The Land of the Pink Pearl. By L. D. Powles. (London: Sampson Low, 1888.)

MR. POWLES served for some time as a circuit justice in the Bahama Islands, and in the present volume he communicates the impressions produced upon him both by the islands themselves and by their inhabitants. He makes no profession of an intimate knowledge of any branch of science, so that the work contains few elements of interest that call here for special notice. We may say, however, that the book is written in a lively and agreeable style, and that the author has brought together much useful general information about what he calls "this obscure corner of Her Majesty's dominions." The most valuable passages are those in which he deals with the relations between the white and the coloured population. His statements on this subject are certainly not lacking in vigour, for he speaks of the African race in the Bahamas as being "ground down and oppressed in a manner which is a disgrace to British rule." When Mr. Powles went to the Bahamas, he had an impression that negroes were "intended by Nature to be kept in subjection by the whites." Experience, however, led him to modify this extravagant notion. Referring to the statement, so often made, that "it is impossible to produce anything by free negro labour," he sensibly suggests that "perhaps if the Imperial Government would establish an agricultural college and give the coloured race in the Bahamas a fair chance, we might see a different state of things." The physical deterioration of the coloured people is, he thinks, sufficiently accounted for by their wretched food and by the unhealthy nature of the places in which they are compelled to live. Curiously enough, Africans in the Bahamas retain their original tribal distinctions; and Mr. Powles says that every August some tribes elect a queen whose will on certain matters is accepted as law.

A Treatise on Alcohol, with Tables of Spirit-Gravities. By Thomas Stevenson, M.D. Second Edition. (London: Gurney and Jackson, 1888.)

THE present edition of this useful little work, originally published under the title of "Spirit-Gravities," contains a critical account of the various determinations of the specific gravity of alcohol, and introduces the most recent investigations—those of Messrs. Squibb—on this subject. These investigations do not, however, affect the accuracy of the alcoholometric tables, which are therefore reprinted unchanged.

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.*]

The Dispersal of Seeds by Birds.

IT should be borne in mind by readers of *NATURE* in various parts of the world that many facts bearing on this matter may be collected with very little trouble. At Mr. Thiselton Dyer's suggestion I take this opportunity of supplementing my letter to Mr. Botting Hemsley (*NATURE*, vol. xxxviii. p. 40).

The frigate-birds, petrels, gannets, boobies, &c., that frequent in numbers the guano islands of the Pacific, will present opportunities of investigating this subject rarely found elsewhere. Not only the crops, but also the feathers and feet should be examined, since seeds have been sometimes found adhering to sea-birds that have been sitting on broken eggs. The industries connected with the ocean-ranging mutton-bird in Bass's Straits, and with the grebe in South America, may afford other opportunities. The seal-fisher in the Southern Ocean, and the sportsman on some remote coral islet, the voyager around the Cape, and the

lighthouse-keeper in southern climes, these and many others might take a practical interest in this subject. It is important that not only should the seeds and fruits be preserved and sent to Kew, but that the species of bird should be known; and for this purpose, where there is any doubt, the wing or head of the bird might be also sent.

H. B. GUPPY.

May 27.

Nose-Blackening as Preventive of Snow-Blindness.

As a partial answer to Prof. Ray Lankester's inquiry on nose-blackening as preventive of snow-blindness, may I offer some observations which I have made in my many wanderings in the higher Alps in early summer, when I have necessarily had much experience of the effects of snow on the human body?

But first I should like to draw attention to a letter of the Hon. Ralph Abercromby in *NATURE* (vol. xxxiii. p. 559), which he was kind enough to send me, relating some experiences on nose and face blackening in Morocco to prevent sand glare, in Fiji to prevent water glare, and in Sikkim to prevent snow glare. It was very curious that the Fijians, who ordinarily painted their faces white and red for ornament, would, before going fishing on the reefs in the full glare of the sun, blacken them. Mr. Abercromby draws attention very naturally to "the strange anomaly of physiological experience apparently contradicting the teachings of pure physics. Charcoal black, which is used in physical experiments as the best absorbent of every kind of heat radiation, is practically used by three races at least, to protect one of the most sensitive human organs from reflected light and heat."

Experience has, I think, sufficiently shown that snow-blindness and snow-burn, or sunburn on snow, own the same causes for their production; and, as nowadays both guides and climbers in the Alps invariably take the precaution of protecting their eyes with coloured spectacles, snow-blindness is rarely heard of. My observations are almost entirely confined to the causes of sunburn.

