

in a plane normal to the axis of the spindle but to check any play in the direction of the latter. Therefore, even though the spindle were bent slightly, this mechanism would function without jamming. Of course, the nuts are adjustable for wear of the threads.

In the adjoining operations of lifting the Y-carriage up and off its track, pushing the Y-column back and off its Z-track, the housing of the bearing on the far end of the spindle will be unscrewed, the spindle pulled back out of its keyway and screwed clear of the nut in the carriage. However, before this operation can be executed on the X-axis, it will be preceded by three other stages of dismantling. The big optical head with its brain of glass will be taken off its stand after removal of three screws. Then the framelike mirror units which support the winding optical paths of the observation systems and the setting devices of the base components in the Y and Z directions will be lifted from their dove-tailed seats on the BX-trucks, and finally the trucks themselves with their nut and spindle design conforming to that of the major axes will be dispatched.

At the end of these proceedings, the big base casting with the handwheels and the stand of the optical head is left on the floor. After you lift this away, or better watch six others doing it, there remains yet three floor plates and the foot plate to remind you - if you happen to be an operator - of the beauty and happiness embodied in the slogan of the modern photogrammetrist:

"Learn cranking without complaining".

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FIFTH CONGRESS OF THE INTERNATIONAL FEDERATION OF SURVEYORS

by

Earl Church

The fifth congress of the International Federation of Surveyors was held in London, England, from July 18 to 21. There were present 346 delegates from 21 countries, the United States being represented by Colonel James Gordon Steese and the writer.

This brief report is prepared with the thought that some American engineers may be interested in the proceedings of this conference. It is necessary, however, to confine these remarks to the discussion at the meetings of the committee on improvements in instruments and methods in surveying, one of the five technical committees into which the entire congress was divided.

Papers were presented at the meetings on many subjects concerning instruments and methods. The open discussions, however, were confined to two topics which were considered of the most outstanding importance, namely: (1) The polar coordinate method for locating details in cadastral surveying, with special attention to the methods for measuring distances; (2) The use of

aerial photogrammetry in cadastral surveying.

The committee recommended the use of the polar coordinate method for locating details in cadastral surveying, in preference to the rectangular coordinate or offset method. This is doubtless entirely in agreement with present practice in this country, for surely with the adoption of more modern methods of cadastral surveying American engineers are using the polar coordinate method very extensively. Both its advantages in most cases and its occasional limitations are familiar to all American surveyors.

However, the discussions of the methods for measuring distances are noteworthy. It is rather astounding to an American surveyor to find that in continental Europe the use of tapes for measuring distances in cadastral surveys is virtually superseded by the double-image tachometer. Delegates at the congress agreed that the improved double-image tachometers now manufactured in Europe were capable of measuring distances up to 140 meters with an accuracy of one part in 5,000, the modern tachometers even being equipped with ingenious devices for reading directly horizontal instead of inclined distances. The committee recommended the extensive use of this instrument in cadastral surveys. Inasmuch as the method is at present seldom used in the country, this recommendation indeed deserves the attention of American surveyors.

Although it is understood that aerial photogrammetry is entirely inadequate under some circumstances in cadastral surveying, the discussion by the committee indicated their complete accord regarding the adaptability of the method in many cases. They recommended the method for use in cadastral surveying extensively but not exclusively. On account of the skepticism still existing among American surveyors regarding the resources of aerial photogrammetry, there is considerable significance in this recommendation, for it must be remembered that cadastral surveying is rather a severe test for the precision of the method and that this recommendation is made by a committee consisting largely of European engineers who are familiar with the use of the stereoscopic plotting instruments for photographic mapping.

These, then, are briefly the conclusions reached by the congress of the International Federation of Surveyors regarding what were considered as the two most outstanding topics in the field of improvements in the instruments and methods of surveying.

* The above is a reprint from "Science", November 23, 1934.

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FEDERALLY OWNED NEGATIVES AND THE PRIVATE CONTRACTOR

by

G. W. Kneisly

"There is one matter which is of rather prime importance to the commercial field in photographic mapping - the question of ownership and availability of negatives owned by the United States Government.