admit), its volcanic activity would result in similar formations to what we find on the Earth, and I have already pointed out that we have evidence of this in the "crater cones." But this does not explain the huge *depressions*. If the volcanic theory could explain all the formations on the Moon there would be no necessity to search for other explanations. The formations are exactly of the kind that would be produced by masses of matter falling on the surface of the Moon, and the direction of impact and the regular velocity could only have resulted from masses thrown out by the Earth.

Mr. Simmons' objections do not apply to the bombardment theory as I have put it forward. There are no volcanoes on the Moon similar to what we find on the Earth with the exception of the comparatively small "crater cones."

The comparative (and largely imaginative) pictures of the district round Naples and a similar region on the Moon, look all right on paper at a casual glance, but unfortunately the most important feature is absent on the Moon—there is no vesuvius!

The fact that the fragments of a bolide following on the Earth arrange themselves in the form of an ellipse, does not apply to the ring formations on the Moon. There is no atmosphere to explode the bolides. Besides the depressions must have been produced by masses which arrived more or less intact, and not by meteoric dust.

A. M. URQUHART.

Correspondence.

10, QUEEN'S ROAD, BOMBAY,
The 1st March 1914.

DEAR SIR,

I have read Captain Urquhart's lectures, reproduced in the June 1913 and January 1914 numbers of the Journal, with much interest. It has occurred to me that the craters may be accounted for in the following way :—

We know that the Moon is not heavy enough to retain permanently any gases. Hence, at no stage of its existence can it have had an atmosphere of appreciable density. That is to say, its surface must always have been exposed, with hardly any covering, to the cold of space.

We may assume that when the Moon was torn away from the Earth under the action of tidal forces, it was liquid or viscous in compostion. Its surface must very quickly have become solid or nearly so in contact with a temperature approaching absolute zero.

Chemical forces acting in the interior must have given off quantities of gas, which would naturally seek the surface. Is it not possible that the tension of the solid surface would have caused very large quantities of gas gradually to accumulate just below it in the shape of enormous bubbles ?

Presently the pressure of the gas would overcome the surface tension, and the bubble would burst ; some disruption of the surface, the temperature of which would momentarily be raised, would take place, and from what we know of the action of bubbles, the portions thrown upwards would settle and form craters.

A lunar crater is therefore, by this theory, the product of one single explosive action and not of eruptions carried on at intervals through a long period of time, as in the case of earthly volcanoes.

The lunar surface would also crack as it contracted under the influence of falling temperature, and we can conceive of the molten interior pouring through the cracks and forming the *maria*.

I am aware that the above theory is largely conjecture ; but I do not remember ever seeing it set forth, and I think it is worthy of consideration.

Yours faithfully,

F. C. MOLESWORTH.

THE EDITOR,

THE JOURNAL OF THE ASTRONOMICAL SOCIETY OF INDIA.

8/2, HASTINGS STREET, CALCUTTA,

The 25th February 1914.

DEAR MR. RAMAN,

Herewith a copy of the telegram I received from Mr. Hart on Monday, 16th current :—

Mercury now visible here ; brilliant as Polaris ; sets hour after Sun. Mira Ceti now attained fully fourth magnitude. (*Hart.*)

The days intervening between receipt of the telegram, and Friday last, were cloudy, if not overcast altogether. We

saw Mercury on Friday and Saturday, without, and on Sunday evening through a telescope, when it showed as a crescent. I have not looked for it since, but my sister observed it on Monday evening. It will be visible till the 10th proximo, but you will now be getting a young and waxing Moon in the early evening. I should *think* we saw Mercury about 12° to 16° above the horizon; but I am *not* sure of the altitudes.

I have not looked for Mira which is now very much in the western sky.

Yours sincerely,
W. J. SIMMONS.

C. V. RAMAN, Esq.

Note by Mr. Raman.

Mr. Mitchell writes from Bankura on date, 22nd February, "Mercury is now easily visible ½ Moon." I saw Mercury myself very easily a little after sunset on the 25th, and it seemed to me that it was brighter than Polaris which was just visible at the time. My 2⅞" telescope showed the disc clearly, but the image was very unsteady.

C. V. R.

Extracts from Publications.

Jupiter.

Mr. Phillips replied that it was June and July 1913. The weather, fortunately, during the latter part of the summer, was unusually favourable, so that, although the planet was badly placed, they were able at Ashtead to get a large number of observations of these dark protuberances and white egg-shaped markings. He found that the equatorial current, or at least its northern part, was this year (1913) drifting at an unusually rapid rate. It was interesting to compare the velocity in 1913 with that of former years, and he had made a slide showing the rotation periods of equatorial spots from 1879 to 1913.

The number of spots made use of in some of the earlier determinations was rather small, but he thought the main results were reliable. From the slide it was seen that whereas