ASTRONOMY.

SWIFT'S COMET.

Swift's periodic comet, which has now become quite faint, was observed on December 10th and 11th, with the 26 in. equatorial of the Naval Observatory, and it is hoped that more observations will be obtained as soon as the moon has passed. On account of an elliptic motion, it has been slowly departing from the ephemer's computed by Mr. Upton with parabolic elements and published in Vol. I, No. 21, of "SCIENCE."

The following is a continuation of Mr. Upton's ephemeris, which he has corrected, however, from the most recent observations:

EPHEMERIS.—WASHINGTON MEAN MIDNIGHT.

DATE.	R. A.			DECL.		
	H.	M.	S.			
1880, December 18	5	14	44	+38°	5	2′
" " 20	5	20	40		36	45.1
" " 22	5	25	53		35	29.9
" " 24	5	30	35		34	19.6
" " 26	5	34	47		33	14.0

A NEW Astronomical Journal, *Urania*, edited by Dr. Ralph Copeland and Mr. J. L. E. Dreyer, is to appear early in January. It will be published in numbers of from 16 to 24 quarto pages, as material can be accumulated. The names of the editors, Mr. Dreyer as a former assistant to Lord Rosse, and Dr. Copeland as Lord Lindsay's assistant, are sufficient assurance that this will meet the want long felt in England and Ireland of a journal, published at frequent intervals, especially devoted to the interests of astronomers.

Lieut. S. E. Tillman, of the Corps of Engineers, whose name is well known in connection with the American Transit of Venus Expedition to Tasmania, has been appointed Professor of Chemistry, Mineralogy and Geology, at West Point, in the place of Professor H. L. Kendrick, who has voluntarily retired in order that this appointment might be made. Professor Tillman has had a very varied experience as an officer of engineers, his duties having led him to astronomical and geodetic work in the field and to geographical and geological explorations. The military academy may be congratulated upon having secured a valuable addition to its present strong academic staff.

The volume of Washington Astronomical Observations for 1876, containing, in an appendix, the reports on the total solar eclipse of 1878, is expected, in a few days, from the Government printing office.

Mr. S. C. Chandler, Jr., publishes, in *Science Observer*, a description of an instrument, the "Almacantar," which he has invented for determining time and latitude. The instrument is designed for the observation of "Equal Altitudes," the principle upon which it is made being that of Kater's floating collimator. The Y's, in which the pivots, rest are secured to opposite sides of a hollow iron rectangle which floats in a rectangular basin of mercury. The telescope can be clamped in altitude and the whole instrument rotated about a vertical axis. The float is allowed to seek its level, and thus the telescope will indicate equal altitudes on either side of the meridian. The probable error of a clock correction, as determined from a series of observations with this instrument, is about ± 0.05 sec. W. C. W.

P. S.—For notice of a new comet see page 297.

To the Editor of SCIENCE:

I observe what appears to be some errors in dates in the list of minor planets discovered by the late Prof. J. C. Watson, mentioned by your correspondent.

(133) Cyrene was discovered August 14, 1873. (*American Journal of Science*, III., vi, 296).

(174) Phædra was discovered August 8, 1877. (*American Journal of Science*, III., xiv, 325).

(175) Andromache was discovered September 2, 1877. (*American Journal of Science*, III., xiv, 325).

He also discovered, October 20, 1857, the planet observed a few days before by Luther, and since named *Aglaia;* also, October 9, 1865, the planet seen by Peters a few days previously, and since named *Io;* also, July 29, 1873, a planet which on account of cloudy weathe, eluded his subsequent observation. (*American Journal of Science*, III., vi, 296).

A. WINCHELL.

University of Michigan, Ann Harbor, Dec. 11, 1880.

MICROSCOPY.

In the American Monthly Microscopical Journal for December, Dr. J. J. Woodward claims for Professor J. L. Riddell, M. D. of the United States, the priority in inventing at least two forms of Binocular Microscopes, since introduced by Beck of London, and Nachet of Paris.

This communication of Dr. Woodward appears to prove beyond a doubt that to an American, Dr. Riddell, then of New Orleans, is due the credit of first demonstrating and publishing the optical principle, on which all the most successful binoculars, made prior to the present year, depend. He first showed that the cone of rays proceeding from a single objective may be so divided by means of reflecting prisms, placed as close behind the posterior combination of the objective as possible, that orthoscopic binocular vision can be obtained both with the simple and compound microscope.

While giving full credit to Dr. Riddell for all that is due to him, we think, in justice to Mr. Wenham, the fact should be admitted that he was the first to produce a binocular arrangement for the microscope, so simple and perfect in its form, as to render its general use possible. We once asked a London microscope maker, why the Stephenson form of binocular was only adopted by a very few microscopists, and were informed, in reply, that the expense was great in constructing microscopes on this model, and on that account they were not popular.

As we find from Dr. Woodward's paper that the improved form of Dr. Riddell and that of Stephenson were practically alike, it may be that for this the reason neither received the attention anticipated.

An interesting paper on *Cercaria hyalocanda*, by Herman C. Evarts, may be found in the same Journal. This larval form of a trematode was observed to come from the common pond snail (*Physa heterostropha*) when placed in a shallow dish containing water.

In form, the body when contracted was globular, and this form was maintained by the animal while actively swimming about; at rest it would extend its tail, and then assume a somewhat triangular form.

They were sufficiently large to be seen by the naked eye, and were observed to encyst themselves, contracting during the process to a globular form, around which was secreted a glutinous mass. A few seconds after the cyst commenced to form, the tail detached itself and swam away.

We are also indebted to this journal, for the description of the following method of mounting opaque objects, contributed by Mr. A. H. Chester:—

"The object is first fastened to the slide, which is centered on the turn-table, by means of a weak solution of gelatin,