

# **The Evolution of A Canadian Council of Land Surveyors**

Whether the above concept of a Canadian-wide organization of Land Surveyors will become a reality is dependent on the support of the various Provincial Associations across Canada. If they feel there is an advantage in such an organization, then they will encourage its inception and support it — both financially and by participation in its affairs.

The original idea by the Land Surveyors Committee of C.I.S. was to explore the feasibility of organizing an annual meeting of Provincial Presidents to be held sometime during the annual meeting of the Canadian Institute of Surveying. It was felt this would be an excellent opportunity for each Association to discuss matters of mutual concern and to create personal contacts.

The members of the Ontario Land Surveyors Association may find a resume of the seven meetings held to date of some assistance in deciding for or against such an organization. It is realized that the experience gained by your Presidents and their participation during the various meetings is very difficult to pass on to those who have had no opportunity to watch the development of the idea. Therefore, in 1969 we see the birth of the idea born at Ottawa during the C.I.S. annual meeting.

**Meeting No. 1** — February 6, 1969 — at the Chateau Laurier in Ottawa.

Representing the Association of Ontario Land Surveyors was President F. J. S. Pearce, and the only provinces not represented were Prince Edward Island and British Columbia.

Those present decided that the next meeting would be held during the C.I.S. annual meeting in Halifax, Nova Scotia.

The chairmanship would rotate between the Presidents of the various Provinces from east to west with the Newfoundland President being the first Chairman on this basis.

The C.I.S. Councillor (Land Surveys Committee) would also be eligible to attend and act as a chairman.

The following items were suggested for the next year's meeting:

- a) Affiliation of Land Surveyors' Association with C.I.S.
- b) Standard monuments.
- c) Survey control.
- d) Discipline of errant surveyors.

R. T. McCurdy was appointed as secretary temporarily (but has continued on a permanent basis).

**Meeting No. 2** — April 17, 1970 — at the Nova Scotian Hotel in Halifax.

Chairman: E. C. Granter, of Newfoundland.

President D. T. Humphries represented our Association and every Province was represented at this meeting.

This meeting unanimously approved that the Provincial Presidents should meet later in the year for a two-day meeting and the presidents declared the meeting an unqualified success.

During the meeting the Presidents agreed to submit the names of surveyors for each of the following International Federation of Surveyors. Commissions, which included professional activities, education and literature, plus engineering surveys, cadastral, and rural land management, and town planning.

**Meeting No. 3** — October 23, 1970 — at the King Edward Hotel, Toronto.

Chairman: Col. A. Streb, of Nova Scotia. President D. T. Humphries represented Ontario at this meeting, with all Provinces present, except British Columbia, Saskatchewan, and Prince Edward Island.

At this meeting the discussion resolved around the question of a Canadian-wide organization of Provincial Associations. The name of the Group could be Canadian Advisory Committee for Provincial Survey Associations with each Association sending two members, the President and Vice-president, or past president. The C.I.S. agreed to provide a secretary (R. T. McCurdy.)

Travelling expenses would be pooled and shared alike for each province.

Education for each Province was discussed and the progress towards a University Course was reported.

Reciprocation between Provincial Associations was another subject discussed at length, including service under articles.

The status and training of technicians and technologists, and their relationship with the commissioned surveyors was another topic for mutual discussion.

**Meeting No. 4** — February 3, 1971 — at the Chateau Laurier Hotel in Ottawa.

Chairman: L. R. Feetham of Nova Scotia. President D. T. Humphries represented Ontario and all Provincial Associations were represented, except Prince Edward Island.

The main topic of discussion was the organization and control of survey technicians and technologists in the Provinces.

**Meeting No. 5** — October 22 and 23, 1971 — in the King Edward Hotel, Toronto.

Chairman — L. R. Feetham, of Nova Scotia.

President J. C. Birkup represented Ontario and the only absentees were Newfoundland and British Columbia.

Each President brought the meeting up to date on the state of the land surveying profession in his Province, with the following guidelines:

- a) Any changes in their Act
- b) Change in number of quality of membership
- c) Any threat to the Profession
- d) Major concern of Association/ Corporation
- e) Changes in educational requirements
- f) Control of competence and ethics

Each Provincial President was to send a copy of his Province's tariff for distribution to the other Provinces.

At this meeting those present were in agreement with the following recommendations contained in a report on the "Self-Governing" Professions in Ontario:

- a) The Provincial Presidents consider the desirability of setting up a National Organization.
- b) The Provincial Presidents recognize the lack of supporting and/or coordinating organization to work with the licensing bodies in the field of surveying.
- c) The Provincial Presidents investigate the desirability of using the organization setup of the Canadian Council of Engineers as a possible guide in organizing a national body.

A report on "The Provincial Status of the Para-Professional" by S. G. Genya, C.S.T., was heard.

The members present agreed that a new approach to survey law should be made to teach the theory of law as it applied to surveying.

Among the resolutions passed were the following:

- 1) that a member of a licensed Land Surveyors Association of Canada, who wished to pass examinations for admission to practice to another

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# Evolution of Canadian Council

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province, may have the opportunity to receive the questions and write his answers in either of the two official languages of this country;

- 2) that Provincial Survey Associations/Corporations should assist in the certification and education of survey technicians and the formation of survey technicians;
- 3) that the meeting go on record as supporting the need for university courses in survey laws which would be of national scope;
- 4) that the meeting approves in principle the creation of a permanent co-ordinating body consisting of representatives of all provincial land survey associations, with L. R. Feetham charged to organize the continuing investigation and study the ways and means of achieving the goals of this resolution.

