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economical method of grading is by the use of a road-grader, the size and weight of which should be determined by the nature of the soil to be handled and by the quantity of earth to be moved. Except where old stumps, roots or boulder stones are encountered, it has been found that the modern type of road-grader, hauled by a farm tractor of suitable power, can do this work without any need of preliminary plowing of the earth, and the cost is much lower than was considered possible even a few years ago. But the nature of the equipment used must depend on the extent and magnitude of the work in question and can be determined only by a study of the actual conditions governing that special work.

Maintenance of Earth Roads

Every spring, before the ground becomes too hard, the road should be gone over with the road-grader to clean out the ditches, fill up the ruts and holes, plane off the undue elevations and shoulders on the road, improve the grade and crown of the road, and generally put the road in good condition.

Earth roads show an undue tendency to rut, and care should be taken in selecting material with which to fill these ruts; a point to be borne in mind is that the same material should be used as that composing the surface of a road. It is true that a clay road is often improved by the use of a sand or fine gravel surface coat, and a soft sand road by the use of a clay coating, but these are the only exceptions.

On clay or gumbo roads, any repairs should be made early in the season, as the dampness, together with the travel, will aid in compacting the surface. If repairs are made late in the season when the soil is dry, it pulverizes rather than packs, is very unsatisfactory, and will not result in a hard, waterproof, compact surface.

To maintain an earth road in good condition requires constant attention, and it will usually be found that this attention is necessary from the very day the road has been completed. The work cannot all be done at one time, as it will be found necessary that a little be done often and not too much at any one time.

Road Drag Very Useful

The best results generally are obtained by merely smoothing over the surface, covering up what small ruts there may be at the time, and doing this work when the surface of the road is moist or as wet as the soil will permit the work to be done, and this can best be done with a suitable road-drag. This road-drag, if properly handled, will keep the ditches clean and even, will keep the side-slopes and the ditches free from weeds, will preserve the uniformity and appearance of the side-slopes to the ditches and the crowned section of the road, will remove moderate ruts and unevenness of the surface, and will aid in securing a compact, even surface which, after faithful, continued treatment, will remain firm and compact, even under moderately heavy traffic.

With the object of showing the great possibilities of the district, the Niagara District Industrial Association has been formed. The association is planning for a big congress next summer, when representatives attending the meetings will be shown the power facilities of Niagara Falls, the fruit belt in the district, the Hydro station at Queenston, and also the Welland canal.

With a view to making the Toronto-Hamilton highway safer for pedestrians, a conference was recently held at the parliament buildings, Toronto, by members of the Ontario Railway Board, officials of the Toronto and York Radial railway, and members of the Ontario Motor League. The following suggestions were made: Establish safety zones or platforms where passengers of the radial cars may wait; adopt traffic laws requiring automobiles to halt behind cars that are discharging or taking on passengers; appoint traffic policemen in such busy centres as New Toronto and Mimico; change the doors on the radial cars so that passengers may board or leave the cars with less danger of being knocked down by passing automobiles.

SURVEYORS AND TOWN PLANNING*

A FTER considerable deliberation, this committee has decided that this report might be most useful if made in the form of suggestions to surveyors. The first suggestion is that all surveyors should develop or retain an interest in town planning. It is probably not necessary to remind the members that through the efforts of a committee of this association, the recently formed Town Planning Institute came into being. Many surveyors have joined this institute. To others we urge an interest in at least a local way. Take some thought of your home town, of its planning problems and how you can help as a leader in public opinion if not in a strictly professional way.

We wish to point out that though provincial land surveys can only be carried out by provincial land surveyors, surveys in the broad sense are in the province of the Dominion land surveyor as well as of the provincial land surveyor. If any surveyor is to restrict his interest in town planning to the mere staking out of lot and street lines, he will have passed up his opportunity for, and his obvious part in, development and planning for the future.

Thinking in Development Terms

The collection of maps and data as to distribution of population and buildings, transportation and industrial situations, assessment and taxation, public utilities, parks, schools, etc., and especially the preparation of topographical maps and the studying of such maps and data for the purpose of planning future development, are duties for which surveyors should be fitted by training and inclination, and are duties not limited to any one class by legal enactment.

From the foregoing it may be gathered that no longer should the surveyor think only in terms of land subdivision, but rather in terms of land development. The questions to be answered are not how much will it cost to make a survey of a lot or lots, but how much would it cost to develop a certain area with buildings and finished streets and other public utilities and with the necessary parks and open spaces. Some idea of this cost must be acquired by the surveyor to plan and carry out his part of the work intelligently. Costs of utilities and improvements may be desired in terms of acreage, per foot front, or per family.

To those Dominion land surveyors who spend most of their time in government surveys, and find their time and activities in their home town much limited on that account, we suggest that regional planning and development should be made a study. Land classification as now being carried out involves essentially the idea of development as opposed to mere subdivision carried out in the past. And so, too, is the idea of intelligent development involved in the making of topographical surveys. From the surveyor there should be expected, not stereotyped forms of rural development, but a scientific formulation of general underlying principles that could be applied to particular situations.

Regional Planning

As a general study for this association, we suggest the subject of regional planning, for which, of course, topographical maps are necessary. For any area, the data in regard to the following matters might be gathered:—

Area and population; railway transportation; highway transportation; nature of the soil and surface; use and development of the land; building development; industrial development; water supply and sewage disposal; and power development.

Where areas have been developed to any considerable extent, it is felt that the collection or mapping of such data will go far towards making possible the intelligent planning of the area.

^{*}Report of Committee on Town Planning, Association of Dominion Land Surveyors, presented February 5th, 1920, at annual meeting in Ottawa; A. H. Hawkins, chairman of committee.