naturalists. It is unfortunate that the abundant illustration should have been permitted to justify the heavy, thickly loaded paper used throughout the book. Apart from this distressing feature, the printing is good and clear, and there are not many errors, among which, however, "Neandertal," "Axolotyl," and "trachea" for the plural (p. 71) were noticed. The figures are sometimes good and mostly adequate, a small proportion being distinctly bad. In some of them the description fails to account for the whole of the reference letters.

In speaking of the analogical groups of the Australian Marsupials (on p. 130), the wombat as a representative of the Rodents is an obvious omission (probably the author intended wombat when he wrote bandicoot); and in asserting that there are no marsupial bats, the flying phalangers should have been mentioned as analogous to the flying squirrels. The statement that the size of insects is "somewhat strictly limited" (p. 71) might have been modified by a reference to Carboniferous times, when these forms had the air to themselves.

We believe, in spite of the faults to which attention has been directed, that the book will be useful because of the wide ground covered, the good selection of examples, and the brevity and clearness of the text. E. B. P.

The Gases of the Atmosphere: The History of their Discovery. By Sir William Ramsay. Fourth Edition. Pp. xiii + 306. (London: Macmillan and Co., Ltd., 1915.) Price 6*s*. net.

JUST complaint has been made recently in NATURE of the dearth of good modern popular or semi-popular literature calculated to inform the public of the methods and achievements of natural science. Nothing could be better for this purpose than Sir William Ramsay's book on "The Gases of the Atmosphere," for here we have a first-hand account of modern discoveries in a connected and highly interesting narrative, and presented in a sufficiently elementary style to make the subject intelligible to a large reading public.

Since the book appeared in 1896 a second and third edition have been issued, keeping the story abreast of discovery. In this, the fourth, edition there is not much new matter beyond an account of the remarkable work done by the author and Dr. Whytlaw-Gray on *niton*. The passage of the story from a record of the intrepid and masterly discovery and isolation of the companions of argon into the realm of radioactivity and modern alchemy is perhaps natural and excusable to the author; but it has the effect of a change of key, and causes a fine record of fact to conclude on a note of speculation.

It is impossible in reading this history of the gases of the atmosphere, in which very even justice seems to be done to all discoverers, not to be struck by the honourable part which has been borne by British men of science. Boyle, Mayow, Black, Priestley, Cavendish, Ramsay, and Rayleigh; to these add Scheele and Lavoisier, and no name remains to attach to any capital discovery about the chemistry of the atmosphere. Without in the least wishing to fall into the evil habit of belittling German chemistry, one may be excused for remarking upon its inconspicuousness in this particular field of work. A. S.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Colourless Crystals of Hæmoglobin.

MAY I have some of your valuable space in order to put a question to physiologists and physicists whom I could not reach so conveniently in any other way?

For a long time I have been puzzled by the existence of colourless—white—crystals of hæmoglobin. If one carries out the familiar experiment of mixing a drop of rat's blood and water on the microscopic stage, one finds that while the majority of the crystals grow out as reddish needles, a few crystals appear to be without colour from the first. But more striking still: I have in my possession a preparation of guinea-pig's blood in which, amongst the beautifully formed, deep red, regular tetrahedra (in which form that animal's hæmoglobin crystallises), there are a few crystals quite as well formed as the rest which are perfectly white. The preparation is two years old; originally all the crystals were red; only a few have become bleached during the last year or so. It may be suggested that the preparation has been unduly exposed to the light; this is not so; except when occasionally examined it has been in the dark.

But what *is* colourless hæmoglobin? Physiologists do not know it, or at least they have not described it. Colourless hæmoglobin in the above sense is not mentioned in the exhaustive monograph of Reichert and Brown. So far as I can learn, no leuco or colourless state of hæmoglobin is recognised analogous to the leuco state (reduced state) of hæmocyanin, a blue respiratory pigment, or to the leucoplastid condition of chromoplastids in plants.

Can these crystals of guinea-pig's blood be regarded any longer as hæmoglobin seeing that all trace of colour or pigment has vanished from them? Is there such a thing as colourless hæmoglobin; are these things not contradictory terms? There is no question here of the removal of hæmatin or of iron from the crystals. The crystals have not been in contact with living tissues or with any active chemical substances at all. Hæmoglobin in old blood-clots, etc., in the living tissues is converted by the removal of iron into hæmatoidin, which, though not always crystalline, is always coloured. Reduced hæmoglobin we know, but it is still a coloured substance (purple), still a pigment; it has a spectrum. If these white, crystalline forms are not hæmoglobin, what are they? And if they are still hæmoglobin, the essence of which is to be a pigment with a spectrum, how can hæmoglobin be colourless? The bush that burned and was not consumed is simple compared with the problem here.

D. FRASER HARRIS.

Dalhousie University, Halifax, N.S.,
January 12.

Asteroids Feeding upon Living Sea-Anemones.

THE following instances of asteroids feeding upon living sea-anemones may be of general interest.

On October 27 three healthy examples of the sun-