

stroyed ; that we will not permit any such negatives to be used in any other publication whatsoever.' The lavish illustration of this Exposition in papers with a circulation such as that of the *Scientific American* gives to an enterprise like this an amount of free advertising and indorsement that it could scarcely get in any other way, and surely the very least return that the directors could make would be to give the illustrated press every possible facility and assistance in their work of illustration. It seems to us that the mere promptings of courtesy would suggest such a course. Considered merely from the standpoint of finance, the policy is shortsighted, and defeats the very end at which it aims. At best the revenue derived from this concession can be but limited ; whereas the free advertisement, both pictorial and written, by illustrated journals such as our own, would interest the public, and undoubtedly bring many thousands to the fair who otherwise, but for the suggestion, would stay away. It is evident that the revenue derived from such visitors would far exceed the paltry sum which this vexatious and ill-conceived concession will bring to the Exposition exchequer."

QUICK AS LIGHTNING! QUICKER THAN SOUND!

One of the most marvellous applications of the art of photography to the development of scientific facts was recently made by Mr. George G. Rockwood, of New York, as an expert in a legal contest. The question

to be decided was whether there was a break in the contact in a telephone wire when in use. One party claimed that there was a break in the continuity of the wires, or the two points which were brought together near the diaphragm. Now, the waves of sound produced by the human voice vary from four to five hundred per second up to thousands. Therefore it requires a photograph of those points which should be taken quicker than the waves of sound that pass upon the wire. Deciding upon a certain pitch, which was middle "G" and registering 750 vibrations per second, he photographed these points by the aid of a flash from the Leyden jar, which, according to the best authorities, was a twenty-four thousandth part of a second. So focusing his instrument by daylight, he waited until nearly midnight ; he then caused a trained vocalist to sing into the telephone upon the tone "G," setting it in vibration. He then made a series of photographs by repeated flashes from the Leyden jar, recording upon the plates various breaks in the two points of the wire, demonstrating to an absolute certainty by these various photographs that there was a break in the contact of the wires. Mr. Rockwood is the only one who has ever succeeded in this scientific experiment.

A GOOD BLACK VARNISH.—Dissolve 23 parts shellac in a hot solution of 8 parts of borax in 125 parts of water, gradually stirring in sufficient lamp-black until depth of color desired is secured.