aid of electronic equipment. The question has recently been asked: Are we professional people? Is professional standing dependant on formal education, knowledge or behaviour? This question was raised at a meeting of provincial land surveyors in Toronto on the 23rd February, 1886. They were discussing the proposed formation of our present Association and were concerned with raising their standards and status by legislation. A letter was read from Lindsay Russell, a former Surveyor-General, and I will quote it in part: "The only legitimate means of raising the status of the profession consists in the efforts of each individual thereof, by the evidence of conduct, acquirements and ability to win for himself the good opinion of those of his fellow citizens with whom he comes in contact. The more as individuals the member of any profession succeed in this, the higher as a class they will stand. If as a class they are held in slight esteem by the public, it is because they do not merit more. Public opinion is on the whole tolerably just and no doubt rates the services of any class at their true value. I am afraid we will have to rest content with being of no more importance in the eyes of our fellow creatures than the circumstances of our own merits, and the value of our services to them have combined to perscribe." That was written in 1886 and things haven't changed much.

I would like to quote again from the journals of Dominion Land Surveyors Association and the Ontario Land Surveyors Association, circa 1925, and I have a note after it mutatis mutandis. The necessity of a Surveyor in the practice of his profession to perform with his own hands certain acts of manual labour, such as planting monuments, and disentering the remains to do with the attitude of the public towards the profession, and if we could all wear frock coats and plug hats on the job and have a man do the digging, we might be better appreciated.

It is perhaps a fact that due to the surveyor's fence climbing and excavating duties, he is not always as satorially resplendent as he might be, and in the rainy season might easily be mistaken for a drain digger after a hard day in the field; and to this extent, suffers in the public estimation in comparison with members of other professions. The remedy is in the surveyor's own hands. He must at all times conduct himself to the end that his occupation may assume its proper professional standing. He must disabuse the public of the idea that he stands with the artisan." (1925)

How better could the question of professional status be answered? So much for the past and the present. We are in a rapidly changing world. Willis told you about the changing world and I'm not going to repeat it. But tremendous advances are being made in science and technology and the most significant development is the increase in educational facilities. New standards are being created in all walks of life and new skills must be developed to cope with the new methods and equipment. The arrival of the technician or technologist in our working force will create a new situation. Heretofore surveyors have been obliged to train people to act as instrument men, computers or draftsmen. They were usually people who had not completed secondary school, and perhaps had not had the opportunity to attend technical training institutes. The new breed of assistant will have had considerable exposure to survey subjects, and after a period of practical training, will be ready to assume responsible duty. No doubt this will relieve the surveyor for more important work. Can the surveyor keep in front of the new technician, and by a surveyor, of course I mean a member of our Association? Three years ago the Association decided to raise the requirements for entry. We all know the story of delay and frustration and there's no need to repeat it. The annual intake into the Association is not keeping up with normal attrition, leaving us in a very precarious position. The surveyor must move with the times. The advent of the technologist and the more common use of electronic equipment forces us to improve our position in the field of education. It is now evident that the technologist may, and I say may advisedly, take over the field work. The reason for my hesitation is that the graduate technologist has not quite arrived, and therefore has not proved himself. The surveyor must progress so that he will be properly qualified to employ the technologist, otherwise the technologist may employ the surveyor.

There has been another development during the last few years, attempted control of surveys by regulation. I am not speaking against regulations providing they are within the boundary of reason and common sense, and providing they are authorized by the proper statute. It is conceivable that in the near future we may encounter regulations in every statute under which a surveyor operates, differing in requirements with each other. The same applies to by-laws of a municipality which vary as the square of the number passed, plus or minus the personality of the individual administering the by-law, to which may be added the elapsed time in years since the passing of the by-law. This empirical formula may be used to gauge the depths of the depression in a survey office just after the arrival of morning mail. Now the reason I raise these points in this, in addition to the education of our successors, it is time we considered who is going to control the Association or the members of our Association. The Ontario Land Surveyor has been, by virtue of his training and profession, an individualist. The economics of a

survey demand that he assess evidence on the site of a survey, make the proper decision and pass on to the next crisis. It is not always possible to consider a problem in the warm comfort of his office, and in many respects, I compare him with the pilot who has just lost his only engine, and in a matter of seconds has to decide in which tree he will alight. The Surveyor in private practice needs leadership. He needs a strong Association to protect him, and also to police him if necessary. Every professional organization is only as good as the elected Council makes it. The successful Association is a strong one. Council and the appropriate boards and committees must always look forward, adopt the good new development and not be stampeded by the red herrings. In order to continue to control the surveying profession, we'll be forced to upgrade our qualifications. It is obvious that in time we will have to look to the university for our intake. Remember we will have to control the technicians, the technologists and the source of regulations. We will be competing in a world that has also gone forward even without grade 13.

