

tion of the retinal image shows that it is inverted and transposed."

The experiments suggested here by Hartridge are well enough known, but his summary calls definitely to mind the fact that it is by the use of one or the other of these experiments that demonstration of the actual position and of the inversion of the image in the eye of a mammal must usually be presented to classes of students in physiology, whenever direct evidence is given at all. Difficulties often arise in carrying out either experiment. The eye of an albino as large as a rabbit is very often not easily obtainable. Since the eye of such an "ordinary animal" as the pig may almost always be had from the butcher or the meat market so soon after the animal has been killed that the dioptrical parts are still transparent, the ordinary eye would seem to be the obvious one to use for such demonstrations. As a matter of fact, however, the preparation of the demonstration with a pigment-bearing eye is rendered always somewhat uncertain, on account of the difficulty of removing the choroid and the retinal pigment without puncturing the retina and thus destroying its value as a screen on which to see the image. I have found it easy to complete the demonstration of the inverted image in such cases by carefully cutting out a little window of about 5 mm. diameter in the retina and then pressing over this window until it sticks fast against the vitreous humor a small piece of thin paraffine paper. Standing in the place of the retina, this paper forms a very good screen upon which to receive the image.

An incandescent electric light forms an excellent *object* for use in the demonstration, which is always an interesting one to students and certainly quite conclusive, as Hartridge says.

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## QUOTATIONS

### SPIRIT PHOTOGRAPHS

THERE is a society or club known as the Magic Circle which consists of professional conjurers, but admits a few approved amateurs, to the kindness of one of whom, a dis-

tinguished member of the medical profession, we are indebted for a copy of a report, dated May 31, issued by the Occult Committee of the Circle. This committee, which consists of expert conjurers, has been appointed to investigate what are called "spiritualistic phenomena," and at the suggestion of Sir Arthur Conan Doyle appears to have turned its attention first to spirit photographs. The report deals with the inquiries made by the committee into the claims of two people—a man and a woman—who it was alleged were producing spirit photographs of a remarkable nature in unopened packets of photographic plates. Neither of the mediums came out of the ordeal unscathed. When a fraud-proof packet was sent to the male operator he obtained no results. He stated that the packet had twice been "held," but that the "usual sensation" had not been felt. As soon, however, as a packet that could be tampered with was submitted, a "psychic extra," as it appears to be called, was obtained on one of the plates. Unfortunately for the performer the conjurers had tampered with the packet first. In addition to other tests, a straight line of red varnish (invisible in the red light of the dark room) had been painted across the top left side of the edge of the stack of six plates. On the return of the packet by the medium three of the red marks were found at the bottom, showing that these plates had been reversed. When the operator was asked for an assurance that the packet had really been returned unopened, he replied in the affirmative. He said that it was quite usual to get adverse remarks from persons who did not understand, and that such remarks were not worthy of notice. Shall we admire the power of spirits, or deplore the frailty of human nature? The lady medium was vouched for by Mr. and Mrs. Hewat McKenzie, who conduct an institution known as the British College of Psychic Science. Three sittings were held with this medium. First, two members of the committee secured a private sitting. It was required that the plates, enclosed in a sealed packet, should be sent for "magnetization" some days in advance, and at the sitting these plates were exposed, and on development "extras" were on

most of them. On one a face was visible in the midst of a cotton-wool effect; the others had crude markings, ascribed by the medium to unformed "ectoplasm" or to "spirit lights." As will be observed, she had acquired some of the latest spiritualistic terminology. At the second sitting, arranged by Mrs. McKenzie, a sealed box of six plates, forwarded in accordance with instructions, was produced by the medium. The box was opened and the plates transferred to metal dark slides; a service was then held, hymns being sung, and the Lord's Prayer recited. The plates were then exposed and an "extra" appeared on one of them—on No. 1 plate—which the investigators satisfied themselves had been substituted for the first plate of the original package. The medium had by this time become suspicious and nervous, and in fact she was not equal to holding her own with professional conjurers. She, however, consented to a third sitting, and for this an unopened box of unprepared plates was sent. It therefore became necessary that the plates should be secretly marked before being placed in the dark slides. One of the investigators, having placed the open stack of plates before the medium under the ruby light, secretly attached a small pad of pink material, chemically prepared, to the ball of his right thumb, and in handing the plates one by one to the medium an invisible mark was impressed on each. The medium gathered up the slides, and going into the studio took them to a small table on which her handbag was standing. The ostensible object was to obtain the hymn-books for the service, but the move being anticipated, the members of the deputation placed themselves in convenient positions to observe her actions. The hand holding the slides was seen to be placed inside the bag; one slide was dropped into a side pocket and a duplicate slide picked up with the hymn-books. Four plates were developed, and on one which did not show the mark a "spirit extra" appeared. All this may be amusing to the cynic, but the conclusions the committee of the Magic Circle draw are that although spirit photographers, like conjurers, meet changing conditions by the adoption of new methods, there are at present at least two methods in general use by some,

at least, of the mediums who devote themselves to obtaining photographic "extras." In the one case, when the plates are accessible before the sitting, the spirit form is impressed, in advance, by contact with a selected transparency. In the other, when the packet is not available beforehand, the exchange for a prepared plate is made by a subtle move after the original plates have been loaded into the dark slides. The committee assert that they have never imposed a test which would not have served to demonstrate the straightforwardness and honesty of the medium, and conclude with a promise to extend to any honest medium fair, impartial and courteous treatment, and to give him a free hand to carry out the experiment in his own way.—*British Medical Journal*.

### SCIENTIFIC BOOKS

*The Evolution of Climates.* By MARSDEN MANSON. 1922. Published by the author.

DR. MANSON has been long and widely known as a student of geologic climates. When his attention was first directed to the subject the currently accepted theory—which indeed still persists—postulated the solar control of terrestrial temperatures similar to that which now dominates such temperatures, but it early became apparent that not all of the problems presented could be satisfactorily solved under this assumption. For instance, the non-zonal distribution of climates such as certainly obtained during at least the major part of pre-Pleistocene time, the frequent recurrence of mild temperatures in polar areas, glaciation at or near sea level in and adjacent to the tropics, etc., have not been satisfactorily explained on the basis of exclusive solar control. This leads to the postulate of a dual heat supply—that is a part derived from the earth itself and a part from the sun. The manner in which this postulate works out and the solution it seems to afford to the various problems involved is set forth in the present paper.

In 1903 Dr. Manson published a preliminary paper under the same title as the present one, in which he reviewed the various theories that have been proposed to account for the origin and distribution of climatic differences, and