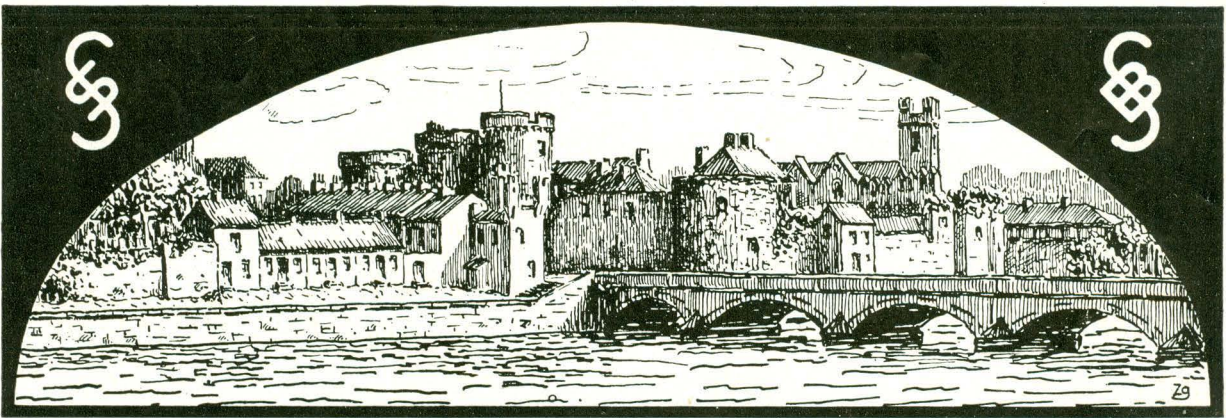




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PROGRESS ON THE SHANNON

2nd YEAR

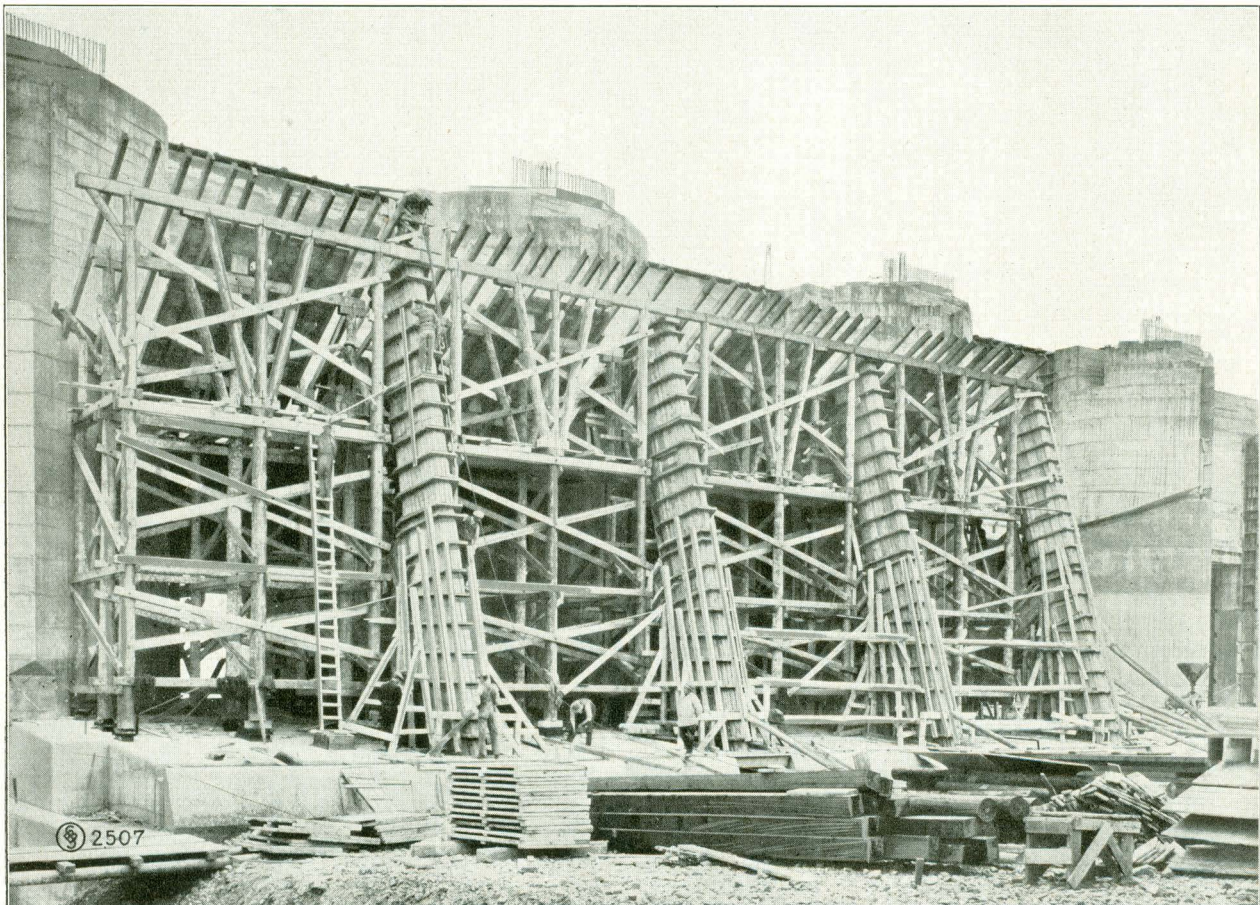
JUNE 1928

NUMBER 9

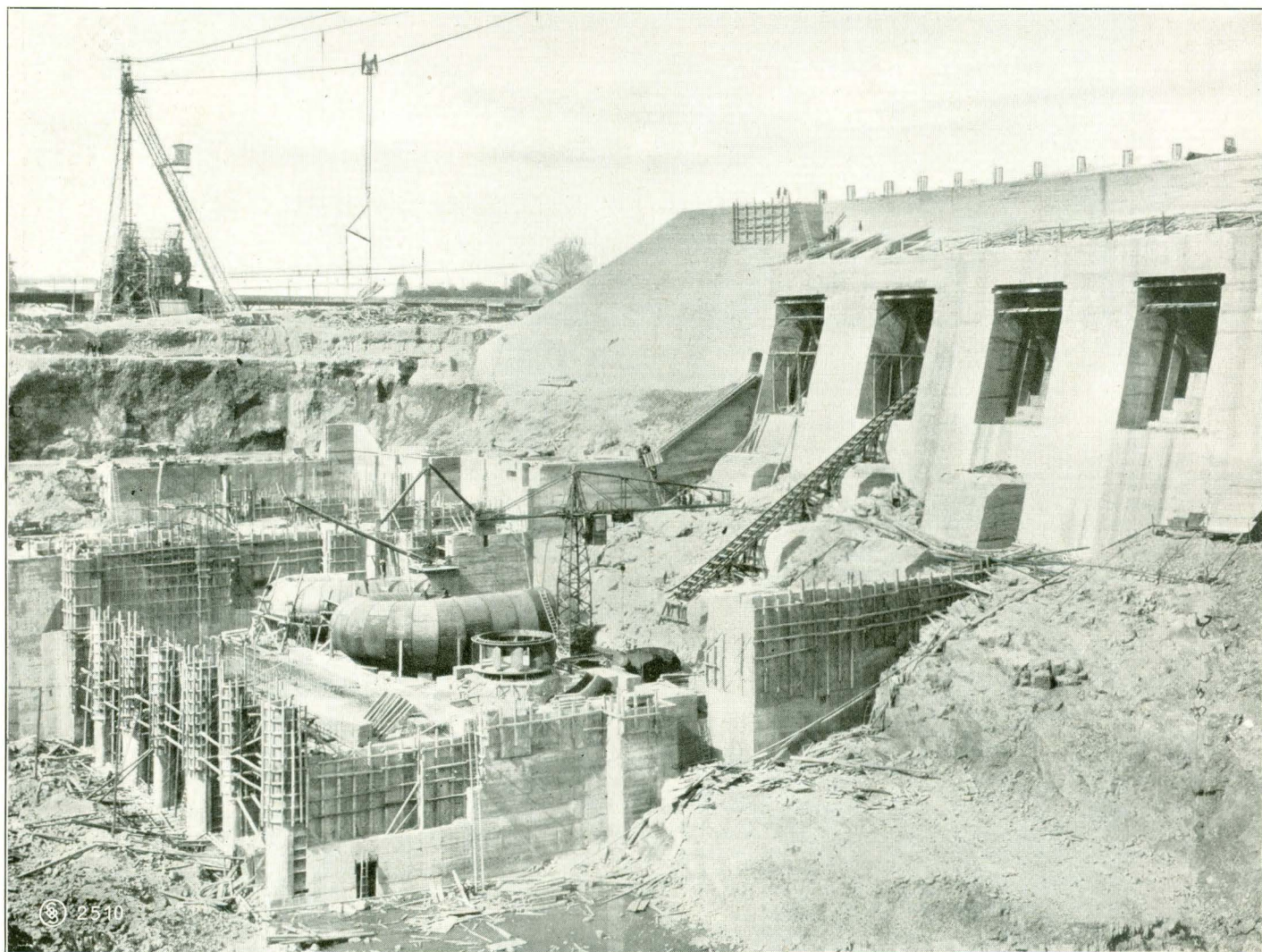
Concrete Work at the Main Power Station

All the excavation work at the site of the Main Power Station was completed towards the end of 1927 when approximately 200 000 cbm. of earth and

150 000 cbm. of rock had been removed down to the deepest foundation level of the underground portion of the Power Station. On account of the



