

Dearborn Observatory for 1883. The 18-inch Alvan Clark equatorial has again been employed in close observation of the great red spot and other phenomena of the planet Jupiter. Since the first observations at Chicago in September, 1879, it is stated that the red spot had not changed very materially in length, breadth, outline, or latitude. There had been a slow, retrograde drift in longitude, causing an apparent increase in the time of axial rotation. At the last opposition the deduced mean-rotation period was 9h. 55m. 38.4s. against 9h. 55m. 34.8s. in 1879.

Prof. Hough gives the following mean results of micrometrical measures of the red spot:—

	1879	1880	1881	1882
Length ...	12.25	11.55	11.30	11.83
Breadth ...	3.46	3.54	3.66	3.65
Latitude ...	-6.95	-7.14	-7.40	-7.52

The Chicago observer considers that while the spot has remained nearly stationary in latitude, the south edge of the great equatorial belt has gradually drifted south during the late opposition, until it is nearly coincident with the middle of the spot, and further, that "the two do not blend together, but are entirely distinct and separate." A depression formed in the edge of the belt (as shown in two drawings of the planet's disk, on December 29, 1882, and February 20, 1883), which corresponded in shape with the oval outline of the spot, the distance between the two being about a second of arc. The spot was extremely faint at the last observation for longitude on May 5. The equatorial white spot, first observed in 1879, was again visible during the last opposition; the rotation period 9h. 50m. 9.8s. deduced in the previous year, satisfying the observations.

The great comet of 1882 was micrometrically measured from October 4 to November 20, and sketches of the nucleus and envelope made. Subsequently to October 6 three centres of condensation were usually visible. As the comet receded from the sun, the head increased in length from 25" on October 4 to 139" on November 20. As late as March 6 there appeared to be three centres of condensation connected by matter of less density.

Difficult double-stars have been measured by Prof. Hough and Mr. S. W. Burnham, amongst them the interesting binaries, 40 Eridani (α 518), β Delphini, δ Equulei, and 85 Pegasi. Measures of the companion of Sirius gave for the epoch 1883.12 position $39^{\circ}9'$, distance $9''.04$; the distance is diminishing about $0''.3$ annually, so that in a few years it will be beyond reach of any except the largest telescopes. With the excellent measures obtained at Chicago more must soon be known as to the period of δ Equulei, reputed the most rapid of all binaries.

TEMPEL'S COMET, 1873 II.—The following are places for Greenwich midnight, deduced from M. Schulhof's elements:—

1883	R.A.	N.P.D.	Log. distance from Earth	Log. distance from Sun
Nov. 16 ...	18 20 48	113 42.1	0.2867	0.1288
18 ...	18 28 22	113 52.1	0.2877	0.1287
20 ...	18 35 59	114 0.6	0.2888	0.1286
22 ...	18 43 38	114 7.6	0.2900	0.1287
24 ...	18 51 19	114 13.1	0.2912	0.1289

This comet approaches pretty near to the orbit of the planet Mars; in heliocentric longitude 312° (equinox of 1878), corresponding to true anomaly $6^{\circ}.1$, the distance is 0.050 .

D'ARREST'S COMET.—M. Leveau's ephemeris of this comet terminates on November 25. The following places are reduced from it to 6h. Greenwich M.T.:—

1883	R.A.	N.P.D.	Log. dist. from Earth	Intensity of light
Nov. 16 ...	17 15 44	105 13.3	0.3637	0.084
17 ...	17 18 51	105 22.1		
18 ...	17 21 59	105 30.8	0.3628	0.086
19 ...	17 25 8	105 39.3		
20 ...	17 28 19	105 47.7	0.3620	0.087
21 ...	17 31 30	105 55.8		
22 ...	17 34 43	106 3.7	0.3611	0.089
23 ...	17 37 57	106 11.5		
24 ...	17 41 12	106 19.1	0.3603	0.090

M. Leveau mentions that when Prof. Julius Schmidt last observed the comet at Athens in 1870 with a refractor of $0.17m$. aperture the intensity of light was 0.150 .

On November 16 the comet sets at Greenwich 2h. 10m. of the sun.

The planetary perturbations during the next revolution are likely to be large, so that in 1890 the comet may be observed under similar conditions to those of 1870.

STANDARD RAILROAD TIME

THE following letter, addressed to our American contemporary *Science*, is of interest:—

Though the subject of standard and uniform railway time for some years been under consideration by various scientific and practical bodies, it does not appear in any way to have been exhausted, even in its main features. Besides, a certain bias has shown itself in favour of the adoption of a series of certain hourly meridians, and thus keeping Greenwich minutes and seconds, when contrasted with the practicability of a more simple proposition. There is also a feature in the discussion of the subject which bears to have more light thrown upon it: namely, what necessary connection there is between the railway companies' uniform time and the mean local time of the people, or the time necessarily used in all transactions of common life. Directly by implication, certain time-reformers evidently aim at a standard time, which shall be alike binding on railway traffic as well as on the business community; and to this great error much of the complexity of the subject is to be attributed, and it has retarded the much-needed reform in the time-management of our roads.

We say all ordinary business everywhere must for ever be conducted on local mean solar time, the slight difference between apparent and mean time having produced no inconvenience and we may rightly ask the railway companies to give in the time-tables for public use, everywhere and always, the mean local time of the departure and of the arrival of trains. It is the departure from this almost self-evident statement, and the substitution and mixing-up in the time-tables of times referred to various local standards, which has in no small measure contributed to the confusion and perplexity of the present system. The people at large do not care to know by what time-system any railroad manages its trains, any more than they care what the steam-pressure is, or what is the number of the locomotive. All the traveller is interested in is regularity and safety of travel; hence it was to be desired that, whatever the standard or standards of time adopted, the companies would refrain from troubling him with a matter which only concerns their internal organisation, or which is entirely administrative. We look upon the publication of the railway time-tables, by local time everywhere, as a *sine qua non* for the satisfactory settlement of the time question, so far as the public at large is concerned; and it would seem equally plain that the best system for the administration of railroads would be the adoption of a uniform time, this time to be known only to the managers and employees of the roads.

We are informed in *Science* of October 12 that the solution of the problem of standard railway time is near at hand, and probably has already been consummated by the adoption of forty or more regions, each having uniform minutes and seconds of Greenwich time, but the local hour of the middle meridian. There have come down from several dozen of distinct time-systems to very few and uniform ones, except as to the hour, is certainly a step forward, and, so far, gratifying; but why not adopt Greenwich time, pure and simple, and have absolute uniformity? Probably this will be felt before long. The counting of twenty-four hours to the day in the place of twelve, and the obliteration from time-tables of the obnoxious a.m. and p.m. numbers would seem to be generally acknowledged as an improvement and simplification, and perhaps can best be dealt with by adopting it at once, accompanied by a simple explanatory statement.

C. A. SCHOTT

Washington, October 18

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—No election has yet taken place either for the Professorship of Botany or that of Rural Economy, which are now separated from each other. The Delegates of the Commemorative University Fund have agreed to attach a Readership to the Chair of Botany, which will raise the income to 500*l.* a year. The