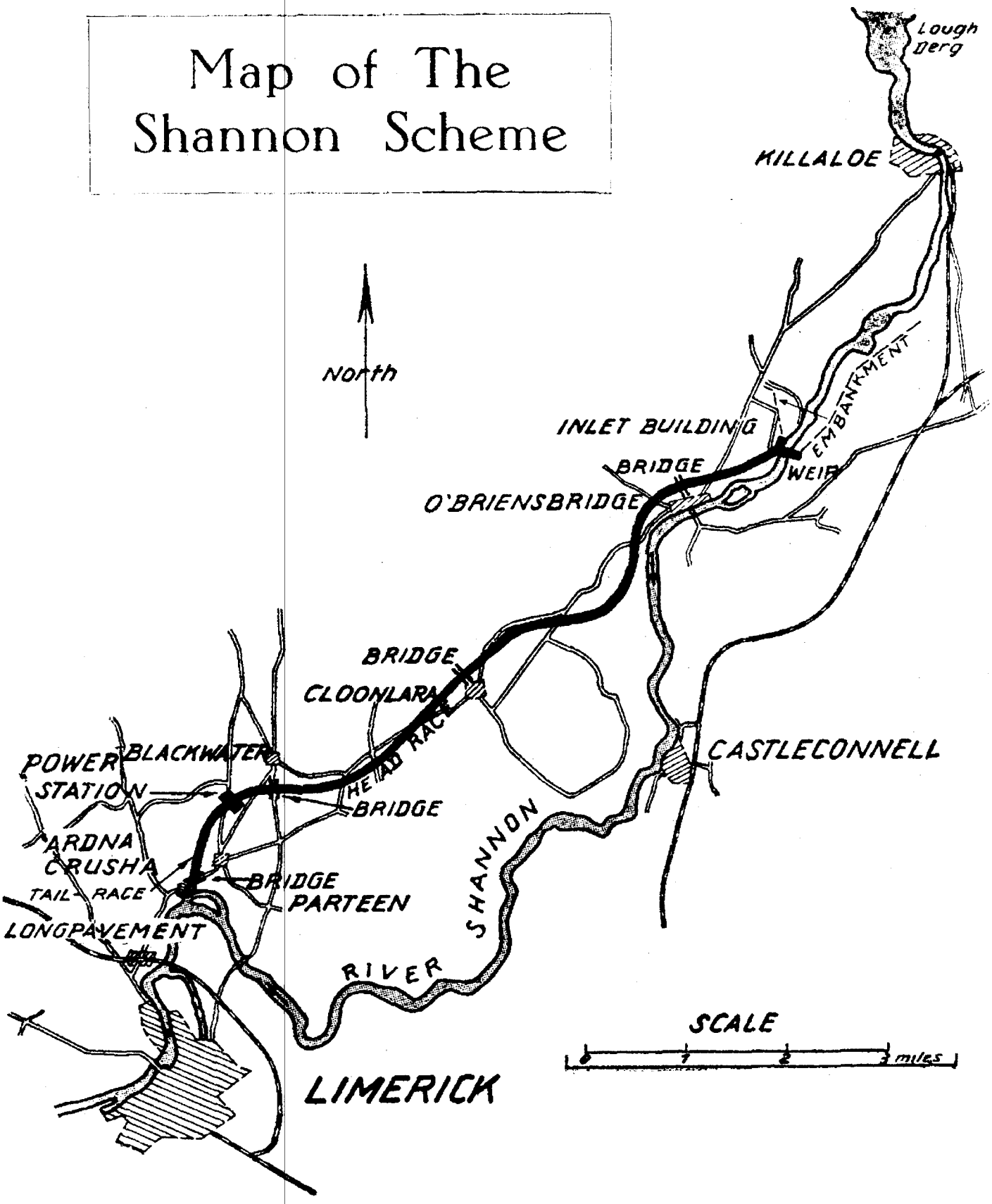
Map of The Shannon Scheme



Shannon Power Development Scheme

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FEW events in the varied and interesting history of Limerick have caused such widespread interest as the construction works, now in progress in the vicinity of the city, for the development of the water power of the Shannon to supply electric power to the Irish Free State. That the interest is widespread is evident from the large number of visitors from all parts to the works and the numerous references in the British, Continental and Foreign Press. Many years ago, in the early days of electric development, the possibility of utilising the falls of the Shannon at Castleconnell to generate electricity was appreciated, and projects were prepared by Irish Engineers of the time, but for various reasons were not put into effect. The work done by those pioneers was not altogether wasted, as the data accumulated then and in the years that elapsed, until the present scheme was proposed, was of great value to the proposers of The Shannon Scheme as it is known to-day.

