

## SESSIONAL PAPER No. 38a

## PEARLS.

A considerable number of pearls and slugs are also found. Some are of very fair size and good quality. In Mr. Clark's opinion, pearling alone would insure a sufficient return for one's labours if followed up. The highest figure yet obtained for a pearl was \$75.

## RECOMMENDATIONS.

In order to develop to the fullest extent the resources of the river, three main steps are urgent; first, to insure against depletion of the present stock of clams; second, to restock and stock artificially all favourable areas, and third, to improve the river in general by stream regulation. Since the last-mentioned object is so fundamental, I shall deal with it first.

## STREAM REGULATION AND SOME OF ITS ADVANTAGES.

Through the progressive removal of the natural physical conditions regulating stream-flow, the floods in the river have for some years been becoming more and more violent and destructive. This increased flood-flow has naturally reduced the volume of low water-flow proportionately. These two conditions, along with the scouring and general damage of river-bed, constitute an increasing menace to mussel life, to fisheries, and to power development along the river.

Some idea of the truth of the above statements may be deduced from a study of the following table of volume of flow at different points. The maximum flow of greatest recent flood is also included. This took place in the spring of 1912.

APPROXIMATE flow in cubic feet per second, period 1914, 1915 and 1916.

Grand River Stations.	Maximum.*	Minimum.*	Mean.	Drainage area in sq. miles.	1912. Estimated Maximum.
Belwood.....	4,600	3	190	280	10,000
Conestogo.....	9,300	-	375	550	20,000
Galt.....	19,000	50	810	1,360	50,000
Glenmorris.....	23,000	70	900	1,390	.....
Brantford.....	26,000	100	14,000	2,000	100,000
York.....	27,000	200	1,550	2,280	.....

\* Maximum flows are mean of two gauge heights, taken a.m. and p.m. daily. Minimum flows in some stations consist of leakage from dams.

The danger consequent upon these conditions cannot readily be overestimated. The fact that drainage areas of the Grand River and Great Miami river flowing through Dayton, Ohio, are approximately equal, is sufficient proof. No doubt far-reaching measures for the prevention of dangerous floods will have to be taken in the future. If such measures involve water conservation, the resources of the river will be enormously increased.

In the fall of 1912 the Hydro-electric Power Commission made a reconnaissance survey of the river watershed covering the main stream from Caledonia to the headwaters; also of the larger tributaries from their confluence with the main stream to their headwaters. In this survey, the main object of which was to ascertain what locations, if any, merited examination as sites for storage reservoirs and regulating works, it was found that by the building of nine dams ranging from 30 to 65 feet, storage reservoirs ranging from 450 acres to 3,000 acres in area could be obtained; the aggregate acreage being between ten and eleven thousand. While the above figures