A geodesist, a cartographer and a photogrammetrist is also going forward, and while they are dealing in science, we must deal in science and law. Perhaps we do not need quite as much science and perhaps they might improve with a little law. Changes in our Association cannot be made overnight, but we must not wait for Providence to make the changes for us. Our first duty is service to the government and to the public, our Association has been charged with providing the service and if we fail, then the government could probably remove our power. The output of technological students in the next few years will not be sufficient to fill all the demands, therefore we must consider very carefully every application for membership, and if necessary, tailor our requirements and our examinations to suit our needs. It may be quite a while before the impact of the survey option course is felt in our Association. First Rate graduates are sought after by opulent departments of government or will be hired by photogrammetric corporations. Perhaps that is where they should go, because these organizations have the sinews to carry on research from which we will eventually benefit.

Then there are students who will return to the University for post graduate work, and after a M.A. and Ph.D., return again for post operative work. These we can forget because they will end up with a research grant or they will become professors. The great question is will the graduate Bachelor of Science (Survey) be willing to go to the field and join the ranks of the unsatorial. If he would believe us there is joy in hard physical work. Lifebuoy soap and a hot shower takes care of the rest. We are surveyors; we are the most necessary type of surveyors; we are the only type commissioned to serve the public directly. The geodesist, the cartographer and the photogrammetrist fulfil their useful roles in the field of control, mapping and topographic surveys, and it would be difficult to envisage Canada without them. The people employed in these sciences are like ourselves, some with university degrees and many without. They have grown in stature with the development of their particular science and are proud of the fact that they are members of the surveying profession.

My crystal ball is clearing. Continuing as we are will lead to chaos. I can see this proud profession sinking to the level of a technologist, losing bit by bit the prestige their predecessors built during the last 150 years. However, the provincial Land Surveyor is virile; because he has to compete for a living, he is therefore durable. There is no doubt but that he is interested in a strong Association, one which will measure up to the needs of our time.

By embracing a new programme of education properly phased to take care of the time lag before University graduates become available in sufficient numbers, I see the members of this Association retaining their position in the survey community, even adding lustre to an honourable profession.

### Control of Control Surveys.

W. J. MacLEAN.

This paper does not bristle with statistics. You asked for an opinion so that is what it is and perhaps there is little that is really new in it. So I frankly state my stand on the matter of education in one sentence. I belong to the group that sees a future for a small group of broadly educated surveyors who can use every skill and instrument available to them to provide a wider service to the public. The group will have to work at this and develop an awareness of its full role among other professions and the general public but this is the challenge - what is life without a challenge. I hope to leave you with a few of the opportunities highlighted, but to especially look at Control of Control Surveys.

It is significant that a few years ago some of us were stumping the country to prove the 'case for Control Surveys' and now we are being asked to explain how the system can be made to work. Certainly, the concept has been accepted in Canada. A considerable portion of the capability of the Federal Department of Energy, Mines and Resources is devoted to providing high quality survey data each year to communities having the resources and foresight to embark on a local co-ordinate programme. If Energy, Mines and Resources management has any reservations about whether any of the municipalities have the necessary staff and budget to develop and maintain the network through constant use, it has not yet, to my knowledge, expressed it in terms of an 'either-or' agreement prior to undertaking the work. It would appear that the policy has been to get on with the massive task of establishing horizontal and vertical control where the need was apparent, or expressed, and to trust to the user to recognize that he had acquired a valuable new tool and that he would learn by experience to use and administer it properly. There are signs that the Department questions the users' technical knowledge and rather than see its work wasted or misused, some effort is likely to be made in the development of specific standards for use. For example, as recently as last Tuesday, a short Seminar was held in Ottawa, chaired by L. A. Gale, Dominion Geodesist, to discuss specifications and techniques for 3rd and 4th order.

Horizontal Control. This is not a cut-and-dried technical matter. Members of the National Advisory Committee on Control Surveys and Mapping, plus interested