

not written to the Duke for two years; and to receive this extraordinary information puzzled the whole Bench of Bishops."

So far Sir William Fraser, whose account may be regarded as authoritative. Fraser (1826-98, Eton, Christ Church, and 1st Life Guards) worshipped the memory of Wellington with a devotion that almost reached fanaticism; his "Words on Wellington", from which this account is taken, is one of the most remarkable collections of sayings and doings that have ever been recorded concerning one individual—remarkable not only in the variety of its Wellingtoniana, but in the insight which it gives into the character of its compiler. The book is long out of print, and has a certain historical value. The author carried out a first-rate piece of detective work, of which he gives a full account, in his identification of the scene of the Duchess of Richmond's famous ball on the eve of the battle of Waterloo.

Scientific and Industrial Research in Australia

THE Australian Government has announced that the work of the Council for Scientific and Industrial Research is to be extended in the interests of secondary industry generally. Since its establishment in 1926, the Council has deliberately restricted its attention to problems of the primary producing industries, though no such restriction is imposed upon it by the Act under which it is constituted. It has always been assumed that an extension was only a matter of time in view of the contraction of world markets for primary products and the consequent pressure to increase the home market by expanding secondary industries. A recent decision to establish aircraft and motor production in the Commonwealth has intensified a growing demand for an extension of national scientific research, and an influential committee, including leading engineers and industrialists, is now at work preparing a definite scheme of work. Existing institutions will be utilized wherever possible, but it is fully recognized by the Government that considerably increased financial obligations must be carried by it. A first step is to establish an agency for the maintenance of accurate fundamental standards of measurement and for the testing of master gauges for controlling precision manufacture. It is intended that in all developments intimate contact shall be maintained with, and guidance sought from, established British institutions engaged on work of the same type.

Luminous Phenomena on the Sea during a Thunderstorm

THE occurrence, during a tropical thunderstorm between Singapore and Bangkok on the morning of May 21, 1936, of a diffused white light over the surface of the sea, pulsating at regular intervals of about two to the second, so that the ship seemed to be sailing through waves of light and darkness, was referred to by a correspondent in *The Times* of June 26. The phenomenon is said to have continued for about half an hour. Another correspondent referred to a similar phenomenon in the Persian Gulf in March

1908, when waves of light were observed wheeling round the ship. Both these phenomena would appear to have been due not to electrical conditions but to phosphorescence. A description and sketch of a "Phosphorescent Wheel" near Sumatra (with an interval of about one second between the waves of light) is given in the *Marine Observer* of the Meteorological Office of November 1926; waves of light with an interval of half a second were observed on October 27, 1924, at 1 a.m. near Krakatoa Island (*Marine Observer*, October 1925); streaks of luminescence, observed in January 1927 in the Equatorial Atlantic, were practically parallel with the wind, which was south-east, about force 4 (*Marine Observer*, January 1928). These observations indicate that phosphorescence is not uniform over the wave profile, and consequently streaks of light will appear to an observer on board ship to move as the ship moves relative to the waves. Phosphorescence is most readily observed on ripples or on the breaking crests of waves, and while no one has yet worked out in detail the conditions under which the streaks will appear, the period of pulsation, which is reported as 0.5-1 second, is probably equal to the interval of time between the passage of the ship over successive waves.

Lightning and Atmospheric

IT is now generally agreed that the majority, if not all, the atmospheric encountered in radio communication originate in lightning flashes. When the storm is close to the receiver, it is possible to identify the stronger atmospheric with the neighbouring flashes. In a recent communication, Mr. P. F. Fyson, Langherne House, Rushwick, Worcester, claims to have observed that the atmospheric crackle produced on a broadcasting receiver was heard before the lightning flash which caused it was perceived visually. If this difference in the perception of the two effects is real—it obviously needs verification by other observers—it would appear on first consideration that the human eye is rather more sluggish in its operation than the ear; and Mr. Fyson suggests that this may be due to the time required for the chemical change in the retina to affect the optic nerve. An alternative explanation, however, may be found in the fact, which has arisen from recent research on lightning, that an intermittent electrical discharge appears to precede the actual main lightning flash. It is possible that this discharge may be invisible and yet may be capable of producing audible effects on a wireless receiver. These sounds may thus be heard a very short time before the visible flash was observed.

Champollion and Hieroglyphics

In "Science News a Century Ago", in *NATURE* of August 8 (p. 257), an extract appears from the *Athenæum* describing an obelisk erected to the memory of Champollion, and bearing the inscription "To the memory of F. J. T. Champollion, who first penetrated into the mysteries contained in the writing and monuments of ancient Egypt. . . ." A correspondent has pointed out that, even allowing