dazzling brightness at least five or six times that of the neighboring portions of the photosphere, and moved eastward over the spot in parallel lines, growing smaller and fainter, until in about five minutes they disappeared, after traversing a course of nearly thirty-six thousand miles."

YOUNG (p. 267).

". . . the temperature at the focus can not rise above that of the source of heat, the effect of the lens being simply to move the object at the focus virtually toward the sun; so that, if we neglect the loss of heat by transmission through the glass, the temperature at the focus should be the same as that of a point placed at such a distance from the sun that the solar disk would seem just as large as the lens itself viewed from its own focus.

"The most powerful lens yet constructed thus virtually transports an object at its focus to within about two hundred and fifty thousand miles of the sun's surface, and in this focus the most refractory substances — platinum, fire-clay, the diamond itself — are either instantly melted or dissipated in vapor. There can be no doubt that, if the sun were to come as near us as the moon, the solid earth would melt like wax."

apart: these suddenly burst into view near the edge of a great sun-spot, with a brightness at least five or six times that of the neighboring parts of the sun, and travelled eastward over the spot in parallel lines, growing smaller and fainter, until in about five minutes they disappeared, after a journey of about thirty-six thousand miles."

BALL (p. 495).

". . . the temperature at the focus cannot be greater, cannot be even equal, to the temperature at the source of heat itself. The effect of a burning-glass is merely equivalent to making a closer approach towards the sun. The rule is indeed a simple one. The temperature at the focus of the burning-glass is the same as that of a point placed at such a distance from the sun that the solar disk would seem just as large as the lens itself viewed from its own focus. The greatest burning-glass which has ever been constructed virtually transports an object at its focus to within 250,000 miles of the sun's surface: in other words, to a distance of about 1-400th part of its present amount. In this focus it was found that the most refractory substances, agate, cornelian, platinum, fire-clay, the diamond itself, were melted or even dissipated into vapour. There can be no doubt that if the sun were to come as near to us as the moon, the solid earth itself would melt like wax."

By what name Dr. Ball would call this wholesale pillaging of others' books, we do not know; but it seems to us to fall little short of tallying with the work of the plagiary. Substituting 'greatest burning-glass' for 'most powerful lens,' and adding agate and cornelian to a list of refractory substances already fully long enough for the purpose of illustration, do not show any mark of great originality, while the continued effort to conceal the theft is petty in the extreme. We have not had the time to trace Dr. Ball's possible liberties with other authors than these, but our researches thus far have left us in the mood for suggesting that the titlepage of subsequent editions of his work might with some little show of justice contain the insertion 'compiled by ——.' Any one who cares to investigate further may perhaps like to judge for himself how much of pp. 495–505 in Dr. Ball's very interesting chapter on the 'Astronomical significance of heat' (the greater part) was directly suggested by a like number of pages at the end of Professor Young's chapter on the 'Sun's light and heat.' While in another part of his book Dr. Ball alludes to Professor Young as 'the well-known authority,' etc., in the chapter in question we find no mention of the name. Professor Young would doubtless be very glad to be of assistance to Dr. Ball, but we think he is human enough to care for the graceful acknowledgment of the service.

GEOGRAPHICAL NOTES.

Dutch statistics of population. — Kuyper has recently given an interesting discussion of the population-statistics of the Netherlands. The population for the whole kingdom is found to be 121.6 per square kilometre, and 75.0 for the lowlands, and varies from 265.9 to 44.6 for the same area in different districts. The females out-number the males by from one to two per cent. Of the population, 32 per cent are married; 61.55 per cent are Protestants, 36.02 are Catholics, and 2.04 per cent are Israelites, in religion; and, in occupation, 20 per cent are agriculturalists, 26 per cent laborers, 12 per cent merchants, 18 per cent manufacturers or mechanics, 2.5 per cent soldiers, 2.3 per cent engaged in religious, scientific, or sanitary professions. The increase of population from 1860 to 1880 varied from 12 per cent, in Limburg, to 30 per cent, in Holland proper. Of thirty-eight centres of over 10,000 inhabitants, one (Delftshaven) has doubled, seventeen have increased more than 25 per cent, and twelve others have increased from 10 to 25 per cent, during the same period. The work is supplemented by an instructive chart showing the increase of population for the period by single parishes, — a course only practicable in so small a country as Holland.

Search for mammoths in the Lena Delta. — Dr. Bunge has sent to St. Petersburg a chart of the Lena Delta, corrected during the numerous long journeys undertaken by him in search of frozen mammoths. His travels were more lucky geographically than biologically, for he found but one skeleton, and that deprived of head and one fore-leg. It had been exposed for ten years to the attacks of dogs, foxes, and natives, but had originally been covered with a thick coat of hair, which might have defended it against even the present climate of the delta, provided it could have obtained food to its liking.

