in my letter written on January 6 (NATURE, January 24, p. 294). On his results, a normal river supply of the supposed uranium would in 90,000 years suffice to give the ocean its present radio-activity. In short, practically the whole of the uranium has to be accounted for in the sediments. Mr. Eve perceived the difficulty, and suggests that the sediments are, indeed, its destination. I have already referred to the difficulties attending this view.

Prof. Sollas's contention (p. 319) as to the probable original character of the uranium in zircon is, I think, unanswerable. I had this fully in view when referring to uranium-bearing minerals in certain rocks. In certain rock masses the zircon might be the chief or entire source of radium, but it would appear that this cannot possibly be the case with ordinary granites. The analysis made by Mr. Strutt of a Cornish granite showed that less than one-ninth only could in this case be so accounted for. Mr. Strutt directs attention to this. Again, Prof. Sollas shows by the analysis he cites that this granite was probably unusually rich in zircon. In Mr. Clarke's last report of analytical work done in the laboratory of the United States Geological Survey (Bulletin No. 228) I have found nine granites in which the zirconia is determined. The highest percentage was 0·08, and the others ranged from 0·04 downwards to a trace. Mr. Clarke in Bulletin No. 148, speaking of zircon, says of igneous rocks generally:—"It may rarely be present up to a few tenths of 1 per cent. of the rock." He also gives, as roughly approximate, that the average content of zirconia in igneous rocks is 0·03. This would imply a quantity of zircon adequate to account for barely 4 per cent. of the mean radium content of igneous rocks.

There are, probably, other radio-active minerals possessing an original store of uranium, but I think Mr. Strutt has shown good reason for believing that the chief radium carrier is the mica, at least in granites. This is a mineral which from its properties would be very likely to absorb and retain substances in solution. J. JOLY.

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The Green Tints of Sunset.

THE appearance of a green light at sunset, like many other phenomena supposed to have only recently attracted attention, was noticed and commented upon by the ancient Egyptians, and more particularly so because in the clear air of Egypt the tints of sunset are peculiarly distinct.

As the sun there descends nearer and nearer to the horizon, apparently hastening to disappear behind one of the Libyan hills, as if burying itself in the sand at their base, the immensely enlarged flaming disc suddenly becomes, for an instant, of a brilliant green colour, and immediately a series of green rays suffuses the sky in many directions, well-nigh to the zenith.

The same phenomenon appears sometimes at sunrise, but to a smaller extent.

According to ancient Egyptian notions of cosmogony, the sun, after passing through the western gate into the world of night, travelled northward parallel to the Nile until the sixth hour, when it commenced to journey southward, having passed to the eastern side of Egypt, and, finally, at sunrise came forth by the "Gate of the East."

Now, during the nocturnal voyage, the solar orb was said to be a disc of Mafkait, which was the title of a green-coloured mineral, and so the sun was considered from sunset to sunrise to be coloured green. Sometimes, just as the last part of the sun's disc vanishes, its colour changes from green to blue, and so also after it has disappeared the sky near the horizon is often green, whilst toward the zenith it is blue. This was alluded to in ancient Egyptian writings, where sometimes it is said that at sunrise or sunset the sun's rays were of Tahen, a blue metal, the title of which is often used in reference to the blue of the sky.

In Egyptian thought day was the emblem of life and night that of death, and the nocturnal sun being identified with Osiris thus rendered Osiris the god of the dead. The setting sun being green, therefore Osiris, as the nocturnal deity of the dead, was on the monuments and representations of him when referred to as god of the dead painted green, as were other funerary divinities, such as Sekar, the form of the dead Ptah, which was that of a mummy with face and hands coloured green or dark blue. The splendid coffins of the high priests of Ammon, all the decorative tableaus of which are painted, frequently depict the green sun, and deities such as Anubis, god of the funerary journey, Isis, Nephtys, and Osiris are coloured green.

It may be interesting, if possible, to decide whether the Egyptians recorded their observation of the green colour at sunset in very early times. The late M. Groff, who has treated upon this point in the *Bulletin de l'Institut Egyptien*, proved that they did so as early as the fifth dynasty, by showing that a monument of that date delineates the half disc of the setting sun by a figure painted in three successive bands, the two lower, that is to say, those abutting on the horizon—of green, and the upper one of blue.

This is not the proper place to discuss the innumerable instances upon Egyptian relics of representations relative to death being coloured green. It is undoubtedly the case that the practice arose from the green tints of sunset and sunrise, but it may justifiably be said that in the green-coloured sun disc referred to, which dates 5000 years back, we have the, at present, earliest known human record of an astronomical phenomenon. JOSEPH OFFORD.

2 Fairfax Road, Bedford Park, W., January 29.

February and March Meteors.

FEBRUARY and March meteoric showers have never been sufficiently investigated. No very special displays have invited abundant observation, and, moreover, cold and cloudy weather often prevails at this season. Meteors, too, are generally rare, and from these several causes few observers have made persevering efforts to determine the strengths and positions of the radiants visible.

In 1877 and 1887, February–March, the writer at Bristol obtained some observations, but they were altogether insufficient to reveal more than a small minority of the meteoric streams of this period. Giuseppe Zezioli at Bergamo, and Lieut.-Colonel G. L. Tupman in the Mediterranean in 1867–71, effected many valuable observations in Febraury and March, and perhaps their results are the best secured up to the present time.

With the earth approaching aphelion, meteors are usually scarce, though there are a number of interesting showers visible, and fire-balls are invitingly plentiful. But the firmament not having been thoroughly watched during the latter part of the winter season, an earnest, persevering, and accurate observer has a very promising field before him, and may expect to discover more new showers than are likely to reward his vigils under summer and autumnal skies.

A number of streams presented during February and March have been already detected, but there is a large majority of very feeble systems still awaiting recognition. The visible strengths of many showers vary from year to year, and there are periodical displays which only occur at long intervals, so that fresh observations are very desirable if our knowledge is to keep pace with the developments frequently occurring.

Fireballs are often numerous on about February 10 and March 1–4. Some of the radiant points of ordinary shooting-stars recorded at Bristol are:—

February		March	
75°+41°	7–23rd	161°+58°	end
134+67	and in March	166+4	beginning
147+6		177+48	end
158+28		190+58	middle
175+10		196+44	
181+34	20th	229+32	end
204−10	13–21st	254+55	14th
236+11	13–20th	263+62	end
263+36	20th	270+47	middle
332+71		316+76	

Bristol, February 4. W. F. DENNING.