by Mr. Starr, a young American, and patented in this country under the title of "King's Patent Electric Light," specification enrolled March 25, 1846. An account of it, with drawings, may be found in the *Mechanic's Magazine*, April 25, 1846, p. 312. To this are appended some editorial remarks in which the novelty of the invention was at that date disputed. Those who care to follow the subject further may find a letter of mine replying to this editorial criticism in the *Mechanic's Magazine* of May 9, 1846, p. 348.

I constructed a large battery and otherwise assisted Mr. Starr in his experiments on this light. The "wick," as Mr. Munro aptly calls it, was a stick of gas retort carbon, like that pictured (NATURE, p. 423), excepting that it was affixed to supports of porcelain in order to remedy the fracture which occurred to our first apparatus in which the carbon stick was rigidly held in metallic forceps. Thus the improvement of M. Kosloff was also anticipated.

The lamp-glass was a thick barometer tube about thirty-six inches long, with its upper end blown out to form a large bulb or expanded chamber. The carbon and its connections were mounted in this with a platinum wire passing through and sealed into the upper closed and expanded end of the tube.

The whole of the tube was then filled with mercury and inverted in a reservoir, and thus the carbon stick, &c., were left in a Torricellian vacuum. The current was passed by connecting the electrodes of the battery with the mercury (into which a wire from the lower end of the carbon dipped) and with the upper platinum wire respectively. A beautiful steady light was produced accompanied with a very curious result which at the time we could not explain, viz., a fall of the mercury to about half its barometrical height and the formation within the tube of an atmosphere containing carbonic acid.

I have now little doubt that this was due to the combustion of some of the carbon by means of the oxygen occluded within itself.

In pointing out this anticipation of M. Lodighin's invention I do not assume or suppose that any piracy has been perpetrated. It is one of those repetitions of the same idea which are of such common occurrence and which cost the re-inventor and his friends a vast amount of trouble and expense that might be saved if they knew what had been done before.

I may add that the result of our battery experiments was to convince Mr. Starr that a magneto-electric arrangement should be used as the source of power in electric illumination; and that he died suddenly in Birmingham in 1846, while constructing a magnetic battery with a new armature which, theoretically, appeared a great improvement on those used at that date. Of its practical merits I am unable to speak.

Twickenham, September 18 W. MATTIEU WILLIAMS

Serpula Parallela

TWO or three years ago I read somewhere that *Serpula parallela* of M'Coy is probably a vitreous sponge. Can any of your readers give me a reference for this? I wish to give the authority for this happy suggestion to which Mr. Young and I referred last year. JOHN YOUNG

Glasgow University, September 19

HYDROGRAPHIC SURVEY OF THE BALTIC

WE learn from the Stockholm *Nya Dagligt Allehanda* that during the month of July last a hydrographical survey of the Baltic was carried out by two vessels belonging to the Swedish navy, which were placed for this purpose at the disposal of the Swedish Royal Academy of Sciences for a month. A grant of about 550*l.* is intended to cover the expenses of three such expeditions. The whole of the Baltic, from a line drawn from Arendal to Jutland to the head of the Gulf of Bothnia and from the Swedish coast on the one side to the Finnish, Russian, German, Danish, and Norwegian on the other, was examined for temperature and salinity along thirty-four lines, measuring together more than 23,000 English miles, and including 200 stations. At every such station the temperature and salinity of the sea water were ascertained at the surface and at several different depths down to the bottom, about 1,800 different determinations of temperature having been made and a corresponding number of samples of water obtained. The nature of the bottom has also been ascertained by instruments which brought up samples not only from the surface of the bottom, but also from a variable depth, occasionally several feet, under it. The plan of this survey, which is said to be the most complete that has yet been made for its special objects, the determination of the salinity and temperature, was drawn up and carried out by Prof. F. L. Ekman. New instruments for taking samples of sea-water at different depths were employed, and as the temperature of the water did not undergo any perceptible alteration during the time required for getting it to the surface, for every sample that was obtained, the temperature of the depth from which it was raised was ascertained simultaneously, without any great loss of time. The survey shows the Baltic and the Gulf of Bothnia to consist of three strata, differing greatly in temperature, and often very sharply defined, viz., an upper stratum, which is warmed during the summer by the heat of the sun to a pretty high temperature, a lower, in which the cold of winter still prevailed to a great extent, and under the latter still another of a somewhat higher temperature than the intermediate stratum, the third stratum being of great thickness where the depth was considerable. In the Gulf of Bothnia, as in Skagerack and Kattegat, on the other hand, the temperature diminished steadily in proportion to the depth, as is commonly the case in the ocean. The uppermost summer-warm stratum of water was found to be of variable thickness at different places in the Baltic; at some it was scarcely perceptible at the period of observation. This and other peculiarities will probably be explained in the course of the working out of the observations which is now proceeding.

OUR ASTRONOMICAL COLUMN

THE SATURNIAN SATELLITE HYPERION.—The following ephemeris of this satellite for the next period of absence of moonlight is founded upon the elements calculated by Prof. Asaph Hall, of Washington, from his measures in 1875. Though limited to dates when Saturn may be observed while the moon is absent, probably her presence, except when very near the planet, is less an impediment to viewing so faint an object than the unavoidable proximity of the planet itself.

At 10h. Greenwich M.T.

	Pos.	Dist.		Pos.	Dist.
	°	″		°	″
Sept. 30 ...	261·8 ...	47·8	Oct. 6 ...	277·4 ...	219·5
Oct. 1 ...	270·6 ...	118·6	„ 7 ...	278·8 ...	177·4
„ 2 ...	273·0 ...	176·6	„ 8 ...	281·2 ...	130·8
„ 3 ...	274·3 ...	215·8	„ 9 ...	286·7 ...	76·5
„ 4 ...	275·3 ...	234·1	„ 10 ...	321·0 ...	22·1
„ 5 ...	276·3 ...	232·3			

An ephemeris of the five inner satellites of Saturn, by Mr. Marth, appears in No. 2,154 of the *Astronomische Nachrichten*. It is elaborately compiled, but this the first portion, extending to September 20, only reached this country on the date of its expiration. It is to be regretted that a work of this interest involving so much care and trouble in its preparation, should not have been in the hands of astronomers earlier; it is not the first instance of unfortunate delay in the publication of communications of immediate utility in this periodical of late.

THE NEW COMET (1877, IV.).—A first approximation to the orbit of the faint comet discovered at Marseilles on the 14th inst. calculated by Mr. Hind upon M. Coggia's observation on that date, and observations at Leipsic by