

TELEGRAPHIC ANNOUNCEMENTS OF ASTRONOMICAL
DISCOVERIES.

THE SMITHSONIAN INSTITUTION has completed arrangements for the immediate transmission by telegraph between Europe and America of accounts of astronomical discoveries, which, for the purpose of co-operative observation, require immediate announcement.

Among such discoveries are those of planets and comets, or of bodies which are generally so faint as not to be seen, except through the telescope; and which being in motion their place in the heavens must be made known to the distant observer before they so far change their position as not to be readily found. For this purpose the ordinary mail conveyance, requiring at least ten days, is too slow, since in that time the body will have so far changed its position as not to be found, except with great difficulty; and this change will become the greater if the body is a very faint one, for in that case it could only be discovered on a night free from moonlight, which of necessity, in ten or twelve days, must be followed by nights on which the sky is illuminated by the moon, and all attempts to discover the object would have to be postponed until the recurrence of a dark night. Indeed, even then the search often proves in vain; and it is not, in some cases, until after a set of approximate elements are calculated and transmitted, that the astronomers on the two sides of the Atlantic are able fully to co-operate with each other.

These difficulties were discussed by some of the principal astronomers of Europe, and an application was made to the Smithsonian Institution, through Dr. C. H. F. PETERS, of Hamilton College, New York, to remove them, by transmitting intelligence immediately through the Atlantic Telegraph Cable. For this purpose the Institution applied to the New York, Newfoundland and London Telegraph and to the Western Union Telegraph Companies to be allowed free transmission of this kind of intelligence, and have received through CYRUS W. FIELD, Esq., and WM. ORTON, Esq., with that liberality which has always attended applications of a similar character by the Institution, the free use of all the lines of these companies for the object in question.

Similar privileges have been granted in Europe for transmitting the intelligence between some of the principal centres of astronomical research in Europe and the eastern ends of the Atlantic cables.

It is not intended to restrict the transmission of intelligence to the discovery of planets and comets, but also to include that of any remarkable solar phenomenon which may suddenly present itself in Europe, and of which observations in America may be practicable for several hours after the sun has set to the European observer; also the sudden outburst of a star like that in the "Crown" in 1866, together with unexpected showers of shooting-stars, etc.

To carry out the proposition the following arrangements have been adopted:

I.

Centre of communication in the United States—

1. The Smithsonian Institution. JOSEPH HENRY, Director.

Centres of communication in Europe—

1. Greenwich Observatory. Sir GEORGE B. AIRY, Astronomer Royal.
2. Paris Observatory. M. LEVERRIER, Director.
3. Berlin Observatory. Prof. W. FOERSTER, Director.
4. Vienna Observatory, Academy of Sciences. Prof. VON LIT-TROW, Director.

II.

Telegrams received at the Smithsonian Institution from observers in the United States will be forwarded immediately by Atlantic Cable to Greenwich, Paris, Berlin, and Vienna, and thence by telegraph to other observatories in Europe.

III.

Discoveries made in Europe of new comets, planets, etc., will be announced without delay from Greenwich, Paris, Berlin, or Vienna by Atlantic Cable to the Smithsonian Institution, and thence by telegraph to American observatories and the Associated Press.

IV.

The telegraphic dispatch announcing a discovery should be as brief as

possible, and after conference with astronomers the following form has been agreed upon :

- After the single word "PLANET" (or "COMET") is given,
 (1st) its Right Ascension in time, hours and minutes only; next,
 separated by the word
 (2d) *north* or *south*, is given its
 (3d) Declination to the nearest minute.

In the case of a *planet*, in addition to the foregoing follows finally the magnitude expressed by the nearest ordinal number. In the case of a *comet* follows the word *bright* or *faint*, and it is well to add the direction of motion, requiring at the utmost two words combined, of S. W. N. E.; and also, if rapid, the quantity of its daily motion, the latter to the nearest whole number in degrees. For example, the following dispatch, "Planet, twenty-three, thirty-five north twenty-one forty-six eleventh" would be interpreted: A new planet is discovered in $23^{\text{h}} 35^{\text{m}}$ of right ascension and $+ 21^{\circ} 46'$ of declination; 11th magnitude.

Or a dispatch like the following: "Comet twenty-two forty-three north sixty-five thirty-one bright southeast three" would announce the discovery of a bright comet in right ascension = $22^{\text{h}} 43^{\text{m}}$; declination $+ 65^{\circ} 31'$; the declination decreasing, right ascension increasing, daily motion about three degrees.

The preceding examples contain the greatest number of words required for any one dispatch, if composed according to the rule adopted. Usually they will not exceed ten. Sometimes, however, the dispatch thus composed would become equivocal, and it has therefore been established as an additional rule that the number expressing the minutes of right ascension or declination shall always be expressed in words, even when zero occurs. Therefore, $23^{\text{h}} 0^{\text{m}}$ should be written "twenty-three nought," while "twenty three" will be understood to mean $20^{\text{h}} 3^{\text{m}}$. In a similar way 0^{h} of Right Ascension or 0° of declination are to be distinctly expressed by the word "*nought*."

