Fall River Mass.
March 20th. /71.

Dear Sir -

About the first of September I was informed by Professor Peirce, Supt. of the U. S. Coast Survey, that my services would be required in making arrangements for observing the Total Eclipse in Spain in December.

The special observations assigned to me, were those of "precision", and so far as practicable, the determination of the Geographical position of our principal Eclipse Station in Spain -

As the Expedition was to be under your general direction, I embraced an early opportunity of conferring with you in regard to its organization and plans of operation.

Our information relating to the Meteorological conditions of the Winter climate of Southern Spain being quite limited, it was deemed advisable that I should, at an

early date, proceed to England, and there obtain such information on this subject as might be practicable, and which would prove of great service in selecting the most favorable localities for observing the different phases of the Eclipse.

During our stay in England, from the 1st until the 14th of November, I obtained much information in regard to the climate of Southern Spain from the Astronomer Royal at Greenwich, Lewis P. Casella Esq. and several other scientific gentlemen in London, to all of whom, I am indebted for many courteous attentions.

This information seemed to indicate that the probabilities for fair weather in Southern Spain, were more promising near the Atlantic Coast, than upon the shores of the Mediterranean; from the fact, that most of the storms in that section, came from the South and East.

Information on this

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and chief officers of the Steamers plying between Southampton and ports in the Mediterranean, and also from gentlemen who, for numerous years, had resided at Gibraltar, all of whom confirmed the information previously obtained, and which I am gratified to state, was also the opinion of Captain Cecilio Pujazon, Director of the Observatory at San Fernando, and Captain Jose S. Montojo, Chief of the Spanish Coast Survey, whom we had the pleasure of meeting at San Fernando early in December.

As the centre of the path of the "total Eclipse" would fall near the city of Jerez, which is located about twenty miles north easterly from Cadiz, and ten or fifteen miles from the Sea Coast, that point appeared to be one of the most favorable in Spain for observing the Eclipse, and accordingly you gave directions, that all the instruments and equipments of our Expedition, should be forwarded from Cadiz to Jerez.

The principal Eclipse Station

was located about a mile northwesterly from the city, on our Alice grove belonging to Messrs Davies who planted their grounds and buildings at the disposal of our party without consideration, and rendered invaluable assistance to all the members of the Expedition during our sojourn at Perth.

The requisite number, for constructing the small observatory, photographic room, etc, could not all once be obtained, and it was found necessary to have all our boards and couplings cut from three inch planks by manual labor. This, with much stormy weather, greatly retarded our preliminary preparations, nevertheless, the work was pressed forward as rapidly as possible, and at the urgent solicitations of Mr. Willard the photographic room and other preparations required by the photographic department were first completed.

On the 16th of December our small "field observatory" was nearly completed, and on that morning good observations for ascertaining the Grisa and Gertrude were made.

The weather on the two following

readings proved unfavorable, but on the readings of the 19th 20th and 21st observations were obtained, and the corrections and daily rates of the several chronometers were satisfactorily determined.

It may be remembered, that the instruments used in ascertaining the local time, were a forty six inch Transit, with an aperture of two and three fourths inches, (U. S. C. S. No. 5):— a Chronometer watch register, (U. S. C. S. No. 2):— and two Break circuit chronometers (Goodsteaver).—

The Transit instrument, was firmly adjusted upon two stone posts, each eight by twelve inches, and five and a half feet in length, which were sunk about three feet into the ground.

Meridian Line.— While the preliminary astronomical observations at the "Observation Station" were being made, a meridian line was established, from a series of observations upon Zenith and Circumpolar stars, with the forty six inch Transit U. S. C. S. No. 5.

The length of this line was 146.3 metres and the terminals were marked by stone posts, which were sunk about two and half feet into the