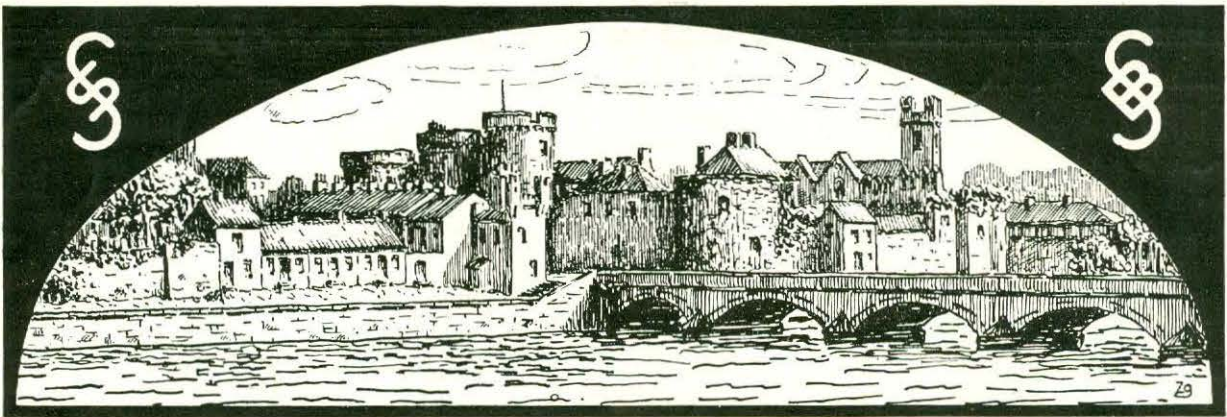




SIEMENS

PROGRESS ON THE SHANNON

1st YEAR

SEPTEMBER 1927

NUMBER 12

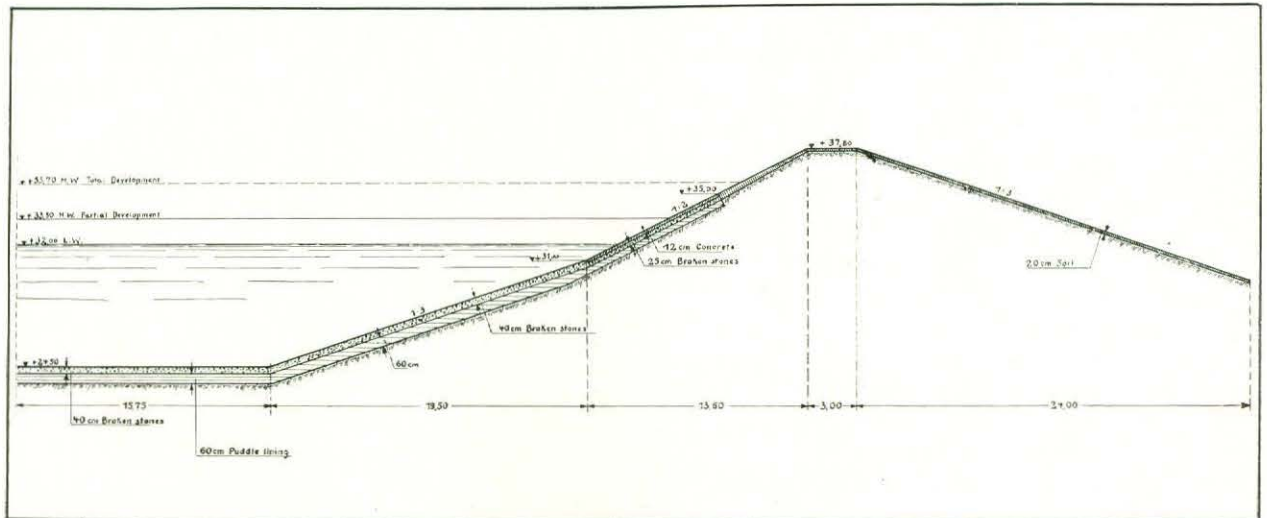
The Building of the Embankments

The Head race Canal which conducts the water of the Shannon to the Power House, is one of the most important parts of the Civil Engineering work near Limerick. The Head Race is approxi-

mately 12 kilometers long and its embankments and cuttings must resist the continual pressure of water as well as wave action. Visitors who come to inspect the work at Limerick pay less attention to these



