Mondes - Culminationen.

	M. Kremsm. Zt.		(Eph. — α)		(Eph. — δ)
1874 1. Oct.	17 ^h 35 ^m 46 ^s .10	α Cent = 6 ^h 18 ^m 42 ^s .04	$d\alpha = + 0^s.83$	δ Cent = + 28° 15' 22".9	$d\delta = - 1".9$
25. "	12 19 21.38	" 2 36 2.69	" + 0.92	" + 16 44 33.6	" — 3.2
1875 19. Jan.	10 29 46.21	" 6 25 13.48	" + 0.38	" + 28 9 18.5	" — 1.1
27. "	16 57 29.88	" 13 25 33.31	" + 0.44	" — 9 16 9.4	" — 3.5
28. "	17 38 25.86	" 14 10 32.56	" + 0.40	" — 14 34 25.2	" — 3.6

NB. Verglichen mit den Berliner Jahrbüchern.

G. Strasser.

Beobachtung des Venusdurchganges in Windsor (N.-S.-Wales).

Schreiben des Herrn *J. Tebbutt* an den Herausgeber.

The weather was remarkably favorable for the observation of the transit of Venus on the 9th instant, the steadiness and definition of the images in the telescope being all that could be desired. The equatorial telescope of 4½ inches aperture and 70 inches focal length was employed with *Cooke's* diagonal prismatic eyepiece and a magnifying power of 120 diameters. Of the lenses in the eyepiece that next to the prism was smoked. A neutral tint glass also smoked was secured to the eyeend of the eyepiece and in addition to this another glass of a very light neutral tint was also occasionally employed. By this combination the sun's limb appeared of a straw colour and the sky intensely black. No part of the planet could be detected before the external contact, the telescope being directed to the sun's limb about ten minutes before the predicted time. Owing to the sharp definition of the solar limb the observation of the external contact was very good, but in consequence the slow apparent motion of the planet it was difficult to estimate with any degree of accuracy the times of central bisection. On removing the unsmoked glass of light neutral tint about two minutes and a half after the estimated time of central bisection at ingress I was surprised to find that the whole of that limb of Venus not on the sun's disc was distinguishable, being marked off against the dark background of the sky by a margin of greyish light less than one second of arc in breadth. This halo gradually increased both in breadth and distinctness till the planet's limb nearly coincided with that of the sun. No halo or penumbra, however, surrounded that limb of the planet which was projected in the sun. Shortly before the time of interior contact I observed that the phase of the ingress was nearly similar to fig. 6 of Mr. *Stone's* drawings on page 16 of the 29th Vol. of the R. A. S. Notices, the distance between the cusps at the time

being about equal to one fourth of the planet's diameter. The solar cusps were sharper than in Mr. *Stone's* drawing. Owing to the excitement of the moment I omitted to note the precise time of this phase. A few seconds afterwards it was obvious that the apparent contact had taken place, the planet's limb being seen slightly within the sun's, and connected with it by a dusky ligament whose breadth was about one fourth the diameter of the planet. Instead, however, of the solar cusps being squared off by this ligament as in Mr. *Stone's* drawing before referred to they were rounded, the convexity being towards the ligament. In other words the ligament was contracted in the middle. It was of a lighter shade across the middle between the rounded ends of the cusps than it was along the limbs of the sun and planet. The more deeply shaded portions of this ligament resembled in colour the limb of the moon when entering the earth's dark shadow during eclipse. The distance between the limbs of the sun and planet, for the solar limb at the point of contact could be faintly seen through the ligament, did not at this time exceed a second of arc. During two or three beats of the half-seconds chronometer I noticed that the ligament was affected with a vibratory or tremulous motion in the direction of the line joining the center of Venus with the point of contact. It at the same time resolved itself into several dusky streaks parallel to the limbs of the sun and planet. These were quickly absorbed partly into the black disc of Venus and partly into the dark margin of sky along the sun's limb. The planet was then seen slightly within the solar limb with the space between the two limbs as bright as the rest of the sun's disc. I regard the disappearance of the dusky streaks as the time of the real internal contact of limbs. The planet's disc while in transit was intensely black and sharply defined, there being no indications of a penumbra or halo while it was

projected on the sun. There was no white spot on the planet's disc, nor could I find anything like a satellite. Several minute solar spots were observed which originally formed a portion of three magnificent groups visible two or three days previously. The egress was watched without the light neutral tint glass already mentioned. When the planet's preceding or western limb was within a second of arc or more of reaching the sun's limb I noticed that the thread of light between the limbs almost suddenly became shaded by a ligament resembling that observed at ingress, its breadth also being about one fourth of the diameter of the planet. The formation of this ligament I regard as the time of real internal contact. The sun's limb was only faintly perceptible and the observation was excellent. Immediately following the recorded time of this phase in the original notes of my observations are the entries $3^h 53^m 14^s.8$ and $3^h 54^m 6^s.3$ as corrected for the error of the chronometer. What these times represent I cannot now say as the corresponding phases are not stated. But it is probable that the first was an attempt to fix the instant of apparent coincidence of limbs and the second an attempt to estimate the time corresponding to some distance between the cusps of the sun. At $3^h 55^m 38^s.3$ I could see the limb of Venus faintly illumined beyond the estimated place of the sun's limb. It gradually became more distinct. At $3^h 59^m 58^s.2$ the grey light along the northern portion of the limb outside of the sun's disc

was beautifully distinct, but it was feeble along the southern portion. At $4^h 5^m 43^s.2$ the grey light was becoming indistinct, and by $4^h 9^m 28^s.2$ the light along the northern portion was still faintly visible, but that along the southern portion was invisible quite up to the sun's cusp. By $4^h 11^m 58^s.2$ that portion of the limb not on the sun's disc was totally undistinguishable from the dark background of the sky. The last contact, which was well observed, occurred at $4^h 22^m 43^s.2$. In conclusion I may mention as an interesting circumstance in connexion with the transit that the proximity of the planet as compared with the sun was very noticeable both in the telescope and to the unassisted eye. In this respect the phenomena of its apparent projection on the solar disc differed very materially from those belonging to the ordinary sun spots. The following are the local mean times of the principal phases of the transit:

First external contact	$8^h 23^m 53^s.4$
Bisection.	9 0 7 58.9
Disappearance of the dusky ligament or the time of the first real internal contact „	0 22 54.8
Reappearance of the dusky ligament or the time of the last real internal contact „	3 53 0.3
Bisection	4 10 18.2
Last external contact	4 22 43.2
Private Observatory, Windsor N.-S.-Wales, 1874, Dec. 21.	

John Tebbutt.

Entdeckung eines neuen Planeten (143).

Herr *Palisa* hat am 23. Februar einen neuen Planeten entdeckt, und sind von demselben bisher folgende Beobachtungen hier eingegangen:

Pola	Febr. 23	$8^h 42^m$	..s mittl. Ortszeit.	$9^h 57^m 56^s$	$+ 13^o 46'$	.."
Berlin	Febr. 24	8 27 14	„ „	9 56 57.7	$+ 13 46 40.0$	

Kiel, 1875, Februar 26.

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Kiel 1875. März 4.

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