False work for the construction of stays supporting the trash rack



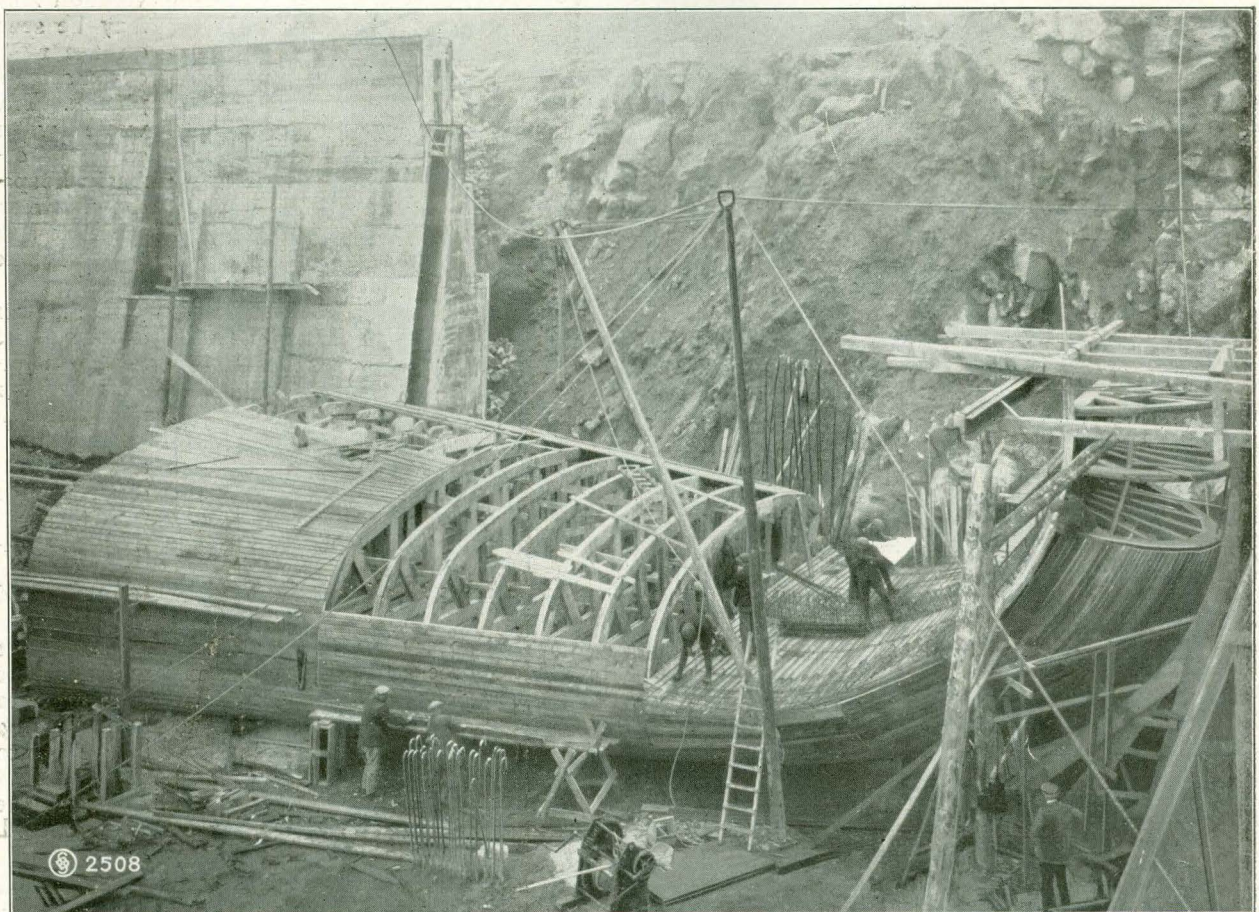