The right ascension and declination in the dispatch will be understood to give the position (by proper motion approximately reduced) for the *midnight following* the date of the dispatch: Washington time for American discoveries, Greenwich time for European.

V.

Since, in conformity with the preceding article, only an approximate estimate of a later position, and not that of the first observation itself, is given, the dispatch is not to be considered as a document for deciding the question of priority of discovery.

We trust the time is not distant when, with the completion of a telegraphic cable between Japan and the United States, this system will be extended to the eastern part of Asia, and the astronomers who are now in process of education in the United States, both from China and Japan, will be able to participate in the facilities thus offered for co-operation in the advance of astronomy. In connection with the publication of this circular, the National Academy of Sciences, at its meeting on the 15th of April, adopted a resolution recommending that amateur astronomers devote a portion of their time to sweeping the sky for the discovery of comets.

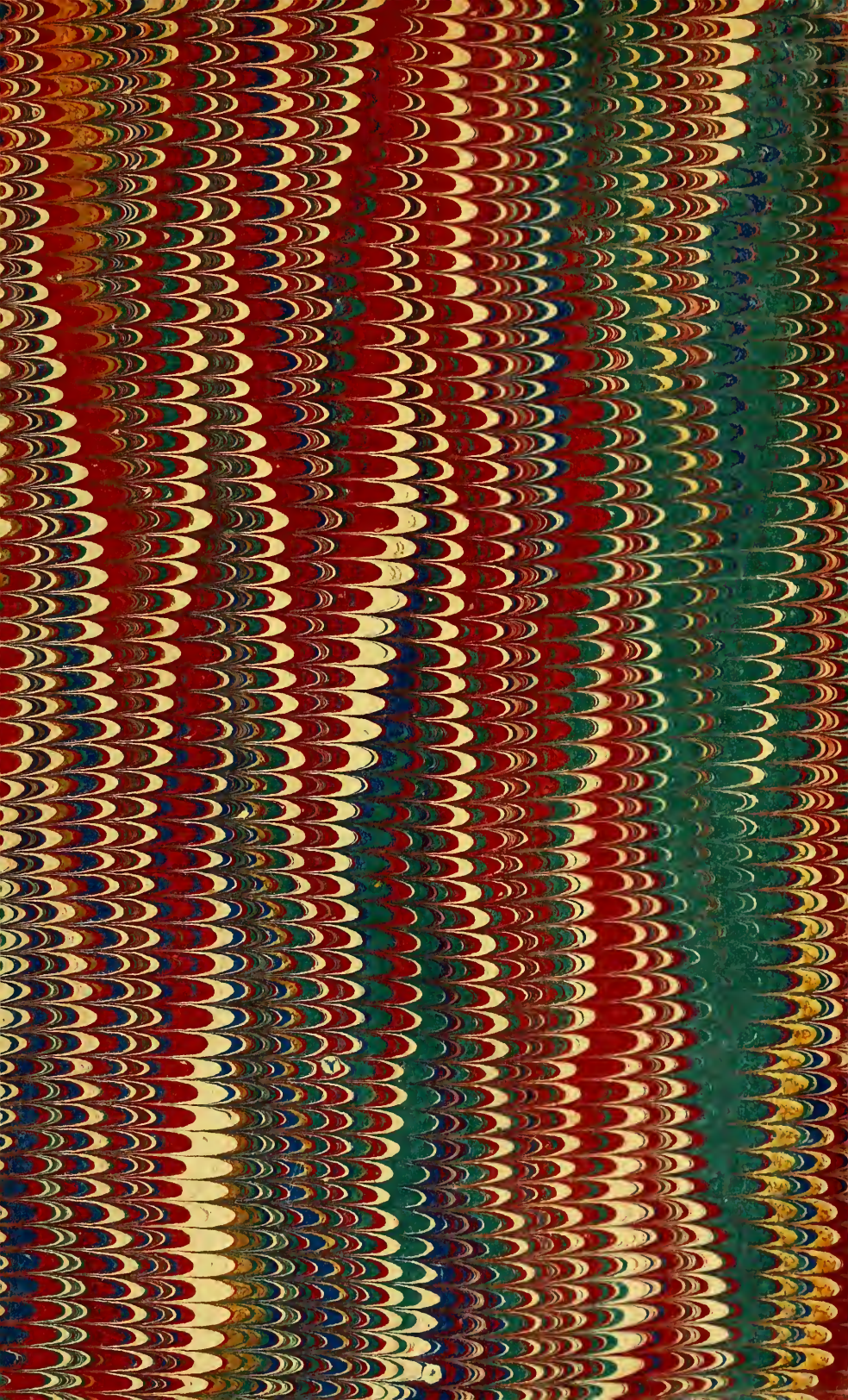
JOSEPH HENRY,

Secretary Smithsonian Institution.

SMITHSONIAN INSTITUTION,

Washington, D. C., May, 1873.





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