The New Comet

(By Rev Dr Kennedy Meanee, Hawkes Bay)

The comet announced on July 28th by the French astronomer Flammarion, was observed in several places in Australia and New Zealand on the following morning, but on account of cloudy weather it was not until August 4th that it could be seen at the Meanee Observatory. On that morning the comet was too near the sun to get a good view of its tail; still, two fairly good photographs of it were taken—one with the 9-inch Cooke photo.-visual refractor, the other with a 3½-inch Dallmeyer portrait lens. The portrait lens, working at F 3.5, photographs much more quickly, though on a smaller scale, than the 9-inch object glass, which works at F 17. The picture taken with the latter, during an exposure of about 20 minutes, showed very well the comet's head, consisting of a bright central nucleus and a surrounding hazy coma, but the tail was not very distinct. The photograph taken with the portrait lens, during the same time of exposure, showed the tail very distinctly, consisting of two long trains and two faint shorter streamers. A longer exposure could not be given on account of the proximity of the moon, the light of which would have fogged the plate. As the photograph of the crescent moon appeared on the same plate, it afforded an easy means of calculating the dimensions of the comet. It was found that the comet's head, including the coma, was about 225,000 miles in diameter, and that the longest tail was about 9,000,000 miles in length. These dimensions, though enormous, are not extraordinary for a comet. The head of Donati's comet, in 1858, was 250,000 miles in diameter; that of 1892 had a diameter of over 700,000 miles; while one in 1811 measured nearly 1,200 000 miles across the head The great comet of 1882 had a train 100,000,000 miles in length, longer than the distance between the earth and the sun

On August 5th another photograph was taken, but as clouds intervened, only a short exposure could be given. However, it was sufficient to show the exact position of the comet and the distance through which it had travelled during the previous 24 hours It was found that it had travelled over a distance of 3½ million miles during that time, and was consequently moving at the rate of about 40 miles per second, or more than 200 times as fast as a rifle bullet. This again is not an extraordinary speed for a comet. Some have been known to travel at the rate of 200 miles a second, that is, 1000 times as fast as a rifle bullet, when whirling around the sun

A few months ago a paragraph appeared in several papers in Europe, as well as in New Zealand, stating that Professor Matteucci, of the Observatory of Mount Vesuvius, had announced that a collision between the earth and a comet would take place in March, with the awful consequences that are generally supposed would attend such an occurrence. But the report was merely an astronomical hoax, invented by some journalist who was probably short of exciting news; for the Professor wrote to the Italian newspaper in which the statement originated, denying that he had made such a suggestion.

However, it may be asked, is such a thing as a collision between the earth and a comet possible, or likely ever to happen? As regards the possibility of such an event, it must be admitted that it is quite possible. In fact, it is almost sure to happen some day, if the earth lasts long enough; for there are several comets whose orbits are close enough to the earth's orbit to bring them into collision with the earth, should the comet and the earth happen to arrive simultaneously at the points in their orbits which are in closest proximity. But such collisions are not likely to happen frequently, for it is estimated that they may occur about once in 15 million years. And even if such a collision did take place, it is by no means certain that it would be attended with any disastrous consequences to the earth. For while the volumn of a comet is generally enormous, its mass is very small as compared with that of the earth. The tail, being composed of gas in a very rarefied state, is so flimsy that small stars can be seen through it, even when more than a million miles in diameter, without any perceptible diminution of brightness. As for the head of the comet, the central bright part called the nucleus appears to consist of a swarm of meteoric stones; but whether these stones are many feet in diameter, or only a few inches, or only a few thousandths of an inch, it is impossible to say. If these solid particles should happen to be very large and to weigh several

