



Siemens-Schuckertwerke
Aktien-Gesellschaft

SIEMENS

Siemens-Bauunion GmbH.
Kommandit-Gesellschaft

PROGRESS ON THE SHANNON

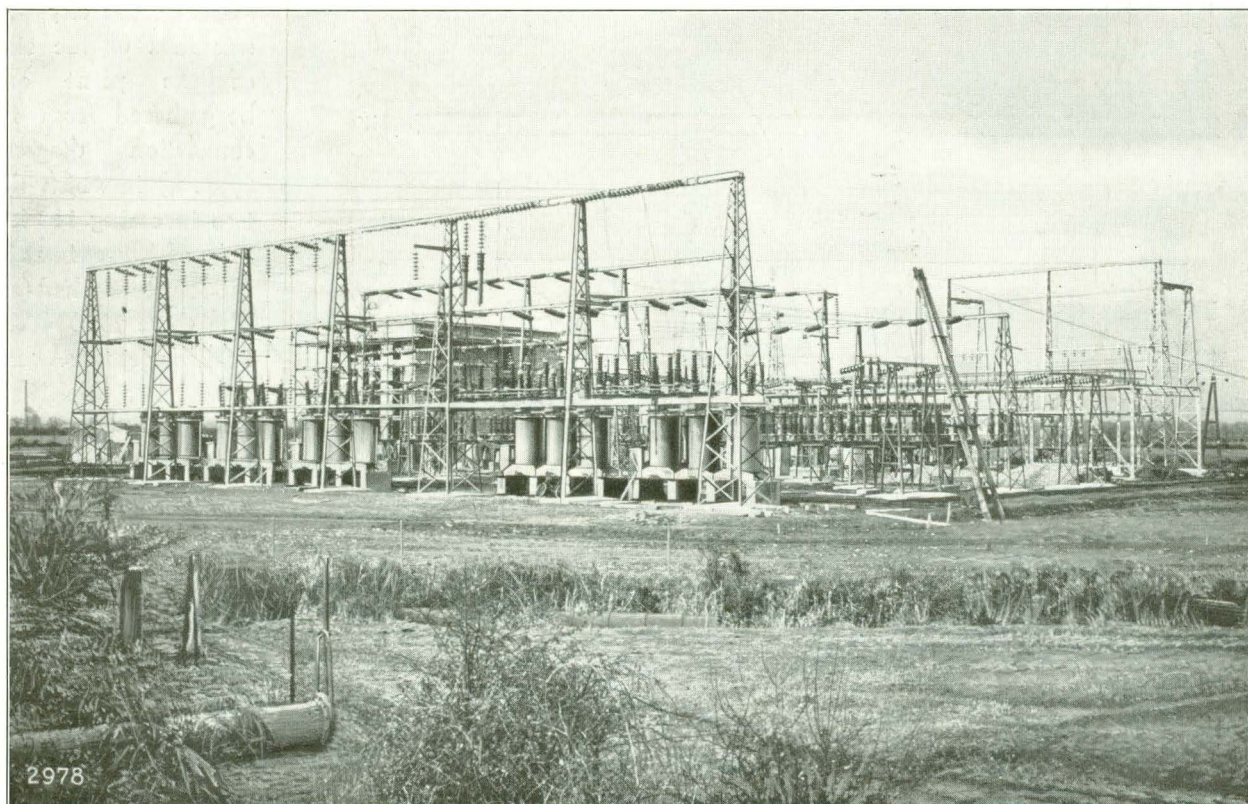
3rd YEAR APRIL 1929 NUMBER 7

Electrical part of the Shannon Scheme

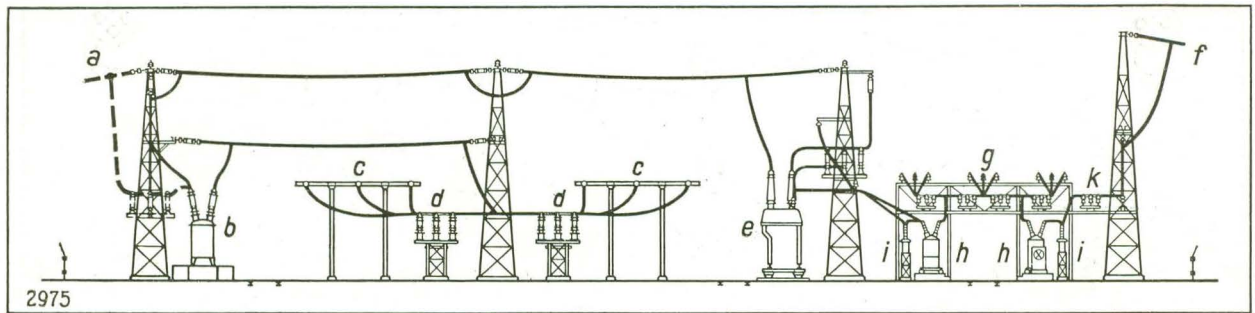
110 kV Transformer Station Dublin

Part I

The Central Power station at Ardnacrusha feeds, by means of 110 kV Overhead Lines, the two main 38 kV distributing points Dublin and Cork and also supplies the current for these two largest cities of the Irish Free State. The Dublin Station is served by a double set of