It will, I think, be readily conceded by Alpine climbers that sun on the snow burns more quickly than on rocks or in the heated valleys at a lower elevation. This increased power of burning appears somewhat singular when one reflects that the heat rays must be occupied in the melting of the snow, and thus rendered latent.

Iron-workers, glass-workers, and others are constantly exposed to a heat of 400° or 500° F., and yet do not become burnt; and there can be little doubt that the enormous radiation from heated rocks and valleys, in addition to the direct rays of the sun, make up an amount of heat far greater than is ever experienced on even a very sunny snow slope, and yet one does not become sunburnt. No doubt the surface of the snow reflects and disperses much heat, but certainly far less than it receives, as heat rays are absorbed and rendered latent by the snow melting and evaporation. Experience fully corroborates this, for one may often lie on one's back and freely expose the face for long periods to the sun and yet remain unburnt. There must therefore be some other factor in sunburn than heat alone.

In discussing the subject with Prof. Tyndall, he added the very interesting and significant fact that he was never more burnt on snow than whilst experimenting with the electric light at the North Foreland Lighthouse, where there was no heat sufficient to produce such an effect.

I am aware that sometimes, in peculiar conditions of the atmosphere, the direct sun's rays will burn. I have met with some singular instances where several persons have been burnt on the same day, even in England, who had never previously suffered in that way. I am further aware that sometimes (not always) in a dead calm on a ship's deck one may be severely burnt, and that in boating on a river the same may occasionally happen. Masks and veils have been long used as a protection on snow, and are more or less successful; brown veils and glasses in my experience being the most efficient. As bearing upon this, I may mention that a friend of mine after an ascent on snow had an enormously swollen face, and I observed that in the general swelling there were many pits or depressions, and that each pit corresponded to a freckle: the irritating rays had been intercepted by the brown colour of the freckle. About the same time, I encountered a paragraph in the *Lancet*, saying that a German *savant* had been experimenting on the effects of sunlight on the retina, and had found that it had destroyed the visual purple of the retina, but that the action was modified by transmitting the sun's rays through various coloured glasses, and that when transmitted through

brown glass the purple of the retina was unchanged. I have never seen any corroboration of these assertions, but they are worthy of further consideration. Stimulated by these observations, I painted my face brown with water-colour, and spent many hours on the snow of the Gorner Grät on the same day that about eighty out of a hundred people who were staying at the Riffel Alp went up to witness the first ascent of the season of Monte Rosa. In the evening everyone except myself and my daughter, who had carefully protected herself with a brown veil, was more or less severely sunburnt, whilst the remaining visitors, who had spent the day on the rocks and mountain-sides in the full sun, were untouched. Connected with this is the fact that visitors to the Engadine in winter become extremely brown, as though coloured by walnut-juice, whilst in summer, unless they go on the snow, this is not so, although of course the heat is greater. I have been there in winter and summer, and have had many opportunities of confirming this observation. Then again the very brown colour of the *châlets* is only to be seen at high altitudes where snow is, and even those parts of the *châlets* which by their position cannot receive rays reflected from snow do not become brown. And over the doors of these brown *châlets* in which the cows are kept the wood is invariably white and colourless just at that part which would always have, steaming up, the warm moist breath of the cows, and by this moisture the reflected rays would be intercepted. I think that all these observations bear upon and are related to the question raised by Prof. Ray Lankester.

I have made many other experiments and observations, but for brevity's sake I omit them, as I think I have said enough to show that the subject is a large one, and worthy of consideration. In a comment on Mr. Abercromby's letter above-mentioned, Petrie says, "We should not look at the surface skin, which is constructed to bear local variations of temperature, &c., but at the delicate tissues beneath. White skin," he adds, "is translucent, but black stops out solar energy." It is possible that sunlight reflected from snow may have an influence in producing the improved health of consumptives who remain in the Engadine in winter, and Mr. Abercromby reminds me that the quality of heat which causes snow-burnt is not that which causes sun-stroke. Sun-stroke is very rare (if known at all) on mountains. Equatorial countries—Ceylon, Borneo, West Indies, &c.—are not the worst for sun-stroke; but sub-tropical and semi-tropical dry countries, such as Scinde, North-West Bengal, United States, Italy, &c.

