

MR. H. G. WELLS returns to the more serious side of his work in "A Modern Utopia," which is being published month by month in the *Fortnightly Review*. As in "Anticipations" and "Mankind in the Making," Mr. Wells concerns himself with sociological problems, and pictures the probable manners and customs of society in a Utopia, situated on a distant planet, which is the natural outcome of continued development on modern lines.

A REVISED edition of Mr. H. N. Chute's "Physical Laboratory Manual" has been published by Messrs. D. C. Heath and Co. In this edition sound and light have been made to follow mechanics, because, the author says, "there seems to be a consensus of opinion among teachers that . . . the grade is less steep than it is where these subjects follow electricity." A few of the problems of the first edition have been omitted, and new ones added.

THE first number of the *Journal of Agricultural Science*, edited by Messrs. T. H. Middleton, T. B. Wood, R. . . Biffen, and A. D. Hall, in consultation with other gentlemen, will be published in January next by the Cambridge University Press. The journal will publish only definitely scientific work in agricultural science, and will not include the results of the ordinary trials of manures and varieties for demonstration or commercial purposes. Papers for publication should be sent to Mr. T. B. Wood, University Department of Agriculture, Cambridge.

THE seventh edition of Dr. J. Frick's "Physikalische Technik," enlarged and completely revised by Prof. O. Lehmann, is in course of publication by Messrs. F. Vieweg and Son, Brunswick. The first half of vol. i. has been received, and the second half is promised shortly. The second volume will be published in a year or two, and will complete the work. In the part before us there are 629 pages and 2003 illustrations of lecture and laboratory apparatus for demonstrations and experiments in various branches of mechanics and physics.

A CHEAP edition (1s. net) of Mr. G. F. Chambers's "Astronomy for General Readers" has just been published by Messrs. Whittaker and Co. The book contains 268 pages and 134 illustrations, most of which represent the pictorial efforts of bygone days. As instances of the worst of these figures, reference may be made to Figs. 29, 104, 105, 106, 109, and 112. Before issuing this cheap edition an attempt should have been made to bring the text and the illustrations in line with the present position of astronomy, instead of leaving them as they were in the original volume.

THE *Journal of Anatomy and Physiology* for October (xxxix., part i.) contains a number of valuable papers, but of purely anatomical interest. The principal contribution is by Dr. Huntington on the derivation and significance of certain supernumerary muscles of the pectoral region, illustrated with fourteen excellent coloured plates.

THE new illustrated catalogue of physical apparatus just issued by Messrs. F. E. Becker and Co. (Messrs. W. and J. George, Ltd.) is likely to prove indispensable in the physical laboratories of all our schools and colleges. It runs to 628 large pages, and is strongly bound in cloth. Full particulars are provided, not only respecting the apparatus required in elementary and advanced physical teaching, but also concerning that necessary to the physicist in his research work. All branches of physics are included, and the instruments throughout are explained by excellent illustrations and concise descriptions, and, what is of prime importance, the figure and its appropriate text are close together.

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## OUR ASTRONOMICAL COLUMN.

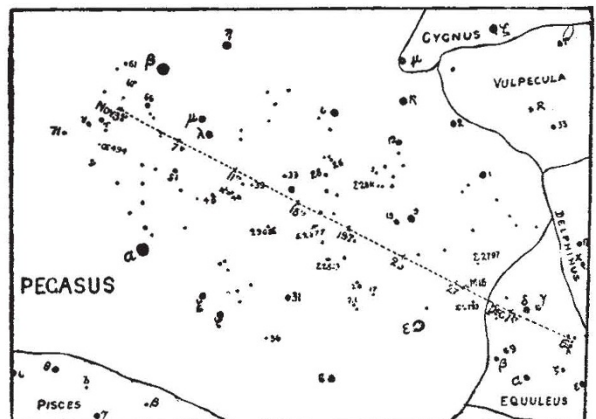
### ASTRONOMICAL OCCURRENCES IN NOVEMBER:—

- Nov. 5. Saturn. Outer major axis of outer ring =  $39''\cdot42$ .  
 " " Outer minor axis of outer ring =  $11''\cdot01$ .  
 8. 11h. 50m. Minimum of Algol ( $\beta$  Persei).  
 9. 13h. 0m. Venus in conjunction with Moon (Venus,  $6^{\circ} 39' S.$ ).  
 11. 8h. 39m. Minimum of Algol ( $\beta$  Persei).  
 13. 21h. 0m. Juno in conjunction with Moon (Juno,  $0^{\circ} 8' N.$ ).  
 14. 0h. 0m. Saturn in conjunction with Moon (Saturn,  $3^{\circ} 53' S.$ ).  
 " 5h. 28m. Minimum of Algol ( $\beta$  Persei).  
 " 16h. Epoch of November meteors (Leonids. radiant  $150^{\circ} + 22^{\circ}$ ).  
 15. Venus. Illuminated portion of disc =  $0\cdot832$ , of Mars =  $0\cdot936$ .  
 16. 15h. Venus and Uranus in conjunction (Venus,  $1^{\circ} 28' S.$ ).  
 17. 5h. 5m. Transit of Jupiter's Sat. III. (Ganymede), egress.  
 19. 11h. Jupiter in conjunction with Moon (Jupiter,  $1^{\circ} 31' N.$ ).  
 20. 10h. 24m. to 11h. 44m. Moon occults  $\xi$  Ceti (mag.  $4\cdot5$ ).  
 23. 5h. 20m. Near approach of Moon to  $\alpha$  Tauri (mag.  $1\cdot1$ ).  
 24. 6h. 39m. to 8h. 34m. Transit of Jupiter's Sat. III. (Ganymede).  
 25. Vesta in opposition to Sun (Vesta, mag.  $6\cdot5$ ).

