

MANGROVE TREES ON TIDAL FLATS

Where the reclaimed area is almost level with the outside water at low, or partly low, tides, drainage through flood-gates is not very satisfactory. Where this occurs other means have to be used to remove drainage water collected by the internal drainage system. The only satisfactory method of removing this water is with flood-pumps. Even where flood-pumps are used, it is generally advisable to provide flood-gates, as a certain amount of drainage water will escape from the reclaimed area at low tide. This will allow more economical use of the pumps, which would be in motion only when the tide waters prevented the escape of drainage water through the flood-gates.

It is very important for the successful development of reclaimed tidal areas that provision be made for drainage water to be removed as quickly as possible. If the area is at a reasonably high level, this can be achieved by the use of flood-gates, but if all drainage water cannot escape through the flood-gates between tides, it is necessary to remove it by flood-pumps. It is imperative to have a survey taken of levels of the area to be reclaimed before work is commenced, so that data are available which will indicate whether flood-gates can be constructed at a level which will adequately allow drainage water to escape through them when the tide recedes, or whether it is necessary to install flood-pumps to lift surplus drainage water over the stopbank into the tide.

The use of flood-pumps for removing drainage water from farm lands has been dealt with previously in the "Journal of Agriculture." In the issue of September, 1935, J. E. Bell dealt fully with this subject, and an article by E. H. Arnold was published in the November, 1942, issue.

Internal Drainage

Internal drainage on reclaimed tidal areas is essential to bring the soil into a state fit for grassing.

The percentage of salt in the soil must be reduced before grasses and clovers will grow satisfactorily. This process is more rapidly achieved by thorough underground drainage. If the soil cracks freely after stopbanking, open drains every five to six chains to a depth of 2ft. 6in. to 3ft. are usually sufficient to carry off the water. In sands and sandy loams overlying shell open drains every chain to a depth of 2ft. to 2ft. 6in. will serve the purpose of eliminating salt rapidly, but the drains are much more effective if fascines are used and the drains put in two chains apart at a depth of 2ft. 6in. to 3ft. The sticky clay types are the most difficult to drain and deal with generally



Upper—A typical view of tidal flats, showing reclaimed area in foreground. Area outside stopbanking shows natural growth of mangroves in tidal waters. Middle—Mangrove trees dying after drainage of reclaimed area is becoming effective. Lower—Another view showing strong growth of large mangrove trees on unreclaimed area.