tional weight or thickness as may correspond to any probable or even possible overflow during freshets. He is glad to see that engineers, of their own independent bent of mind, and due to calculations founded on their own experience and that of others, and taught the philosophy thereof by so many dam failures, are now reaching this advocated standard of ratio of base of dam to height of water to be supported.

The Lachine dam is fully up to this standard of thickness.

The Chambly dam would also have reached the same standard had its weight not been so much decreased by a series of sluice gates in such close proximity to each other.

The Chaudière dam is also more than fully up to the standard required, though in this case it may be prudent, as suggested by the writer, to build within it an inclined apron of crib work to allow ice shoves in the spring to pass clear over it; as, otherwise, the additional pressure due to a large field or body of floating ice driving along and up against the dam, might overcome not only its weight, but also its adherence by frictional resistance and jagging into the bed of the river, even though toothed or keyed into the bed rock.

Our Lorette dam, Quebec Water Works, is, in respect of solidity and durability, a model of its kind. Built by the late prudential George Baldwin, of Boston, it is as thick as it is high, even at its overflow, and this overflow has been eroding it or tending to do so since 1852, or for the last fifty years, without any other effect than the washing away of the cement mortar from between the granite components of the dam; and the height of water overtopping the dam has often ranged up to as much as twenty inches and more, and sometimes even to a depth of thirty inches, and during all this interval of half a century, nothing more serious has happened than the disintegration and washing away of the binding mortar from between the upper or apron stones of the dam and of some of the outer face stones thereof; and with the slightest repairs in the way of pointing, this dam may continue to do duty not only for another half a century, but almost indefinitely for all time to come.

The Quaker dam, New York, now under construction, which will be the highest and longest in the world, comes up to the required standard. If the ratio of its breadth to its height at every point is not equal to depth of water to be impounded above that point, the structure makes up for deficiency in weight by its splendid and thoroughly bound construction.