Atmosphere of the Planet Mercury

I NOTICE, in the Supplement to NATURE of February 9, that the existence of an atmosphere on the planet Mercury has again been pronounced impossible on account of the small mass of the planet.

As a systematic observer of Mercury, with a powerful telescope, in 1927, 1928 and 1929, I wish to state, in full accordance with Schiaparelli, that the dusky spots of the planet are frequently faded, while some of them are sometimes even totally extinguished, by local clouds. These may be due to dust, and appear white, or even brilliant, on the limb, stretching there occasionally over three thousand miles in length; and it is thus obvious that such phenomena establish beyond doubt the existence of the highly rarefied atmosphere of Mercury, which is invisible, like that of Mars.

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Points from Foregoing Letters

FOLLOWING upon an improvement in his apparatus, Dr. F. W. Aston finds higher values for the masses of hydrogen, deuterium, helium and carbon atoms; the new values are in better accord with those deduced from energy changes during the artificial disintegration of those elements. The new determinations were made by comparing with the mass-spectrograph, to which a new collimator with variable slits was added, the masses of doublets (that is, atoms and groups of atoms having nearly the same mass/charge ratio).

Prof. A. J. Dempster describes a new way of obtaining positively charged ions of the metallic elements, including gold and platinum, for use with the mass-spectrograph. He employs a spark coupled inductively to a high-frequency oscillating spark circuit, and obtains many ions with multiple charges.

The red colour of certain auroræ may be due to electrically excited oxygen, which emits a 'triplet' of wave-lengths in the red region of the spectrum. Mr. L. Harang and Prof. L. Vegard have determined more accurately the wave-length of the strongest component of the triplet by means of an interferometer, and find that it agrees with the wave-length observed by Hopfield in the case of oxygen in the O_I state.

From spectroscopic analysis of light obtained with silver compounds of hydrogen (H) and heavy hydrogen (D), the ratio of the (reduced) masses of H and D atoms has been deduced; it does not agree with the ratio deduced from their atomic weights. Mr. L. Hulthén calculates that this discrepancy would be accounted for if the four outermost electrons of the silver atom took part in the rotation of the nucleus, which rotation is assumed to be responsible for the band spectrum.

Prof. A. Terenin states that when SnI_4 vapour is decomposed by ultra-violet light, visible light is emitted corresponding to that characteristic of iodine molecules. This he considers shows that, under the influence of light quanta, not only are the bonds of the original molecule broken, but also an instant recombination between the liberated radicles or atoms can take place. Prof. Terenin accounts in this way for the yellow fluorescence of bismuth tri-iodide which falls in the same region as the iodine spectrum.

Mr. C. H. Douglas Clark directs attention to the fact that the value for the inter-nuclear distance between phosphorous and nitrogen, and also other molecular constants, as calculated by Curry, Herzberg and Herzberg from observations on the spectrum on the PN molecule (phosphorus vapour electrically excited in nitrogen gas) agrees with certain qualitative predictions which he recently made, unaware of their experimental work.

Evidence that a slime-mould (similar to *Labyrinthula*) is responsible for the wasting disease of the eel-grass, *Zostera marina*, along the Mediterranean Atlantic coast, is adduced by Mr. C. E. Wren. A fungus, *Ophiobolus*, has also been suggested as the causative agent, but Mr. Wren finds that it is not always associated with the disease.

Dr. R. W. Butcher believes that the narrow-leaved variety of *Zostera*, which is more resistant to the wasting disease, is produced by a change in 'nutritional balance', and that the disappearance of the wide-leaved variety is due to a variety of circumstances.

Mr. W. W. Barkas finds that the moisture content of sprucewood flour (Sitka or tide-land variety) in equilibrium with saturated air, that is, its fibre saturation point (f.s.p.), is greater when the wood is being dried from a moist state (desorption) than when it is absorbing moisture from the air (adsorption). The f.s.p. is also frequently deduced indirectly from the percentage moisture when (1) shrinkage occurs, or (2) sudden increase in compression strength occurs, but in the case of many woods the values obtained by these two methods do not agree. Mr. Barkas suggests that the compression which, opposing the swelling pressure of the wood, raises its vapour pressure, also causes a decrease in the water content needed for saturation and accounts for the divergence in the f.s.p. deduced by methods 1 and 2.

The unpleasant smell given off on drying by certain red sea-weeds (genus *Polysiphonia*) is due to methyl sulphide, according to Dr. P. Haas. He points out that methyl sulphide is also found in petroleum from Ohio, a fact which supports to some extent the sea-weed theory of the origin of petroleum.

Mr. S. Mukerji finds that the blood-sucking minute moth flies (*Phlebotomus*) have their alimentary canal somewhat more acid (lower *p*H) than the non-blood-sucking species. The blood-sucking *Phlebotomus papatasii* is a carrier of *Leishmania tropica*, a protozoon which causes the malaria-like fever kala-azar in India.

Mr. D. O. Sproule points out that, according to Rayleigh's formula, high-frequency vibrations travel more slowly than low-frequency ones, but the difference in their speed in a steel wire, recently reported by Dr. Wall, is too great to be explained in that way, unless the frequency of the group of waves was rendered greater by the natural period of one of the clamps used. Mr. Sproule points out that Dr. Wall's method of measuring the velocity of longitudinal vibrations would be useful in investigating shear stresses, viscosity and radial vibration.