

Engineers And

traffic streets. These should be of generous width, those connecting the more important points or centers from 100 to 150 feet, and those of lesser importance, 70 to 80 feet. In the improvement of wide streets where the full width may not be needed for traffic for an indefinite period, considerable economy may be effected by improving only a narrow driveway with a narrow sidewalk on either side, maintaining the remainder as grass plat; or, better still, if it is possible to restrict the buildings to the lines of the plotted width, only such portion of the street as is immediately necessary for traffic or may be necessary in the near future need be opened and improved; in either case the demands of increasing traffic can be met by widening driveways and footwalks at any time without seriously interfering with private property and if the necessity for such a widening never arises, the street will always remain a very attractive one. In the practice of this elastic scheme of planning, trees should be planted in such a manner that they will not be disturbed in any readjustment of the driveways.

Traffic streets need not necessarily be straight, but sharp curves and sudden jogs should be avoided and change of direction should be accomplished by means of easy curves rather than by angles; a graceful curve or a well planned fork will tend to break the monotony of long, straight lines; topographical conditions should not be permitted to exert as large an influence as in streets of less importance; detours which would materially lengthen the route should only be made to avoid excessive grades; some heavy cutting and filling is to be preferred over many windings in a great traffic route which in the course of events may be called upon to carry the trade of a great city for centuries; the widths and grades of a street must usually be considered permanent as established at its original opening for it is seldom they can be altered without almost prohibitive cost after the abutting property had been built up.

The question of grades is one of great importance and should receive the most careful study; grades that are steep or irregular, or that break at frequent intervals are neither desirable for traffic nor attractive in appearance; long, even slopes should be obtained wherever possible, especially upon straight streets, and changes of grade should be effected by means of easy, vertical curves rather than by sharp breaks. Upon main traffic streets the maximum grade should not exceed one in twenty unless physical conditions render it absolutely impossible to keep within it, and places where it is exceeded should be short, few and far between. Maximum grades in Europe, even in hilly cities, are generally lighter than in America and in some instances are kept within the limit by rampping or zigzagging the lines. In some parts of Europe the law limits the grades to one in fifty; in France the maximum on national highways is one in thirty-three and on departmental highways one in twenty.

The secondary traffic streets, seventy or eighty feet in width, should be established to connect the main traffic ones with each other or with secondary centers of population and industry and the two classes of traffic streets should form the skeleton plan designed with a view of creating direct routes at reasonable intervals throughout the entire city and surrounding districts without regard for the development of any particular

WINNIPEG CALGARY VANCOUVER
THE JOHN GALT ENGINEERING COMPANY, LTD.
 CONSULTING CIVIL ENGINEERS
 SPECIALISTS IN ALL KINDS OF MUNICIPAL
 ENGINEERING WORK
 Waterworks, Sewerage, Electric Lighting, Steam and Water Power,
 Concrete Construction.
 JOHN HADDIN E. L. MILES

MATHER, YUILL & CO., LIMITED
 CONSULTING AND CONTRACTING
 ELECTRICAL ENGINEERS
 Design and Construction of Complete Power, Lighting
 and Pumping Plants for all Municipal and Industrial
 Purposes
 429 Pender Street VANCOUVER, B.C.

CHARLES M. JACOBS, J. V. DAVIES, JAMES FORGIE
 Members Inst. C. E., Can. Soc. C. E., Am. Soc. C. E.
JACOBS & DAVIES, INC.
 CONSULTING ENGINEERS
 MONTREAL. LONDON, NEW-YORK
 Foundations, Subaqueous and Land Tunnels, Subways, Railways, Harbours, Water-
 power Development, Examinations, Reports Montreal Office: Eastern Township Bank Bldg.

FAIRCHILD, JONES & TAYLOR
 CONSULTING ENGINEERS
 AND LAND SURVEYORS
 STEAM AND ELECTRIC RAILWAYS. ELECTRIC AND WATER POWER
 SEWERAGE AND WATERWORKS.
 LAND, TIMBER AND MINE SURVEYS. TOWNSITE SUBDIVISIONS.
 ROOM: 608-609 TEGLER BLOCK, EDMONTON, ALTA.

DOMINION AND SASKATCHEWAN LAND SURVEYORS
PHILLIPS, STEWART & LEE
 CIVIL ENGINEERS
 Waterworks, Sewers, Roads and General Municipal Engineering --- Subdivisions
 25-28 CENTRAL CHAMBERS SASKATOON, SASK.

TELEPHONE ENGINEERS

SAMUEL G. McMEEN KEMPSTER B. MILLER
McMEEN & MILLER
 ELECTRICAL ENGINEERS
 PLANS ESTIMATES REPORTS
 Investigations of Public Service Systems of Telephones,
 Electric Light, Power and Gas.
 1454 Monadnock Block, CHICAGO. 333 Grant Avenue, SAN FRANCISCO

FRANCIS DAGGER
 TELEPHONE ENGINEER & EXPERT
 1905 Technical Adviser to Select Committee on Telephone Systems, Ottawa
 1906-7. Expert to Government of Manitoba.
 1907-8. Expert to Government of Saskatchewan.
 21 Richmond Street W. TORONTO

EDWARD E. CLEMENT
 ATTORNEY AND COUNSELLOR AT LAW
 Solicitor of Patents.
 ELECTRICAL EXPERT
 MCGILL BUILDING WASHINGTON, D. C.