ENCKE'S COMET 1904 *b*.—In No. 3973 of the *Astronomische Nachrichten* M. M. Kaminsky gives a further ephemeris for Encke's comet, which he has corrected in accordance with the observation made at Heidelberg on September 11. The ephemeris gives the daily positions of the comet from October 14 to December 5, and the following is an abstract therefrom:—

Ephemeris oh. (M.T. Berlin).								
1904	$\alpha$ app.		$\delta$ app.	log. $r$	log. $\Delta$			
	h.	m. s.						
Nov. 3	...	23 10 34	...	+24 9	...	0 $\cdot$ 1510	...	9 $\cdot$ 7380
" 5	...	23 1 3	...	+23 21	...	0 $\cdot$ 1424	...	9 $\cdot$ 7305
" 7	...	22 51 37	...	+22 29	...	0 $\cdot$ 1335	...	9 $\cdot$ 7237
" 9	...	22 42 19	...	+21 33	...	0 $\cdot$ 1243	...	9 $\cdot$ 7178
" 11	...	22 33 11	...	+20 36	...	0 $\cdot$ 1147	...	9 $\cdot$ 7125
" 13	...	22 24 17	...	+19 35	...	0 $\cdot$ 1048	...	9 $\cdot$ 7080
" 15	...	22 15 34	...	+18 33	...	0 $\cdot$ 0946	...	9 $\cdot$ 7040
" 17	...	22 7 5	...	+17 29	...	0 $\cdot$ 0840	...	9 $\cdot$ 7008
" 19	...	21 58 49	...	+16 24	...	0 $\cdot$ 0730	...	9 $\cdot$ 6978

The accompanying chart shows, approximately, the apparent path of the comet through the constellation Pegasus into Equuleus from now until December 5.



SIMULTANEOUS OCCURRENCE OF SOLAR AND MAGNETIC DISTURBANCES.—Writing in No. 3, vol. xx., of the *Astrophysical Journal*, Herr A. Nippoldt, of the Potsdam Magnetic Observatory, disagrees with Father Cortie's conclusion (published in *Astrophysical Journal*, pp. 287–293, vol. xviii., 1903) re-

garding the absence of any allied magnetic disturbances during the appearance of a vigorous sun-spot from May 19 to June 26, 1901.

Herr Nippoldt questions the advisability of introducing statistical gradations of the magnetic disturbances, and contends that the magnetic effect at any one place or at a number of places in approximately the same latitude is, possibly, not a measure of the solar cause. That is to say, an instrument near the poles might register a "great" when the Potsdam or Stonyhurst recorders only registered a "small" disturbance. Consequently, he would urge that when the magnetograph trace shows any marked divergence from the normal one might consider that a disturbance had taken place, and he shows, by a reproduction of the "horizontal-intensity" curve obtained at Potsdam on May 30-31, 1901, that a disturbance *did* take place during the time that the spot which Father Cortie especially discussed was on the sun.

Finally, he confirms M. Deslandres's opinion that in the future the solar observations should be continuous, and thereby become more strictly comparable with the magnetic records.

**THE THIRD BAND OF THE AIR SPECTRUM.**—In No. 16 (1904) of the *Comptes rendus* MM. H. Deslandres and A. Kannappell publish the results of a study of the third air band, which occurs in the more refrangible part of the ultra-violet end of the spectrum ( $\lambda$  3000 to  $\lambda$  2000), under a large dispersion.

The apparatus used consisted of a capillary vacuum tube closed with a plate of quartz under a pressure of less than 1 mm. of mercury, and a spectrograph containing two calcite prisms of  $60^\circ$  and two quartz lenses of 1.3 metres focal length. The latter produced a dispersion which, in the neighbourhood of  $N=42,189$  ( $\lambda$  2370), gave a separation of 0.005 mm. for a difference of 0.06 N.

The wave-lengths of the lines were obtained by reference to a spectrum of iron, using Kayser's fundamental values for the wave-lengths of the latter, and the authors state that in the individual values obtained for N the first six figures are correct.

