Native habitations have already been referred to as the source from which *Anopheles* obtains its parasites; native huts, ill-ventilated and overcrowded, are the hot-bed in which the *Hæmaphysidæ* luxuriate.

In tropical countries Europeans pitch their temporary camps, and often live permanently, within a few yards of such native hovels; given, then, a full supply of *Anopheles* and a swarm of native children, 80 per cent. of whom are infected with *Hæmaphysidæ*, it is not surprising, with our present knowledge, that an epidemic of malaria soon starts among the white men.

The pitching of camps near native villages, or living in close proximity to native huts, is flying in the face of all recent scientific research, and suicidal in its results. This cannot be too often nor too emphatically reiterated.

R. FIELDING-OULD.

THE NEW STAR IN PERSEUS.

THE HARVARD OBSERVATIONS.

PROF. PICKERING, the Director of the Harvard College Observatory, in a *Circular* No. 56, has detailed the observations of the new star made there soon after its discovery by Dr. Anderson. This *Circular* we print in *extenso* :—

The cable message announcing the discovery of a new star in the constellation Perseus, by the Rev. T. D. Anderson, was received at the Observatory early in the evening of February 22, 1901. Owing to clouds, the new star was only occasionally visible, and twice it was necessary to cover the instruments on account of falling snow. During the intervals, however, various observations were made, which have a value owing to their early date. Numerous comparisons by Miss Cannon, with α Aurigæ, magnitude 0.21, α Orionis, magnitude 0.92, and α Tauri, magnitude 1.06, showed that the magnitude of the star was about 0.9. Photometric comparisons, by Prof. Wendell with the 15-inch telescope, of the Nova with the star +43° 732, magnitude 7.25, at 14h. 0m. and at 17h. 25m., Greenwich Mean Time, gave the magnitudes 0.35 and 0.39 respectively.

Meanwhile, an examination was being made, by Mrs. Fleming, of the photographs of the region obtained here earlier in the month, with the various instruments. Although photographs are taken with the transit photometer throughout every clear night, yet owing to twilight they cannot be taken as early in the evening as this star culminates. Fortunately, for some weeks the work of the transit photometer, which only photographs objects near the meridian, has been supplemented by photographs with Cooke and Ross-Zeiss Anastigmat lenses. With these instruments an attempt is made to cover the entire sky, both east and west of the meridian, at short intervals. The completeness with which this has been done is shown by the fact that we have photographs of the region of the Nova with the Cooke lens on February 8, 18 and 19, and with the Ross-Zeiss lens on February 2, 6, 18 and 19. The photograph taken with the Cooke lens on February 19 had an exposure of 66m., beginning at 11h. 18m. Greenwich Mean Time. While this photograph showed not only the faintest stars contained in the *Durchmusterung*, but also stars as faint as the eleventh magnitude, no trace of the Nova was seen. This result was confirmed by the other plates mentioned above. A general examination of the large number of earlier plates of this region did not seem to be necessary. Plates taken with the 8-inch Bache telescope as early as November 6, November 8 and December 12, 1887, fail to show the Nova, although the spectra of stars as faint as the eighth magnitude are clearly visible on all, and those of the ninth magnitude on the plate taken on November 6. A photograph taken with the

24-inch Bruce telescope on October 18, 1894, with an exposure of 15m., shows no trace of this object, although stars as faint as the magnitude 12.5 are well seen.

On this same evening, February 22, eighteen photographs were taken with various instruments, under the direction of Mr. Edward S. King. They showed that, photographically, the Nova was 0.3 fainter than α Aurigæ. The general appearance of the photographic spectrum resembled that of the Orion type and was very unlike that of other new stars, in which the bright lines are the most conspicuous feature. This star had a strong continuous spectrum traversed by thirty-three dark lines. The approximate wave-lengths, as derived by Hartmann's formula from the measures of H ϵ , H γ and H δ , are given below. Each is followed by its relative intensity, and by the difference found by subtracting it from the wave-length of the corresponding line, if any, in the spectrum of β Orionis. As the lines having greater wave-length than 5000 have thus been determined by extrapolation, they may be subject to large systematic errors.

