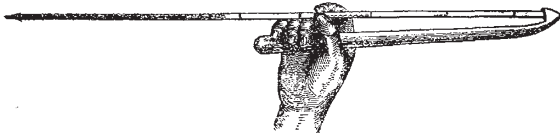


Curious Australian Implement

IN NATURE, vol. xii. p. 544, a correspondent points out the resemblance existing between an implement used by the Ute Indians and one belonging to the Australian natives, which he calls a vermin hook. May I venture to suggest that he may possibly have mistaken the use of the latter? It appears to me to be identical with the instrument used by all the Australian "river" blacks to throw their light reed spears with, which consist of a heavy miall wood point and a shaft of reed. The bone hook is inserted in the head of the reed, the spear resting between the forefinger and thumb of the hand that holds the thrower and lying parallel to it, thus :—



the spear being propelled from the hooked end of the thrower, which is rapidly brought forward into a vertical position, thus propelling the spear before it. During several years on the different Australian rivers, I saw the weapon universally used as above, but neither there nor elsewhere in the colonies for any other purpose.
J. P. GLOVER

Derby, Oct. 29

OUR ASTRONOMICAL COLUMN

VARIABLE STARS.—The following are the Greenwich mean times of geocentric minima of Algol, occurring before 14h., to the end of the present year, according to the elements employed by Schönfeld for his later ephemerides :—

	h. m.		h. m.		h. m.
Nov. 14 ...	11 42	Dec. 4 ...	13 24	Dec. 27 ...	11 57
„ 17 ...	8 30	„ 7 ...	10 13	„ 30 ...	8 46
„ 20 ...	5 19	„ 10 ...	7 2		

The first heliocentric minimum in 1876, with the epoch and period of Schönfeld's second catalogue of variable stars (1875), occurs on January 2, at 5h. 34.5m. G.M.T., or January 2.23226; the minima throughout the year will be obtained by the successive addition of 2^d.86729. For times of geocentric minima, corrections must be applied to the times so calculated, which may be found from

$$\text{Corr. to heliocentric minimum} = 7.67m. R. \sin. (S + 35^\circ 69'),$$

where R is the earth's radius-vector at the date, and S the sun's longitude.

The period of Algol, which had diminished since 1782, at first slowly, but afterwards more rapidly, after remaining constant or nearly so for a time, appears to be again slowly diminishing.

According to Schmidt, of Athens, the brightness of Algol is equal to that of δ Persei about 47 minutes before and after minimum, to that of ϵ Persei about 62 minutes before and after the same, and to that of β Trianguli 95 minutes before and after. The fluctuations extend over about 9 $\frac{1}{4}$ hours.

There is a suspicion of variability about the light of the small companion of this star, first remarked by Schroeter. Smyth measured it in 1835. During the last two years it has sometimes been readily visible and at others discernible with difficulty with the same instrument; but a systematic course of observations is required to decide if there be a real variation.

According to Schönfeld, ζ Cancri will be at a minimum on Nov. 14 at 16h. 50m., Dec. 3 at 16h. 3m., and Dec. 22 at 15h. 17m. G.M.T.

For U Geminorum it appears very difficult to make a prediction likely to be of any service, so that very frequent examination is necessary for the determination of the times of maximum. Mr. Otto Struve states that this object does not usually disappear in the Pulkova refractor. Schönfeld thinks the period varies between 70 and 150

days. A secondary minimum has been remarked on several occasions about the time of greatest light. In most periods the star has not continued visible in ordinary telescopes more than a fortnight, and occasionally less. Winnecke has given a list of the small stars in the vicinity of U Geminorum, which will be useful in its identification (See *Astron. Nach.*, No. 1,120). At maximum this star is a little brighter than an average ninth magnitude in Bessel's scale.

THE MINOR PLANETS.—There are this week three additional discoveries to record. No. 151, by Palisa, at the Observatory of Pola on the Adriatic on Nov. 1, place at 13h. 24m. local mean time in R.A. 3h. 2m. 17s., and N.P.D. 71° 40'; No. 152, by Paul Henry, at Paris on Nov. 2, place at 11h. in R.A. 2h. 38m. 17s., N.P.D. 74° 35'; and No. 153 by Palisa, on Nov. 2, place at 12h. 40m. in R.A. 3h. 1m. 28s., N.P.D. 72° 25'; all three are of the twelfth magnitude, or somewhat fainter. In Prof. Tietjen's Berlin Circular he transposes the above numbers for the planets discovered on Nov. 2, but upon what ground does not appear; according to the times of observation given in the first announcement of discovery, the Paris planet should precede that detected at Pola. No. 150, which was found by Watson at Ann Arbor on Oct. 19, soon after his return from Europe, has been observed at Berlin, Düsseldorf, Leipsic, and Pola, and No. 151 on the night after discovery, at Berlin.

Though in certain cases it may be necessary to use caution in announcing the discovery of a new small planet, the actual positions of several of those already observed being very imperfectly known, there appears every probability that the three just brought to light are really new. No. 138 (Tolosa) is probably near the ecliptic in 3h. R.A., but some thirteen or fourteen degrees to the east of Palisa's objects, as will be found from the elements of Gruber, calculated upon the six weeks' observations in June and July 1874. The rough approximations to the orbits of Dike and Camilla at present obtained, place the former in the 5th hour of R.A., and upwards of 34° N. of the equator, and the latter at the beginning of the 4th hour, but at a considerable distance from the ecliptic, or with a N. declination of 8° or 9°. The position of No. 137 (Melibœa) is open to great uncertainty, the observations so far published extending over sixteen days only, and an orbit founded upon them would be of little service so long after the date of observation. A circular orbit appears to have been computed by Dr. Becker at the time, as he published a short ephemeris in the *Astronomische Nachrichten*—but the elements were not appended. Even with the shortest period yet assigned to any member of this group of planets, Melibœa would hardly be so far advanced in R.A. at the present time.

No. 97 (Clotho), in opposition on Nov. 9, is now very little below an eighth magnitude in Argelander's scale. The calculated places for Berlin midnight are—

		h. m. s.		N. P. D.
Nov. 12	R. A.	3 22 2		93 30
„ 16	„	3 19 1	„	93 52
„ 20	„	3 16 2	„	94 9
„ 24	„	3 13 12	„	94 20
„ 28	„	3 10 25	„	94 24

BESSEL'S WORKS.—With No. 2,061 of the *Astronomische Nachrichten*, Dr. Engelmann, formerly attached to the Observatory of Leipsic, issues a prospectus of an important astronomical publication, entitled "Abhandlungen von Friedrich Wilhelm Bessel," in which it is intended to reprint a selection of upwards of 130 of the more important papers, &c., of the great Königsberg astronomer. Many of these are now scattered in works which are often costly and difficult to procure, and the proposed collective edition of the principal memoirs cannot fail to be of vast service to the astronomical student. The selection which has been made will be contained in three