lowing the sinuosities of the bright streak; then a dark band, parallel to, and following, every irregularity of the bright streak; and then nearly another eighth of an inch of ribbon-like light. In another picture a very thin beaded flash has a precisely similar beaded streak, rather fainter than itself, running parallel to it, at a distance of about a sixteenth of an inch on the paper.

It might be suggested that the second fainter image was formed by internal reflection from the back surface of the glass plate; but it should be noticed that sometimes very thin flashes, which are not particularly bright, are so duplicated.

A far more probable cause is the double image formed by the internal reflections of doublet photographic lenses. All doublets are essentially two meniscus lenses, mounted with their concave surfaces facing one another. The greater portion of a strong point of light, passing through both lenses, forms the usual image on the plate; but a smaller portion is reflected from the concave surface of the rear meniscus on to the concave surface of the front lens, and from thence back through the rear lens to the sensitive plate. The amount of displacement depends on the angle formed between the direction of the bright point and the optical axis of the lens.

M. C. Moussette of Paris showed some photographs of the sun in which this double reflection image was very conspicuous; and there is not the slightest doubt that some lightning-flashes are bright enough to give this secondary image. M. Moussette also showed the photograph of a flash in which the centre of the flash was whitest, with a darker edge on either side. This may have been produced either by double reflection from the lens, or by internal reflection from the back of the glass plate. Two bands of light — the primary and secondary images — slightly overlapping would form an extra bright band where the overlap took place.

In the majority of cases, the folds of the ribbon formation are most obvious when the course of the flash is square to the width of the folds, and they are but slightly pronounced when in a line with them. This would suggest the idea of a shaking of the camera in the direction of the folds of the ribbon; but, if this is so, the duration of a lightning-flash must be much longer than is usually supposed.

The committee hope to have the opportunity of making some experiments on the photography of sparks from a coil or electrical influence machine. In the mean time they defer expressing an opinion as to whether lightning ever really takes a ribbon-like form till further evidence is available, but would point out that both sources of error — the duplication of the image either by reflection inside the lens, or by reflection from the back of the plate — would be avoided by the use of single lenses, and of paper instead of glass supported films. The committee also forbear for the present from publishing a reproduction of a ribbon-like flash, till they are satisfied that such a form of lightning really exists, and that the whole appearance is not due to photographic causes.

In one picture, sent by Mr. Shepherd, there are five ordinary white flashes, and one dark streak of precisely the same character as the bright streaks. M. Moussette has suggested that this may be the result of a very bright flash, so over-exposing the plate as to produce the well-known inversion of a negative by over-exposure, as when the ball of the sun appears black on the positive print, instead of white. This is no doubt a possible explanation; but the committee would like further examples of this same appearance of dark flashes before expressing an opinion on the matter.

The committee call attention to the fact that there is not the slightest evidence in the photographs of lightning-flashes of that angular zigzag or forked form so commonly seen in pictures.

In connection with this, they would call attention to a remarkable paper, communicated to the British Association in 1856, by James Nasmyth, F.R.S. Mr. Nasmyth says that he has never seen forked lightning of the angular zigzag form, and asserts that "the true natural form of a primitive flash of lightning appears to Mr. Nasmyth to be more correctly represented by an intensely crooked line, and on several occasions he has observed it to assume the forked or branched form, but never the zigzag dovetail."

The Council of the Royal Meteorological Society are desirous of obtaining more photographs of flashes of lightning, as they believe that a great deal of research on this subject can only be pursued by means of the camera, and would esteem it a great favor if any one would give them any assistance in this matter, either by sending them copies of any photographs of flashes of lightning that may have already been taken, or by endeavoring to procure them, or to interest others in so doing.

It may perhaps be well to mention that the photography of lightning does not present any particular difficulties. If a rapid plate, and an ordinary rapid lens with full aperture, be left uncovered for a short time at night during a thunder-storm, flashes of lightning will, after development, be found in some cases to have impressed themselves upon the plate. The only difficulty is the uncertainty whether any particular flash will happen to have been in the field of view. A rapid single lens is much more suitable than a rapid doublet; and it is believed that films on paper would effectually prevent reflection from the back.

The focus should be that for a distant object; and, if possible, some point of landscape should be included to give the position of the horizon. If the latter is impossible, then the top of the picture should be distinctly marked. Any additional information as to the time, direction in which the camera was pointed, and the state of the weather, would be very desirable. The council hope, now that the thunder-storm season is approaching, many photographers, both amateur and professional, may be found willing to take up this interesting branch of their art. A. F. N.

New York, July 2.

The Name of America.

WILL you permit us to correct some erroneous ideas in your note on our work? Your reviewer, referring to the origin of the name 'America,' says that our account derives it from a Peruvian tribe, although the name was in use long before Peru was discovered. This, no doubt, is an unintentional misrepresentation, as no such tribe ever existed, the name 'Peru' having been given by the Spaniards to the kingdom of the Aymaras of Aymaraca, whose subjects, according to some authors, were also the chief race in the West Indies. Your reviewer also wonders if the author ever knew that the Indies was the recognized Spanish name of the continent during the age of its discovery.

It seems to us incredible that any one could make such a remark, seeing that every schoolboy knows the story of the naming of the West Indies, while our work refers over and over again to the fact that the continent was officially known in Spain as the Indias, — a general term including the East and West Indies, which contained a large number of countries.

When a work bases a discovery on the evidence of standard authorities, the impartial critic who is not convinced will point out where the evidence is defective. This is the law of logic, which a scholar cannot ignore. But when an author who translates his original evidence from Italian, Spanish, French, German, and Latin, finds himself designated under the clownish epithets of 'half-learned wanderers,' 'happy enthusiasts,' 'erratic followers,' etc., we will leave it to the public to say whether that is an impartial, fair, or scholarly critique, or whether it does not look like the work of some little publisher, whose history — always for sale — tells another story.

The great Baron de Humboldt says that Amaraca-pana was the first Spanish settlement on the mainland. This was in 1502, five years before the pamphlet of St. Die proposed the name of 'Amerigo Vespucci,' who sailed into Amaraca-pana on his first visit, under command of Ojeda, to the New World, and which was the only place where they were favorably received, and treated as if they were angels. So says the royal Spanish historian Herrara, in quoting Ojeda himself; and the Isle of Tamaragua, on the first standard map of the continent, published in 1508, was evidently intended for Amaraca or America, which was long considered an isle. Here is positive evidence, by well-known authorities; and whoever is not convinced should point to evidence of a better explanation, or show cause why ours is insufficient; doing so in the language — to use your reviewer's own words — of a "sober historian." T. DE ST. BRIS.

New York, June 30.

[Our correspondent has evidently failed to read the review carefully. — ED.]