3894, 10, H ζ , - 5; 3970, 20, H ϵ , 0; 4026, 3, 0; 4077, 2, - 1; 4102, 30, H δ , 0; 4126, 5, + 2; 4151, 1, - 4; 4266, 2, + 1; 4341, 40, H γ , 0; 4366, 1, + 1; 4388, 2, 0; 4415, 1; 4435, 1, + 3; 4470, 2, + 2; 4481, 20, 0; 4510, 2, - 2; 4530, 2; 4552, 2; 4572, 1; 4616, 1; 4643, 1; 4665, 3; 4714, 3, - 1; 4862, 40, H δ , 0; 4885, 2; 4922, 2, 0; 5325, 1; 5399, 1;

FIG. 2.—Hut with mosquito cage round door, which is itself mosquito proof (as suggested by Celli). Reproduced from a photograph lent by the Sanitary Institute.

5431, 1; 5677, 2; 5695, 7; 5719, 5; and 5761, 1. On careful examination the lines 3970, 4102, 4341, 4481 and 4862 were seen to be bright on the edge of greater wave-length. The line 4665 was bright on the edge of shorter wave-length, or there was a bright line whose approximate wave-length was 4660. The line 4026 was not measured, but identified from its position.

On February 23 the clouds were so dense that few observations could be made. The star appeared to be brighter and bluer than α Aurigæ and to have the approximate magnitude 0.0. The spectrum was photographed faintly and showed no marked change except that the line K, which was absent on the previous evening, was present and nearly as intense as H ϵ .

On February 24 it became clear soon after noon, and at 1 o'clock the Nova was seen with the 6-inch Equatorial, and also with the 2-inch finder, in strong sunlight. In the evening the magnitude, according to visual comparisons, was 0.54, from measures with the 15-inch Equatorial, 0.59, and with the meridian photometer, in strong daylight, 0.28. Photographically it was 0.4 or 0.5 fainter than α Aurigæ. The spectrum showed a remarkable change. It was traversed by numerous bright and dark bands, and closely resembled that of Nova Aurigæ. The principal lines were dark with accompanying bright

lines of somewhat greater wave-length. The bright lines accompanying K and H ϵ were reversed, and traversed by narrow, well-defined dark lines. These last lines, and one of somewhat shorter wave-length than H δ , are the only sharply defined lines in the spectrum, all of the others being broad and hazy, and difficult to measure with accuracy.

Clouds interfered with observations on February 25, but the Nova was evidently much fainter than on the previous evening. Its magnitude from visual comparisons was 1.4, from photometric measures, 1.07. The spectrum differed slightly from that on February 24. The lines H δ , H γ and H β were also reversed and replaced by one or more narrow dark lines.

On February 26 the magnitude from visual comparisons was 1.3, from photometric measures 1.49. The changes in the spectrum were slight.

Observations of the position of the Nova were made by Mr. J. A. Dunne, with the 8-inch meridian circle, on February 23, 24 and 25, with the result for 1900.0, R.A. 3h. 24m. 24s.02, Decl. + 43° 33' 42".4.

It therefore appears that on and before February 19, 1901, the star was invisible, or at least fainter than the eleventh magnitude. On February 21 its magnitude was 2.7, according to Mr. Anderson. On February 22 its magnitude was 0.5, perhaps becoming a little brighter on February 23, and then diminishing, so that on February 25 its magnitude was 1.1. Its spectrum on February 22 and 23 was of the Orion type, nearly continuous, traversed by narrow dark lines. During the next twenty-four hours an extraordinary change took place, so that on February 24 the spectrum resembled that of the other Novæ. It was traversed by bright and dark bands, and the principal dark lines had accompanying bright lines of slightly greater wave-length.

During the last fourteen years, and since the general application of photography to astronomy, eight new stars are known to have appeared—Nova Persei, in 1887; Nova Aurigæ, in 1891; Nova Normæ, in 1893; Nova Carinæ, in 1895; Nova Centauri, in 1895; Nova Sagittarii, in 1898; Nova Aquilæ, in 1899; and Nova Persei, in 1901. The second and last of these, which were much brighter than the others, were found visually by Dr. Anderson. All of the others were found by Mrs. Fleming, from an examination of the Draper Memorial Photographs. Nova Aquilæ was announced by telegraph, but has not been described in these circulars. Its position for 1900 is R.A. 19h. 15m. 3, Decl. - 0° 19'. It was not seen on plates taken on November 1, 1898, and earlier, although stars of the thirteenth magnitude appeared on some of them. On April 21, 1899, it was seventh magnitude. It appears on eighteen photographs taken during that summer, and on October 27, 1899, it was tenth magnitude. In July, 1900, when it was discovered, it was about twelfth magnitude. Seven bright lines—H ζ , H ϵ , H δ , H γ , 4693, H β and the nebular line 5007—were seen in the spectrum photographed on July 3, 1899. On September 7, 1899, H γ and a somewhat fainter line, which is probably 4959, were the only bright lines visible. On October 27, 1899, H γ and 5007 were alone visible and bright, so that the spectrum had then become that of a gaseous nebula.