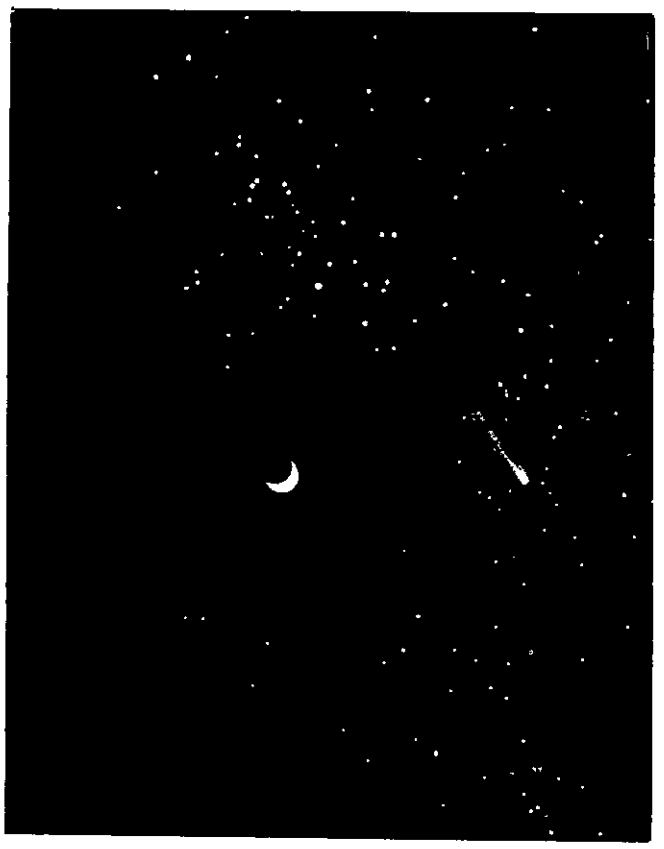

FIG. 1

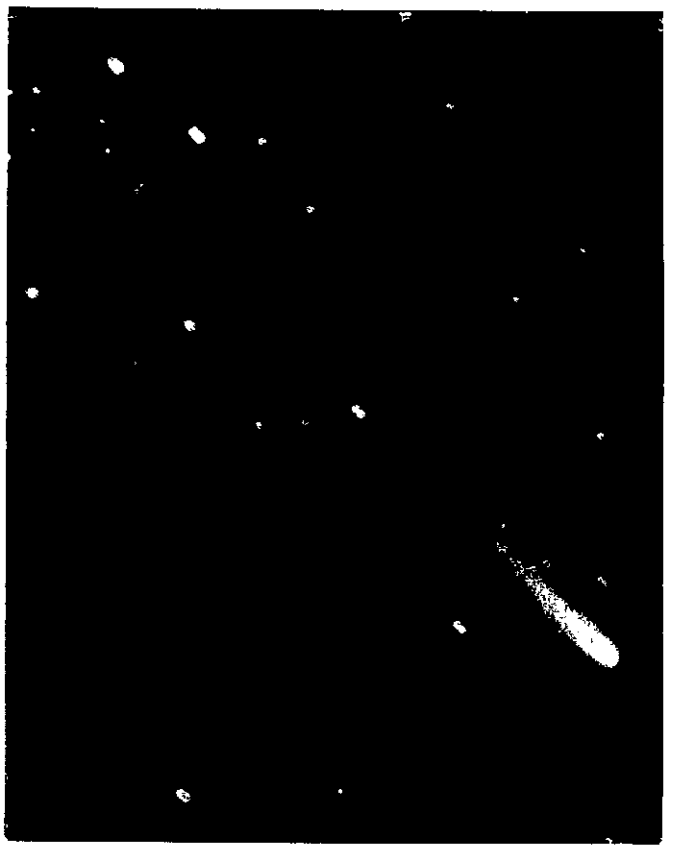

FIG. 2

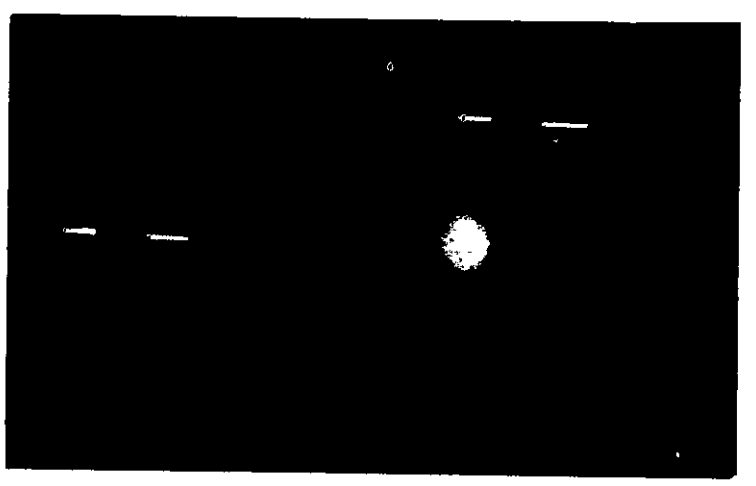

FIG 3