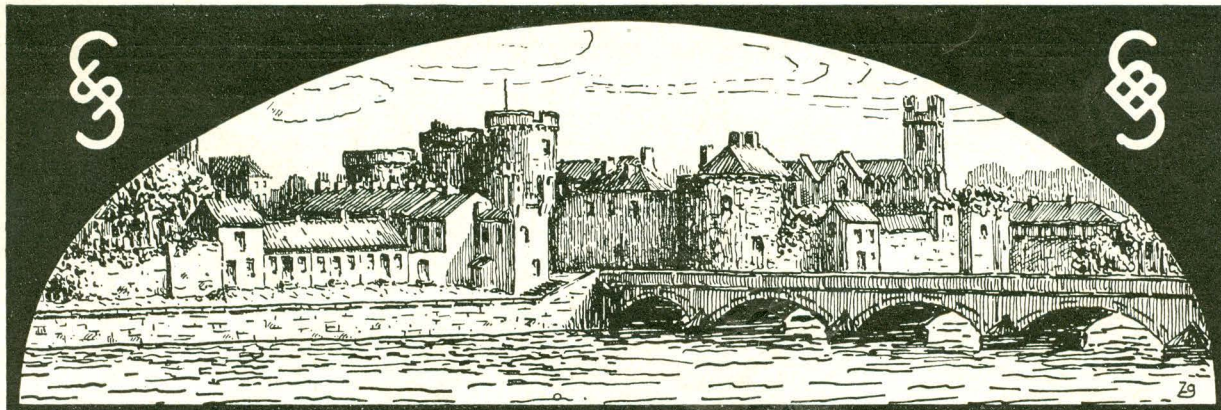


Mr. Brice M. Shaw



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PROGRESS ON THE SHANNON

2nd YEAR

