injury to both of the standards was the loss of the left-hand gold stud, but whether this was caused by the action of the flames or otherwise is not known. When the Palace of Westminster was rebuilt the bars were deposited in the Journal Office, and from that time until recently they seem to have been wholly lost sight of. Some time ago it happened to be stated in the lobby that one of the duties of the speaker was to inspect once in every twenty years the standards immured in the sill of the lower waiting hall. Inquiries at the standards department of the Board of Trade elicited the fact that, so far from any statutory requirement being imposed upon the speaker in the direction indicated, Section 35 of the Weights and Measures Act, 1878, which provides for the care and restoration of the parliamentary copies of the imperial standards, specially exempts the walled-up copy from periodical inspection and comparison. It was found, however, that in 1871 Speaker Denison took cognizance of the standards; and this fact was brought to the speaker's notice. While inquiries were being made as to Speaker Denison's inspection, an official in the Journal Office mentioned that when the contents of that office were recently being transferred to the new wing he had observed among the lumber some old weights and measures. These proved to be the missing standards. They were examined by Mr. Chaney, the superintendent of weights and measures.

The most important of the standards thus rescued from oblivion are the yard measures constructed by Bird in 1758 and 1760. The former was copied from a bar in the possession of the Royal Society, which was itself a copy of a standard preserved in the Tower; and the second was constructed under the directions of a committee of the House of Commons from the 1758 standard. "Each of these two standard yards consisted of a solid brass bar 1.05 inches square in section and 39.73 inches long. Near each end of the upper surface gold pins or studs 0.1 of an inch in diameter were inserted, and points or dots were marked upon the gold to determine the length of the yard." The other standards in the custody of the Journal Office are two brass rods answering the description of the old exchequer yard, and four weights supposed to be certain of the "copies, model, patterns, and multiples" ordered by the House on May 21, 1760, "to be locked up by the clerk and kept by him." The most important weight — the standard troy pound — is not among those now brought to light.

INHALATIONS IN THE TREATMENT OF PHTHISIS.[1]

THE history of inhalations in the treatment of phthisis is not an encouraging one. They have been widely employed and hailed as the most rational and effective mode of assailing the disease at its seat. But the results of this method of medication have not been commensurate with the expectations excited by it, and we imagine that of late it has been gradually falling into disfavor and disuse. Several potent objections have been urged against the method. First, it has been denied that the various antiseptic and germicide agents applied by inhalation succeed even in reaching the seat of the disease — viz., the submucus tissue of the bronchial mucus membrane — but are arrested often in the pharynx, oftener still in the larynx. Then it has been shown that, even assuming that the medicated atmosphere produced by one of the ordinary inhalers really reaches the seat of the disease, its impregnation with carbolic acid, creosote, thymol, or other such agent, is so exceedingly feeble as to leave no solid ground for anticipating serious benefit from its use. Further, many authorities urge with much force that if the phthisical patient be taught to rely upon inhalations the inevitable result will be a life of indoor invalidism and constant tinkering with his inhalers, a mode of existence sure to effect an amount of mischief more than sufficient to counterbalance the problematical advantages of inhalation.

There is much weight in the above objections, and until they can be satisfactorily met, the place of inhalations in the therapeutics of phthisis can not be an important one. Professor Germain-Sée, in a recent paper presented to the French Academy of Medicine, has sought to overcome the first of the objections to which we have made allusion, viz., the failure of the medicated atmosphere to reach the actual seat of the disease. He recalls the researches made at various times into the action of creosote upon tuberculosis. This drug has had a remarkable and somewhat checkered career. Discovered in 1832 by Reichenbach, its true composition was first made known in 1853 by Gorup-Besanez, who showed that it consisted mainly of two substances, Gaïacol and créosol. It was in 1877 that Bouchard and Gimbert conceived the idea of its possible utility in phthisis, and made trial of it both *per primam viam* and hypodermically. Later, Fraenzel and Sommerbrodt in Germany made extensive trial of creosote, and reported benefit from its use.

