Total Cost and Cost of Operation for All Schemes.

(Power given in h.p.)

	Power development. Potential hydraulic power. Summer.	Potential hydraulic power. Winter.	Pumping and electric power. Summer.	Pumping and electric power. Winter.	Heating. Winter.	Total cost. Actual.	Total cost. Future.	Cost of operation. Actual.	Cost of operation. Future.
Schemes:									
I. Present plan	11,900	7,445	10,500	10,500	Heating by exhaust steam.	$8,537,000	$ 9,177,000	$590,000	$679,000
II. Maximum power available	24,500	13,000	13,000	13,000		.....	10,609,000	.....	740,000
III. Minimum power available	9,500	5,000	10,500	10,500		7,515,000	8,205,000	504,000	648,000
IV. Pumping by steam	Nil	Nil	10,500	10,500		6,434,000	6,703,000	546,000	712,000
V. Buying electric current—									
$30 per h.p.	"	"	10,500	10,500	1,400	6,102,000	6,268,000	565,000	712,000
$25 per h.p.	"	"	10,500	10,500	1,400	6,102,000	6,268,000	529,000	656,000

The estimates referred to at the beginning of our report show a close agreement with our own, although calculated for different assumptions of the quantity of power obtainable from the canal, and for different methods of utilizing said power.

Our estimates do not include the cost of the filtration plant already built, nor of its proposed additions and operation, but include the cost of the power needed, and the cost of heating. We have not included either the cost of the main suction and discharge pipes beyond the pump-house; the cost of some of the bridges (as explained before) nor of the claims of the Cook Company. These costs would be the same for all schemes.

As for boulevards, which are provided for only in schemes 1 and 2, we have included the cost of land, fences and ditches, and whatever grading must be done by the contractor, and nothing else.

In this report five schemes are considered. The figures used are taken from works lately executed, with a percentage added to cover normal increase in cost of labor and materials.

The tables all indicate "present needs" and "future needs." We would direct your attention to the figures for "future needs" only, as such will be justified by the time the plant is ready for operation.

Cost of Schemes—(H.P. Basis).

	Total cost.	Capital cost.	Cost of operation.
Scheme 1	$874	$756.66	$64.66
" 2	816	716.06	56.90
" 3	782	668.50	61.71
" 4	639	522.48	67.81
" 5—			
Electric current at $30.	597	493.05	67.81
Electric current at $25.	597	493.05	62.47
Work abandoned	562	459.22	28.07

We will now consider the schemes as described.

Present Scheme (Scheme 1).

This scheme is the one to which exception has been taken, and we agree that it should not be proceeded with as outlined. It could not have developed the expected power.

Maximum Hydraulic Development (Scheme 2).

This scheme shows the cheapest cost of operation per h.p. It is described at length in the body of the report, and considered in our recommendations.

Minimum Hydraulic Development (Scheme 3).

This scheme is inferior to Scheme 2, and need not be considered. It gives less hydraulic power, and the auxiliary steam plant being worked to a much larger extent, the possible increases in the price of coal will affect the cost of operation to a greater degree.

Pumping by Steam (Scheme 4).

This scheme considers finishing the aqueduct simply as a channel to carry water to the pumps, which are operated directly by steam. The high cost of operation is due to the charges against it of money already spent on the aqueduct extensions. Had the old aqueduct been left as it was, simply as a supply to the steam pumps, a steam pumping plant would have been a most attractive proposition.

Buying Power (Scheme 5).

There are two subdivisions to this scheme, figured on electric power supplied at $30 and $25 per e.h.p., on the same basis as power is now purchased for pumping purposes.

Here, as in the case of scheme 4, the cost of operation is charged with the amount already spent on the aqueduct extensions. To this is added such expenditure as may be required to put the channel in condition to carry the water supply to the pumps. This scheme is again referred to in our recommendations.

From our examination we considered that it will be necessary to pave certain sections of the bottom between the walls, as a precaution against their sliding or turning over, due to the unstable nature of the ground. We have provided for such paving in our estimates.

Power for Lighting.

There is not sufficient hydro-electric power in sight at present to justify your considering the taking over of the city lighting. This question has been treated at length in the body of the report.

Filters.

The filters, as designed and now nearing completion, have a rated capacity of 50,000,000 Imperial gallons per day. We understand that plans are under way for a further extension to 100,000,000 Imperial gallons per day output, with possible future extension to 150,000,000 Imperial gallons. The present records show a maximum pumpage of over 70,000,000 Imperial gallons. This means that the filters have not sufficient capacity to meet the present demand.

(Concluded on page 488.)