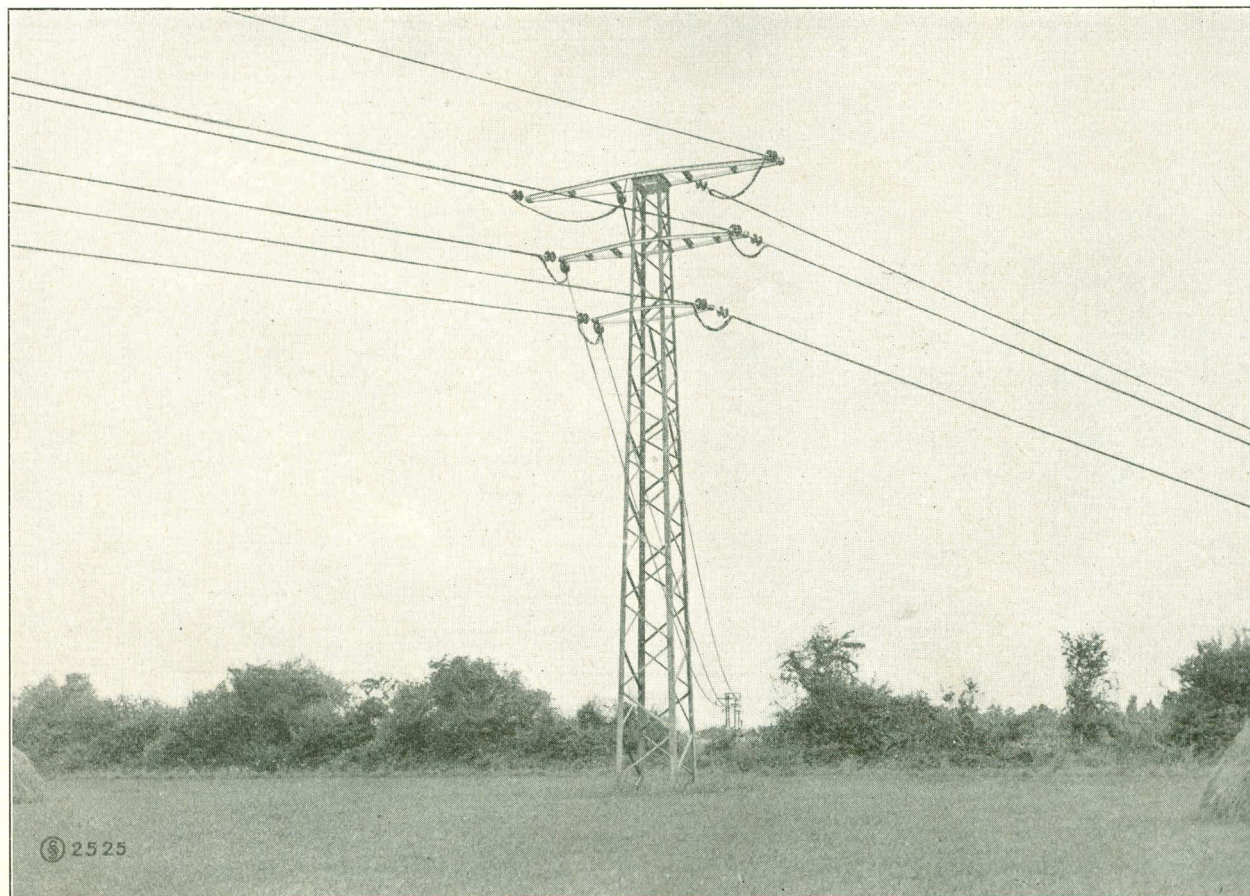
JULY 1928

NUMBER 10

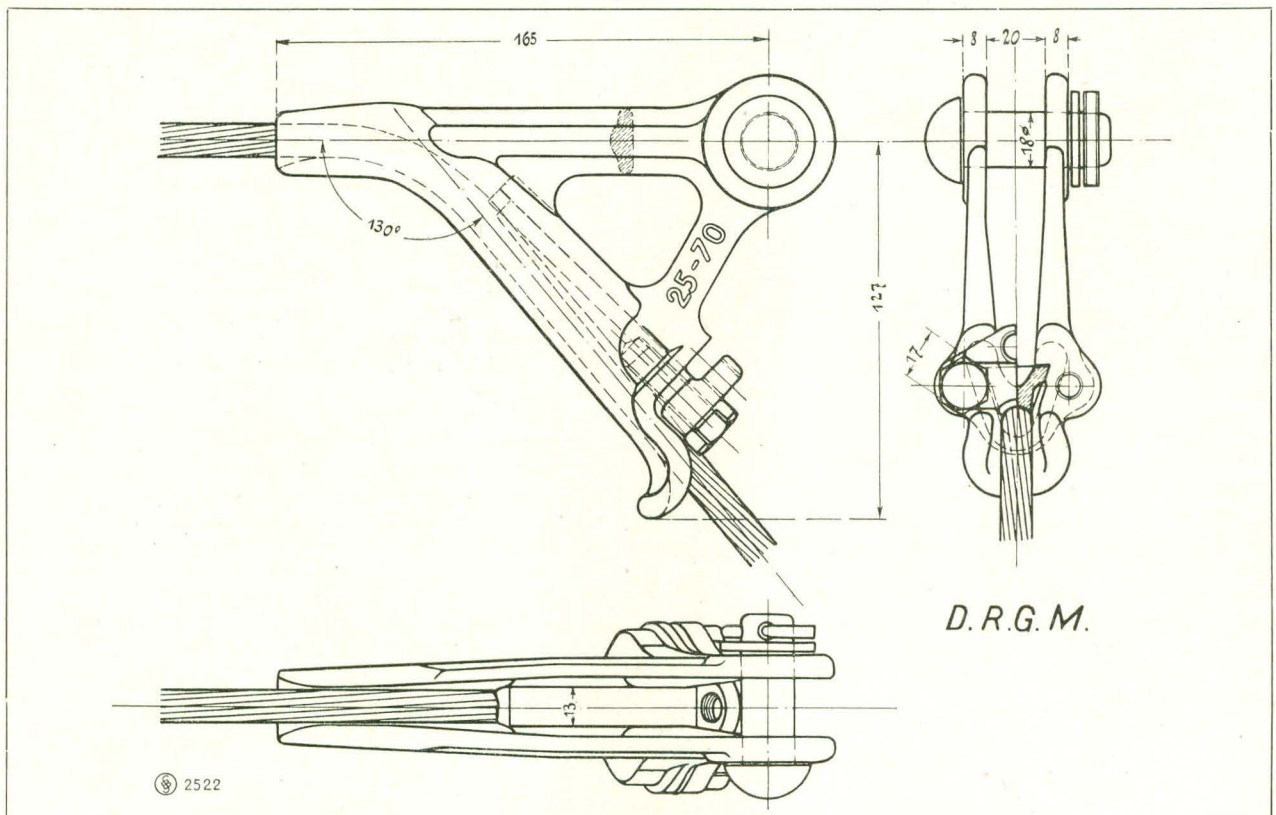
Electrical part of the Shannon Scheme High Tension Transmission Lines (Continuation)