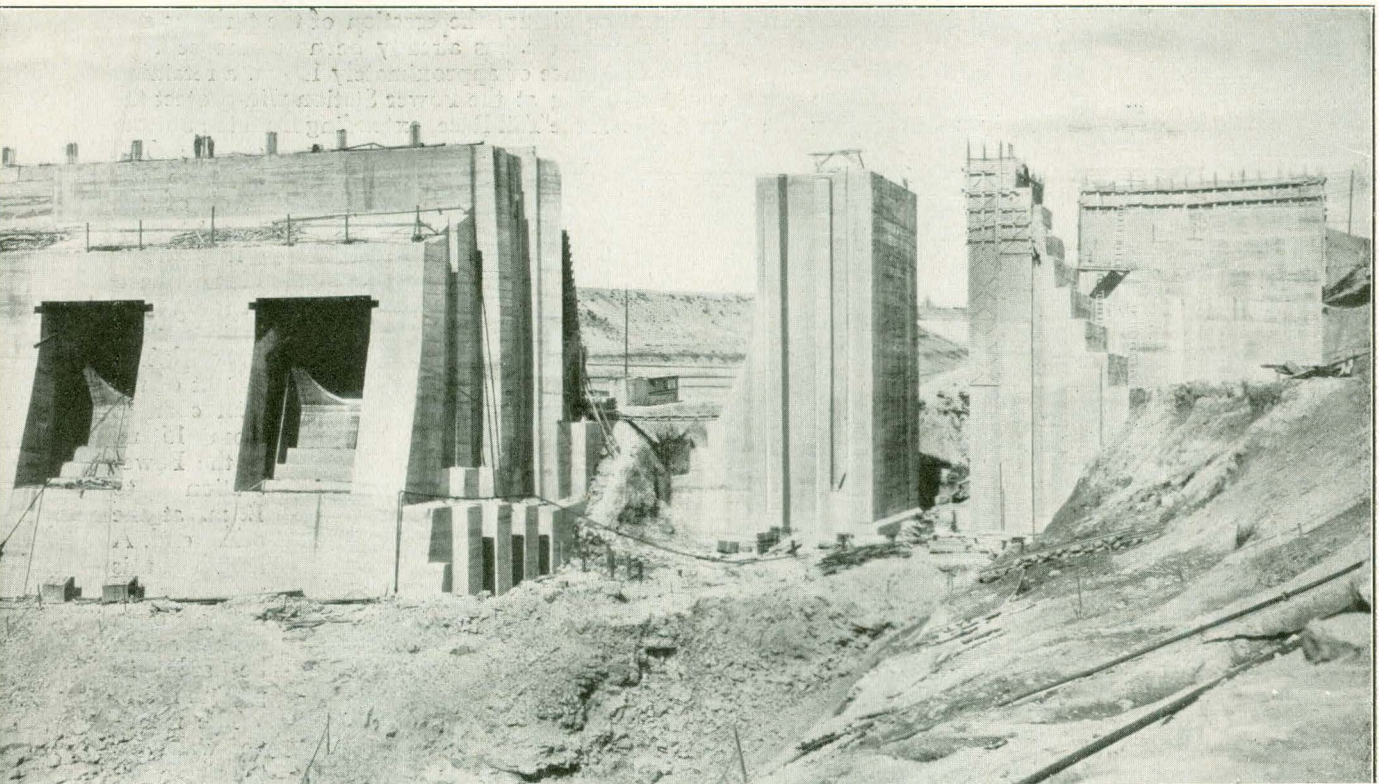
General view of Intake Building, draught pipes supports and Power House Foundation

