

1916) it has been pointed out that a slide rule with special scales would greatly expedite curve calculations of this nature.

It seems apparent that a width of a lot fronting on a curve should be defined as a length of arc and not of one or a number of chords. In this method, then, the actual length of arc, or the angle subtended by that arc at the centre of the circle is taken as the basis from which all other information can be found. To illustrate, as in Fig. 3, for arc AB and radius R, the angle subtended at centre of circle is found to be  $\frac{180}{\pi} \times \frac{AB}{R} = A$  (say); then  $AJ = R \sin A$ , and  $BJ = R \operatorname{versine} A$ . At K, a distance of LK equal to AJ along tangent, erect perpendicular BK equal to AL plus BJ, and the point B is located.

The lines to be cleared in a wooded area for case shown in Fig. 3, are (besides centre line tangents) only 280 ft. in length, and all such clearing would be in the street area. For streets less than the 100 ft. width assumed in the figure, the amount of clearing would be also further reduced. For a long curve, some portion of the tangents might be found outside the street area. For such a case, or where the offsets are considered too great, an auxiliary tangent might be employed. Easement curves which cannot be discussed in this brief article are also readily located by offsets from tangents.

Considering the chord as a line parallel to a tangent, the calculations for right angled offsets from tangent may be adopted also for the determination of right-angled offsets from chord.

4.—OFFSETS FROM TRAVERSE LINES.—Where certain traverse lines have been run approximating to the location of centre lines (see Fig. 4), offsets may be determined by scaling from drawings to scale of say 20 ft. to the 1 inch. As a matter of fact, scaling on a plan of any size is always an important check in the work of curve calculations. In Fig. 4 the length of lines to be cleared are substantially the same as those in Fig. 3.

In conclusion, it may be stated that a variety of methods for curve location are evidently available; but also that there is evidently required a handbook of curve tables having particular reference to street and lot location.

The Ontario Provincial government has taken over the Cobourg and Port Hope toll road as part of the new provincial highway system. The price paid was about \$10,000. The toll road company was organized in 1847. Negotiations are pending for the taking over also of the Cobourg-Grafton road.

In a report on housing conditions in "the Ward," the Toronto Bureau of Municipal Research suggest better pavements for Teraulay, Edward, Elm and Walton Sts. and Laplante Ave., not only for the improvement of the district, but also to assist in relieving traffic congestion on Yonge Street.

The Engineers' Club of Toronto will hold an informal dinner at 6.45 p.m. next Tuesday, at which an after-dinner talk will be given by Hon. Sir Wm. H. Hearst, Premier of Ontario. Sir William's subject will be "Reconstruction in Ontario." As it will also be Ladies' Night, a musical program has been arranged.

Although there has been an increase of over 10,000 in the number of children attending Toronto Schools in the past ten years, practically no schools have been built for several years past. Chief Inspector Cowley has informed the Board of Education that unless new buildings are provided the board will lose the provincial grants amounting to about \$70,000 a year.

Work on the military hospital adjoining the general hospital at Calgary, Alta., has been stopped. John Weston, Calgary representative of Carter-Halls-Aldinger, who had the contract for the building, received a telegram from the Department of Militia and Defence ordering the work to be stopped and stating that all military hospitals in Calgary can now be dispensed with.

## GERMANY'S PREPARATIONS

### For Resumption of Technical Education—Do the Hun's Plans Include Any Ideas That Might be Advantageously Utilized in Canada?

THAT Germany intends to lose no time in resuming technical education is proven by the following excerpts from a pamphlet entitled "Transition Measures and University Reforms," issued by the Society of German Metallurgists, a copy of which has been kindly sent to *The Canadian Engineer* by the eminent English scientist and manufacturer, Sir Robert Hadfield, who translated it:—

The transition period will make heavy demands on our German Technical Arts and Industries. The question is to put trade on the new peace economy and to put the experiences of the war to scientific account. For this, scientific and thoroughly trained engineers, above all, are required in large numbers; the academic technical younger generation appears, however, to stand in great jeopardy, as a large number of students, for economic or other reasons, will not be able to complete their studies.

#### Facilitating Resumption of Studies

In order to counteract the disadvantages arising therefrom we must facilitate, in every possible way, the resumption of their studies of all who have taken part in the war, or, otherwise the great reputation of our German Technics will suffer.

This demand is advocated by the German Committee for Technical Education, on which the leading representatives of German Technics and Industry, as also university teachers, have combined in an address to the German Education Authorities, worded as follows:—

The German Committee for Technical Education, after exhaustive consultation with representatives of technical professions as well as of technical universities and mining schools, has the honor to state as follows:—

The long duration of the war almost completely interrupted the education of those young men from among whom German technical arts and economy have to select their leading men. A large number of professors are in the army. Nearly all the students are serving the Fatherland in the army or at home. Many have sacrificed their lives, their health, and their working faculties. The extraordinarily great diminution in the numbers of the younger generation of engineers, chemists, mining engineers, metallurgists, and architects will render the resurrection of our economic life ominously difficult and will retard it. This danger must be averted timely and as energetically as possible.

The danger ahead of us lies in the fact that the transfer from university to actual practice will take place before the scientific education is complete. Those students who have lost the most valuable years for their education by fulfilling duties of the most extremely patriotic nature must rightly be concerned to cut down studies as far as possible. Many will also be compelled from economic reasons to become wage earners at an early date.

#### Education Below Usual Standards

To this must be added that the preliminary education of the students has sunk far below the usual standard on account of the leniency shown at the examinations held at the preliminary schools. We have, therefore, also to deal seriously with the danger of a very marked decline in the scientific attainments of the graduates of our universities and mining schools. This danger must be reduced to a minimum consideration for the students, no less than that for the most urgent requirements of technical arts and industries, compels us to seek methods by which we can expedite the training as much as possible, and still make it sufficiently thoroughly scientific.

This aim cannot be attained without modifying the curriculum hitherto usual. The technical universities and mining schools will, therefore, be compelled to set up another syllabus during a certain period of transition. In