Early in 1924 Messrs. Siemens-Schuckert Werke (Berlin) placed before the Minister for Industry and Commerce their proposals for the Electrification of the Irish Free State by developing the water powers of the Shannon. Their proposal was submitted to the critical examination of four leading Continental Experts in Hydro Electric Development, and with some modifications was approved of by them.

The Minister of Industry and Commerce (Mr. McGilligan) with great ability, courage and confidence, and in face of heavy opposition, brought forward in May, 1925, a Bill to give the proposals effect, and in July of the same year his Bill became law. Contracts were entered into between Messrs. Siemens-Schuckert Werke, and the Irish Government to carry out the necessary constructive works, and actual construction commenced in the late Autumn of 1925.

The Shannon Power Development, or, as it is more popularly known, "The Shannon Scheme," contemplates the utilization of the fall of the Shannon between Lough Derg and the tidal waters at Limerick, in conjunction with the natural storage formed by the Shannon Lakes, Allen, Ree and Derg, for the production and distribution of electric energy over the Irish Free State. The work is to be carried out in three stages known as the partial, full, and final developments. The partial development which is now being carried out contemplates an installed capacity of 90,000 H.P. The final development as contemplated will produce twice this power.

The conditions and manner in which this power can be developed are fully set out in the Experts' Report, and detailed particulars of works necessary to supply the power and distribute it have appeared from time to time in the "Irish Trade Journal" and in the engineering Press of England, America and the Continent. The main features of the Constructional Works near Limerick are the Weir or Barrage across the Shannon, at Parteen Villa near O'Brien's Bridge, to raise the level of the river to the level of Lough Derg and to control and divert the quantity of water required for power from the river through a head-race canal to the Power Station at Ardnacrusha, where the whole of the available head between Lough Derg and Limerick is utilised. From the Power Station at Ardnacrusha the waters are led back through a tail-race canal to the Shannon near the Lax Weir.

The Barrage or Weir at Parteen Villa is a concrete structure founded in the sandstone bed of the river. This Weir will contain six large sluice openings fitted with vertical lift sluice gates. The intake which is at the entrance to the head-race canal and adjoins the Weir is a concrete structure containing three sluice gates for regulating the quantity of water entering the head-race canal. In addition there is a ship's passage, as it is intended to abandon, when the works are complete, the present Shannon Navigation Canal between Plassy and O'Brien's Bridge, and to divert all navigation through the new canalization formed by the Power Development Works.

The head-race canal which conveys the water so diverted from the river to the power station is a little over seven miles in length, and it is constructed partially in cutting and partially by embankments. It passes north of and close to the villages of O'Brien's Bridge and Clonlara, and crosses the Blackwater river a few hundred yards south of the old Blackwater mill. It terminates at the Power Station which is situated a quarter of a mile due west of the Limerick-Broadford road, and about a mile north of Ardnacrusha Village. The contruction of this canal is a huge earthwork undertaking, and in addition its construction has necessitated the diversion of the Blackwater-Killaloe road in many places and the construction of three bridges at Blackwater, Clonlara and O'Brien's Bridge respectively.

The water on leaving the head-race canal enters the Intake Control Works leading to the Power Station. Here it is directed into penstocks and conveyed with a total fall of 100 feet to the turbines of the Power Station. In the partial development there are three turbines, each of 30,000 H.P., driving three generator units.

These units will deliver three phase 50 cycle alternating current at 10,500 volts to the transformer stations adjoining, and from these transformer stations the current will be distributed at 110,000 and 38,000 volts to the network of transmission lines spread over the Free State.

The spent water from the Power Station will find its way back to the Shannon through the tail race canal, a heavy cutting in rock leading into the river near the Lax Weir at Long-pavement.

Navigation as previously mentioned will in future utilise the canalization formed by the head and tail-race canals. Two locks situated at the Power House will raise the boats from the tail-race canal to the head-race canal. The level of the head-race being the same as Lough Derg the boats can then proceed without further locking up the Shannon and across Lough Derg to Victoria Lock north of Portumna.

The whole of the Civil Engineering Construction work is being carried out by Messrs. Siemens Schuckert Werke and their associate firm of Messrs. Siemens-Bauunion.

The design and execution of all work is carried out under the constant supervision of a staff of Irish Engineers appointed by the Irish Government for this purpose. Visitors are allowed to view works on Thursdays and Saturdays between the hours of 1 p.m. and 5 p.m., and on Sundays between the hours of 11 a.m. and 5 p.m. Permits are necessary, and can be obtained by written application to the Resident Engineer, Department of Industry and Commerce, Strand Barracks, Limerick.

(We wish to acknowledge our great indebtedness to Mr J K Prendergast, A.M. Inst., C.E., Resident Engineer, Shannon Power Development, Dept. of Industry and Commerce, Limerick, for his kindness in supplying the foregoing interesting and instructive article on the Great Shannon Scheme)