

TRAINING COURSES FOR SURVEY TECHNICIANS

*By Andrew Gibson, O.L.S. \**

Since the war the increase in the number of people employed in land Surveying in Ontario has been proportionate to the burgeoning industrial and residential development. This is not entirely reflected by the increase in the numbers of licensed surveyors, of whom there are now about 450 - an increase in the last few years of about 50%. The fact is, of course, that as a matter of necessity, a great deal of survey work is being done by employees who can be best described as "survey technicians" - not apprentices, not surveyors, but persons of intelligence who are able to do what is required. They are employed as draftsman, calculators, party chiefs, or in all of these capacities.

Large numbers of them are employed by the governmental survey departments. Their work is rigidly specialized, and they are properly trained for it. Survey technicians in private surveying are most useful to those surveyors whose work includes a large proportion of route surveying and subdivision work - the type of surveying that approaches engineering. Obviously, purely legal surveys should be and generally are performed by Ontario Land Surveyors. Be it noted, however, that the proportion of strictly legal surveys compared with the total number of surveys performed is rather small.

A considerable number of these men are New Canadians, in many cases well qualified in surveying and engineering in their own countries, but unable to apprentice because of their responsibilities or because of their lack of acceptable educational proofs. It may be observed here that of the thousands of highly qualified Ukrainian immigrants, only one has become an Ontario Land Surveyor.

The fact is that in the surveying profession the technicians occupy an important place, nor is this a temporary state of affairs. In the first place, they are doing good work, which is in itself a guarantee of permanence, and in the second place, the qualifications for a surveyors' license are becoming increasingly stringent.

There is a tendency now to deplore the professional status of surveyors, which will probably lead to a longer, tougher training course, with possibly some University background. All this will most certainly increase the importance to surveying of the technicians.

Especially in private surveying, these men may be required to know surveying comprehensively. Any survey draftsman who is expected to make a plan of survey from field notes has to be more than a tracer. He has to know survey calculations, legal requirements and certainly he should have a knowledge of field work. Similarly, a chief of party must be more than a super-instrument man - he should have some knowledge of drafting and calculations, so that his notes will be in the proper form. In addition, in a small office, a man might well be employed in both the field and the office, if he is capable.

For this purpose, a certain amount of training is desirable, such as is presently offered at night school courses in some Ontario cities. In the Toronto area, for instance, there is a three year course and a one year course in surveying - field work, calculations and drafting - in each of which the course is prepared and taught by Ontario Land Surveyors. A person who completes one of these courses is by no means a fully developed survey technician, but he has

learned on his own initiative the basic principles of field and office surveying, and has demonstrated his intelligence and capability.

These courses can supply a very high standard of employee for both private and departmental surveying. In their own interests, surveyors should hire men from these sources when available.

Present employees should be encouraged to enroll in one of these courses.

The courses have been initiated by the Boards of Education, without recourse to the Association. It would be of the greatest benefit if our own Committee of Education took an active interest in the syllabus, and also worked with the Department and Boards of Education with a view to establishing such courses in Ontario centres where they are not now available.

I would suggest the following courses to the members of the Association and to their Educational Committee:-

SYLLABUS OF ONE YEAR DRAFTING AND SURVEYING COURSE

Field Work

Office Work

- Measurement of distances
- Measurement of angles
- Transit and tape surveys
- Survey notes
- Land registration and legal descriptions
- Levelling - Instruments
  - Differential levelling
  - Cross sections
- Stadia surveys
- Draft plans of subdivision
- Construction surveys
- Route surveys

- Drafting Materials
- Elements of Drafting
- Simple algebra
- Simple geometry
- Trigonometry - functions
  - use of tables
  - formulae
- Bearings and angular closures
- Curves
- Calculations - areas
  - Closures
  - Co-ordinates
- Topography - Contours
- Areas and volumes of cross-sections
- Conversion of field notes to plan  
(this subject is the practical application of the foregoing, plus a more detailed drafting instruction).

\* *Mr. Gibson, in submitting the above article, says he prepared it "for the information of the surveying profession". The training of survey technicians is a subject of particular interest at this time. Readers are referred to our January edition, which carried on page 11 two articles on the formation of the Association of Survey Technicians of Ontario. Further information on the training courses to which Mr. Gibson refers may be obtained directly from him. - The Editor.*

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