

**REPORT ON THE DIFFERENCE OF  
LONGITUDE BETWEEN  
WASHINGTON AND ST. LOUIS; PP.  
6-39, REPORT ON OBSERVATION  
OF ENCKE'S COMET; PP. 8-47**

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**VARIOUS**

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WASHINGTON OBSERVATIONS FOR 1870.—APPENDIX I.

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BY

WILLIAM HARKNESS,

PROFESSOR OF MATHEMATICS, U. S. NAVY.

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PREPARED AT THE U. S. NAVAL OBSERVATORY

BY ORDER OF

REAR-ADMIRAL B. F. SANDS, U. S. N.,

SUPERINTENDENT.

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REPORT  
OF THE  
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WASHINGTON AND ST. LOUIS.

UNITED STATES NAVAL OBSERVATORY,  
*Washington, November 14, 1872.*

SIR: I have the honor to submit to you the following report on the determination of the difference of longitude between Washington and St. Louis, of which you directed me to take charge so far as this Observatory is concerned.

I.—INTRODUCTORY.

The operations described in this report were initiated by the United States Coast Survey, and the Observatory took part in them at the request of that institution, with the understanding that the observations at St. Louis should be made by Coast Survey officers, and those at Washington by Observatory officers; and that at the conclusion of the campaign complete copies of the observations and reductions should be exchanged for each other's use. The observations here were made by myself and Assistant Observer Edgar Frisby, and reduced entirely by me. The observations at St. Louis were made by Professor William Eimbeck, of the Coast Survey, and reduced by Professor R. Keith, of the Coast Survey; but, as the right ascensions which the latter gentleman adopted for some of the stars employed differed slightly from those used at this Observatory, before his work could be compared with my own it required a few small corrections, which have been introduced by Mr. Frisby and myself. The arrangements for the use of the Western Union Telegraph Company's lines between Washington and St. Louis were made by the officers of the Coast Survey, but I cannot refrain from expressing my thanks to Mr. M. Marean, the Western Union Company's electrical superintendent in this city, for his kindness in promptly making the necessary connections between the different wires at the main office here.

II.—DESCRIPTION OF OBSERVING-STATIONS.

The observing-station at Washington was the present site of the transit circle, which is 77.8 feet due west of the center of the dome of the Observatory. Its geographical position is:

Latitude, . . . . .  $+ 38^{\circ} 53' 38''.8$   
Longitude, west of Greenwich, . . . . .  $5^{\text{h}} 8^{\text{m}} 12''.0$

The station at St. Louis was in a small observatory erected on St. Charles street, between Seventeenth and Eighteenth streets, in the southwest corner of the Washington University grounds. These grounds, rectangular in form, are bounded on the north