for applying the counterpoise are far less convenient, being usually the action of weights over sheaves, and, the resistance constantly diminishing as the bridge rises, it requires a complicated arrangement to graduate the action of the counterpoise to an equality with the resistance at all stages of the movement. Still, the thing may be practicable, were the object of sufficient utility to warrant the undertaking. For instance, the counterpoise may be permanently attached to the draw in such position as to bring the common centre of gravity in the line of the axis of motion; when the only resistance would be the friction of the journals at the hinge joint. Again, a counterpoise acting upon a windlass might raise the draw by chains winding upon a fusee, with radius increasing as resistance diminishes. Or, weight might be mounted upon wheels, and run down upon a curved incline, so adjusted as to diminish its action to an equality with the resistance at the different stages.

But none of these devices are suitable for effecting more than very small openings, and are not likely to be often adopted. They will therefore not be passed by with a mere allusion.

Lift bridges have also been constructed to open in the middle and lift both ways. By this means wider openings may be effected.

But, as the middle portion of the bridge and passing loads must be sustained by the lifting chains, this plan is not well adapted to any but light traffic. Such a structure over the Albany Basin broke down many years ago with fatal results. Perhaps, however, the catastrophe resulted rather from the imperfect condition or faulty construction of the bridge, than from inherent defects of the general plan.