For fixing the conductors to the insulators standard gun-metal suspension and wedge strain clamps are adopted. Pict. 2 shows a wedge strain clamp. The suspension clamps are fitted with a copper

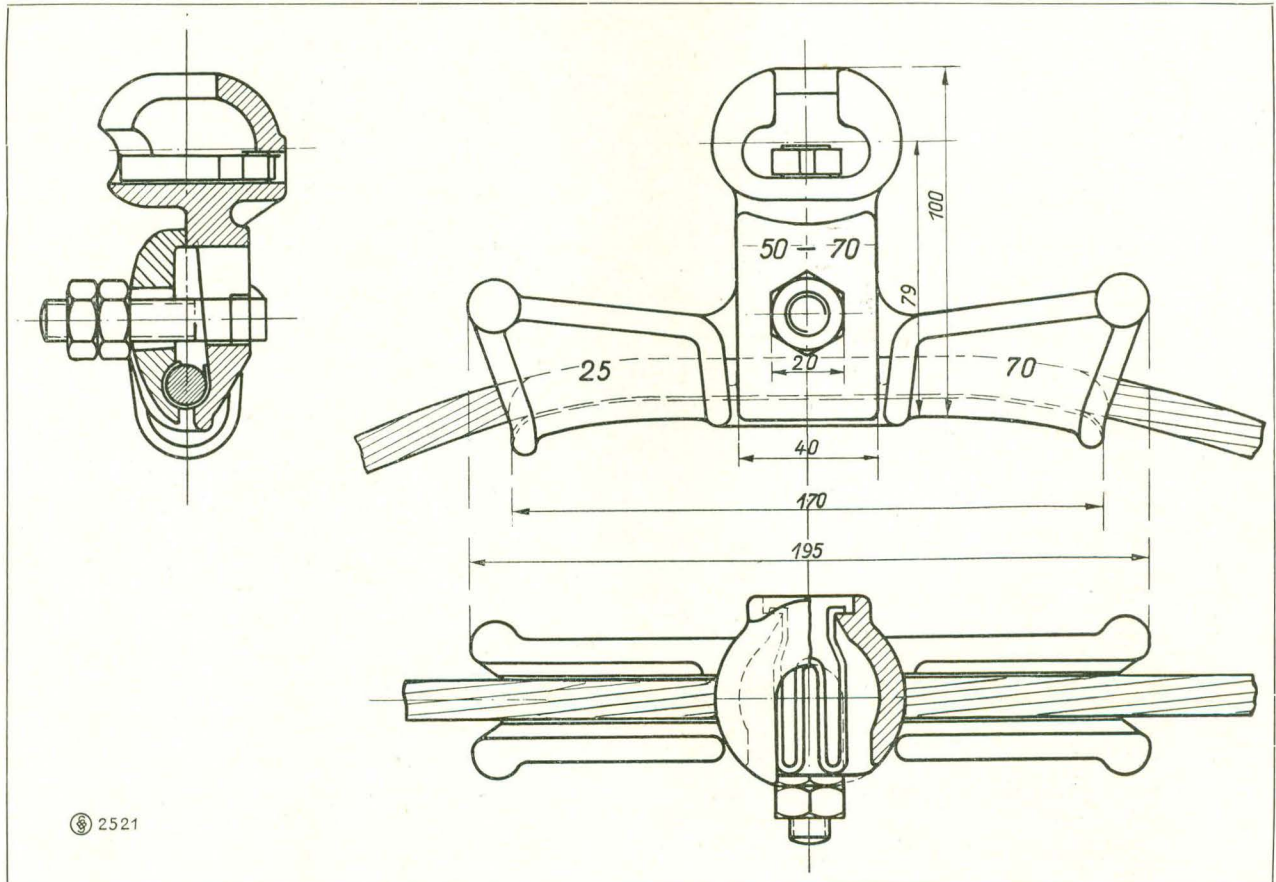
inset thimble which protects the copper cable (as shown in Pict. 3). The joinings of conductors are effected by means of grooved connectors. These connectors combine great mechanical strength with



