

hazardous to make binding statements, but it seems probable that increase of light stimulating photosynthesis will tend to set back the incidence of maximum oxygen content, especially in a partly closed area like the Clyde Sea area, so that it does not actually coincide with minimum temperature, in which case it would appear that light and high oxygen content are the primary factors influencing these rejuvenations.

RICHARD ELMHIRST.

Marine Biological Station, Millport.

Tin Plague and Arctic Relics.

IN view of the apparent public interest in my letter in NATURE of January 19, possibly a further note on the subject may be permitted. One letter I have received was from a Government Department concerned with food supplies for the Navy, and I was asked a number of questions. The first one (to my surprise) was "The name of the firm who produced the article referred to." That had never occurred to me! However, in an endeavour—which proved successful—to reply to that query, I found a note which seems worthy of reproduction here.

In an "Appendix to the Narrative of a Second Voyage in Search of a North-West Passage and of a Residence in the Arctic Regions during the Years 1829, 1830, 1831, 1832, 1833, by Sir John Ross," pp. cxi-cxiv, is "an analysis of fluids, etc.," from which the following extract is made, in addition to which is a report on brine, wine, rum, lemon-juice, and mustard, from Fury Beach:—

"I am indebted for the following article to my friend, Mr. Thomas Rymer Jones, who, in conjunction with Mr. Hemmings, submitted the articles I gave them to a careful examination, and made the following report, which requires no comment, as the acquirements of these gentlemen are known to qualify them highly for such an investigation:—The provisions, of which the following account is given, had been lying exposed to the climate for eight years, in the latitude of seventy-three degrees and forty-seven minutes north, and longitude of ninety-one degrees and forty-seven minutes west, and very little above high-water mark. The preserved meats, with few exceptions, were the manufacture of Messrs. Gamble and Co., and being enclosed in tin cases, could not be discovered by animals who depend on the sense of smelling; these were cylinders of various sizes, the ends of each becoming concave or convex, according to the degrees of contraction or expansion caused by the climate, secured them against bursting from its effects, and the contents were found to be in nearly the original state: these consisted of beef, roasted and boiled; veal, mutton, spiced meat of various kinds, turnips, parsnips, and carrots, all of which were found to be in excellent preservation. The soups, which were preserved in quantities from a quart to a gallon, were excellent, and we left a considerable quantity behind, but no meat of any kind. The flour, which was preserved in iron-bound casks, and had been likewise exposed for eight years to the climate, was found to be in good condition; for although in many cases the hoops had slackened, so as to admit moisture into the cask, it penetrated but a short way, while the whole of the interior was perfectly sound. The bread, of which there were many casks, was in a good or bad state, according to the soundness of the cask which contained it, and we employed ourselves in separating the bad from the good and put all into repaired casks. A part of this, and also of the flour, is sufficient with the addition of the remaining soup to sustain the life of twelve

men for a year. Owing to the pickles being also in cask they had suffered much, the vinegar having leaked out of most of them: fifty of these, and twenty-five of lemon-juice, are also left, at a little distance south of the house, and covered with coals, as the most effectual way of preserving both."

T. SHEPPARD.

The Museums, Hull.

A New Series of Spectrum Lines.

WITH a long hydrogen tube, viewed end on, as a source, lines have been observed at $4.0^5\mu$ and $2.6^3\mu$, which, according to Bohr's theory, may be explained as due to an electron falling from the fifth to the fourth and from the sixth to the fourth rings respectively, forming the first two members of a new series.

Lines have been observed at wave-lengths $1.8^8\mu$, $1.2^8\mu$, $1.0^9\mu$, $1.0^1\mu$, and $0.9^5\mu$. These form the first five members of the Paschen series due to an electron falling into the third ring from the fourth, fifth, sixth, seventh, and eighth rings respectively. The first two of these were observed and accurately measured by Paschen.

The first line of the new series is approximately one-fourth the intensity of H_α ; the first Paschen line, more intense than H_α in the ratio 4:3.

F. S. BRACKETT.

Johns Hopkins University, January 24.

Araucaria imbricata.

REFERRING to the note in NATURE of January 19, p. 87, about this archaic tree ripening seed, may I say that it will do so regularly in this country if it gets a chance? But whereas it is dioecious, seed is produced only where male and female trees are planted near enough to each other for the wind to carry the pollen from the male catkins to the female cones. In 1906 I took Dr. Augustine Henry over to Castle Kennedy. There had been a heavy gale a few days before, and the ground about the fine avenue of Araucaria was thickly strewn with ripe seed, whereof we collected a bagful. Some we ate, treated like chestnuts, and found them excellent. Others I caused to be sown, and have now a hilltop planted with more than twelve hundred monkey-puzzles, some of which are 12 ft. high. The female tree produces seed only in alternate years as the cones take two seasons to ripen.

HERBERT MAXWELL.

Monreith, Whauphill, Wigtownshire, N.B.

Some Problems of Long-distance Radio-telegraphy.

IN the portion of the abridgment of my Trueman Wood lecture on the above subject published in NATURE of February 2, p. 140, I quoted an instance taken from a paper by Dr. Van der Pol of the ratio between the observed receiving aerial current and that calculated by the diffraction formula for the case of the Nauen-Darien transmission. It appears, however, that a numerical error was made in Dr. Van der Pol's original calculation, which, however, he corrected in the *Phil. Mag.* for July, 1920. This correction, unfortunately, I overlooked. It appears that the correctly calculated value of the received current is not 0.6×10^{-12} amp., but 1.9×10^{-10} . Hence the actual current is only seven thousand times that predicted by the diffraction formula, and not two million times. This discrepancy does not, however, invalidate the conclusion that wave-diffraction alone cannot account for long-distance wireless telegraphy.

J. A. FLEMING.

London, February 14.