Pict. 1. General view of the plant



Pict. 2. Layout of the plant

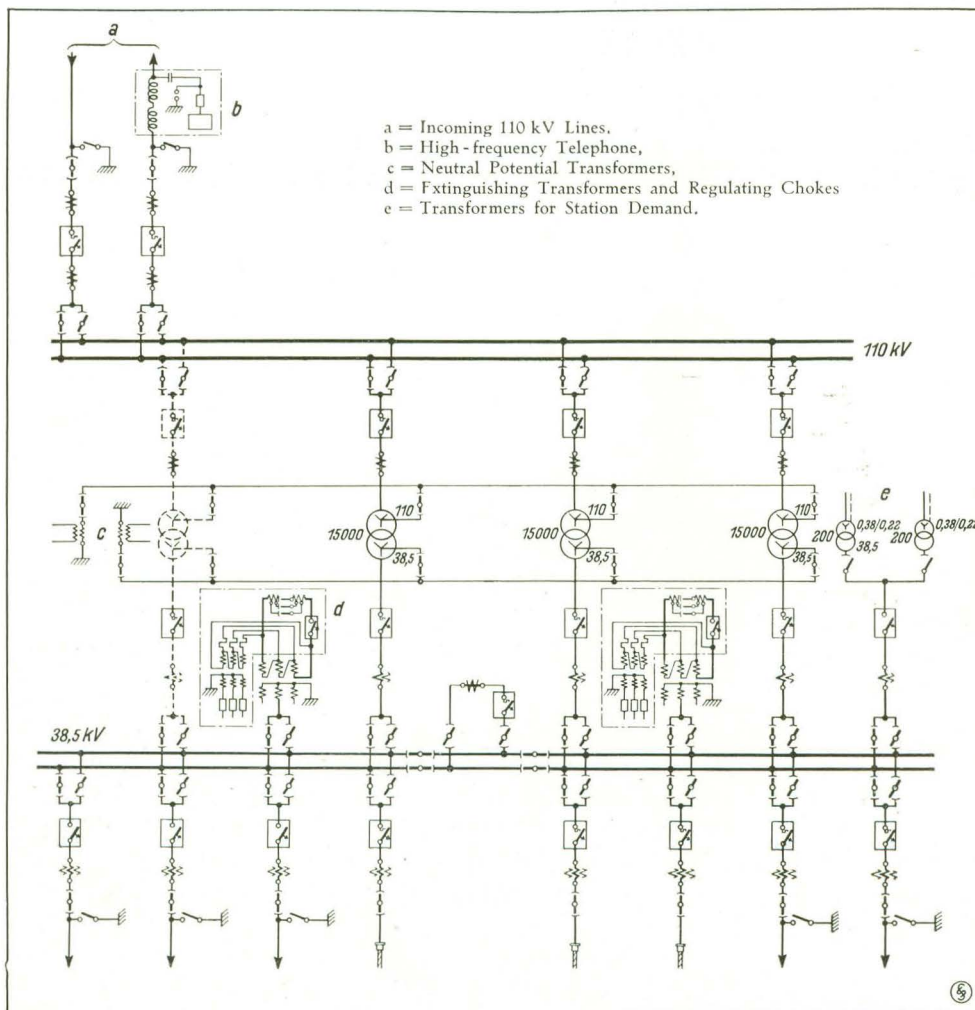
- | | |
|-----------------------------------|----------------------------------|
| a = Incoming 110 kV Lines, | f = 38 kV Overhead Lines, |
| b = 110 kV Oil Switches, | g = Double Set of 38 kV Busbars, |
| c = Double Set of 110 kV Busbars, | h = 38 kV Oil Switch, |
| d = 110 kV Isolating Switches, | i = 38 kV Potential Transformer, |
| e = 15 000 kVA Transformers, | k = 38 kV Isolating Switches. |

lines as it deals with the heaviest power consumption, whereas only one 110 kV line serves the Station Cork.

