some fields, gently sloping towards a depression in the middle, until we reach another little creek, flowing south into the Tohickon. The explanation of this seems to be as follows: Beaver Creek originally flowed out to the south-east, across the present divide, into the Tohickon, having a similar course to that of the Tohickon in that it crossed the strike of the beds. Tinicum Creek, gnawing along its easier path, reached and captured Beaver Creek, at the point where the sharp turn is seen. The divide which originally stood close to the Tinicum has now been pushed south until it occupies a position close to the letter *B* in the figure.

The beheaded portion of Beaver Creek still occupies the old valley, while an inverted stream now flows north in a directly opposite direction to that of the original Beaver Creek. The old valley across the divide to the Tohickon is seen as the gentle depression in the fields.

This explanation shows us why there is the sudden turn in the Tinicum just at this point. It has worked back on its easy course until it has captured Beaver Creek, and, as shown above, is continuing its work by pushing back towards the Tohickon, which it will very soon capture in the same way.

R. DeC. WARD.

Harvard College, Oct., 1891.

ASTRONOMICAL NOTES.

M. PALMIERI, director of the Vesuvian Observatory, is responsible for the statement that all the great eruptions of Vesuvius take place at new or full moon, and especially eclipses. The eclipse of June 17, 1890, was accompanied by violent earth currents. On the other hand, Captain de Montessus, who has patiently accumulated observations and data concerning earthquakes, has now a catalogue of more than 60,000 of these phenomena, individually discussed. He establishes that earthquakes are distributed uniformly throughout the day and night, that they have no relation to moon culminations and astronomical seasons, and that such coincidences which have been claimed in the past rest on insufficient ground.

M. Janssen, the eminent French astronomer, has been attempting to find solid rock on the top of Mount Blanc, upon which to build an observatory. His scheme has been to bore galleries through the ice, but so far he has been unsuccessful, and he is considering the feasibility of founding an observatory on the ice.

In the December number of *Knowledge* will be found reproductions of photographs, taken by Dr. Max Wolf of Heidelberg, of the region of the Milky Way in the constellation Cygnus, and also in the constellation Sagitarius. Mr. Ranyard, the editor of *Knowledge*, in an article entitled "Dark Structures in the Milky Way," calls attention to several interesting facts connected with the region of the heavens shown in the photographs. One of the regions covered is that surrounding Alpha Cygnus, and directly above that star is seen a dark, branching, tree-like structure. It evidently corresponds to a branching stream of matter which cuts out the light of the nebulous background on which it seems projected, and it is evidently intimately associated with the lines of stars which border the stream and its branches on either side. A somewhat similar dark branching stream may also be traced on a photograph of the region surrounding Epsilon Cygni, a copy of which appears in the October number of the journal above quoted. Altogether the article, with its attendant photographs, is very interesting, and brings to light some new facts connected with that region of the heavens in which the stars seem almost countless.

The small planet discovered by Dr. J. Palisa of Vienna, on Aug. 30 (now numbered 313), has been named Chaldea.

In a very interesting paper in No. 3,066 of the *Astronomische Nachrichten*, Professor Auwers gives the sun's parallax as 8.880″, with a probable error of ± 0.022″ This value is the result of the determination from the German Transit of Venus expeditions in 1874 and 1882, during which years 754 measurements were made. Professor Harkness, in his discussion of the results of the American Transit of Venus Commission, from the photographs alone, obtained the value 8.842″ for the sun's parallax, with a probable error of ± 0.011″. From a discussion of all the data obtainable, he obtained 8.80905″ ± 0.00567″. This latter value corresponds to a mean distance of 92,796,950 miles from the earth to the sun, while Professor Auwers's value corresponds to a distance of 91,814,000 miles.

The following is a continuation of the ephemeris of Winnecke's comet. The epoch is for Berlin midnight.

1892	R.A. h.	m.	s.	Dec. °	′
Jan. 12	12	28	12	+ 13	38
13		29	8	13	42
14		30	4	13	47
15		30	58	13	52
16		31	53	13	57
17		32	46	14	3
18		33	39	14	9
19		34	31	14	15
20		35	22	14	22
21	12	36	13	+ 14	28

The following is a continuation of the ephemeris of Wolf's comet. The epoch is for Berlin midnight.

1892	R.A. h.	m.	s.	Dec. °	′
Jan. 11	4	16	43	− 13	2
12		17	5	12	54
13		17	29	12	45
14		17	55	12	37
15		18	22	12	28
16		18	51	12	19
17		19	21	12	10
18		19	52	12	1
19		20	24	11	52
20		20	58	11	43
21	4	21	33	− 11	33

G. A. H.

THE GRADUATE STUDENTS' ASSOCIATION OF JOHNS HOPKINS.

THE *Johns Hopkins University Circular* for November gives the names of graduate students in that university from nearly every State in the Union. Nearly all the Canadian provinces and several foreign countries are represented. These three hundred students are here, primarily for hard work, each in his specialty, in one of fourteen departments. Not a few of the students enrolled last year are now studying in European universities, with the expectation of returning to their work here at the beginning of the next year.

There must be departmental isolation in every university, but this may become extreme. The best training for a capable and cultivated manhood can be obtained only as one mingles with his fellows and shares their varied experiences. An organization