

Prof. G. Hinrichs, Iowa City, Iowa, reports: none seen 3rd, 4th, 5th, 6th, 8th, 9th, 10th, 12th, 14th, 15th, 19th, 21st, 23rd, 24th; 26th and 27th, one group of two spots; 28th, two groups of six spots. Big spot of 30th very remarkable; no penumbra proper visible, but an apparent depression of photosphere; depression sharply defined, large spot in centre and two smaller on margin. These spots had almost disappeared on June 4th.

Observations of the Transit of Mercury, May 6th, 1878, by Signal Service Assistants and Observers.—The following observations of the Transit of Mercury were made by the observers and officers of the Signal Service, in accordance with special order and instructions: In all cases the observations were made by observing an image of the sun of from two to three inches in diameter, as cast by a field glass of two inches aperture and erecting eye piece upon a sheet of white paper, held by means of a suitable frame work, ten or fifteen inches behind the ocular. The watch-times were reduced to Washington Observatory time by means of corrections afforded by the regular telegraphic noonday signals, sent from the observatory over Western Union lines. The predicted chances of fair observing weather agree well with the actual event; for out of fourteen stations, three were wholly unsuccessful and four partly unsuccessful, owing to cloudiness, whence it is fair to estimate that $\frac{3+\frac{1}{2}+4}{14} = 36$ per cent. of the observations were lost through cloudiness. The corresponding predictions, as given in the fourth column, average 60 per cent. successful, or 40 per cent. lost through cloudiness.

Observations of the Transit of Mercury, May 6, 1878, as reported to the Chief Signal Officer.

STATION.	Longitude.	Latitude.	Predicted change for fair weather.	CONTACTS IN WASHINGTON TIME.				Letter No.	REMARKS.
				0-10.	1.	2.	3.		
Virginia City.....	+35° 0'	45° 20'	5	Obscured.	Obscured.	Obscured.	Obscured.	2779	
Denver.....	25° 1'	39° 45'	3	Obscured.	Obscured.	Obscured.	Obscured.	2633	
Pike's Peak.....	27° 58'	38° 48'	3	Obscured.	Obscured.	Obscured.	Obscured.	2780	
Fort Richardson.....	21° 7'	33° 12'	6						
Sandy Hook.....	- 3° 2'	48° 28'	7	Missed.	H. M. S. 10, 8, 50.	H. M. S. 5, 33, 21.	H. M. S. 5, 35, 44.	2525	Planet half-way on, 10h. 7m. 38s. Planet ½ on at 10h. 5h. 22s.
Barnegat.....	- 3° 54'	39° 45'	7	Missed.	10, 8, 27.	Obscured.	Obscured.	2485	
Atlantic City.....	- 2° 38'	32° 22'	7	Obscured.	Obscured.	5, 32, 45.	5, 35, 35.	2524	} 2604
Cape May.....	- 2° 0'	38° 56'	7	Missed.	10, 5, 37.	5, 33, 30.	5, 36, 12.	2781	
Washington.....	0° 0'	38° 54'	7	Missed.	10, 7, 24.	5, 33, 9.	5, 36, 14.	892 misc.	Planet { on full diam. 10h. 0m. 16s. { half-way off, 5h. 34m. 44s.
Fort Whipple.....	+ 0° 1'	36° 50'	7	Missed.	10, 7, 13.	5, 31, 48.	5, 36, 3.	2509	} 2870
Cape Henry.....	- 1° 3'	36° 56'	7	Missed.	Missed.	Obscured.	Obscured.	2508	
Norfolk.....	- 0° 44'	36° 51'	7	Missed.	Missed.	5, 35, 10.	5, 37, 63.	2565	Record unintelligible. Unsatisfactorily, through clouds. Planet not seen.
Cape Hatteras.....	- 1° 33'	35° 14'	7					3198	
Cape Lookout.....	- 0° 83'	34° 36'	7	Instruc-	tions re-	ceived too	late.	2073	
Wilmington.....	+ 1° 7'	34° 11'	7	Missed.	Missed.	5, 29, 32.	5, 36, 22.	2738	} 2048
Smithville.....	+ 0° 58'	33° 51'	7	Obscured.	Obscured.	5, 32* 15.	6, 34* 18.	2564	
Portsmouth, N. C.*	+ 0° 30'	36° 30'	7	*	*	*	*	2737	Should probably be 33m. & 36m.
Col. College, Col- orado Springs.....	+ 27° 46'	38° 50'	3	Missed.	Missed.	5, 32, 56-2.	5, 35, 40-3.	900 misc.	

