length of the day was increasing—getting gradually longer and longer. But how long has this been going on? Yesterday was shorter than to-day. The day which Homer had was shorter than our day, but not indeed to any appreciable extent. There can be no doubt, however, that a million years ago the day was appreciably shorter than the day is at present. He wished to conduct them back to an exceedingly remote period, to a critical epoch in the history of the earth. That epoch must have been more than fifty millions of years ago, but how much more he could not tell. At that extremely remote time the day was greatly less than it is at present. It was only, indeed, a fraction of its present amount, being only from two to four hours long. He would trace back the moon to the same remote epoch to which he had conducted the earth. The tides in the earth are forcing the moon gradually away from us at present. The moon was therefore formerly nearer to us than it is now. Millions of years ago the orbit of the moon was much less than it is at present. The time of the moon's revolution was much smaller and the moon must have been quite close to the earth, and whirled round the latter in a period of from two to four hours equal to the period of the earth's revolution on its axis. Such, then, is the primeval condition of things to which the tracing of tidal evolution conducted. Antecedent to this critical epoch they could hardly go with any degree of certainty. After explaining Darwin's theory in reference as to the supposed rupture of the earth at a very remote period of time, and the consequent formation of the moon, the lecturer proceeded to speak of the surprise with which astronomers realized that the small interior satellite of Mars revolved on its axis in less than a third of the time —nearly 24 hours—which the primary occupied in revolving on its own axis. He also spoke of the tremendous forces in action at remote periods when tides rose to a height of a thousand or two thousand feet, scouring rocks and carrying enormous quantities of matter to the sea, and when that action caused so much comparatively rapid manufacture of strata.

MR. DARWIN ON DR. HAHN'S DISCOVERY OF FOSSIL ORGANISMS IN METEORITES.

Dr. Hahn's discovery, of which an elaborate account was given in No. 50 of SCIENCE, has stirred up a lively discussion of this highly interesting subject. Dr. Hahn has taken steps to enable Prof. von Quenstedt, the renowned Tübingen geologist, and all others who expressed the desire to examine his microscopic preparations. It is understood that all those who have availed themselves of the opportunity thus offered have become convinced of the genuineness of Dr. Hahn's discovery.

It is very interesting to note the position taken by the greatest of living evolutionists in this controversy, if it can still be called such. Charles Darwin, on receipt of Dr. Hahn's work, wrote to him:

" . . . It seems to be very difficult to doubt that your photographs exhibit organic structure . . . ," and furthermore:

" . . . your discovery is certainly one of the most important."

Not content with the mere presentation of his work, Dr. Hahn visited the veteran zoologist and brought his preparations to him for inspection.

No sooner had Mr. Darwin peered through the microscope on one of the finest specimens when he started up from his seat and exclaimed:

" Almighty God! what a wonderful discovery! Wonderful!"

And after a pause of silent reflection he added:

" Now reaches life down!"

The latter remark no doubt refers to the proof furnished by Dr. Hahn's discovery that organisms can reach our planet from celestial space. It is an acknowledgment of the relief Mr. Darwin must have felt in not being forced to a belief in a primeval "*generatio equivoca*."

As was suggested in the paper referred to, "the Richter-Thomson hypothesis of the origin of life on the earth has become a tangible reality!" R.

AN AFTERNOON ON PASSAIC RIVER.

On the 25th day of last month the editor, in company with his former colleague on the *Quarterly*, Mr. J. L. Wall, escaped from the city and made a trip to the town of Belleville, on the Passaic River. A row-boat was engaged, and we proceeded to collect specimens from along the shores. Not many species of algæ were found, nor was there any great variety of animal forms, but the water-plants, so hardy and useful in aquaria, the *Anacharis Canadensis* and *Vallisneria spiralis*, were abundant. Reaching over into the shallow water, it was an easy matter to obtain perfect plants of *Vallisneria* with good roots, and we collected a number of them. The *Anacharis* grows so readily without roots that the more fresh looking stems were carried home without regard to the roots. An old can was made use of to carry home some of the river mud, in which to plant the *Vallisneria*. The mud was placed in the bottom of a tall specie jar, the roots of the plant were properly embedded, and the jar filled with water. The next morning, after the water was cleared by settling, the mud was covered with a layer of clean sand, which tends to prevent riling of the water by a slight disturbance. All the leaves of the *Vallisneria* were removed, so that a new growth might start in the aquarium. It is probable that we will thus obtain some vigorous plants of *Vallisneria* for use during the coming winter. The *Anacharis* was simply thrown into a large aquarium, where it will doubtless grow without further care. Rowing about slowly, a long, green, spiral filament was observed reaching up to the surface of the water. It was two or three feet in length, and bore a peculiar flower at the end. This was the female flower of *Vallisneria*, a very interesting object for study; it was quite a surprise to us, as the plant does not usually flower as early as July. Looking toward the shore, the water was covered with an innumerable quantity of white specs, which attracted our curiosity. Rowing up to them, we found that they were the male flowers of *Anacharis*. These are very curious flowers. The long, tubular perianth, sometimes two or three inches in length, reaches from the axil of a leaf to the surface of the water, and bears the stamens above. It would easily be mistaken for the flower-stem, but it is really the tubular perianth. These flowers were very abundant, so that the water appeared white with them. The pollen-grains were numerous, and could be seen floating about on the water in little clusters resembling snow-flakes. *Potamogeton* was abundant, in several forms, and the common arrow-plant, so named from the shape of the leaf, *Pontederia cordata*, which is also good for large aquaria. This plant should be set in a flower-pot, with suitable soil in which to root, and then submerged, either wholly or in part.

Among the algæ, two species of Oscillaricaceæ were found quite actively moving *Oscillaria tenius* and *littoralis*, and *Lyngbya majuscula*. The most interesting specimen of all, however, was a species of *Ulothrix*, a very common, filamentous, green algæ, in which the cells are about as long as they are wide. It was interesting because when we examined it, at about seven o'clock the next morning, the process of giving off swarm-spores had just begun. The entire contents of each cell in whole filaments, quickly formed into green, spherical masses, which began to move about in the confined space within the cells; soon the cell-walls ruptured, and the contents escaped as very active swarm-spores, somewhat elongated in form, and furnished with four long, whip-like appendages, or flagella, by means of which they could