He also says that photography is much slower in equatorial than in these latter countries. The cause undoubtedly is the absorption of violet and ultra-violet rays by water vapour, which is in excess near the Line. Photography is rapid—except for blue sky—at high altitudes.

ROBERT L. BOWLES.

Folkestone, May 23.

Mysterious Sky Lights.

ON turning over some back volumes of NATURE in search of information concerning the spectrum of the zodiacal light, I have discovered something which appears to be interesting and suggestive, viz. several communications describing what the writers supposed to be abnormal displays of the zodiacal light, displays occurring at the wrong time, i.e. near to the periods of the solstices instead of those of the equinoxes, and displays having the wrong shape, lacking the conical outline, but nevertheless nearly in the right place. The most interesting of these letters are from Mr. Maxwell Hall, and dated from Jamaica. He was so much exercised by the heterodoxy of the appearances he observed that he suggested a new theory, and illustrated it by a diagram on p. 204 of vol. vii.

He says in this letter that "for several nights lately the zodiacal light has been exceedingly bright and well-defined, and more particularly on the nights of November 24 and 27; on the evening of the 24th I found an explanation of what had often perplexed me before, viz. the existence of a faint, isolated band of light across the zenith, but as soon as it was dark in the evening, the zodiacal light was distinctly seen to stretch across the whole sky, forming that faint band of light previously observed; I then began to note its position, but the best observations were made on the night of the 27th, when it was most distinct."

The italics in the above are mine. The dates given, November 24 and 27, 1872, are those of the remarkable meteoric shower supposed to be connected with the lost comet, Biela. The grandest display was on the 27th. May not the luminosity

stretching "across the sky" have been due to sunlight reflected from the meteoric matter lying outside of the earth's atmosphere? Such a spurious zodiacal light does not demand our actual plunging into the meteoric stream producing it, but should be observable whenever such a stream exists between us and the sun, its apparent breadth varying with its actual breadth and its proximity to the earth.

On p. 85 of the same volume is a diagram of the Biela

meteor-path showing its relation to the earth's orbit and to the sun. From this, reprinted above, it is evident that the meteors should display a spurious zodiacal light at the time named, and on to that of the winter solstice, and later. In vol. xi. of NATURE, p. 115, reference is made to a letter from Mr. Hind, dated December 7, 1874, in which he points out "that the zodiacal light has been conspicuous for the last few evenings; and for several years past this phenomenon has been much more marked in December and January than about the vernal equinox."

The pages of NATURE and those of some of the older volumes of the *Gentleman's Magazine* contain many records of mysterious streaks and bands and "pillars" of light seen after sunset, variously ascribed to zodiacal light, to aurora borealis, celestial phosphorescence, &c. If I am right in assigning the spurious zodiacal light of the period above named to the Biela meteors, careful observations of such celestial luminosity in relation to other well-known meteor-streams may be very fruitful.

The Grange, Neasden.

W. MATTIEU WILLIAMS.

Curious Apparent Motion of the Moon seen in Australia.

CAN any of your readers explain the phenomenon described in the following extract from a letter received from my daughter residing in Maryborough, Queensland, Australia:—

"We saw such a curious phenomenon on Sunday night, about 10.30. Miss C—, Miss H—, and I were sitting in the balcony, when we noticed the moon apparently dancing up and down. It is on the wane, so looked so extraordinary. The motion was visible only when she was behind a narrow stratum of cloud, and continued at intervals for thirty minutes. I felt quite seasick with watching it, and Miss H. was so frightened; she thought there might be an earthquake coming, so went to bed in her clothes to be ready for an emergency. Our house would soon fall in an earthquake, its walls are thin, and no cellars."

I presume the phenomenon is connected with the varying refrangibility of the atmosphere, perhaps arising from the mixing of hot and cold air; but should be glad of further information.

T. MELLARD READE.

Park Corner, Blundellsands, May 27.

Another Specimen of *Lepidosiren paradoxa*.

It may interest some of your readers to know that I have lately received another specimen of this rare fish from my friend Dr. J. Barbosa Rodriguez, the energetic Director of the Museu Botanico do Amazonas at Manáos. This is the fifth specimen known. A short notice of the fourth specimen, an adult female of large size, caught in the Igarapé do Aterro near Manáos, also pre-