

The system was begun in 1897, and very good results have been obtained from land that, without water, would have yielded very uncertain crops, although, during wet years, there is sufficient rainfall for general farming. Calgary has become the centre of a large system built and operated by the Canadian Pacific railway. This Company received the final allotment of its land grant in one block near Calgary. In 1903, a main canal 100 feet wide, was begun, and now carries water from the Bow river by branch ditches, to serve 1,000,000 acres. Further extensions are proposed for the near future.

Because the prairie rivers have cut so deeply into the soil, they do not lend themselves easily to the irrigation of the general prairie level. Their swift current, however, points to a method of pumping up the water, and as the amount required is very moderate, only 1 c.f.s. being necessary for 100 acres of land, the systems of pumping need not be elaborate. In Washington state, the current of Snake river is utilized in the following manner. A long, narrow raft is anchored in the stream; each end is furnished with rollers and an endless belt with wooden vanes or paddles is revolved over these rollers by the current into which the paddles dip on the under side of the raft, the upper paddles returning in air. The power thus generated runs a Jacobs-ladder pump that lifts the water up to a trough, through which it is led to the land. Another method of obtaining power from a river current is by a series of screw propeller wheels mounted on a shaft which is held beneath a float in the direction of the current. Windmills are also frequently used, and the winds are generally fairly constant over the area in question.

NAVIGATION—A boat, launched in the Red river, sailed down to lake Winnipeg and through it to the mouth of the Saskatchewan, thence it was hauled and poled up the Grand rapids to Cedar lake, whence it proceeded to Edmonton. This boat was used during the rebellion of '85, and finally went to pieces against the piers of the Edmonton bridge. This gives some idea of the immense stretch of navigable waters through our prairies, but, owing to the swift current, the economy of such transportation is not quite assured. If a large quantity of heavy raw material like coal or iron ore were offered for through transportation, then a system of cheap barges pushed in front of a stern-wheel steamer might be used. Such barge rafts carry coal down the Ohio and Mississippi to New Orleans, where the barges are broken up and sold as lumber.

On lake Winnipeg there is considerable navigation, largely connected with the fish industries. The new lock at St. Andrews rapid, when completed, will extend navigation to Winnipeg and above.