Guttmann, in his researches in the year 1889, found that the saturation of the system with creosote arrested the development of the bacilli, and suggested that the best means of bringing the system thoroughly under the influence of the drug would be to submit the patient to an atmosphere saturated with creosote under pressure. This is also the method recommended by Professor Germain-Sée. He describes it as follows: "The patient is shut up in a metal chamber, hermetically closed, and compressed air, passed through creosote and eucalyptol, is made to enter slowly. The air in passing through these liquids is saturated, and arrives charged with a large quantity of these medicaments. The pressure must be slowly increased, and should not exceed a half atmosphere. The speed of delivery of the air saturated with the medicated vapors is from fifteen to twenty cubic metres per hour for a space of five cubic metres of capacity. The length of time the patient remains in the chamber is usually two hours, sometimes three or more, and no inconvenience ensues as the result of this procedure. The inhalations are made daily or more frequently."

Professor Germain-Sée has tried this method in twelve cases, of which one was a case of apical bronchitis, a second was a case of fœtid bronchitis, and the remaining ten were genuine cases of tubercular phthisis, all of which, with one exception, had arrived at the stage of softening. The results obtained appear to be surprising, a marked amelioration being in most cases observable, not only in the amount and character of the expectoration, but in the general constitutional condition, and in some cases, though not in all, a corresponding improvement in the physical signs. Contrary to what might seem probable, hæmoptysis was not only not excited, but seemed controlled by this mode of treatment, and the appetite and digestion were improved rather than otherwise. Hectic fever was also diminished. Naturally, the least improvement was manifested in the physical signs, but Professor Germain Sée is inclined to hope that by this new method the disease, if not cured, may at least be arrested, and further progress prevented. Benefit was obtained in some cases in a fortnight, in others the treatment was kept up for three months. Very great benefit was obtained in some cases of scrofulous enlargement of the cervical glands.

At the present time it is hardly necessary to emphasize the necessity for extreme caution in admitting the claims of any new alleged remedy for tuberculosis, and the evidence before us in the present case, although interesting, falls immeasurably short of demonstration. Further trials will no doubt be made, and the results will be awaited with attention. One benefit, somewhat negative in character, may even now be derived from Professor Germain-Sée's researches, viz., the realization of the utter futility of the methods of inhalation so long adopted, and the uselessness of the inhalers now commonly employed. If inhalation is ever to become a valuable agent in therapeutics, it will probably be by the adoption of some plan analogous to that sketched above, and, according to our present knowledge, the most hopeful medicament with which to experiment would seem to be creosote.

[1] From the London Lancet.

LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

Beech Trees and Lightning.

THE question was raised in *Science* a short time ago as to whether beech trees were ever struck by lightning. During a severe thunder-storm which passed over here this afternoon a beech tree

within fifty yards of the house was struck, the upper part of the trunk and several of the branches to the end being stripped of their bark, but the lower part of the trunk showing no sign of passage of the lightning. THOMAS DARLEY.

York, England, July 21.

That Hessian Fly Parasite.

THE item concerning the introduction of a European parasite of the Hessian-fly into this State which is going the rounds of the press, and which I notice you have copied in your issue of July 17, was unauthorized, and is in some respects inaccurate.

The parasites were not obtained originally from the Smithsonian Institution, but were sent me by Dr. Riley, the entomologist of the United States Department of Agriculture, several other entomologists, as I understand, having received them at the same time. This was, in short, an experiment of the Division of Entomology, and not my own.

The parasite is *Semiotellus nigripes*, and, like our native species of the same genus, infests the larva, not the egg.

S. A. FORBES.

Champaign, Ill., July 20.

Information Wanted.

CAN I learn through the columns of *Science* how to interpret the indications of the thermometer with bulb blackened and inclosed in an exhausted glass case?

Are there any accepted formulæ for this so-called solar radiation thermometer, and where can one find the literature of the subject? F. C. VAN DYCK.

New Brunswick, N.J., July 30.

BOOK-REVIEWS.

The History of Human Marriage. By EDWARD WESTERMARCK. New York, Macmillan. 8°. $4.

THIS is one of the most elaborate works on the history of social institutions that we have met with. The author is lecturer on sociology in the University of Finland at Helsingfors, yet his book was written by himself in English, which is to him a foreign language. He modestly tells us in his preface that, as originally written, the book contained some un-English expressions, which were corrected by his English friends; but the ease and clearness of the style show that he is a master of the art of expression, and make his work far more interesting than works on such subjects are apt to be. The word "human" in the title of the book is tautological; for there is no marriage known to us except the human, and Mr. Westermarck's attempt to show that the mating of animals is the same thing as marriage is by no means successful. Marriage is a moral institution, and therefore cannot exist except among moral beings; and Mr. Westermarck's failure to duly appreciate the moral aspects of his subject is the principal defect of his work.