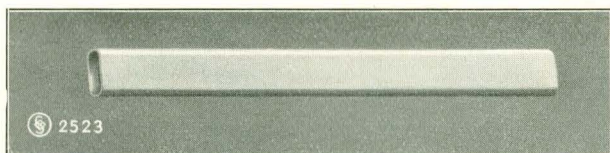
38 kV-branching pole near Maryborough



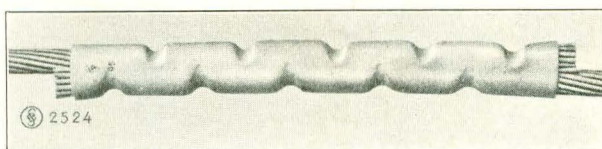
Wedge strain clamp



Suspension clamp with copper inset thimble



Groove connector before use



Groove connector in position

low electrical contact resistance, and as the breaking strength for the 95 sq. mm. Copper Cable Connector is 3770 kg and that for the 50 sq. mm. Copper Cable Connector 2010 kg the strength of the connectors and that of the cables may be said to be practically equal. The connection, before use and in position, is illustrated in Picts. 4 and 5.

For the 110 kV Transmission Lines a maximum span of 250 m has been selected as the most economical and for the 38 kV lines a span of approximately 200 m. The minimum clearance between ground level and the lowest point of the conductors prescribed, in the interests of public safety, for the 110 kV lines and the 38 kV Steel Poles Lines is 7 m and 6,5 m respectively. The lowest point of the conductors in spans crossing public roads is at least 7 m above road level. These conditions taken in conjunction with the maximum sag of the conductors determine the requisite heights of the poles.

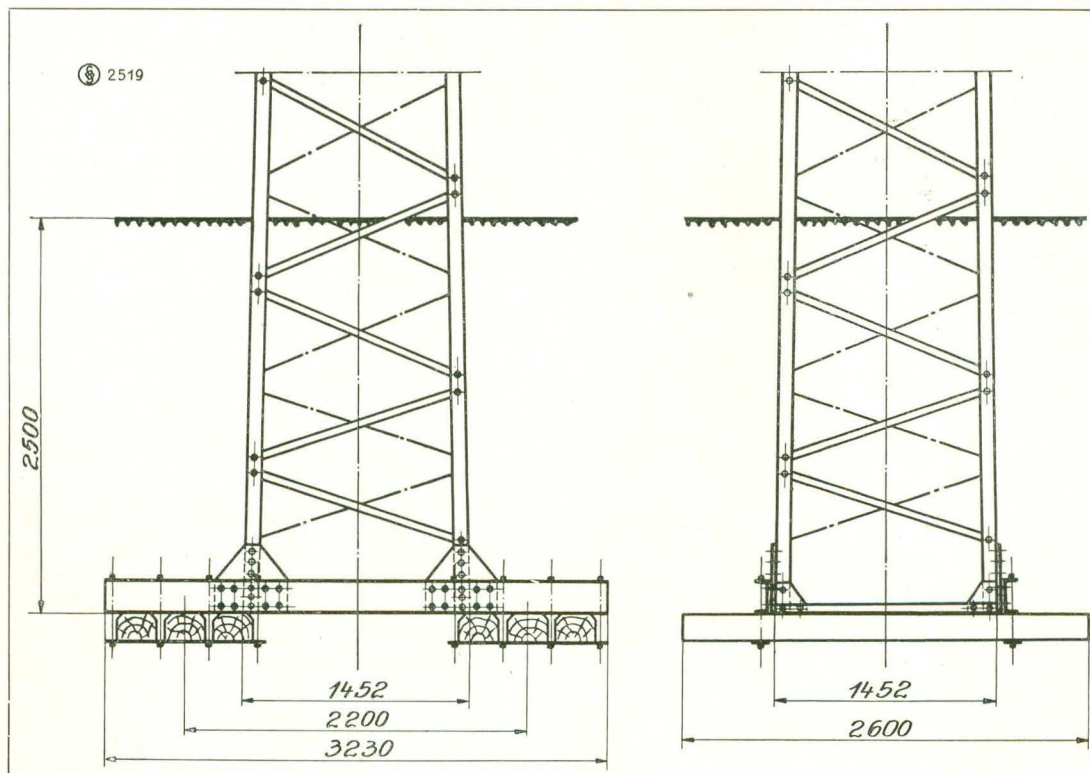
As a rule the poles are set on wooden sleepers fixed to channel irons on the pole base. The sleepers are impregnated with tar-oil. The iron parts under ground and for about half a metre above ground are treated with hot asphalt tar. The cross-sections of all the lattice-steel-poles are square. The normal 38 kV line pole has a height of 14,5 m above the ground. In special cases, where the profile of the ground is very uneven, intermediate poles having an increased height of 2 m and 4,5 m

are used. The cross-arms are so arranged that no two conductors lie in the same vertical plane. The poles stand 2 m in the ground and the sleepers are 1,7 m in length. A normal pole of the 110 kV 6-conductor line has a height of 20,7 m above and a depth of 2,5 m below the ground and is provided with 6 sleepers, each 2,6 m long (see Pict. 6); while the mast used for the 110 kV 3-conductor line has a height of 18,2 m above the ground. Special intermediate poles with an increased height of 2 m are also used on the 110 kV lines where the profile of the ground necessitates their use.