Concreting of slab on the slopes

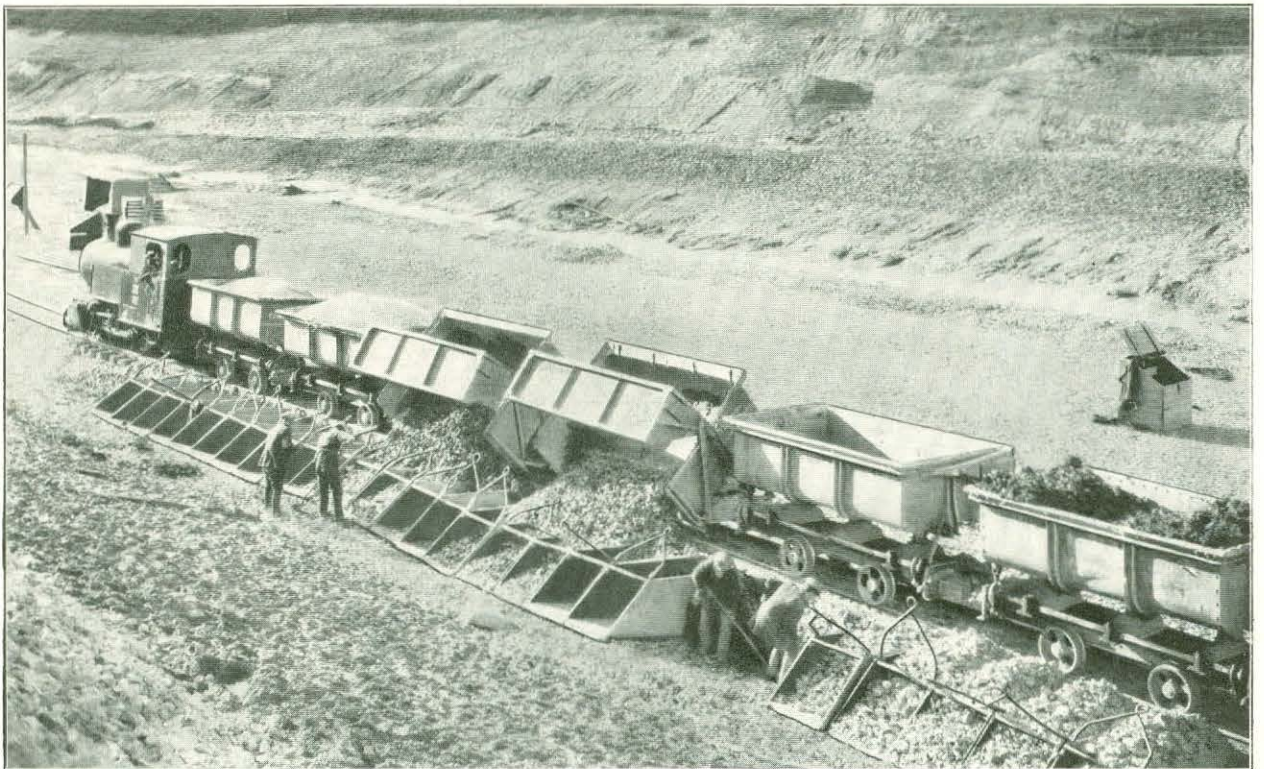


Cross Section of Embankment

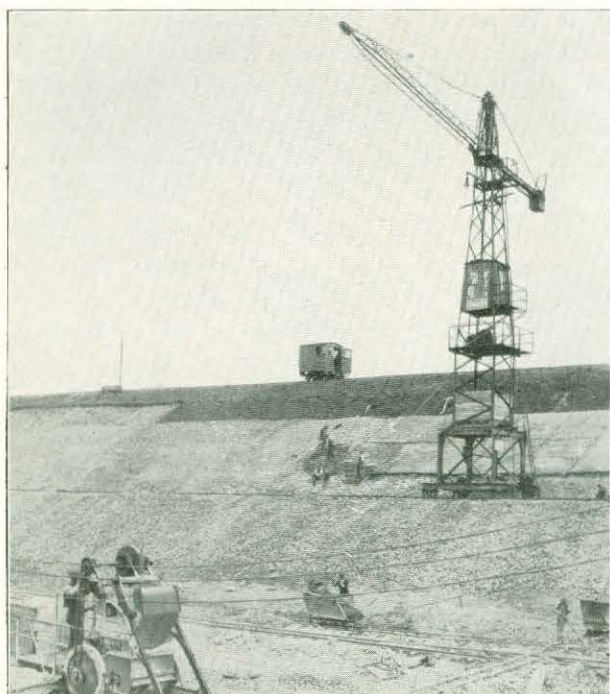
embankments than to the bridges, culverts and Power house, and to the working of the large Excavators. It is not always realized how difficult it is to build embankments in the right way and what complications may arise while the work is being carried out. We previously described the building of embankments with the aid of Trans-

porters. After the embankments have been constructed by these machines, watertighting and protection work on the inner slopes of the banks and cuttings is required before the water can be let into the canal.

