

At this place there is five feet water in the creek, a quantity increasing as it flows on; and here is experienced again, what has hardly been felt since South Point is passed, the effects of regular tide. Its width here would not be sufficient for the purposes of the navigation, being only 15 feet where it joins, at the distance of a mile from the point indicated, with the main or Rhoad's Breek. The commissioners would therefore recommend that an alteration, by means of a sluice, be effected in this part of the creek: for the remaining distance of nearly two miles, although the stream be narrow and somewhat winding, and the most favourable results have already attended cheap efforts at altering its channel, they are inclined to believe that the use of the creek, as it at present exists, would for some time be found the best policy.

III In the preceding section has been given an account of the situation of the country they were directed to examine; and its facilities for the projected improvement: and the modes of applying that improvement have been generally stated. In this section, the Commissioners will apply themselves more particularly to the details connected with the subject—embracing the mode of construction and use of the canals, and estimates for the several locations and improvements which have been suggested.

1. The dimensions of a Canal about to be constructed, depend, in order to that construction being upon the most advantageous terms, upon the kind of vessels which are to navigate it: and a proportion must always exist between the cross-section of the canal and that of the vessel, as well as between their respective widths; in order that the progress of the boat be not impeded by an unnecessary amount of back water, and undue friction against the sides or bottom of the canal, i. e. that the motion of the boat be the same as if moving on a sheet of water of indefinite extent. Numerous experiments made in France by several philosophers, and in particular by Du Buat, have shewn that this effect is produced when the cross section of the canal is 6.45 times that of the boat, if at the same time the width of the water line of the canal be $4\frac{1}{2}$ times the beam of the boat: it does not appear that the length materially influences the matter. These relative proportions, founded upon experience and in accordance with philosophical