proaches nearest to the Earth in opposition; that is to say, on the other side of the Sun, so that its surface receives the full light of the Sun, it is still more than thirty millions of miles from us. Powerful telescopes exhibit markings which are called lakes, and seas, and continents, and canals, and at the poles white caps, which are seen to diminish in size at times and are considered to be snow, which melts as the Sun shines upon it. There is much discussion and controversy as to whether Mars is inhabited, whether markings seen are artificial that is made by its inhabitants. Last year Mars was in a very favourable position for observation, and I think the result of observations made was against the theory of canals and inhabitants who made them. Jupiter, the giant planet, more than 80,000 miles in diameter, is a fine object nearly approaching Venus in brilliance. It has a number of dark belts across its disc, with various markings, one of which is known as the large red spot, a large spot of a ruddy hue which varies in appearance from time to time. From the motion of spots and markings on the belts it is found that Jupiter revolves on his axis in a little less than ten hours, the shortest known period of rotation of any of the planets in the solar system. Jupiter, even through a small 3in. telescope, is a beautiful object, the four largest of his moons being plainly seen, and it is very interesting to see these moons passing over the planet's disc, or being occulted, that is, passing behind him, or being eclipsed by him or causing eclipses on his surface. All these phenomena I have seen with a 3in. telescope, the most interesting being, I think, to see a satellite coming out from eclipse. You see a faint speck of light appear in the dark sky near the planet, which gradually brightens, until the satellite, having passed out of the planet's shadow, shines out with its normal brilliance. But I think the most beautiful object of all is Saturn. He is nearly as large as Jupiter, his diameter being 71,000 miles, and on his disc are seen belts something like those of Jupiter, but what makes him so beautiful is the possession of rings. Round the planet are flat rings concentric with the planet; there is the outer ring, then a division called Cassini's division, from the astronomer who first discovered it. Then the inner ring, which has at its edge next the planet a dusky border called the crape ring, from its appearance. The diameter of the outer ring is 172,600 miles. The orbit of Saturn is not in the same plane as that of the Earth; sometimes, therefore, he appears above our orbit, sometimes below it, and so the rings appear to vary in extent and position. At one time, when Saturn crosses the plane of our orbit, we see the rings edgeways, and as they are very thin, they disappear altogether, as far as small telescopes are concerned; then gradually, as Saturn passes above or below our plane, the rings open out and we look up to or down upon them. Uranus and Neptune are so distant that as telescopic objects they have comparatively little interest; with my 3in. I can see Uranus as a very small disc of a bluish colour. I have been talking chiefly of the planets and incidentally mentioned some of their satellites, or moons. Mars has two, Jupiter seven, Saturn ten, Uranus four, Neptune one, and the Earth has one, which is a most useful attendant upon our planet. It gives us light at night, and helps largely in the production of the tides of the oceans. Its motion among the stars, too, is useful in navigation. And it is a most interesting object to study with a telescope; a small one will show a great wealth of detail. Its mountains and craters and plains can be seen; the plains were first named by astronomers, who thought they were seas; there is Mare Serenitatis, the Sea of Serenity, Mare Tranquilitatis, Mare Vaporum, Mare Nubium, etc., and mountain ranges have names: The Alps, the Appenines, Caucasus, etc. All the craters or objects that appear like craters, are named after well-known astronomers and other noted men, Greek, Roman, French, English, Italian. Some of the craters are also called plains, on account of their size; some of them exceed 100 miles in diameter, while the largest crater on the Earth does not exceed 7 miles. The mountains, too, are loftier than any on the Earth, some of the highest peaks being 36,000 feet, while Mt. Everest, the highest mountain we have, it but a little over 29,000 feet. How the moon became as we now see her is an unsolved problem. She possesses no atmosphere; at least, if there is any it is so thin that it does not affect the brightness of a star when occulted. The star remains at its normal brightness up to the instant when it disappears through the passage of the Moon over it.

There is another group of heavenly bodies which I have not touched upon, and will only shortly name. I refer to comets. These visitors are marvellous, and but little is known or understood about them. Some move in orbits, which bring them back in varying periods; some appear, pass round the sun, and are known no more. Their number is considerable. Early this year we had a visit from a notable comet, Halley's, and we in this Southern Hemisphere were greatly favoured, having a fine view of it as it approached the sun.

I have now given a discursive talk about astronomy, which has touched upon a great variety of subjects, in but a poor way, such as an amateur can do. But I hope my remarks may be of some use in showing to some who would like to study astronomy that there are many objects to observe, many branches of study to take up, and that in all that comes under the name of astronomy there is so much to interest and instruct the mind. And, I am sure, many, if they once begin to observe and study the sky at night, and to learn something of the constellations and the movements of the planets, would become fascinated by what they learnt, and would continue the study, lifting their eyes to something above, and better than the electric lights of the city. Many things I have mentioned are really beyond our powers to grasp. What do we know of millions; how can we think of a space of 92,700,000 miles which separates us from the Sun, and a lay mind may be forgiven when it hesitates to believe all that astronomers tell us about distances and magnitudes. But we can see and understand many things they tell us, and so we should believe them in those we cannot understand. There is a wonderful book published in England yearly, two years in advance, for the benefit, chiefly, of navigators. I refer to the Nautical Almanack. Though published two years beforehand, it gives the position of Jupiter's satellites each day, and the exact moment of their transits, occultations and eclipses, and you must remember that we are moving, Jupiter is moving, and the Satellites are moving. It also tells the exact time of the occultation of a number of stars by the moon. Here, again, we are moving and the Moon is moving. The positions of the planets, right ascension and declination, are also given for each day (except those of Uranus and Neptune, which are given for each fourth day) throughout the year, so that if you have a telescope equatorially mounted you can set it to the required position by means of the right ascension and declination circles and find the planet in the field.

Then, the other day, we had a triumph of mathematical astronomy, when two of the astronomers at the Greenwich Observatory calculated the spot among the stars where Halley's Comet was first to appear, and the first discovery of the comet made by a German astronomer by means of photography, showed it less than the apparent diameter of the Moon from the calculated spot. And this comet was returning from a journey far out beyond our farthest planet Neptune, more than 2,746,271,000 miles from the Sun. It was last seen by us some 76 years ago, and in the calculations of its orbit many things have to be considered and allowed for, such as the effect of the attraction of the planets upon it as it passed them on its way out from the Sun and on its journey back.

Astronomers are doing their utmost to perfect their knowledge of the heavenly bodies, and are now paying great attention to astrophysics, which means the study of the physics of the stars, their composition, size, weight, whether they have, as so many of them have, a companion star, what is the size, weight and attractive force of this companion, is one star revolving round the other, or are they revolving round a common centre.

As to our section of the Philosophical Society, there is no reason why it should not in time develop somewhat on the lines of the British Astronomical Association, which is divided into sections for purposes of observations. Some observers take up variable stars, some the planet Mars, some Jupiter, some the Moon, some the Sun. Each section works under a director, and much good work is being done.

There is one thing the study of astronomy does if it is taken up seriously and with intent to learn: it makes man and all the wonders he can achieve appear very, very small. What is the Earth among the millions of bodies which we find out by the aid of telescopes and photography. Any one studying astronomy must surely find his wonder at the marvels spread out before him increasing as he studies. He will find such evidences of majestic law and order governing the movements of the Heavenly bodies, and his very inability to grasp the distances and dimensions of these bodies or the extent of our system must excite in his mind wonder and admiration and lead him to acknowledge the greatness of the Creator and to thank Him for having given us mortals such a measure of understanding as to be able to find out so much about the marvels of creation.