THE GENERIC NAME OF THE WATER-WEED.

THE first generic name applied to our common Water-weed or Ditch-moss was *Elodea*, published by Michaux (Fl. Bor. Am. I: 20. 1803), who gave a description accompanied by a figure of the North American plant specifically designated by him *Canadensis*. This name was unavailable on account of the prior publication of *Elodes* Adans. (Fam. Pl. 2: 444. 1763), the same word with a different spelling. Adanson's genus was based on *Hypericum Ægypticum* Linn.; it has been accepted by Payer (Organog. 8, pl. I.). *Hypericum Ægypticum* was also made by Spach the type of the genus *Triadenia* (Ann. Sci. Nat. II. 5: 172) as *T. microphylla*. It is noteworthy that Spach in the paper above cited credited Adanson with the name *Elodea* and founded a new genus *Elodes* in addition, thus complicating the synonymy of these Hypericaceæ in an extraordinary manner.

Elodea Michx., being thus clearly untenable, authors have at different times proposed no less than six generic names for the Water-weeds. In seeking for the oldest of these, Morong (Mem. Torr. Club, 5: 27) has recently accepted *Udora* Nutt. (Gen. 2: 242. 1818), but *Philotria* Raf. (Am. Month. Mag. 2: 175. Jan. 1818) was published a few months earlier, and appears to be the first available for these plants. The North American species is *Philotria Canadensis*= *Elodea Canadensis* Michx.

N. L. BRITTON.

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*NOTES ON THE PROGRESS OF ASTRONOMY DURING THE YEAR 1894.**

MINOR PLANETS.

TWENTY-THREE new planets were discovered. Permanent numbers have been assigned from 379 to 390, both inclusive. Eleven have, as yet, been unnumbered, as the investigations in regard to their orbits are not sufficiently complete.* The discoverers were as follows: Charlois at Nice 11, Courty at Bordeaux 2, Wilson at Northfield, Minn., 1, Wolf at Heidelberg 6, Bigourdan at Paris 1, Borelly at Marseilles 1, Roberts at Crowborough 1.

Minor planets are now picked up so rapidly by photography and other methods that, to avoid confusion in the numeration, Prof. Kreuger, of Kiel, assigns a provisional rotation (A, B, C, etc., BA, BB, BC, etc.), arranged in order of their announcement to the 'Telegraphische Central-Stelle.' The final number is assigned by Prof. Tietzen, Director of the Rechen-Institut in Berlin. Numbers are assigned to those planets only for which sufficient observations are available for a determination of the orbits. Names are given by the discoverers.

Planet BE discovered November 1, 1894, by Wolf, is unique, having the smallest perihelion distance of all the minor planets, except possibly No. 323, Brucia, which was named after Miss Bruce of New York City, on account of her generous contribution to astronomical work. The least distance of BE from the earth and Mars are about 63 and 21 millions of miles. It seems to be well adapted for determining Solar Parallax.

Prof. E. E. Barnard measured, during the year, the diameters of Ceres, Pallas and Vesta with the great telescope of the Lick Observatory and obtained the results as follows: Ceres, 520 miles; Pallas, 304 miles; Vesta, 241 miles. These planets are the largest of the family.

COMETS.

Five comets were discovered.

(*a*) Denning, of England, picked up the first on March 26, 1894.

Investigations seem to show that this

*Based mainly upon the *Annual Report of the Royal Astronomical Society of London.* February, 1895. Prepared at the request of the responsible editor.

*Numbers have since been assigned up to and including 401.

comet makes a close approach to Jupiter (about 18,000,000 of miles). The orbits of Brorsen's and Denning's comets appear to intersect. Brorsen's comet passed the intersecting point February 7, 1881, and Denning's comet reached that point March 14, 1881. Perturbations may bring about a collision.

(*b*) On April 3, 1894, the second comet was found by Gale, of New South Wales. He used a telescope with object glass only 3 inches in diameter. The comet had a tail 4° in length. Prof. Barnard has studied this comet with unusual care and taken some exquisite photographs which reveal many details deserving most careful investigation.*

Twenty lines were seen in the comet's spectrum. The orbit seems to be a parabola.