EDWARD C. PICKERING.

NOTES.

AMONG other noteworthy remarks made by speakers at the jubilee dinner of the Royal School of Mines, on March 13, was one in which Sir George Kekewich, secretary of the Board of Education, acknowledged that science must occupy a place in any wise system of education. He said, "I should like to see the day when no education can be regarded as a liberal education which excludes a knowledge of science. In addition, I should like to see no one matriculating at any University in this kingdom who does not possess some knowledge of science. Indeed, I should like to see it recognised as part of the general education of every man who has any claims to possess a liberal education." The dinner was largely attended by past and present professors and students at the College. The chair was occupied by Sir George Gabriel Stokes, and toasts were proposed and acknowledged by the chairman, Sir Kenelm Digby, Prof. J. W. Judd, Sir William Roberts-Austen, Sir George Kekewich, Sir William

Huggins, Prof. Le Neve Foster, Mr. Bennett Brough, Prof. W. A. Tilden, Prof. Milne, Mr. F. W. Rudler, Prof. Bauerman, Prof. J. Perry and Mr. Hugh McNeill, the secretary. The chairman described the gradual development of the School of Mines, and referred to the humble way in which it was established. "Even still," he remarked, "it bears indications of the tentative mode of proceeding to which I have already alluded, for Sir Norman Lockyer's elaborate work in astronomical spectroscopy, so far as taking observations on the heavenly bodies is concerned, is carried on in buildings of the nature of sheds." Sir William Roberts-Austen made mention of Stokes, Playfair, Hofmann, Huxley, Tyndall, Warington Smyth, and other brilliant men of science who had been connected with the College; and other speakers showed how professors and students have played important parts in various fields of scientific and industrial activity.

THE death is announced of M. Theodore Moutard, distinguished by his contributions to geometry.

M. A. NORMAND has been elected a correspondant of the Paris Academy of Sciences, in succession to the late General Alexis de Tillo.

THE ninth triennial conference of the German Meteorological Society will be held at Stuttgart on April 1, 2 and 3, the first half of Passion week, as Easter week, the usual time of the meeting, has been set apart for the Seismological Conference at Strassburg. Hail will form one of the principal subjects for discussion.

It has been decided to hold the seventy-third meeting of the German Association of Naturalists and Physicians at Hamburg from September 22 to 28 next. In response to many representations there has been a rearrangement of the sections, which have hitherto numbered thirty-eight, but will in future be reduced to twenty-seven, and of these sixteen will be medical sections.

It is reported that the grave of Hippocrates has just been discovered during excavations at Larissa, in Thessaly. A Royal Commission has been sent to the place by the Greek Government to take what measures may seem advisable.

THE *British Medical Journal* announces that Dr. C. W. Daniels has been appointed superintendent and medical tutor of the London School of Tropical Medicine, in succession to Dr. D. C. Rees. Dr. Daniels served on the Royal Society's Malaria Commission in 1898 for two years, and is now seconded for a further period whilst filling his present appointment at the London School of Tropical Medicine.

THE zoological lectures of the Zoological Society of London will be delivered in the Society's meeting room this year on Thursdays April 18, May 16, June 20 and July 18 at 4.30. The first lecture will be given by Prof. C. Stewart, F.R.S., conservator at the Royal College of Surgeons, and will relate to the various devices of nature for the protection and nourishment of young fishes. The lectures are free to Fellows of the Society.

THE latest number of the *Zeitschrift für wissenschaftliche Zoologie* (vol. lxi. part 2) contains three articles dealing with invertebrates. The first, by Herr J. Grofs, treats of the ovary of hemipterous insects; in the second, Herr C. Dawydoff treats of the process of regeneration among the brittle stars; while in the third, Herr O. Bütschli gives the results of his investigations into the nature of siliceous and calcareous sponge-spicules. In the latter it is shown that sponge-spicules, under the influence of heat, display minute cavities, which it is inferred exist under normal conditions, although too small to be detected. The