process, and so on. Thus is produced a small rolled-up organism, analogous to a *Miliola*. This rolling-up soon becomes irregular, like a ball, and finally the new chambers erect themselves, become ramified in various ways, and form a dendritic mass. In the further course of the development the different shells constituting these masses become detached from each other, increase in size, multiply in various ways which cannot be described here, and, after having attained certain dimensions, propagate again by embryos which recommence the same cycles.

A great number of other new facts further characterize this organism, such as frequent moultings, the formation of multiple septa at the expense of the inner membrane of the shell, &c.

From what precedes it seems that hitherto the adult form may have been misunderstood in certain Foraminifera. In fact the descriptions are only of twisted forms, or at least forms in which all the chambers are in continuity. Now I have just shown that this was an embryonic stage in the organism here under consideration. It seems to me very improbable that this alone presents these phenomena to the exclusion of all other species. The deficiency of observations upon the mode of reproduction of the latter confirms my opinion.—*Comptes Rendus*, March 12, 1888, p. 769.

A new Freshwater Sponge. By Henry Mills.

Heteromeyenia radiospiculata, n. sp.

Sponge massive; specimen $3 \times 2\frac{1}{2} \times 2$ inches in thickness; texture close, compact; surface nodular; statoblasts or gemmulæ uniformly globular; diameter ·02 parts of an inch; crust thick, charged with two distinct forms of birotulate spicula, the inner ends of both resting on the chitinous coat of the statoblast.

Foraminal opening small, slightly prolonged, not funnel-shaped.

Skeleton-spicula generally smooth, a few sparsely microspined; curved, moderately sharp-pointed; length varying from ·012 to ·014 parts of an inch; long birotulates vary in length from ·007 to ·009 parts of an inch. From thirty to sixty of these project irregularly from each statoblast, reaching out beyond the shorter birotulates, one fourth or more the diameter of the statoblast, and terminating in rotulæ, consisting of numerous, strong, recurved hooks, some of which are turned inward pointing directly to the shaft. Shaft more or less spined, slightly curved, larger in the middle; width of rotulæ ·0012.

Shorter birotulates large, symmetrical, with irregularly dentate rotulæ; rotulæ boletiform; shafts straight, strongly spined, spines at right angles to shaft tapering to a point.

Length of short birotulate ·003 inch. Width of rotulæ ·001. Dermal or flesh-spicula numerous throughout, small, hexradiate-stellate; with rays or arms of various extent proceeding in all directions from a common centre; centre without form or other

character, except that which is incident to the junction of the many spines which make up the spiculum. Average extent of stellate spicula measured from the ends of opposite rays ·001. Rays sometimes of uniform thickness, occasionally enlarged at the ends with microspines, curved inward.

There are also many small spicula with one or two long arms, forming an axis from which proceed other rays or arms perpendicular to the axial rays. These are all microspined, sometimes with blunt terminus and sometimes tapering slightly.

The two kinds of birotulate spicula found in the statoblast of this sponge, as already described, bring it into the genus *Heteromeyenia*, Potts. But for this feature it must be classed at least as a remarkable form of *Meyenia plumosa*, Carter. Forty years ago Mr. Carter, of England, found his specimen of the last-named sponge in the water-tanks of Bombay, India. This he described in 1849. No other specimen or variety of it was found again till three or four years ago, when Dr. Palmer found a variety of it on the banks of the Colorado River. This was described by Mr. Potts, who named it *Meyenia plumosa*, variety *Palmeri*. See his description in his monograph of the freshwater sponges.

As the term used to designate the generic character of this entirely new form is technically expressive of one of its peculiarities, I have thought it best to use a specific term which is also expressive of the stelliform spicula, which, among all the freshwater sponges, so far as I know, are only found in this and the two allies above named. It will therefore be known as *Heteromeyenia radiospiculata*.

This sponge was found in the Ohio River, twelve miles from Cincinnati, by my friend Mr. George B. Twitchell, in September 1887, and sent to me in November, same year. I acknowledge my indebtedness to Mr. Twitchell for several other specimens found also in the Ohio River. Among them are *Carterius tubisperma*, Mills, a fine specimen of *Tubella pennsylvania*, Potts, and *Spongilla lacustris*, Auct.—*The Microscope*, no. 2, February 1888, p. 52 (Detroit).

On Parasitic Castration in the Eucyphotes of the Genera Palæmon *and* Hippolyte. By M. A. Giard.

In 1837 Rathke noticed the curious fact that the Palæmons infested by *Bopyri* belonged exclusively to the female sex:—"*Mirabile dictu Bopyri omnia quæ vidi exempla—vidi autem eorum plures centurias—solummodo in Palæmonibus feminis repereram, licet in manus meas non pauciores horum animalium mares quam feminæ incidissent*"*. All subsequent authors down to the most recent one, P. Fraisse, have only confirmed Rathke's observation.

Guided by my previous discoveries as to the effects of parasitic castration in Decapod Crustacea infested by Rhizocephala, I last

* 'De Bopyro et Nereide,' p. 18.