Medals of Paris geographical society. — The great gold medal of the Paris geographical so-

ciety, for 1886, has been awarded to Messrs. Capello and Ivens, for their African journeys. A smaller gold medal has been given to the 'Pundit A. K.,' one of the anonymous explorers for England of upper Tibet; and medals of silver and bronze to Messrs. Bloyet and H. Mager, for African topography and the 'Colonial atlas.' The *prix Logerot* is received by M. Marche, for his explorations of the Philippines.

A new oil. — The oil of a species of bamboo of African origin is reported by the Catholic missionaries of Alima in Africa to be an excellent lubricator, and, when refined, to form a fair substitute for olive-oil in the cuisine. The new industry thus created is actually in process of development in the French Kongo region.

Ethnographic map of Asia. —Von Haardt of Vienna has sent out a prospectus of a new ethnographic map of Asia, in six sheets, scale 1: 8,000,000, total size 175 x 140 cm. The scheme includes one hundred and thirty-six ethnic divisions, to be indicated by appropriate tints and hachuring. The subscription price is placed at thirty francs. The classification adopted has its defects; but the map, which will be accompanied by a small explanatory pamphlet, to all interested in the distribution of mankind, will have great value. If successful, it will be followed by maps of other continents, on the same plan. Subscriptions are to be sent to Eduard Hölzel, Vienna, Weyringergasse 19.

ASTRONOMICAL NOTES.

The two comets. — Fabry's comet continues to increase in brightness, and on a clear morning is bright enough to be made out with the naked eye, though it does not reach a sufficient altitude before sunrise to be very conspicuous in the presence of bright moonlight. Barnard described it on the 8th inst. as a hazy object with a faint tail, which, in the telescope, could be traced for five or six degrees. On April 24 the comet will be in the constellation Triangulum, in right ascension $1^h\ 32^m$, north declination 30° 3′, and will appear above the horizon about half-past three in the morning. Its brightness is then 297 times as great as at the time of discovery. The comet is increasing its right ascension, and is moving rapidly south: at the end of April, according to Dr. Oppenheim's ephemeris, it will approach us within a fifth part of the distance of the sun, and its theoretical brightness will be nearly 500 times that at discovery. Barnard's comet is also increasing in brightness, but somewhat more slowly than Fabry's. It makes its nearest approach to the sun in the first week of May, and its nearest to the earth in the latter part of that month. The position for the last of this week (April 24) is: right ascension, $1^h\ 40^m$; north declination, 39° 39′, with a calculated brightness of 62: it is nearly midway between the second magnitude stars β and γ Andromedae, and sets a little after eight o'clock. The astronomical positions we have given can readily be found upon the star-maps (map I.) given in the *Science* Almanac for last year (vol. iv. No. 99) or upon any celestial atlas.

The new nebula in the Pleiades. — The nebula discovered by the Henry brothers of the Paris observatory, upon their photographic negative of the Pleiades taken Nov. 16, 1885, has been seen — now that its existence is known — without great difficulty, by Perrotin and his assistants at Nice, and by Struve with his new 30-inch Clark objective, and also with the 15-inch at Pulkowa. Struve gives a careful description of the nebula, accompanied by a sketch, in the *Astronomische nachrichten* (No. 2,719), and from his observations it seems probable that some of the small stars in the immediate neighborhood may prove to be interesting variables. The nebula is of a characteristic spiral form, and seems to 'escape' from the star Maia. Professor Pickering, upon the announcement of the discovery, recalled the circumstance that certain irregularities had been noticed in a photograph of the Pleiades taken on Nov. 3, 1885, at Harvard college observatory. These irregularities, which had been referred to defects in the photographic process, correspond closely with the descriptions of the nebula, and no doubt represent light photographically visible near Maia. "The explanation thus afforded, of one of the markings on the Cambridge photograph, makes the others of more interest than seemed at first to belong to them. There are indications of nebulous light about Merope; four short parallel streaks directed to the south following side are particularly noticeable, and a faint prolongation of diffuse light may be suspected towards the south, in agreement with the descriptions usually given of the visible nebula in that region. There is also a faint streak of light projecting from Electra on the following side. . . . No nebulous light is noticeable about Alcyone, Atlas, Pleione, or Taygeta."

NOTES AND NEWS.

As stated in our 'Boston letter' of March 12, the liberality and co-operation of the Woman's education association enable the Boston society of natural history to announce that the Seaside laboratory at Annisquam, Mass., will be open to students during the coming summer from June 15 to Aug. 15, 1886. Annisquam is situated on an inlet of Ipswich Bay, on the north side of Cape Ann,