(*c*) By the aid of an ephemeris prepared by Schulhof, this second return of Tempel's comet, first seen in 1873 and observed in 1878, was found by Finlay at the Cape of Good Hope on May 8. The error in the assigned place was only 9 seconds of time in right ascension and 30 seconds of arc in declination. This discovery is a 'recovery' of a comet after sixteen years.

The comet has a period of 5.2 years and is one of the fifteen periodic comets of which at least one return has been observed.

(*d*) Encke's comet belongs in the same class with the preceding comet and is one of the most interesting objects to the astronomers. It was originally discovered by Pons, of Marseilles, November 26, 1818. Professor Encke worked out its orbit and found it to be $3\frac{1}{4}$ years, or 1208 days, the shortest period of any known comet. It showed a continued acceleration in its motion to 1868, so that the time of each revolution about the sun was shortened by about $2\frac{1}{2}$ hours. After 1868 the acceleration appeared to be diminished by one-half.

* See *Astronomy and Astrophysics* for June, 1894.

The cause of this peculiar acceleration was first thought to be due to a 'resisting medium' in space or near the sun, but that theory is now abandoned and the idea is gaining ground that there is some undetected perturbation due to planetary attractions.

The thirty-third return of this comet was discovered independently by three observers, Perrotin at Nice, Wolf at Heidelberg and Cerulli at Teramo, on October 31 and November 1. All these astronomers were aided by the ephemeris calculated by Backlund.

(*e*) E. Swift, son of Lewis Swift, formerly of the Rochester observatory but now located in California at the Lowe Observatory, discovered on November 21st the last comet of the year 1894. There seem to be good reasons for believing this comet to be the 'lost or mislaid' comet found by De Vico at Rome, August 22, 1844. It was expected to return in 1850, but 'failed then and subsequently to keep its appointment.'

SOLAR PARALLAX.

Dr. Arthur Anwers published Volume V. on the *German Heliometer Observations of the Transits of Venus, 1874 and 1882.* In this volume the discussion of the observations is given. The final value of the Solar Parallax from the two transits is $8.''896 \pm 0.''0216$. This corresponds to a distance of 91,000 000 miles. This value differs considerably from the value 8."81 obtained by Harkness in 1891.*

MARS.

This planet was in better position for observation during the opposition of 1894 than that of 1892, although the planet was farther from the earth. Observers have noted that the south polar spot completely disappeared; that during the gibbous phase there were irregularities seen at the termin-

**Solar Parallax and its Related Constants.*

ator which indicated mountains; that the canal system of Schiaparelli was generally confirmed, as well as the duplication of a number of the canals.

Excellent work was done by the observers at the Lowell Observatory Flagstaff, Arizona, in detecting additional canals and delicate details.

Some of the results of Mr. Lowell's expedition to Arizona have been published in the *Astrophysical Journal* for May, 1895.

Evidence has been obtained that at times vast areas are densely obscured by clouds. Several observers agree in noting that actual changes have taken place since 1877.

Professor Campbell, of the Lick Observatory, made observations of the spectrum and has found no lines due to an atmosphere on the planet Mars.

This is in opposition to other evidence. Campbell's apparatus was more powerful than that used by the other observers.

JUPITER.

The new satellite of Jupiter is so small and its proximity to the parent planet is such that the satellite can be measured only in the largest telescopes.

Barnard was able to make at the Lick Observatory observations which make a good basis for a more accurate determination of the orbit. The periodic time is $11^h\ 57^m\ 22^s.618 \pm 0^s.013$. The orbit is eccentric. Tisserand has shown that the major axis should make a complete revolution in about five months. Barnard prefers the name Satellite V.

Barnard sees on Satellite I dusky poles and a bright equatorial belt. These observations seem to explain the ellipsoidal and double appearances reported by other observers.

DOUBLE STARS.

The British Royal Astronomical Society presented in February, 1894, its Gold Medal to S. W. Burnham, formerly of the Lick Observatory, for his discoveries, measures and general work on Double Stars. In volume II. of the Publications of the Lick Observatory is given a great proportion of Burnham's recent work.

At the Georgetown College Observatory experiments were made with a 12-inch refractor. Fifteen wide pairs were photographed. The results of the measures were not encouraging.

