

by the bleaching agent or by the attempt to replace it, by the spreading of the ink caused by the removal of the size, by the restoration to visibility by chemical means of the bleached-out writings, by the finding of the bleached inscriptions by photography under suitably coloured lights, and so on. The article is illustrated with excellent photographs and reproductions of photographs.

ON May 10, at the Institute of Petroleum Technologists, Prof. P. Carmody (late Government analyst, Trinidad) read a paper on "Trinidad as a Key to the Origin of Petroleum." Prior to the meeting the title of the paper had created much interest and curiosity, especially among those members who have had professional experience in the island, but unfortunately both the paper and subsequent discussion were scientifically somewhat disappointing. The author's main contention was that in a comparatively small area, within reasonable access of Europe, and under conditions of life peculiarly satisfactory for a tropical island, there exist all the requisite natural factors for an exhaustive research into the origin of petroleum, as yet a little understood problem, the solution of which must perforce have far-reaching scientific and economic results. The natural factors referred to include the occurrence of varied forms of solid, liquid, and gaseous hydrocarbon compounds within the rocks of the island, and in illustration of his idea the author gave a brief description of these, supplemented with a large number of chemical and physical

data obtained during the course of some thirty years' work in the Government laboratory. There is obvious value in the publication of such data by one whose long experience entitles him to speak with authority, but the *raison d'être* of the paper suffered much from the somewhat narrow view taken as to the origin of oil, viz. its derivation entirely from vegetable matter, *i.e.* cellulose. On this assumption, and in view of the many known oil occurrences wherein marine organisms have unquestionably been involved, it is doubtful whether Trinidad does indeed constitute the desired "key," and whether, as the president remarked later, the existence of all these forms of petroleum is not a disadvantage rather than an aid to the solution of the problem.

PROF. R. S. TROUP, of the forestry department of the University of Oxford, has written for publication by the Oxford University Press a work in three volumes on "The Silviculture of Indian Trees." The first volume, dealing with Dilleniaceæ to Leguminosæ—Papilionaceæ, is promised for appearance by an early date.

A FULL report of the meeting held on May 30 by the National Union of Scientific Workers on "The Administration of Scientific Work," of which a short account was given in last week's NATURE, p. 439, will appear in the next issue of the union's Journal. Copies may be obtained from the Secretary, N.U.S.W., 25 Victoria Street, S.W.1, at the end of this month (post free 6d.).

Our Astronomical Column.

COMETS.—Reid's comet is rapidly fading, but should be within reach of moderate instruments for another month. An extension of the ephemeris from Ebell's elements for Greenwich midnight is therefore given:

| | | R.A. | | | N. Decl. | | |
|------|----|------|----|----|----------|----|----|
| | | h. | m. | s. | h. | m. | s. |
| June | 9 | 8 | 8 | 33 | 51 | 38 | |
| | 13 | 8 | 10 | 41 | 49 | 35 | |
| | 17 | 8 | 12 | 37 | 47 | 48 | |
| | 21 | 8 | 14 | 24 | 46 | 13 | |
| | 25 | 8 | 16 | 3 | 44 | 48 | |
| June | 29 | 8 | 17 | 41 | 43 | 31 | |
| July | 3 | 8 | 19 | 16 | 42 | 21 | |
| | 7 | 8 | 20 | 49 | 41 | 18 | |
| | 11 | 8 | 22 | 19 | 40 | 19 | |
| | 15 | 8 | 23 | 46 | 39 | 24 | |

Values of $\log r$, $\log \Delta$: June 13, 0.0665, 0.2311; June 25, 0.1054, 0.3035; July 7, 0.1459, 0.3543.

The following observation of Pons-Winnecke's comet was obtained at Greenwich: G.M.T. June 2d. 10h. 57m. 38s.; apparent right ascension, 20h. 37m. 15.85s.; apparent north declination, 37° 12' 45.8". The position deduced from Crawford and Levy's second elements is right ascension 20h. 38m. 5s., north declination 37° 3'. The elements are therefore fairly near the truth.

The comet now appears large and diffused owing to its small distance from the earth. It will be nearest to both earth and sun on June 12.

Mr. G. Merton obtained an observation of Dubiago's comet on June 1. He states that its position agreed closely with the ephemeris given in NATURE of May 26.

NOVA CYGNI III. (1920).—Mr. Denning writes that he observed this object on June 5 at 10h. 40m. G.M.T. with a 6½-in. refractor. He estimated the magnitude to be 9.6, so that the star's light would appear to have declined very slightly during the last 7½ months. It will be remembered that the magnitude of the star decreased from 1.8 to 8.5 during the days from

August 24 to October 6, 1920, so that the average decline of light was 0.16 per day. Since about the middle of October, however, the nova appears to have maintained its brightness in a rather unexpected way.

COLLISION OF STAR AND NEBULA.—Prof. Ernest W. Brown contributes a paper on this subject to the April issue of the *Astrophysical Journal*. Taking the star as origin and the line of relative motion as the Z-axis, particles of the nebula equidistant from this axis would all be deflected into similar hyperbolic orbits meeting in a point on the axis. There would thus be numerous collisions of particles along the axis which would generate a fan-shaped nebula with its apex towards the star. Another nebulous envelope surrounding the star would be formed by collisions of particles with the star or its appendages. The nebula is supposed to be non-gaseous at the start, being composed of widely scattered particles.

Hubble's variable nebula round the star R Monocerotis is discussed in detail, and it is shown that its form agrees closely with that indicated by the theory. It is suggested that the variations in the light of the fan-shaped appendage may arise from irregularities in the density of the nebula that the star is supposed to be traversing. It is shown that Prof. Slipher's observation that the stellar envelope and the fan-shaped appendage have identical spectra is in accord with the hypothesis, for both would arise from the gas resulting from collisions of the nebular particles. Slipher and Lampland's further statement that the spectra resemble those of novæ in their early stages suggests to Prof. Brown that a similar explanation may be available for the phenomena of novæ.