higher foundation level of the Intake Sluice House, the excavation work for this was finished first and the concreting work begun at once. The Intake Building, running across the Head Race above the Power House, is essentially a huge concrete gravity dam or barrage with wing walls splaying from each end into the Head Race banks. It is now completed to the floor level of the superstructure enclosing the machinery operating the sluices in front of the pipes. It contains about 60 000 cbm. of concrete and is about 100 m. long. On the Head Race side the dam has six inlets admitting the water to the 6 m. diameter penstocks bringing the water to the turbines 30 m. below. Only three of these inlets will be used for the partial development. At the extreme east of the structure there will be two more openings, one for the waste water channel, the other for the entrance to the Navigation Locks. The foundation of the Intake Sluice House is blue limestone — a rock of high bearing strength — but, in order to obviate the danger of the water percolating from the Head Race through the existing fissures in the underlying strata, it was decided to grout the entire area in question to a depth of

15 m. by pumping cement through pipes into the rock under a pressure of six atmospheres. Many tons of cement grout were used in this work.

Immediately in front of the Intake Building there is at present being erected a network of timbering, the false work for the erection of the stays supporting the trash rack and the later on submerged tops of the bell-mouthed shaped inlets to the penstocks. The present stage of the work has been attained in the comparatively short period of 10 months.

The foundations for the Power House, being some 30 m. below the foundation level of the Intake Sluice House, involved the excavation of thousands of cubic meters of rock. The concreting work here could not consequently be begun until November 1927. The entire area of the rock foundation was found to be suitable for the stresses allowed in the design except for a small part, some 400 sq. m. in area, immediately under the proposed location of the two draught tubes on the extreme west. An earth pocket was discovered here which called for special treatment. The excavation here was carried down for a further 3 m. over the area mentioned, and a strongly reinforced concrete



False work for draught tube No. 1 and placing the reinforcement of the horizontal vane in the draught tube

foundation slab containing nearly 100 tons of steel laid down.

The construction of the draught tubes on this foundation was then proceeded with. These are primarily reinforced concrete pipes discharging the water from the turbines into the Tail Race. They have a curved longitudinal axis and gradually change from a horizontal circular section 4.80 m. dia. at the turbines to a vertical rectangular one 13×5 m. at their outlets 18 m. away from the centre line of the turbines. A lot of attention was paid in the design to their being perfectly stream lined in order to obtain an even flow of water from the turbines to the Tail Race. In appearance the timber false work for these draught tubes was not unlike a gigantic ear-trumpet.

They were temporarily supported on heavy timber frames which were gradually replaced by concrete supports before concreting was begun. A horizontal steeledged reinforced concrete vane bisects the elbowed portion of each draught tube, a fact which presented a considerable difficulty for the carpenters as well as for the concreting work. The top portion of all three tubes has been provided with particularly heavy steel reinforcement of which our last picture gives a clear idea. As can be seen

in the same picture the erection of the turbines and spiral casings etc. has already been commenced.

