has found special advantages from the use of osmic acid, with or without subsequent staining in hæmatoxylin. The stages in this formation are as follows:—

(*a*) The spindle cells enlarge and contain several nuclei which can be identified, whilst within the cell, as being of a similar nature to red blood-corpuscles. A current of blood-plasma from the nearest vessels passes, at the same time, into the interfibrillary space in which the spindle cells lie.

(*b*) The nuclei escape from the spindle cells into this space, where they are indistinguishable in appearance from the ordinary red blood-corpuscles.

(*c*) By a process of diapedesis the formed elements of the nearest blood-vessels pass into this space and the circulation is established.

Various appearances lead the author to suppose that the fibrine of the plasma solidifies on the outer surface of the current and forms the substratum of the new vessel, and on this substratum the white blood-corpuscles fix themselves and spread out as an epithelium.

From interfibrillary spaces in the inflamed cornea, in which formation of blood-vessels was actively taking place, the author has isolated white corpuscles in various transition stages towards the appearance and shape of epithelium; and, from rapidly enlarging vessels, cells which, from their form, he believes to be transitionary to that of smooth muscular fibre.

As the new capillary forms, the enlarged spindle cells decrease to their ordinary size.

In preparations of blood-serum of the frog sealed up, after a few days, the hæmoglobin may be observed to assume special forms inside the corpuscle, or to disappear from it, and so produce changes in the appearance of the corpuscle identical with those described by Arnold as taking place in the tongue of the living animal after diapedesis.

The above observations were made chiefly on the cornea of the frog and rabbit; and the inflammation was mostly produced by solid nitrate of silver, the passing of a thread, and the application of methylated alcohol.

In the winter frog (*Rana esculenta*), cauterized in the centre of the cornea, the first entry of white corpuscles attributable to inflammation was observed, after 48 hours, in the wider spaces near the limbus. After 4 days, they could be observed in considerable numbers, and 2–6 could be seen in one so-called space (*lacuna*).

II. "Report on Observations of the Transit of Venus made at Luxor, Upper Egypt, 9th December, 1874." By Vice-Admiral E. Ommanney, C.B., F.R.S. Received February 11, 1875.

Owing to the kindness of Professor Auwers, of Berlin, who placed his heliometer at my service, I was enabled to make the following notes of time and phenomena during the time of egress.

The time was given by a chronometer marked "Wiren 34," which was lent to me by the celebrated astronomer, William Döllen, of Pulkowa.

At $18^h\ 40^m$ M. T. the sun rose clear and brilliant over the eastern range of the Arabian hills on the valley of the Nile under very favourable conditions of sky and atmosphere, more so on this occasion than on any other morning during our stay of 20 days at Luxor. The first glance showed us the image of the planet Venus on the sun's disk in the predicted place, making progress in her path across the sun to the point of egress.

At the first observation the borders of the planet appeared jagged and ill-defined, but as the altitude increased she presented a dark disk, clearly defined on the sun. When the time of internal contact approached, the edge of the planet and the limb of the sun were both very distinct, and favourable for making accurate observations.

When the moment of internal contact drew near, I gave my utmost attention for observing the appearance of the black drop; but I could not detect it, though I could perceive with great nicety the instant of contact. The margin of the sun's limb and that of Venus were most clearly defined to my vision.

Immediately after internal contact a bright illumination manifested itself on the emerged part of Venus; this light continued bordering on the cusp for about three fourths of the time between internal contact and external contact at egress.

The following are the times shown by chronometer for contacts and phenomena:—

	h	m	s
Time at internal contact	20	01	02·5
Cusp of Venus illuminated	20	2	00
$\frac{1}{4}$ Venus emerged, cusp illuminated	20	7	25
Light on right side of cusp became brighter	20	9	00
Light on left side became fainter	20	15	00
Light at time of Venus's $\frac{1}{2}$ emergence	20	15	30
Illumination diminishing	20	17	00
Illumination disappeared	20	20	00
$\frac{3}{4}$ Venus emerged	20	24	00
Time of external contact at egress	20	29	25

I must remark that I found it a matter of considerable difficulty to note the precise instant of the last or external contact at egress, as the indentation became so extremely slight towards the planet making final egress.

The error of the chronometer was estimated to be very nearly $+15^m\ 02^s{\cdot}0$ by preliminary calculation; hence the times of contact by my observations, corrected for mean time at Luxor, will stand thus:—

	h	m	s
Internal contact at egress	20	16	04·5
External contact at egress	20	44	27·0

The temperature in the shade at sunrise was 53° F., and after transit 65° F.

The heliometer used by me on this occasion was constructed by Fraunhofer. One of the halves of the object-glass was used, the line of separation being put normal to the sun's limb at the point of contact, in order to produce the least distortion of image in the direction of the common diameter of the two objects. The focal length of the instrument is nearly 45 inches (English), the aperture 3 inches, and the power used was 97.

Our observatory was situated about half a mile to the southward of Luxor, in lat. 25° 41′ 40″ N., as determined by Wm. Döllen and Professor Auwers, and in longitude $2^h\ 10^m\ 22^s$ E., as fixed by Mahmoud Bey in his late survey of the valley of the Nile.

III. "Preliminary Abstract of Approximate Mean Results with the Invariable Pendulums Nos. 4 and 1821, in continuation of the Abstract published in vol. xix. of the Proceedings." By Captain W. J. Heaviside, R.E. Communicated by Professor Stokes, Sec. R.S. Received February 15, 1875.

Extract from a Letter from Captain Heaviside to Professor Stokes.

Dehra, N. W. P., 21st January, 1875.

My dear Sir,—An abstract of approximate results by the invariable pendulums was printed under Captain Basevi's superintendence in 1870. I now enclose an abstract in continuation, bringing the work down to Kew. The formulæ and factors employed by Basevi have been used in the reductions, so that the results in the two abstracts might be directly comparable.

The observations at Meean Meer and at Moré were taken by Basevi, and the reduction to mean sea-level for Moré has been computed in accordance with a memorandum he left, in which he assumed the mountain masses on which Moré stands to compose a cylinder, having a height of 2·92 miles and a radius of 200 miles.

You will see that the results at Kew, from my observations in 1873, differ by 0·38 vibration from those obtained by Mr. Loewy in 1866. My observations were taken in August, at a mean temperature of 65°; his in January, at a temperature of 54°.

As the temperature-factor (0·48 vibration for 1° Fahr.) here employed is larger than that which will eventually be adopted, the difference between the two results will be still further reduced, and the agreement will be much closer than I expected to obtain, when taking into consideration the varied travels these pendulums went through in the interval. * * *