

of the ionosphere, by which observers on the ground can explore the electrical condition of the atmosphere at heights of 60–150 miles. A preliminary account is given also of the results obtained from the special work carried out during the Second International Polar Year, which covered the thirteen months ended in August 1932. Closely associated with the research on wave propagation has been the study of the angle of incidence and of the varying intensity and polarisation of waves received from distant transmitting stations; while, in another sphere of activity, the development of a practical radio direction-finder which shall be immune from the effects of these varying electric waves, has been continued with considerable success. Attention has also been devoted to the production and study of short electric waves down to wave-lengths of about 15 cm., and to their mode of propagation over the earth's surface. Work which is more of a laboratory rather than field nature has included the maintenance and development of the radio frequency standards at the National Physical Laboratory, and of the methods of measuring various electrical quantities used in radio technique. A new wireless transmitter of somewhat unique design has been installed at the Laboratory during the period under review; while a special investigation was conducted into the problem of interference and receiver selectivity. Finally, the report describes the latest developments made at the Radio Research Station in connexion with the cathode ray oscillograph.

The serious student and expert worker in radio research problems will find much to interest him in the report, while access to more detailed information on the subject is facilitated by the list given in an appendix of publications describing the work of the Radio Research Board during the period under review.

### Science News a Century Ago

#### Death of Telford

Thomas Telford, the first president of the Institution of Civil Engineers, died at his house, 24 Abingdon Street, Westminster, on September 2, 1834, at the age of seventy-seven years. In an obituary of him published in the *Annual Register* for 1834, it is said that "he was inclined to set a higher value on the success which attended his exertions for improving the great communication from London to Holyhead, the alterations of the line of the road, its smoothness, and the excellence of its bridges, than on the success of any other work he executed. . . . He understood algebra well, but held mathematical investigation rather cheap, and always resorted to experiment when practicable, to determine the relative value of any plans on which it was his business to decide. . . . Mr. Telford's will was sworn under £35,000. The testator bequeaths about £3,000 to divers charitable institutions, and legacies to several persons of mechanical and literary genius, amounting altogether to £16,000. Among these is a bequest of 500 guineas to Robert Southey, esq., the poet laureate."

#### Botanical and Horticultural Shows

It was the custom of J. C. Loudon, the editor of the *Gardener's Magazine*, to collect and print in his journal, after midsummer, a comprehensive series of reports and notices of the provincial flower shows and kindred exhibitions held in England and in Scottish centres. These were of special importance at the period to cultivators of new plants and shrubs, as

well as of great benefit to gardeners and the community in regard to displays of fruit and vegetables. The Beverley Floral and Horticultural Society promoted a gathering of this kind on September 3, 1834, the details of which appeared in the *Hull Advertiser*. Reference was made to a "brilliant assortment of georginas", the latter term being then in common use. It seems that the president of the Beverley Exhibition took occasion to protest against the adoption of the name *Georgina* in place of *Dahlia*. This led Loudon to write as follows: "The genus was named Dahlia in honour of Prof. Dahl a Swedish botanist. Objections were at first made to this name under the erroneous impression that it had already been appropriated to another genus, and this induced Prof. Willdenow in his 'Species Plantarum' to apply a new name, that of Georgina, after Georgi, an eminent Russian traveller and botanist. Mr. David Don has proved to us that the name Dahlia was applied one year before that of Georgina, and that therefore, although the latter name has been adopted in the 'Dictionnaire d'Histoire Naturelle', the former ought to be retained." Loudon then states that it is his intention to use the name *Dahlia* in all future issues of his publication. (*Gardener's Magazine*, 1834.)

#### The Post Office Steam Packet Service

In the 'twenties of last century, the old sailing packets between England and Ireland and the Continent were superseded by steam vessels, but the mail steamers still continued to be run directly by the Post Office. In a note in the *Mechanic's Magazine* of September 6, 1834, it is stated that "The Post Office has now twenty-four steam vessels regularly employed in its service; four between Liverpool and Dublin, of about 300 tons each, and 140 horses' power; six between Holyhead and Dublin, of 235 tons and 100 horses' power; four between Milford and Waterford of from 189 to 237 tons, and 80 horses' power; two between Port Patrick and Donaghadee of 110 and 130 tons, and 40 horses' power; three between Weymouth and Guernsey and Jersey of from 154 to 165 tons and 60 horses' power; and five from Dover to Calais and Ostend, of 110 tons each and 40 and 50 horses' power. They perform 2,293 voyages annually."

#### The Pulkova Observatory

The suggestion for the construction of an observatory near St. Petersburg was made by the Emperor Nicholas I (1796–1855) in 1830. In the *Athenæum* of September 6, 1834, it was said: "A new observatory, far surpassing in magnitude every similar establishment is about to be built at St. Petersburg by command of the Emperor. The observatory itself will consist of three towers with moveable cupolas. Two of these towers are to be appropriated to the Königsberg heliometer and the Dorpat refractor, but the centre tower is destined for the reception of an instrument exceeding in size all others of its kind. In the lower part of the towers the meridian and transportable instruments will be placed. Spacious habitations for five astronomers will be connected by corridors with these towers so that the whole will form a continuous building 510 ft. in length. Smaller subordinate buildings, for various purposes, will increase the establishment, for the site of which an eminence between six and seven miles from St. Petersburg has been selected." The foundation stone of the famous observatory was laid on June 21, 1835, and the building was completed on August 19, 1839.