During the year Prof. Glasenapp published his observations of 1220 measures on 610 pairs, made at Abastouman.

The orbits of ten double stars were computed and published during the year. The periods vary from 11.37 years, in the case of K Pegasi to 208.1 years for η Cassiopeiæ.

NEBULÆ.

In *Astronomy and Astrophysics* for May Prof. Campbell, of the Lick Observatory, gave a table of bright lines photographed in the spectrum of the Orion nebula; of dark lines photographed in the spectra of the Orion stars and of the comparison of bright nebular and dark star lines. He concludes that nearly all the dark lines in the faint stars are matched by bright lines in the nebula, but certain prominent nebular lines are not matched by dark stellar lines.

The stars appear to be closely related to the nebula in chemical constitution and may be physically connected.

Prof. Keeler, from his observations at the Lick Observatory, drew the conclusion that the distance of the great Orion nebula from the sun is increasing at the rate of 11 miles per second. No relative motion of the different parts of the Orion nebula was detected. His investigations seem to show that nebulæ are moving through space with velocities similar to that of the stars.

POTSDAM PHOTOMETRY.

Drs. Müller and Kempf have completed, in its first stage, the investigation of the

visual magnitudes of all stars recorded as fainter than 7.5 magnitude in Argelander's Durchmusterung, lying in the zones between north declination 0° to 20°. In a few years they hope to complete the investigation to the North Pole.

This research is the most accurate and complete of modern researches in the direction of photometric study of stellar magnitudes.

ASTROPHOTOGRAPHIC CHART.

Seven of the associated observatories have taken more than one-half the required catalogue plates. All these plates will be taken in two or three years.

The measurement of the catalogue plates was begun at the Paris Observatory.

The chart plates will not be completed probably until 1900.

ASTRONOMICAL PHOTOGRAPHY.

In volume III. of the Lick Observatory publications are reproduced several fine enlargements of lunar photographs taken with the 36-inch refractor cut down to eight inches. These enlargements were made by Dr. L. Weinek, of the Prague Observatory. In addition Dr. Weinek has published some excellent enlargements of moon photographs taken by M. M. Loewy and Puiseux at Paris.

In February, 1895, the Royal Astronomical Society presented its Gold Medal to Dr. Isaac Roberts for his photographs of star clusters and nebulæ published in 1894. These superb photographs were taken with silver-on-glass reflector of 20-inch aperture and about 100 inches focal length. Professor Barnard, of the Lick Observatory, exhibited, at the R. A. S., an exquisite set of sixty positives, on glass, of stars and comets. The publication of these photographs is under consideration by the Society. The Council of the R. A. S. is also at work on a method for reproducing the fine photographs recently made and for making the reproductions permanent.

VARIATION OF LATITUDE.

Dr. Chandler showed that there are two terms in the variation of latitude. One term with a period of a year, the other with a period of 428.6 days. He suggested that the pole rotates, not in a circle, but in an ellipse with revolving line of apsides.

During the year there was published the results of observations made in various parts of the world, including Prof. Doolittle's work at Bethlehem, Pa., and Prof. Davidson's observations at San Francisco.

NEW OBSERVATORY.

Mr. Percival Lowell, of Boston, established an observatory at Flagstaff, Arizona, at an elevation of 7,300 feet above sea level. His principal instrument was formed by a combination of two telescopes with apertures of 18 and 12 inches. These telescopes were mounted like a twin instrument.

Mr. Lowell, Professor W. H. Pickering and Mr. Douglass have given most of their time to the study of Mars. Extensive reports have been made in *Astronomy and Astrophysics*.

J. K. Rees.
Columbia College.

CURRENT NOTES ON ANTHROPOLOGY (X.).

IS CRANIOLOGY A SCIENCE?

Two years ago (June, 1893) I pointed out in these notes how completely craniology, as it has been pursued, has failed of the promises which Broca and Retzius and its other founders made for it.

A far more forcible and detailed indictment of its inefficiency has just appeared from the pen of Professor Burel von Török, Director of the Anthopological Museum at Budapest, himself an eminent craniologist, in the 'Archiv für Anthropologie,' Band XXIII. He says of the science: "All the great possibilities which were attributed to