As a descriptive history of marriage, however, in the many forms it has assumed, the work could hardly, in the present state of our knowledge, be surpassed. It opens with a discussion of the proper method to be pursued in this and similar inquiries, as to which the author is more prudent than some writers have been. He remarks that "nothing has been more fatal to the science of society than the habit of inferring without sufficient reasons from the prevalence of a custom or institution among some savage peoples that this custom, this institution, is a relic of a stage of development that the whole human race once went through" (p. 2). It was high time to sound this note of caution, and we trust that other inquirers into early history will give heed to it. Having settled on his method of investigation, Mr. Westermarck goes on to present the different phases of his subject, such as the antiquity of marriage, the hypothesis of promiscuity among primitive peoples, the influence of affection and sympathy, the forms of marriage, the ceremonies attending it, and many other matters pertaining to the marriage relation. He shows a very wide as well as intimate knowledge of the facts, so far as they have been discovered, and both his facts and his arguments will have to be considered by all who may write on the subject hereafter.

His opinions on certain fundamental points are at variance with those of most previous writers, and hence his work is likely to give rise to some controversy. He rejects the hypothesis that promiscuous intercourse was once everywhere prevalent, and his arguments on this point deserve careful attention. In some of his other theories he does not seem to us quite so fortunate. For instance, he maintains that there was in the earliest times a human pairing season similar to that of animals, the sexual passion being dormant the rest of the year; yet he brings no adequate evidence to support this view, and hardly any evidence at all. Again, in speaking of the prohibition of marriage among near kindred, he remarks that savages could hardly have known that such marriages are physically injurious to the race, and so he attempts to account for the prohibition by the principle of "natural selection." He thinks that "there was no doubt a time when blood relationship was no bar to sexual intercourse. But variations, here as well as elsewhere, would naturally present themselves; and those of our ancestors who avoided in-and-in breeding would survive, while the others would gradually decay and ultimately perish" (p. 352). But what we want to know is why some of our ancestors avoided such breeding while others did not; and it is no answer to this question to tell us that, after the two customs had been established, the one prevailed over the other. But whatever may be thought of some of Mr. Westermark's theories, his work will be indispensable to all students of the early history of mankind.

Justice. By HERBERT SPENCER. New York, Appleton. 12°. $.25.

THIS is intended to form the fourth part of Mr. Spencer's "Principles of Ethics," of which only the first part had previously appeared. Only the earlier chapters of the book deal with the general principles of justice, the bulk of it being devoted to their application. We cannot say that in our opinion the work is a success, the author's fundamental ideas being vague and inconsistent. His attempt to show that there is such a thing as "animal ethics" is hardly worth discussing; but when he comes to treat of human justice he lays down as its fundamental principle a proposition which will meet with little acceptance from philosophers. He maintains that "each individual ought to receive the benefits and the evils of his own nature and consequent conduct; neither being prevented from having whatever good his actions normally bring to him, nor allowed to shoulder off on to other persons whatever ill is brought to him by his actions" (p. 17). Now according to this rule, if a man in consequence of his own mistake meets with an accident that disables him, it is just for other men to leave him to perish; but most people would say it was unjust.

Mr. Spencer afterward modifies this principle somewhat by the provision that no man shall interfere with the freedom of others; and thus he reaches what he calls "the formula of justice," which is as follows: "Every man is free to do that which he wills, provided he infringes not the equal freedom of any other man" (p. 46). This is a familiar principle of the common law; and it is rather surprising to see it presented in this work as if it was something novel. It is by no means sufficient, however, as a universal rule of justice, as Mr. Spencer himself finds when he comes to deal with the rights of children; for if children were left to themselves merely, without help or interference from older persons, they would die. Accordingly Mr. Spencer falls back upon another principle, namely, the necessity of preserving the species, which makes it the duty of the parents to support and protect their offspring. Thus he lays down two quite distinct principles of justice, and he nowhere takes the trouble to reduce them to one nor to show how they are to be reconciled with each other. He fails, too, as all the associationists have failed, to account for moral obligation. Why should I refrain from infringing the freedom of others if it happen to be for my advantage to infringe it? and why am I bound to preserve the species? Mr. Spencer scarcely touches this question in the body of his