In the results it is seen that, although the lines of the band may be separated into four series of doublets according to Deslandres's law, so that the difference of wave-lengths in each series advances in arithmetical progression, yet the variations from the computed values are greater than may be accounted for by errors of measurement, and, what is more remarkable, the sign of these variations for series i. and ii. is opposite to that obtained for series iii. and iv.

#### PRE-GLACIAL TOPOGRAPHY.<sup>1</sup>

THE beautifully illustrated memoir by Messrs. Wright and Muff, recently issued by the Royal Dublin Society, directs attention to an ancient rock-platform on which Glacial deposits were laid down in southern Ireland. The importance of such observations is clear when we consider the possibility of the preservation of a pre-Glacial, and perhaps Pliocene, fauna in favoured localities beneath the drift. At Courtmacsherry Bay, for example, south-west of Cork Harbour, a well marked rock-shelf occurs about 5 feet above high-water mark. On this rests a raised beach, with ferruginous sand and rows of pebbles, succeeded by the blown sand that accumulated when the

uplift first occurred. Blocks from the adjacent cliff slipped down over the sand, and the series was then preserved by the Boulder-clay of the Glacial epoch. The wide stretch of coast, from Carnsore Point in co. Wexford to Baltimore in the west of co. Cork, over which this raised platform has been traced, affords ample opportunities for comparing the modern with the ancient features. The authors show that the pre-Glacial sea worked against a cliff about 100 feet in height, and consequently advanced slowly, leaving a denuded surface remarkably free from stacks and irregularities. This surface commonly lies about 12 feet above the modern beach. Unfortunately, no trace of fossils has yet appeared in the old beach-deposits, and the authors believe that even pebbles of limestone have been removed by percolating water. The Boulder-clay above contains the usual molluscs, including northern species.

The pre-Glacial beach is traced into the estuaries of the rivers of southern Ireland; consequently these inlets are still older. Since they have arisen from the submergence of river-valleys, the river-system and the submergence are of pre-Glacial age. This simple but important observation seems effectually to negative the views of the late Prof. Carvill Lewis and Mr. James Porter (*Irish Naturalist*, 1902, p. 153), who argued that deposits of glacial drift might have turned the lower portions of these rivers into their present north-and-south direction. We are thrown back,

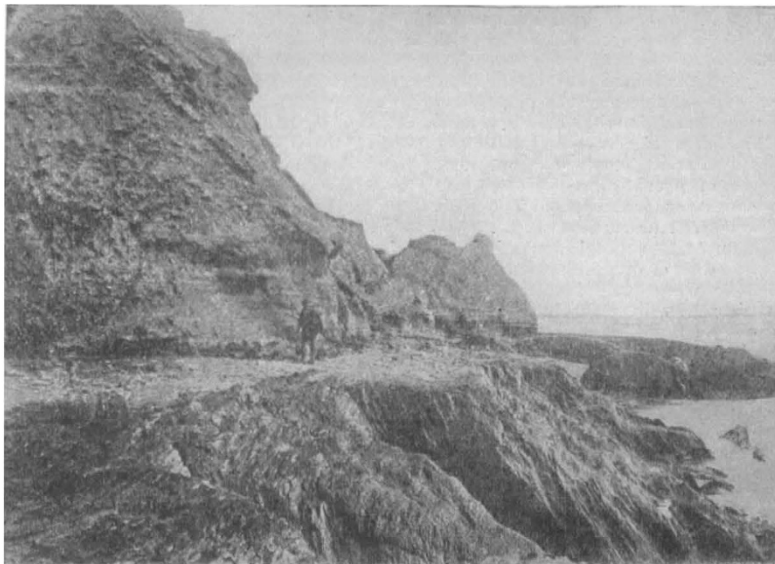


FIG. 1.—Section in Courtmacsherry Bay, co. Cork, showing beach-gravel and sand resting on shore-platform, and overlain by Boulder-clay.

then, upon the view of Jukes in accounting for the courses of the Blackwater and the Lee, and may see, as the drift is slowly washed away, further and further developments of the pre-Glacial topography of Ireland. We have been apt to assume that the western fjords and rias originated when the glaciers retreated from them and the land sank upon the Atlantic side. It now becomes possible that the tongues of ice spread into pre-existing inlets, banking out the sea, and again admitting it in warmer times. Messrs. Wright and Muff even conclude, from British as well as Irish indications, that "a considerable portion of the coast-line of Southern Britain is of pre-glacial age. The approximation over so wide an area of the sea-level in pre-glacial times to that of the present day renders it very probable that Ireland was already insulated before the Glacial Period."

This only increases the difficulty of assuming an extinction of the fauna and flora of Ireland during the maximum extension of the ice. Many points of cheerful controversy lurk behind this straightforward and descriptive paper.

GRENVILLE A. J. COLE.

<sup>1</sup> "The Pre-Glacial Raised Beach of the South Coast of Ireland." By W. B. Wright and H. B. Muff. *Scientific Proceedings of the Royal Dublin Society*, vol. x. part ii. (Dublin: University Press, 1904.) Price 3s.