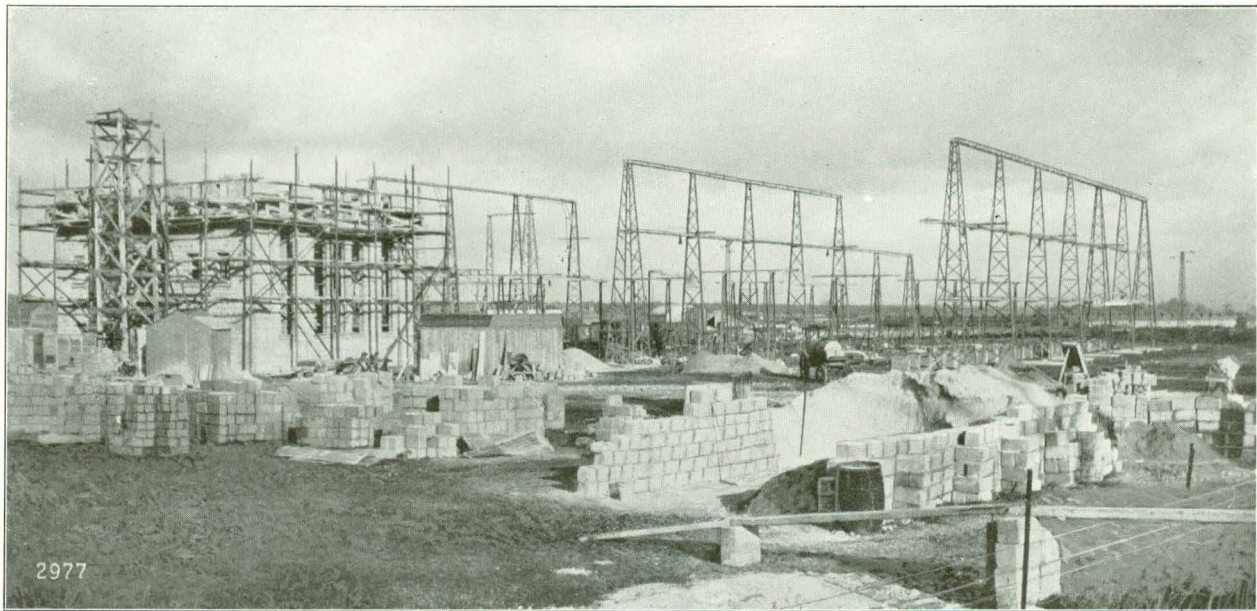
Due to the high building costs existing in Ireland it was decided to make the Dublin Station

completely outdoor and, with due regard to the dampness of climate, the steelwork was given special rust-proof coatings and was galvanised where it came into close proximity to live wire to eliminate the dangerous work of repainting these parts.

A relatively small control house (see pict. 11) had to be included, however, since the auxiliary circuits and plant could not be of an outdoor type. The site is on the outskirts of the city. A fair idea of the size of the plant can be gathered from its connection diagram (pict. 3,) in which the two incoming 110 kV lines of approximately 180 km are marked (a). The three 15 000 kVA transformers are connected to a double set of busbars consisting of 150 mm² bare copper cable. The neutral potential transformers are indicated at (c), the extinguishing transformers at (d), and the Station-demand transformers at (e). Except the busbars the 110 kV conductors are all 95 mm² copper cable.

