SCIENCE

FRIDAY, DECEMBER 16, 1887.

THE AMERICAN SOCIETY FOR PSYCHICAL RESEARCH evidently finds difficulty in securing haunted houses to be submitted to their searching investigations. Professor Royce, who is the chairman of the committee on apparitions and haunted houses, jocularly referred to this difficulty in his report at the recent meeting of the society in Boston. As Professor Royce said, the name, suggesting as it does that the time of the committee is mainly spent in visiting haunted houses and ghost-ridden graveyards, does not describe its actual office. The committee has often expressed its willingness to visit haunted houses, or to pass the night in any promising place, for the sake of seeing, explaining, or of converting from the error of its ways, any genuine ghost in the city or in the neighborhood of Boston. The committee has heard of several houses that once were believed to be haunted, but in no case has the present condition of these houses warranted any interference on the committee's part. The phenomena have in all cases so far reported ceased for some time, usually for many years. A more hopeful field is in the direction of tracing some coincidence between a dream or presentiment and its supposed verification by events afterwards, but even in this direction the results are so scattering as hardly to justify the belief in any special significance in the few coincidences which have been traced.

AMERICAN PUBLIC HEALTH ASSOCIATION.[1]

ONE of the most original papers presented at the recent meeting of the American Public Health Association was by Dr. E. M. Hunt, secretary of the New Jersey State Board of Health, on the origin of some diseases. It was as follows: —

[PAPER BY DR. E. M. HUNT.]

The class of diseases variously known as contagious, transmissible, or communicable has ever attracted the most earnest consideration of medical men and of all sanitarians. By the quickness and often obscurity of their invasion, by the malignant type they too often exhibit, and by the large areas over which they extend, they not only make large demands upon the skill of the profession, but arrest the attention of all mankind.

The study of epidemiology has enlarged their numbers, and now shows us that many diseases once regarded as constitutional or septic are in reality specific and pathogenic or mostly parasitic.

The prevention and limitation of this class of maladies must ever, therefore, largely occupy the attention of all of those who study the causes, the courses, and the results of disease.

The study of their etiology is always a fundamental inquiry. While to a degree it is possible to treat a disease skilfully without knowing its causes, it is always more satisfactory and generally more skilful to know something of the causes.

But what do we mean by etiology or causes? Surely not always, not generally, the beginning or efficient or final cause. Professor Semmola of Naples, at the recent meeting of the Medical Congress at Washington, may have startled some by these words: "Medicine, like all other sciences, never demands why, well knowing that the first causes of things are inaccessible, and that to every scientist it should suffice to know in which physical and chemical conditions this or that phenomenon manifests itself, so that he can modify and govern it at his will." This is true. The best that we can generally hope is to find the conditions, physical, chemical, or biological, in which phenomena manifest themselves. The word 'cause' is often in the same sentence used in two or three different senses. In our etiology we must remember that by 'cause' we mean mostly the 'conditions under which phenomena manifest themselves;' also that these conditions (thus called causes) mean the modifying influences present in the host or person, and the modifying influences of surroundings, much oftener than they mean any thing in the specific entity which we are so often calling the germ, and then calling it the cause.

While reaching back toward the beginning, even though we seldom reach the starting-point, we do come to see how it is true of every disease, as of every living thing, that it must have had a beginning. It is not a mere platitude to say that there was a day when the first case of small-pox occurred.

Nor does it necessarily belong to the sphere either of creation or spontaneous generation. A case of some new disease may put in an appearance, as did cholera on the Ganges, or a case of a known and existing disease may happen that is not derived from another precisely like it, but occurs because analogous conditions to those which gave rise to the first case of the kind have again occurred, and produced a pronounced deviation.

So it is possible that at the same time, as to some one disease, we may have cases of a communicable disease which have arisen from previous cases, and other cases that have resulted from a combination of influences or conditions such as gave rise to the first case. There are at least two reasons why the old dictum of *omne vivum ab ovo* cannot now be applied with the precision or with the finality with which it used to be quoted.

I. There is such a thing as evolution, which, while recognizing an original type, also recognizes departures from the normal which may have come to be so representative and paramount as to constitute newness in all essential particulars. Since we have come to recognize that many diseases are but developments and cultures of microphytic or microbic life, we very appropriately turn to the facts of botany, not only for illustration, but for verification of our theories. And what a change has taken place in its facts since the days of Linnæus! We no longer cling to the divisions of orders, genera, and species so closely laid down by him. We recognize two forces, — nature or heredity, and environment. A plant inherits a likeness which it tends to retain, but it is often so modified by environment as greatly to change, and so sometimes as even to lose, its identity. Environment comes to predominate over heredity. The horticulturist often takes a plant which he has found to be subject to variations, and fixes and perfects it in some one of them by cultivation.

Professor Huxley has recently contributed to the Linnæan Society a paper on the classification of gentians, in which he claims that gentians are all specialized; that is, become gentians from some other form. Permanency of type has so many exceptions, that variations of type, and the power to give fixity to some of these variations by means of cultivation or environment, must be accepted as a doctrine and a fact. Species and genera have variations, sports, modifications not dreamed of by the earlier botanists. Some of these departures are so marked and so predominant as to obscure the relationship and so far ignore it as to have individuality of their own. If, as we know, cultivation or surroundings can change a poisonous plant into a mild one, or can wholly modify it, it is not remarkable that a microphytic disease should lose its apparent identity, and at length in a new culture-medium, or under special conditions, become specialized. It is a law abundantly illustrated in the vegetable world, that environment causes variations, and that some of these variations tend to fixity of type, while others do not. All the wonderful facts of evolution show full well that we may in this way have what in respect of symptoms and treatment is a new disease. Yet it is not a *de novo* origin in an absolute sense, or, if practically *de novo*, it is not *de nihilo*. It is, that a

[1] Continued from *Science* of Dec. 9.