

FIG. 2.—PHOTOGRAPH OF LIGHTNING, TAKEN IN PARIS, JULY 22, 1888, BY FELIX BURLE.

1883 ; and his observation has been repeatedly confirmed by subsequent experimenters.

The two lightning pictures shown herewith, and which are reproduced from photographs, exhibit the total absence of the zigzag character most convincingly. We have had the opportunity of examining perhaps a score of similar pictures of the same character, and in none of them does the zigzag appearance exhibit itself. The photographic plate records immeasurably more minute details than it is possible for the human eye to take cognizance of in the infinitesimal fraction of time of its duration, but invariably records it as a wavy line, with more or less abundant branches and ramifications of the same character.

The picture shown in Fig. 1 is, perhaps, the most remarkable lightning photograph yet secured. It was taken by A. H. Binden, at Wakefield, Mass., on Saturday, June 23rd, 1888, between 8 and 9 o'clock in the evening, during the occurrence of a thunder.storm.

The other picture (Fig. 2), which is scarcely less remarkable, is reproduced from a photograph obtained in Paris during a storm, on Sunday, July 22nd, 1888, at 10 o'clock at night. It was taken by Felix Burle.—Manufacturer and Builder.

ISOTHERMAL WELLS;

OR, HOW TO OFTAIN COOL DRINKING WATER WITHOUT THE USE OF ICE.

BY HENRY D. PLIMSOLL.

During several years, it was the good fortune of the writer to visit the home of a friend whose residence was some few miles distant from New York, and it was his custom when there, to rise early for a stroll before breakfast, and also to draw for himself a draught of refreshingly-cool water from a near-by well.

On one occasion, however, in the winter, when the thermometer indicated a temperature near zero, instead of the "inineties," as on previous occasions, he stopped to take a draught, and found the water by comparison almost warm. For a moment he was puzzled, until he reflected that he was face to face with one of those phenomena of nature of which previously he had merely read in his studies; in other words, that there was not any change in the temperature of the water, as between summer and winter, but in the air by which he was surrounded.

This uniformity of the temperature of the water below the surface of the earth is known as "isothermal" (equal heat), and may be more properly described as follows: In latitude 40 degrees, the isothermal line is at a distance from the earth's surface, varying from 40 to 60 feet, and along this line the temperature is about 50 degrees summer and winter. Below this line the temperature rises 1 degree for about 50 feet in depth. At twenty feet below the earth's surface, the average summer temperature varies from 10 to 15 degrees lower than the average summer temperature of the surface.

During the past summer, the writer visited a friend whose residence was also a few miles outside the limits of the city, and the conversation, turning upon the former luxuries that,

