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FRASER VALLEY RECLAMATION.

CONSTRUCTION OF TWO SLUICE BOXES AND FLOOD GATES.

To be read Thursday, 8th April, 1897.

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The freshets or floods of the Fraser River, British Columbin, occur as a rule between the latter end of May and the middle of July, caused principally by the melting of the snow upon the mountains.

In the reclamation of portions of the delta lands of this valley, from these freshets, the most difficult part of the schemes at present adopted is the satisfactory design and building of the sluice boxes and food gates.

Up to the present time, that portion of the delta reclaimed lies in patches, each portion being protected by itself, and not connected with any other portion. Generally these patches or valleys front on the main river, and are surrounded on all sides, with the exception of the frontage, by high lands, which discharge all their drainage upon the flats. This water finds its way over these flats through sloughs and creeks which discharge into the main river, during the low or ordinary stage of the water, namely, from August to the end of April.

The system of reclamation adopted up to the present day has been that of the construction of dykes or embankments, of different dimensions, along the banks of the river, from high lands to high lands, and of the building in the creeks or sloughs, over which the dykes would pass, of flood gates, and sluice boxes as they are called, which are so constructed as to close during the high water, preventing the river water from backing up the sloughs and flooding the prairies. They are constructed also to open, so soon as the water in the river begins to fall lower than that in the sloughs, and drain the prairies, the sloughs during the period when the gates are closed acting as reservoirs, to hold the ordinary drainage from the surrounding hills.

In ordinary cases the sloughs have not enough capacity to hold the drainage during the time when the gates are closed, and pumping has to be resorted to, for about a month in the year.

One of the most difficult operations connected with these schemes is the proper designing and construction of these boxes. It is a very difficult matter to keep them tight, and the material in and surrounding these sloughs is such that when once the slightest leakage occurs, under pressure, it is a very short time until the whole box finds its way into the river or up the slough.

Again the many and varied kind of sloughs and creeks, the different classes of material through which they pass, varying from gravel and sand, to silt and clay, the fact that some discharge into the river where there is a regular rise and fall due to the tide, while others discharge at points where the tide does not reach—the gates of the former having of necessity to close and open during each tide, while in the latter they need only close during the freshet—all tend to require very careful examination and much experience before deciding upon the proper design for the gates.

In fact, almost every locality requires a gate of a design unique in itself, with some special features differing probably very materially from that required in a locality not half a mile distant. The boxes required for the sloughs located on the river above the effect of the