Note on period of Rotation of Satellite Ganymede.

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Two very interesting observations upon Ganymede were made by W. H. Stevenson in September of last year. The nights were so clear that its disk was well defined with magnifications from 450 up to 920, I and II and IV satellites seemed quite normal, but III showed considerable markings. The first night of the observation, all the N's portion of the disk was so deeply shaded as to resemble a phase in its first stage, and from the middle of this dark limb, another dark marking projected at right angles or towards Sp. This second marking was almost rectilinear, and its area was nearly one-third that of the Ganymede's disk, when the satellite had just passed its greatest eastern elongation. The following night the dark N's marking first mentioned had spread over nearly half the disk. In view of Ganymede's position relative to its primary this dark marking could not have been a shadow. And if we admit the identity of the N's markings on the two nights, we have here a clear proof of what has long been suspected, namely, that the rotational and orbital periods of the satellite are synchronous.

Note on the Systematic Observation of the Sky.

By H. G. Tomkins, C.I.E., F.R.A.S.

It will be remembered that at our last meeting Mr. Mitchell made a proposal that the sky should be watched by members of the Society with a view to detecting new objects, and for this purpose he proposed that the sky should be divided up among the members, and each member should undertake to watch some small definite region such as a constellation. This idea has been taken up by the Scientific Secretary, Mr. P. C. Bose, and myself, and we have already in hand a definite plan of observation. I should like to explain that by the term 'observation' we do not refer mainly to observation with a telescope. Few of our members have large instruments,

and moreover that is not the class of work at which we are aiming in this movement. What we wish to do is to organise a band of members who will regularly watch portions of the sky with the naked eye or at most with the aid of field glasses, and with the aid of a comparison map (which we shall supply) try and discover new objects visible to the eye such as new stars or large comets. The objection we expect to hear is that such objects only appear at very rare intervals and are hardly worth watching for in this way. To this we reply that hardly a year passes in which a few objects of this kind do not appear in the heavens, and a comet visible in the sky to the naked eye has, as a matter of fact, just disappeared beyond the range of the eye. In the thirteen years 1902—1914 no fewer than 65 comets were discovered, that is, about five a year, and many of these were visible to the naked eye. In 1910 two were visible to the naked eye, in 1911 four, in 1912 one, in 1913 one, in 1914 three, and in 1915 one.

With regard to the new stars these are by no means rare, and two of the most important in recent years were both picked up by Dr. Anderson of Edinburgh who has made it a practice to hunt for these objects. What is needed is not casual star-gazing, but observation on a definite plan which we are now going to put before the Society. It is work in which every member can quite easily join and shall therefore appeal to all. Briefly a constellation, or, if they are small, perhaps two, will be allotted to each member, and he will be supplied with a map of the constellation. He will have to thoroughly learn the stars in that constellation, but as it will only be a small portion of the sky, this will not take him long. He will then be required to keep a pretty constant look-out in this one constellation for new objects, and to report at once to the Secretary if he sees one. Members will not, of course, have the same constellation all the year round as owing to the rising and setting of the stars they are not always visible. When a member's constellation gets out of range he will be given another and so on, and next year if he would still like the same or another we can meet his wishes. It seems to me that in this way, the star gazing of amateurs may with very little trouble to themselves be turned to very useful account, and if it is carefully done, it cannot fail to bring in results.

It will be necessary, of course, to determine in the first place which constellations should be watched, and for this purpose a chart is being made from which it will be possible to see at a glance what are the visible constellations at any time. We do not propose to watch anything of less altitude than 10 except in the west at sunset or the east at sunrise when

possibly comets might be found near the Sun. The working hours will be taken in the early part of the night from sunset onwards, so that members will not have to sit up all night. The work there will be neither arduous nor exacting, and it is hoped that many will join in the search. I think there is little doubt that the members will very soon be rewarded. I may perhaps remind them that whether detected or not the objects will certainly be there, and will probably be seen later on by some one else if our watchers fail to catch them. It will then be up to the member in charge of the constellation to say how he missed it. This, it seems to me, will bring the element of competition into the work, and I see no reason why, in a short time, the search should not become a very efficient means of finding new objects within reach of the eye or field glasses. We hope to make a beginning in May next and should be glad to have the names of as many members as possible. They should be sent to the Scientific Secretary.