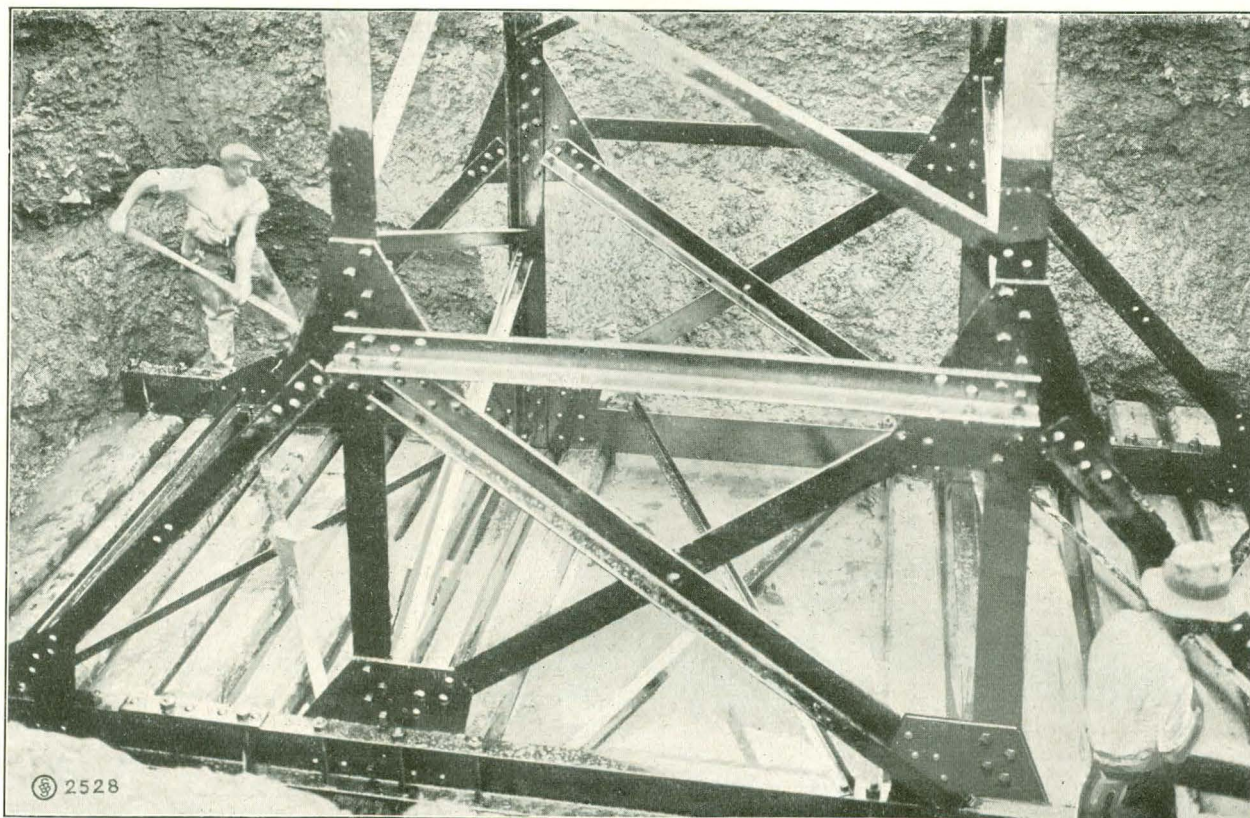
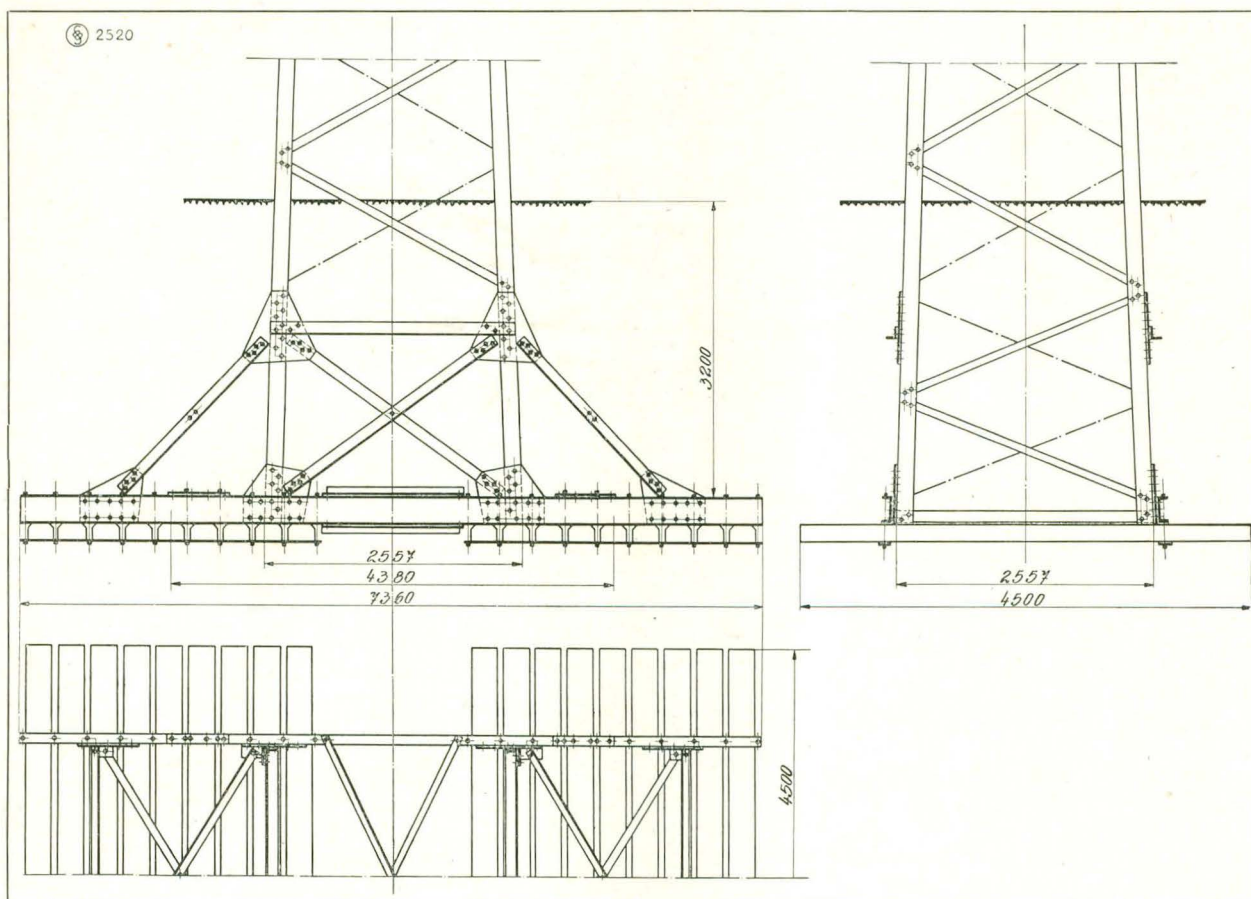
All portions of the steel poles from about half a metre above ground receive a primary coating of red oxide before leaving the steel works. To preserve the steel from deteriorating influences of adverse climatic conditions and changes of temperature the poles are treated, after erection, with two coats of special anti-corrosive compound paint, first a light grey, then a darker grey in colour. The pole cross-arms of the single 3-phase lines are galvanised by the hot process in accordance with stipulated test conditions, as a precautionary measure against coating of the cross-arms which might lead to a possible interruption in delivery of the power.

At intervals of not more than 3000 m strain poles specially designed to support two-thirds of the greatest tension on one pole side are placed. Usually these spaces are further sub-divided by Crossing or

Angle-Poles. Pict. 1 shows a 38kV branching pole near Maryborough. The line on one side of this pole is made up of two 3-phase circuits while on the other side it branches into two separate 3-phase circuits leading in different directions. The foundation structure of an angle-strain pole for the 6-conductor 110kV line (Type 10000/19,5+3,2 on Wooden Sleepers) may be seen from Picts. 7 and 8.



Foundation structure of an Intermediate pole for 6-conductor 110 kV line



Foundation structure of an angle-strainpole for 6-conductor 110 kV line