An eighth section deals with future problems in acoustic engineering. The paper is chiefly descriptive and includes many clear diagrams and other illustrations. Full details of the tests are to be published elsewhere shortly.—*E. H. B[arton]*.

SURFACE CURRENTS OF JUPITER.[4]

By S. BOLTON.

[*Reprinted from* Science Abstracts, Sect. A, Aug. 30, 1917, §743.]

A table is given showing details of phenomena observed on Jupiter during the apparition of 1916–17 with a 26-inch reflector, and a drawing indexed so that any feature can be readily recognized. The quickened rate of the equatorial current was quite abnormal, the period being 7.7 seconds shorter than during the last apparition (1915–16). The white and dark spots fringing the north edge of the north equatorial belt exhibited two separate rates of motion. With regard to the color of the planet the author confirms the observations of Lowell and Antoniadi on the cherry-red hue of the belts and poles.—*C. P. B[utler]*.

EFFECT OF TERRESTRIAL RELIEF ON IONIC DENSITIES IN THE ATMOSPHERE.[5]

By P. L. MERCANTON.

[*Reprinted from* Science Abstracts, Sect. A, July 30, 1917, §662.]

It is known that the ratio of positive to negative ionic charge densities is greater at elevated points on the earth's surface than at lower levels. The experiments here described were made at the Tour de Gourze, near Lausanne, which stands at the summit of a hill 930 meters above sealevel. The ionic charges were measured by means of an Ebert apparatus charged to 50—240 volts, which would thus catch only the more mobile ions. The potential gradient at the top of the tower attained 1,200 volts/meter and here the ratio E_+/E_- was found to be much above unity; in one case E_- was zero. Within the tower where the potential gradient was zero E_+ was approximately equal to E_-.—*J. S. D[ines]*.

OBSERVATIONS OF ATMOSPHERIC ELECTRICITY DURING THE TOTAL SOLAR ECLIPSE ON OCTOBER 10, 1912, AT BOA VISTA, BRAZIL.[6]

By W. KNOCHE and J. LAUB.

[*Reprinted from* Science Abstracts, Sect. A, July 30, 1917, § 663.]

Observations or records of the following were obtained for periods from October 2 to 11: Hertzian waves, radioactive content of air, fall of potential, conductivity (both + and −), positive and negative charge, number of ions (+ and −). Throughout the eclipse the sun was completely obscured by clouds, and the meteorological elements scarcely changed, so that it is supposed that the results obtained are independent of any indirect effect which might be produced by fluctuations of the meteorological elements.

The chief results produced by the eclipse were: The + and − charge, and the total number of ions showed a diminution followed by a recovery. The ratios of + to − charge, of + to − velocity of ions, and of + to − conductivity showed pronounced maxima, which occurred after the moment of totality. The + and − total conductivity and air–earth current showed minima shortly after the time of totality. (See Science Abstracts, 1917, No. 101).—*R. C[orless]*.

RELEASE OF RADIUM EMANATION FROM WATER AT DIFFERENT TEMPERATURES.[7]

By J. MORAN.

[*Reprinted from* Science Abstracts, Sect. A, July 30, 1917, § 645.]

This paper describes a study of the release of radium emanation from water by bubbling air through the radium solution at different temperatures, at a definite rate of flow of air. Observations were made with the temperatures of the solution at 16.5°, 20°, 30°, 60°, and 80°C., and the results show that the release of emanation is considerably increased as the temperature rises, naturally reaching an upper limit at 100°C.

It is proved that temperature is an important factor in the determination of RaEm by the bubbling method, and should be known and kept constant during an experiment.—*A. B. W[ood]*.

ABSORPTION BANDS OF ATMOSPHERIC OZONE IN THE SPECTRA OF SUN AND STARS.[8]

By Prof. A. FOWLER and Hon. A. J. STRUTT.

[Abstract of an address before the Royal Society, June 21, 1917.]

In this paper it is shown that a series of narrow bands in the ultra-violet absorption spectrum of ozone, appears in the spectra of the sun and stars near the extreme end of the photographic spectrum. The atmospheric origin of these bands is proved by the increase in their intensity in the solar spectrum as the sun's altitude is diminished. The observations are considered strongly to confirm the view of Hartley that ozone is the constituent of the atmosphere which limits the spectra of celestial bodies in the ultra-violet.

[4] Monthly Notices, Royal astron. society, March, 1917, 77:460–462.
[5] Terrestrial Magnetism, March, 1917, 22:35–37.
[6] Terrestrial Magnetism, Dec., 1916, 21:171–204.
[7] Trans., Roy. Soc. Canada, Sept., 1916, 10:57–64.
[8] *Reprinted from* Nature, London, July 5, 1917, 99:379.