**Meeting No. 6** — February 2, 1972 — in the Chateau Frontenac Hotel at Quebec.

Chairman — L. R. Feetham, of Nova Scotia.

Our province was represented by J. C. Kirkup and the only absentee was Prince Edward Island.

Again each Provincial President brought the meeting up to date on changes in the surveying profession in his Province.

The meeting again discussed the resolutions passed by the previous meeting, and the reactions of the various Associations was reported.

The creation of a Canadian Council of Land Surveyors was discussed on the basis of a draft Letters Patent prepared by R. Feetham.

The main concern of the members was:

- a) What were the advantages and disadvantages?
- b) What was it going to cost?
- c) What was the purpose?

A standing committee, under the chairmanship of R. Feetham with committee members of Fred Pearce (Ontario), Marcel Levesque (Quebec), and Bernard White (B.C.), was formed to provide further data and information.

**Meeting No. 7** — September 22-23, 1972 — at the Constellation Hotel, Toronto.

Chairman — Jim Boldon, of New Brunswick.

Ontario was represented by S. G. Hancock and all provinces were represented, with the exception of Prince Edward Island.

Again all the Presidents reported on the affairs of their own Associations.

Among the subjects under discussion were:

- a) The New Professional Act in Quebec
- b) The Re-organization of the Survey Profession as proposed in the Smith-Hadfield report of Ontario (not endorsed as an official report of the O.L.S.)
- c) Creation of law courses at Universities
- d) National Reciprocity
- e) Survey Education

The report of R. Feetham and his Committee was received and a revised copy of the Letters Patent incorporating a Canadian Council of Land Surveyors was made available for all Councils of the various Land Surveyor Associations.

As a result of this two-day meeting, the following three-part resolution was passed:

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# Transit Rule vs Compass Rule

By HARRY G. COUPLAND, O.L.S.

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It seems to me that we are probably using co-ordinates in the solution of our survey problems more than was common ten years ago. In fact, when I wrote my intermediates in 1957, my knowledge of co-ordinates was very limited and their use was reserved almost exclusively to plotting. Because of their widening importance I have gradually increased their use both at school and in the intermediate examination, "Mensuration B". I am happy to see that each set of examinations shows a better understanding of the use of co-ordinates but most students cannot handle them efficiently.

## Balancing Techniques

As we all know, before a co-ordinate value can be placed on a point, the residual error lying each side of the point must be eliminated. To do this we must use some kind of balancing technique. I have found that the student of today is just as naive as I was in the relative merits of the "compass rule" and the "transit rule". A question designed to illicit an intelligent response on this topic nets me nothing more than memorized quotations. This would not be too bad if these quotations were based on fact but through my own reasoning and research I can find nothing to prove that the transit rule is good if the angles are stronger than the sides, nor can I see that the compass rule was properly thrown out with that instrument that lent it its name.

To summarize the compass rule:

$$\frac{\text{Total Error in Departure (or Lat.)}}{\text{Total Perimeter}} = \frac{\text{Particular Error in Departure (or Lat.)}}{\text{Length of Course}}$$

## Compass Rule Better

The purpose of this piece is to prove that the compass rule is the better method of balancing and the transit rule should not be used if a true mathematical solution is sought.

The following diagrams (see page —) illustrate a closed loop AB1C1A1 where A and A1 are in fact the same point. The distance A1A is the error which must be distributed into the loop. The points B and C are the revised locations of B1 and C1. If all things are equal throughout or if angles and distances are measured with equal accuracy, then the most probable bearings and distances would be found by joining the points A, B, and C.

Diagram (a) illustrates the error A1A distributed into the rest of the loop by moving in the direction of the error a distance proportional to the length of the loop at that point. In other words the distance B1B is to distance AB as A1A is to the total perimeter. Because the bearing of the error is constant throughout, then the latitude and departure errors are also proportional to the perimeter. This then is the "compass rule" in action. Because it is mathematically sound, the revolution of the figure to give it different bearings will not change its shape.

Diagrams (b) and (c) illustrate what happens when the error A1A is distributed into the loop by the transit rule.

Because line AB in diagram (b) has no departure, there can be no correction at B and all residual error must be put into point C. Diagram (c) shows the same error distributed after the figure has been rotated 45°. Certainly this should be proof enough that the transit rule should be forgotten as soon as possible.

It seems to me that in land surveying we must keep our minds on what the numbers represent and not rely too heavily on ultra sophisticated balancing techniques. In fact, in this day of fantastic electronic marvels we must remember that there is still something to be said for "seat of the pants" balancing.

*See  
You  
At  
The  
Annual  
Meeting!*

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- a) Approval in principle of the formation of a Canadian Council of Professional Surveyors in co-operation with the C.I.S.;
  - b) Assessment of four dollars per active member to contribute to the development of such an organization;
  - c) That the results of (a) and (b) be submitted for the April 25, 1973 presidents' meeting, with a tentative date for completion of April, 1974.
- Further Motions passed were:
1. That in the development of the

Canadian Council concept the C.I.S. be a participant;

2. That the next fall meeting of the Presidents of the Provincial Land Surveyors Associations / Corporations be held at Winnipeg, Manitoba.

The assessment fee in the resolution above was determined by averaging out the suggestions as to the amount of money required with the knowledge that \$2,000 would be required for incorporation and that office space and secretarial help would be shared with the C.I.S.

And so fellow land surveyors, you have a thumbnail sketch of what has led to the formation of a Canadian Council — hopefully many of those responsible for its path to this point will be at our own Annual Meeting. Your Presidents, who attended the meetings, feel this is a step ahead for our profession. Ontario has always been a leader in progressive thinking and without our support a national organization would have little chance of survival. We would ask the membership to give this the favourable support it deserves.