

brighter, some darker, than the field, and a liquid having the same refractive index as the mineral can be quickly chosen.

PRACTICAL methods of determining the critical loads for long struts of varying section have attracted some attention recently. The latest contribution to the subject is given in an article in *Engineering* for October 2 by Messrs. L. Bairstow and E. W. Stedman, of the National Physical Laboratory. The method described seems to be comparatively easy to apply, and has the advantage of being applicable with equal ease to the simplest or to the most general case. It was devised originally for finding the critical loads of wooden struts as used in aeroplane construction. An assumed critical load for the strut is guessed or obtained by an approximate method such as taking Euler's law for a uniform strut of the average section. Curves for  $-d^2y/dx^2$ ,  $dy/dx$  and  $v$ , which comply with the conditions imposed, are then drawn by a process of trial and error described in the article. If the assumed value of the critical load has happened to be correct, the ordinate of the  $dy/dx$  curve becomes zero at the middle of the strut (for a strut hinged at both ends). If the assumed value has been incorrect, the ordinate becomes zero at some other point. After two attempts, a very close approximation to the value of the critical load is reached.

ERRATUM.—In NATURE of September 24, p. 95, col. i., for Dr. S. N. Shannus read Dr. H. S. Stannus.

OUR ASTRONOMICAL COLUMN.

A NEW COMET.—The *Times* of October 3 publishes a telegram from South Africa announcing the discovery of a bright comet by Mr. Lunt at the Royal Observatory, Cape Town, on September 18. Mr. Wood, of Johannesburg, computed the orbit, and the following is the ephemeris given:—

	Right Ascension			Declination	
	h.	m.	s.		
Oct. 1	...	22 48	48	...	-26 44
5	...	22 23	36	...	17 41
9	...	22 8	44	...	11 11
13	...	21 59	24	...	-6 34

Perihelion passage took place on August 5. While the comet is decreasing its southern declination and reaching a better position for observation in this country its brightness is stated to be fading fairly rapidly owing to the increasing distance from the sun. On October 9 the comet will be situated in the constellation of Aquarius, a little below the third magnitude star gamma.

The following elements, based by Mr. Wood on observations made on September 21, 24, and 27, have been since communicated by the Royal Astronomical Society:—

$$\begin{aligned}
 T &= 1914 \text{ Aug. } 4^{\text{h}} 99 \text{ G.M.T.} \\
 \omega &= 270^{\circ} 19' \\
 \Omega_0 &= 0^{\circ} 22' \\
 i &= 77^{\circ} 51' \\
 \log q &= 9.8543
 \end{aligned}
 \left. \vphantom{\begin{aligned} T \\ \omega \\ \Omega_0 \\ i \\ \log q \end{aligned}} \right\} 1914^{\circ}$$

COMET 1913f (DELANVAN).—Delavan's comet is now badly situated for evening observation, so most should be made of the morning hours. The object is rapidly decreasing its northern declination and moving westward, and will pass perihelion on October 26. It

is now situated in the constellation of Canes Venatici, and on October 10 will not be far from the third magnitude star, 12 Canes Venaticorum. The following eight-day ephemeris is taken from *Knowledge* for August last:—

	Right Ascension			Declination	
	h.	m.	s.		
Oct. 10	...	12 56	44	...	+38 56
18	...	13 37	56	...	32 57
26	...	14 11	50	...	26 45
Nov. 3	...	14 40	44	...	+20 40

THE RETURN OF ENCKE'S COMET.—The short-period comet known as Encke's comet, for he it was who first calculated its elements, although Pons, of Marseilles, actually discovered it in the sky, was due to return this autumn, its period being about three and one-third years. It is now reported (*Daily Telegraph*, October 2) that it has been observed from the Russian Observatory at Simeis in the Crimea, this information having been received from Prof. Backlund, the director of the Pulkovo Observatory. It is situated in the constellation of Perseus. Encke's comet is of historical interest for several reasons. It was only the second instance of the recognised return of a comet, Halley's comet having preceded it by sixty-three years. It was also the first example of a new class of celestial objects revolving round the sun within the orbit of Saturn and exhibiting certain planetary affinities in the manner of their motions.

ENHANCED LINES AND THE PRESENCE OF HYDROGEN.—No. 85 of the Contributions from the Mount Wilson Solar Observatory is devoted to some electric furnace experiments on the emission of enhanced lines in a hydrogen atmosphere. The author, Mr. A. S. King, used in this research the vertical Rowland grating spectrograph described in this column on September 24. The experiments included the production of the enhanced lines with the furnace in a partial vacuum and in hydrogen at varying pressures up to one atmosphere, and the use of greatly different amounts of titanium. After describing the details of the experiments Mr. King sums up his results in three brief but interesting paragraphs. The experiments failed to show any effect of a hydrogen atmosphere in strengthening enhanced lines. The enhanced lines appear in the furnace at low pressures with equal ease whether hydrogen is present or whether the furnace contains a residue of air. No material effect on the relative intensities of enhanced lines is indicated, even when widely differing amounts of titanium vapour at low pressure and at the same temperature are employed. Increasing the pressure of hydrogen, the temperature being held as nearly constant as possible, causes a progressive weakening of the titanium enhanced lines, until at atmospheric pressure only traces of the strongest are visible in the furnace spectrum. Mr. King finally directs attention to the bearing of these results on the study of stellar atmospheres and the value of the strength of enhanced lines as a criterion not only for stellar temperatures but for different regions and levels of the solar photosphere.

THE LEEDS ASTRONOMICAL SOCIETY.—Vol. xxi. of the Leeds Astronomical Society contains the Journal and Transactions for the past year. The volume is edited by Mr. C. T. Whitmell, and gives a good account of the activity of this society. At each of the seven meetings which took place a paper on some definite subject was read, and these are reproduced more or less in full in this report. Thus some of the contributions dealt with the spectroscope, Uranus as a view-point, history of astronomy, etc. Other work of the society is summed up in the latter part of the volume.