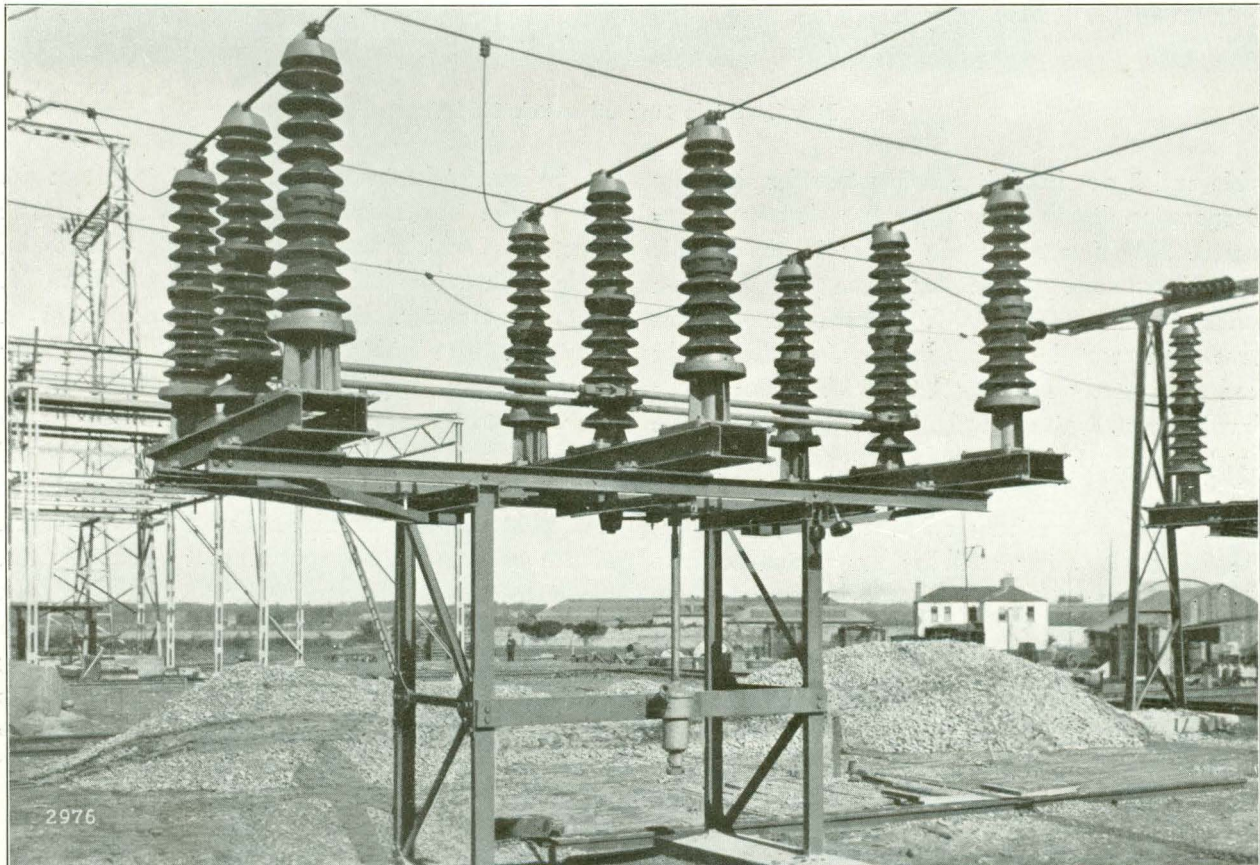


Pict. 3. Connection Diagram

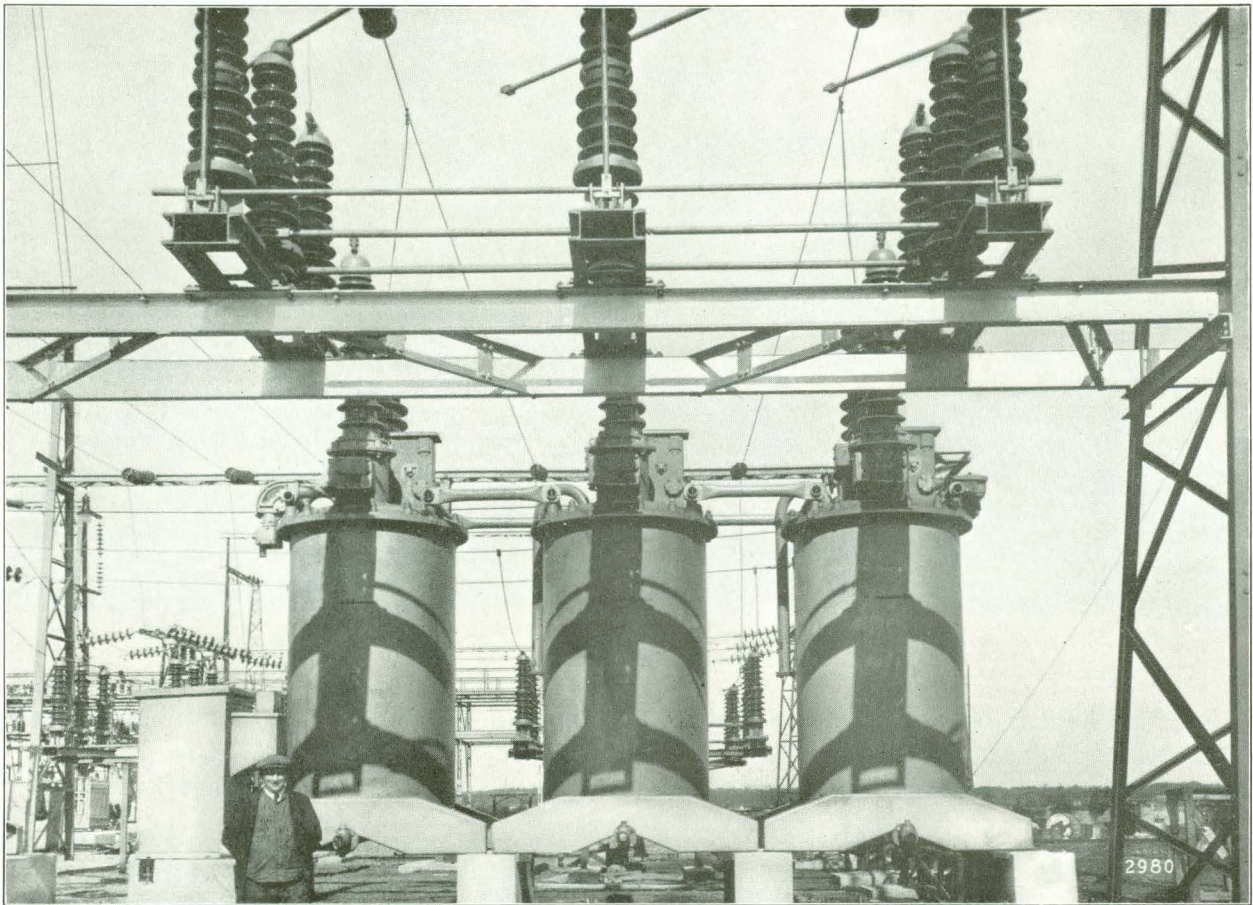


Pict. 4. The plant in course of construction

The 38 kV busbars are duplicated also, and may be subdivided into sections by means of disconnecting switches provided in both busbars. A coupling switch between the two sets of busbars serves to change over from one set to the other, if necessary. The 38 kV feeders include 3 underground



Pict. 5. Isolating switch 100 kV



Pict. 6. Triple tank oil switch 110 kV

cable and 2 overhead line connectors for the City Corporation distribution, which has already an extensive 5000 V network. In order to enable this 5000 V network to be fed from the Shannon Scheme, two 38000/5000 V transformer stations have been erected. The remaining 3 overhead lines feed the easterly section of the 38 kV system. The drawing pict. 2 gives the layout of the plant. The notations are as follow: — (a) the two 110 V lines, (b) the 110 kV Oilswitches, (c) the double set of 110 kV busbars carried on 6 m high standards, (d) the 110 kV isolating switches for which see also pict. 5, (e) the 15000 kVA transformers, (f) the 38 kV overhead lines, (g) the 38 kV busbars, (h) the 38 kV oil switch, (i) a 38 kV potential transformer, (k) 38 kV isolating switches. The general view of the plant (pict. 1) during erection gives further details to the drawing. The duplicate 110 kV lines

can be seen right in front and arriving from the left of the illustration. Just behind the nearest structure at which these lines terminate is a row of triple tank oil switches rated for 1 million kVA rupturing capacity. A closer view of these is given in pict. 6. The bushings can contain current transformers when required for the particular circuit allocated to the switch and this arrangement results in a considerable saving in the price of 110 kV current transformers. The tanks are made out of welded steel plates and rest each on two foundation blocks which are so spaced that a special 7 ton truck on rails can be run under the switches when it is required to move one. The photograph also includes the interlocked earthing and isolating switches which are used on line switch circuits and are placed on the structure previously referred to. (To be continued.)