

Suitable locations for community ponds are often within a flood plain. Community pond development without damageable property build-up is one of the desirable uses for flood plain lands. Flooded gravel pits, quarries and old mill ponds have been converted for extensive community uses.

The largest unit of this type is the Guelph Dam and pond on the Speed River at Guelph. The dam raises the water 11 feet creating a large pond which forms the nucleus of a riverside park. In order to allow the unrestricted discharge of the high spring discharges the dam is fitted with three electrically operated large steel gates, each gate being 32 feet wide by 11 feet high.

#### E. FINANCING

In all, the water control works completed or underway at January 30, 1961, amounted to \$30,082,377. The majority of these projects were financed by the local Authorities with a 50 per cent grant from the Province. The more costly dam and reservoirs were financed, 25 per cent by the Authorities and 37½ per cent by each of the two senior governments. The status and value of water control projects of the Conservation Authorities, as of January 30, 1961, are summarized in the following table and a detailed list of these is given in the attached Appendix I:—

(a) Projects completed or underway .....	\$30,082,377
(b) Projects completed to point of construction ..	\$20,228,405
(c) Projects—Preliminary Engineering only .....	\$68,357,000
(d) Projects for future investigation .....	\$16,726,500
	\$135,394,282

### HYDROMETEOROLOGY

#### I Hydrometeorological Analyses and Research

Variations in meteorological conditions have a pronounced effect on the flow pattern of the streams and rivers of Southern Ontario. Local intense rain can increase the flow from a trickle to a flood in a few hours. A warm spring day can produce sufficient snowmelt to develop floods overnight. On the other hand periods of drought will reduce river flow to negligible amounts.

Problems such as these which concern the relationship between meteorology and hydrology must be considered in detail before controls can be established on a river. Hydrometeorological analyses are therefore an important part of the water studies of the Conservation Branch.

These analyses which require data from an extensive network of precipitation and stream gauge stations relate rainfall, snowmelt and soil moisture conditions to runoff in the streams. Such studies establish the characteristics of the stream under a variety of meteorological conditions. The results are used to establish the capacity of reservoirs, the size and type of dam structures or channel improvements and the availability of water for urban use, irrigation, pollution control, recreation and power supply.

As the demands for water and the need to control it for protection and use increase the value of accurate and detailed hydrometeorological analyses will become more and more apparent.

Besides giving attention to hydrometeorological analyses the Conservation Branch is also concerned with research in the water balance of different regions of the province. Two projects are underway at the present time. One,