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THE NEW COMET.

The great comet which has so suddenly flashed into our Northern sky is one of the most brilliant comets that has appeared for many years. It has a large and very stellar like nucleus which is surrounded with envelopes, very much like those of the Donati comet of 1858, which was described so well by Professor George P. Bond of the Harvard College Observatory. The dense nuclei of such comets give one the idea of a mass and quantity of matter quite different from the ordinary telescopic comets, through which the faintest stars can be seen. The tail of the present comet is now about twelve or fifteen degrees in length, and altogether this comet presents a very beautiful spectacle at three o'clock in the northeastern morning sky. The motion of the comet is three or four degrees toward the north, and it will soon reach a position where it will be visible during the entire night in the greater part of the United States.

The first duty of the astronomers will be of course to get observations of its positions and to compute the orbit of the comet. Since for this purpose observations on three days are sufficient, we shall soon have a certain knowledge of its motion. The knowledge of the orbit will decide the question whether this is the large comet whose discovery was telegraphed to Europe from Buenos Ayres by Dr. B. A. Gould, on June. 1st, and also whether it is identical with the great comet of 1807. The observations of the comet of 1807 were discussed in a very complete manner by Bessel who found its periodic time to be between 1400 and 1900 years, and it will be a curious fact if the true period proves to be only seventy four years.

This great comet also presents a good opportunity for the spectroscopists to examine its chemical nature, and a rare occasion for the study of the physical constitution of comets. No doubt these questions will be well attended to by the astronomers and students of our country.

The question of the formation of a comet's tail, and how the particles of matter are driven out from the nucleus in the direction opposite the sun has not yet been answered in a satisfactory manner, and all the facts that can be gathered from observations of this comet will be extremely valuable. In his discussion of the physical constitution of Halley's comet in its appearance of 1835 Bessel found that a repulsive force from the sun was very decidedly shown by the observations of the tail. Similar results were reached by Professor Pierce of Harvard College, Professor Norton of Yale College and by Dr. Pope in their discussion of the Donati comet of 1858. This is an interesting question and it may have an intimate relation with the theory of a resisting medium in space which has been indicated by the motion of Encke's comet.

We learn that unfortunately the weather at Washington has been unfavorable for several days past; but from the numerous good telescopes scattered over the country, we doubt not that good observations of this interesting comet will be gathered.

THE ADDRESS OF THE PRESIDENT OF THE ROYAL MICROSCOPICAL SOCIETY.

LIONEL S. BEALE, F. R. S.

(Concluded from page 297.)

One may transport oneself in imagination into infinite space, amid the never-ceasing vibrations visible and invisible—"The lucid interspace of world and world, where never creeps a cloud, or moves a wind," and may perhaps all but see combined in one mental image, as they ever course through space, suns and worlds and systems. And although at first the mind is almost lost in the contemplation of the infinite physical vastness presented it, it is nevertheless able to seize in some degree a more than shadowy conception of the exactness and regularity of the eternal movements, and to recognize the never-ceasing operation in the material universe of inflexible, unchanging law.

But he who in imagination can succeed in mentally placing himself amid the atoms in the interatomic spaces of a living particle, will be in the very heart as it were of an infinity of a very different order—infinite movement and change affecting infinitely minute particles, so very near to one another that the matter of one may as it were run into that of the other, and the masses divide and subdivide again. Of all this movement and change of particles how very little of what occurs in a portion of matter not more than the one hundred-thousandth of an inch in diameter can be comprised in one mental image? But beyond all this there is the power of prospective change, acting through years it may be, which is somehow associated with the minute particles of living matter, as well as many complex phenomena of which the mind cannot take cognizance as a whole, but must consider, as it were, one by one in several successive pictures.

Could we peer into the very substance of the living particle itself as it was increasing in size and communicating to non-living matter its wonderful properties, what should we see? What is it that happens at the moment when a little complex organic matter dissolved