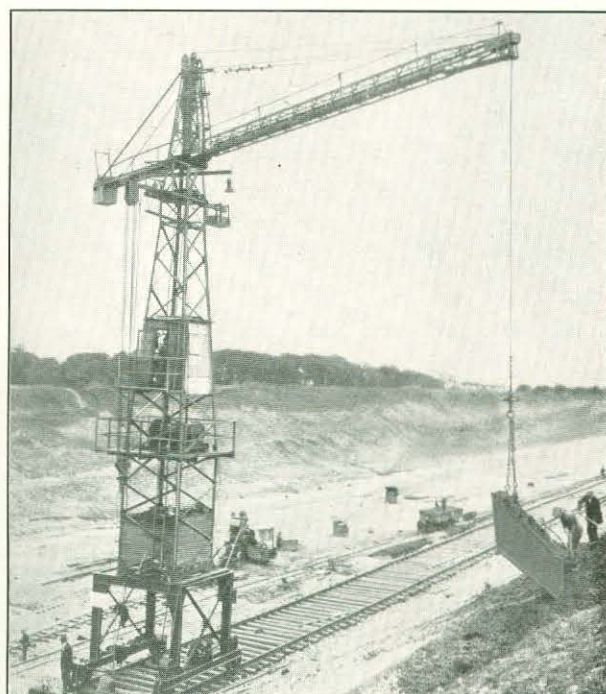
In cases where the material is not sufficiently watertight, a 60 cm layer of clay is placed on the



Conveying broken stones



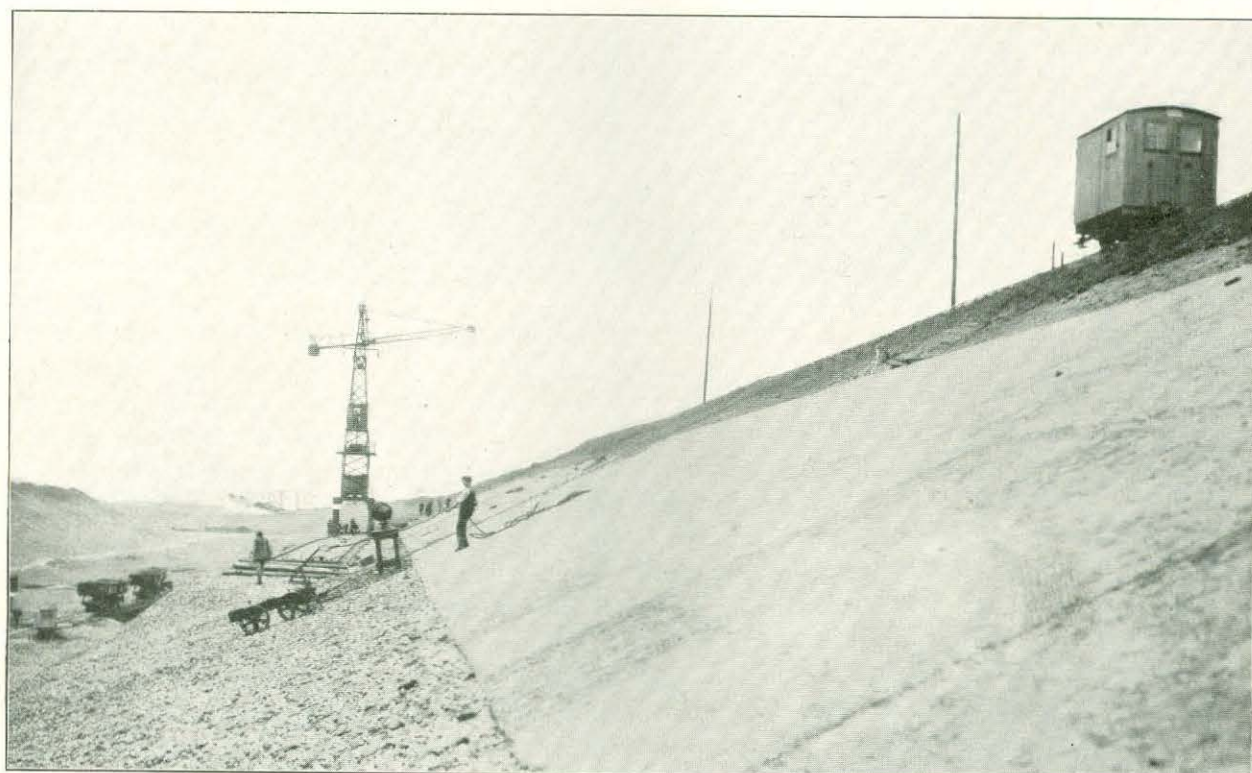
Concreting of slab on the slopes



Soiling the embankment slopes

inner slopes, and bed of the canal. The slopes and bed must also be protected from the eroding effect

of the water, and this is done by means of a 40 cm thick layer of broken stones. Above this



Leveling the stone pitching by means of special rake

pitching concrete plates are being provided on the slopes from one metre above high water to one metre below low water as a special protection against wave action due to wind, a sudden stoppage of the turbines, or navigation.