* Portsmouth observed the contacts at "Watch Time," 10h. 6m. 30s.; 10h. 9m. 40s.; 5h. 38m. 50s.; 5h. 43m. 0s., respectively; but not having received Washington telegraphic time-signals, those times cannot be reduced to the common standard.

NOTES AND EXTRACTS.

The following remarks by Hon. A. H. STEPHENS, of Georgia, as published in the Congressional Record, of June 12th, will be of interest to the observers co-operating with the Signal Service. The subject of the Signal Service being under discussion, Mr. STEPHENS, of Georgia, said:

"I move to amend the pending paragraph by striking out \$325,000 and inserting \$350,000. I do not desire to detain the House at all, but I think this is one of the most important branches of the public service. I learn from General Myer, who is in charge of this service, that if \$350,000 be now appropriated he can extend this service very considerably, far beyond the ratio of the additional amount, compared with the \$300,000, the gross sum appropriated last year. He clearly explained how this could be done. I give an illustration which, I think, clearly presents his idea: It is just as if you had \$300,000 invested in a factory with the steam-power or water-power already supplied sufficient to turn four times the machinery in use, and all that would be necessary to add to its efficiency would be the cost of the bands to set additional necessary machinery in motion. Thus \$25,000 additional to the amount in the bill, he assured me, would enable him so to extend the utility of the system now in operation. The House can readily, I think, understand the illustration. He ran the system with \$300,000 last year, but with \$350,000 he could set on one-fourth more bands to other machinery, if you please. The committee have allowed \$25,000 additional. That is good as far as it goes, but \$25,000 more will double the efficiency of that increase.

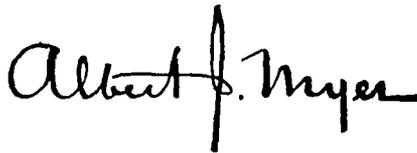
"I wish I had time to enlarge on this subject; but I do not wish to detain the committee. I have already said that, in my opinion, this is one of the most important branches of the public service. I would be willing to-day to vote \$500,000 for this service. I am perfectly familiar with the origin of this system of observation. I will be excused, I trust, for saying that the first weather reports ever made were all founded upon Mr. Espy's Philosophy of Storms. His theory was repudiated by American scientists generally. Professor Henry was one of few exceptions. He fared no better with the Royal Society in England. In France he met with more favor. The learned Faraday recommended it to favor. I became acquainted with him (Prof. Espy) here in 1852. I urged him to utilize his theory. He was in this employment at a salary of only \$2,000. He had not the means to command the telegraph. At first we got the editors of the *National Intelligencer* and the *Union*—or may be it was the *Constitution*; at any rate, the other leading paper in the city—to publish, without charge, short reports from distant parts of the country, such as telegraph reports would send. Those reports at first were very meagre. This was in 1854; and they were the first reports of this kind ever published in the world. From these beginnings sprang that grand system which now spans the continent, which is still in its infancy, and from which incalculable advantages to navigation, commerce and agriculture have already been secured, and grander developments are yet in store.

"If we could estimate the value of property saved by these signals during the last year, it would not be less than \$20,000,000. The value of human lives that have been thus saved, who can estimate? Then the advantages to the agricultural interests are incalculable. By an additional appropriation of \$25,000 General Myer, as he told me, will be enabled to enlarge the number of stations very greatly; I forget the exact number, but it largely increases the ratio of the amount of the sum necessary to run the system as it was last year.

"Mr. BANNING. This would give him twenty-five additional men.

"Mr. STEPHENS, of Georgia. And it extends the Signal Service so as greatly to increase its utility. This grand system is but in its infancy. Originating in this country, it has extended over the civilized world; and the extent to which it may yet be carried is, in my opinion, incalculable. Let us give this additional \$25,000. My word for it, the country will be benefited by it more than by the same amount expended in any other way."

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Brig. Gen. (Bot. Assg^d.) Chief Signal Officer, U. S. A.

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