

63 VICTORIA, A. 1900

The levels have been referred to a permanently planted bench-mark, marked with the letters B.M. and the broad arrow, so that when the block outline system of levels, applied in Alberta, is extended to this section, they can be incorporated.

Measurements of the velocity of flowing streams were taken with the Lallié current meter, to allow a determination of discharge to be made; at the same time high water and flood levels were recorded from existing indications, and the fall of the stream ascertained so that the discharge at these stages could be computed by the use of Kutter's formula.

The latter method was also applied in the case of streams not flowing.

In addition to the work referred to, Mr. Child examined the dams on the Qu'Appelle river at Fort Qu'Appelle and Katepwe and obtained the necessary data for their reconstruction. The necessary surveys also were made for the construction of a dam on a tributary of Cussed creek in the Yorkton district, to divert the flow from the stream named to certain lakes lying to the south and southeast of the point of diversion, by this means filling the lakes, and improving the water supply of the district.

A detailed report from Mr. Child, accompanied by illustrative plans, is appended.

#### DITCH INSPECTION.

Four ditches were inspected during the summer and duly reported upon, section 24 of the Northwest Irrigation Act requiring that upon completion of the works, an inspection be made prior to the issue of a final license for water rights. The ditches are as follows:—

1. The late James A. Macmillan's ditch, heading from Sheep river in the southeasts quarter of section 7, township 20, range 2, west of 5th meridian; to irrigate 799 acres of land.

The main ditch is 1.87 miles long. As at present constructed, the structures are good but the ditch somewhat out of repair; it will supply water to the lands enumerated in the application, but will first require to be enlarged and extended.

2. Samuel Howe's ditch, heading from Macabee creek, a tributary of Sheep river, in the northwest quarter of section 30, township 19, range 3, west of the 5th meridian; to irrigate 252 acres. The system is very crude, but sufficient to irrigate the lands named in the application. The supply of Macabee creek is limited, and excepting at highest water, is not sufficient to fully supply this claim. Unless the supply be considerably augmented by storage no other rights can be given above Howe.

3. Malcolm T. Millar's ditch, heading from a tributary of Sheep river in the northwest quarter of section 2, township 21, range 3, west of the 5th meridian; to irrigate 165 acres.

The ditch and structures were found to be in accordance with the statements of his application, and sufficient to irrigate the land named; the ditch is out of repair but can readily be placed in a serviceable condition.

4th. John and Samuel Hamilton's ditch heading from springs in the northwest and southwest quarters of section 9, township 22, range 2, west of 5th meridian; to irrigate 60 acres. Up to the present time, no work has been done in connection with the application.

5th. A ditch constructed under the authority of the Superintendent General of Indian Affairs, to divert water from Battle river at a point near the Roman Catholic mission on Bobtail's Indian reserve, to be used for power purposes in connection with a grist, saw, and shingle mill erected on Samson's Indian reserve. The structures proved to be quite sufficient for the purpose and in accordance with the application. A series of narrow channels and sloughs along the river flat have been utilized to convey the water diverted, ditch connections being made at necessary points between to shorten the distance and facilitate the flow. Immediately above the mill, a somewhat larger slough has been utilized to construct a mill-pond; considerable embanking has been done on one side and an efficient waste-way put in. The grist mill is built on the edge of an old bed of the river. It is a solid little building in a good state of repair; appended to it are two circular saws and a shingle mill. Generally the system is in good order, and competent to supply the wants of the Indians.