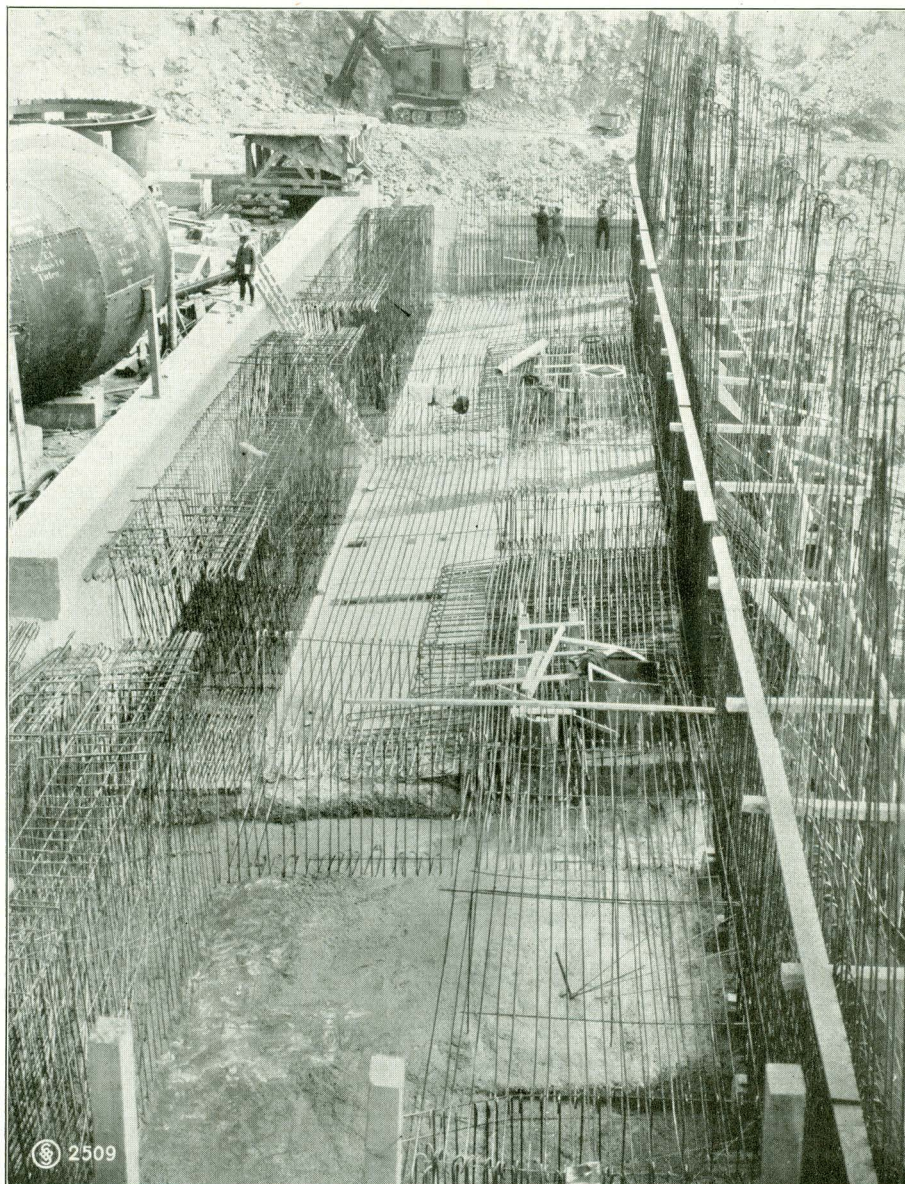
For a distance of approximately 150 m. a retaining wall beginning at the Power Station will protect the west side of the Tail Race, extending from the bottom

of the Tail Race to the level of the Great Southern Railway Line connecting the Power Station with Limerick. The height of the wall changes from 15 m. at the Power Station to 12 m. at the other end. A length of this wall has already been erected as can be seen in picture No. 3.

The massive walls of the upper navigation lock may be seen on the right of our second picture. The waste water channel comes in the space between the lock and the Intake Building.

The Power House Site has been excavated for the total development and consequently for the time of the partial development it was found necessary to

erect a temporary partition wall running along the last of the three penstocks and extending 1 m. above the highest water level in the Tail Race in order to protect the back of the Power House from flooding. In addition adequate provisions have been made to ensure an easy connection of the remaining half of the Power House for the full development to the one for the partial development now being erected.



Reinforcement of the top of the draught tubes Nos. 1 to 3