the centre of rotation would be under the trunnions instead of under the centre of framework; this would have to be balanced, but with a large floating circular vessel there would not be any difficulty in doing that. This framework telescope would be covered by a strong outer framework of the shape on plan of a triangle, the apex being the centre of rotation of the inner frame and the base the line that the outer portion of this framework would sweep—say an angle of about 40° or 45°, so that the inner framework would be free to sweep through this angle without coming in contact with the outer one. The junction of the tube of the telescope near the trunnions with the outer frame could be made airtight by any flexible material that would not communicate the vibrations of the outer framework to the telescope. The platform for the observer and his dark chamber &c. could be of almost any size.

The mounting here suggested would enable a constant stream of visitors, if needed, to go up and down the outer framework without in any way interfering with the telescope: it would permit the mirrors to work under the best conditions, and, above all, it would allow the observer to work under the most favourable conditions, not only as regards his personal safety and comfort, but as regards the absence of that constant movement that is needed with the equatorial. In fact, a little consideration will show that, apart from the question of making a show telescope, this arrangement is really the best that could be used for a large reflector, which might be called an exploring telescope, and be used for many purposes and in many situations where the ordinary mounting could not be taken, owing to difficulties of transport.

As regards the mirror, although the increase from 5 to 10 feet is great, there ought not to be any great difficulty in casting and properly annealing the glass; that done, the rest is only a matter of time, care, and patience. There is not the least difficulty beyond the making of the glass that need cause any doubt as to the ultimate success. From the thickness found to be perfectly sufficient in the 5-ft. mirror, a thickness of from 10 to 12 inches for a 10-ft. would be ample.

Even if the idea of making this large telescope be abandoned, I hope that a similar one may be made on the lines I have suggested, as for a given amount of outlay it seems likely to give the best results, particularly in that general exploring work for which it is so peculiarly suited. A. A. Common.

Discovery of a New Comet in Andromeda.

We have had very little decent weather for observing in London of late, but I make a practice of never missing an opportunity. Sunday, November 6th, was far from clear, and did not improve as

the night deepened, so that after looking at Jupiter and a few double stars and finding the seeing unsatisfactory, I made up my mind to close observing at 11.30 P.M.

Ever since the temporary star appeared in M 31, I have taken an observation of that nebula at every chance I have had in case any further outbreak took place, and on Sunday night it occurred to me to try whether I could see the small *comes* to μ Andromedæ under such conditions. On swinging the telescope round from β I caught something nebulous in finder and mistook it for M 31. Going to the eyepiece of reflector I recognized at once that it was not the nebula and called out involuntarily, "What is the matter? there is something strange here." My wife heard me and thought something had happened to the instrument, and came to see. I recognized at once that it was a new comet, but before I could get more than a rough position clouds hid it. I said to my wife: "This is coming end on, and will be a big fellow, and I must get a position before I leave it if possible." I wrote at once to Mr. Maunder, Mr. Maw, and Mr. Kidd, of Bramley, and posted, and then got clearer sky, and with Slade micrometer made it immediately preceding Σ 72, the interval of passing the centre being $1^m\ 10^s$ at a single trial.

Having only restricted sky room, I was unable to make a second measure or see if motion was perceptible. I measured the diameter of the nebulosity as exactly five of the one minute divisions of the micrometer. As these are calculated for a 6-feet focus, and my focus is $78\frac{1}{2}$ inches, the estimated diameter is rather over than under the mark, but I consider the milky state of the sky somewhat reduced apparent diameter, and that probably 5′ is exact. The position in declination is very close also, as both comet and star travelled accurately on wire. As regards R.A., the difference did not exceed $1^m\ 10^s$ I am sure, but it may have been 1^s less.

On Monday morning I wrote the Astronomer Royal, but as I omitted to say I saw the Andromeda nebula at the same time, he very naturally at first thought I had blundered. My friend Mr. Kidd, with whom I have corresponded for years, and to whom I am indebted for much counsel and kindness, also suspected a mistake, but on Monday evening he saw the comet with the naked eye, as did also Mr. Bartlett of Bramley. I wrote again to Greenwich, and being now satisfied of the reality of the discovery, they took measures to spread necessary information. Mr. Maw accepted the matter at once and wrote to congratulate me.

It is unnecessary for me to enter into any particulars of further observations because they are sure to be furnished by those with better and more exact appliances, at any rate as regards position; but perhaps my impressions of change, when seen a second time on November 14th, at 10.45, may have some value, because no one but myself and Mrs. Holmes appears to have seen it for some days after its first appearance with any telescopic means. On the 14th the nucleus was much less distinct and much less bright, the

boundary of the nebulosity was much less well defined and less perfectly circular and far more like a nebula. The intrinsic brilliancy was less, but the diameter largely increased. Only getting a look at it betwixt clouds and showers, I was not able to measure, but by comparison with the half-field of Slade micrometer I estimated the diameter at from 8′ to 9′.

It will be a pleasure to learn that others have had better weather than myself, and gathered a large number of facts for our instruction. EDWIN HOLMES.

Selenographical Notes.

BRIGHT STREAK SYSTEMS VISIBLE UPON THE FULL MOON.—A recent issue of the 'Astronomische Nachrichten' contains a very suggestive paper by Prof. Pickering in which hitherto received opinions as to the length, width, and general character of these mysterious features are controverted and an hypothesis advanced to account for their origin and development which is very ingenious and novel. As results of these lunar investigations, which were made with the 13-in. telescope in the phenomenally clear and steady atmosphere of Arequipa, it was found—

(1) That the streaks round Tycho do not radiate from the apparent centre of this formation, but point towards a multitude of minute craterlets on its south-eastern or northern rims. Similar craterlets occur on the rims of other great craters, forming streak-centres.

(2) Generally speaking, a very minute and brilliant crater is located at the end of the streak nearest the radiant-point, the streak spreading out and becoming fainter towards the other end. The great majority of lunar streaks appear to issue from one or more of these minute craters, which rarely exceed a mile in diameter.

(3) The streaks which do not issue from minute craters usually lie upon or across ridges, or in other similar exposed situations, sometimes apparently coming through notches in the mountain walls.

(4) Many of the Copernicus streaks start from craterlets within the rim, flow up the inside and down the outside of the walls. Kepler includes two such craterlets, but here the flow seems to have been more uniform over the edges of the whole crater, and is not distinctly divided up into separate streams.

(5) Though there are similar craterlets within Tycho, the streaks from them do not extend far beyond the walls of this formation. All the conspicuous streaks about Tycho originate outside its walls.

(6) The streak-systems of Copernicus, Kepler, and Aristarchus are greyish in colour and much less white than that associated with Tycho; some white lines extending south-east from Aristarchus