On work of the scale undertaken on the Shannon, tipping methods must be avoided as much as possible and the Transporter method has the advantage of building the embankments as one solid structure and with considerably more speed. This method is of special value in a country like Ireland where the rainfall is above the average. At the present time the grass is already growing on the outer side of the embankments while the finishing work is proceeding on the inner slopes.

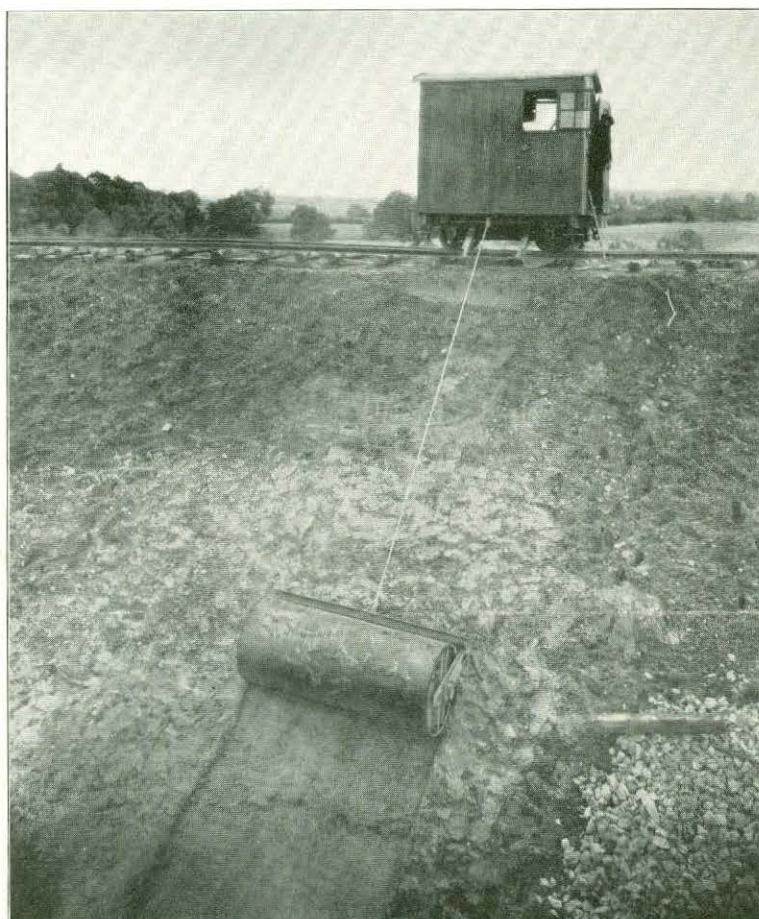
On one of our pictures this work can be seen. A swivel crane which is placed in a position to enable it to command the whole slopes from the bottom of the canal to the top of the embankments is doing all the hauling work. This crane has a reach of 15 meters, can lift a load of 2 tons and is driven electrically. A Railway track is seen on the bottom of the canal, the trains bring clay, broken stones, top soil and aggregate for the concrete. A row of steel skips is placed alongside the track to receive the contents of the trucks. The slopes are levelled before the crane begins working. One of our pictures shows the method by which the skips are lifted and emptied of their contents.

After the slopes have been levelled, a layer of clay is placed wherever necessary, and to attain a good adhesion with the embankments the clay is rolled in. The broken stones are also put in position by the crane, and higher up the concrete plates are formed. These plates have a thickness of 12 cm and are 3 meters wide and 6 meters deep. The concrete

is mixed in a machine which runs along rails along the bottom of the canal, dropped into the steel skips and lifted by the crane.

The different phases of the work which we have just described are all carried out close to each other, and consequently the crane can work without interruption even in the case of any delay occurring in the arrival of any of the materials required. As the crane moves to its next position along the embankment, it becomes necessary to level down the platform on which the track of the crane runs.

This is done with



Rolling the Puddle Lining

a specially constructed rake which can be seen on our picture. Only one man attends to this machine, which runs down the slopes through its own weight and is drawn up again by a winch which also serves the roller used on the slopes. This winch has a 25 H. P. Diesel engine and runs on rails on the top of the embankment.

The machines used for the above described work have proved to be very efficient. When required more machines of the same kind can be added and all of these can easily be erected and dismantled.