SCIENCE.

FRIDAY, APRIL 1, 1887.

COMMENT AND CRITICISM.

THE *résumé* of the evidence concerning thought-transferrence which Dr. Morton Prince of the Boston city hospital drew up for presentation to a medical society, and which is now reprinted in pamphlet form, seems to us eminently judicious. It embodies such a judgment on this interesting but exceedingly difficult subject as an intelligent man who has carefully studied the evidence, and is competent to weigh it, may now fairly hold. Dr. Prince begins by hastily narrating the salient points in the history of the Society for psychical research, and then summarizes the Creery experiments, those with Messrs. Smith and Blackburn, and those carried on by Mr. Malcolm Guthrie, all of which are by this time familiar to American readers, an article recounting them having appeared in the *Popular science monthly* for August last. The evidence adduced by the above-named and similar experiments is, according to Dr. Prince, as follows: First, we have as experimenters a number of gentlemen noted for their integrity, and whose standing would exclude all intention at deceit on their own part. Second, the experimenters, after considerable previous experience, arrange the conditions of the experiments so as to exclude by every possible device all possibility of communication by the ordinary channels, including collusion. They are allowed to arrange the conditions according to their own option in such a way as to test in the most stringent manner the phenomena under investigation. In this way the experiments differ essentially from those made with ordinary professional spiritualists and mind-readers. Under these stringent conditions, results are obtained showing that the thoughts of one mind have been communicated in some way to another. Third, the experimenters conclude that the communication has been made by direct thought-transferrence.

Dr. Prince, in commenting on this summary of the evidence, says that the opinions of the experimenters themselves are of undoubted value, but that overlooked sources of fallacies may yet appear. The phenomena in question cannot be established beyond the possibility of a doubt until both observers and subjects have been very much multiplied. The opinions held by Dr. Prince himself as to the evidence seem to us amply justified by the facts. The opinions are these: 1°. All the evidence *that we possess, such as it is,* goes to prove that certain persons, under certain favorable conditions, can become cognizant of the thoughts of another without any communication by the senses; 2°. That the best *working* hypothesis that we possess is in favor of direct thought-transferrence as an explanation; 3°. *A priori,* there is nothing inherently impossible or improbable in the hypothesis; 4°. The subject must be considered as still *sub judice,* and needs further investigation to settle the question beyond possibility of doubt. Dr. Prince disposes very neatly of those critics who would set aside the evidence gathered in England because from time immemorial similar claims have been made by spiritualists, clairvoyants, and the like. He calls such objections illogical and unscientific, for there is not the slightest parallel between the two cases. "No physical experiments in the laboratory have been more under the control of the chemist and the physiologist than have these. The subjects have given themselves up to the experimenters, not occasionally and fitfully, but day after day. Any and every sort of condition has been cheerfully acquiesced in and imposed." Dr. Prince concludes his interesting paper by cautioning all persons against confounding the evidence for thought-transferrence with the muscle-reading of the professional 'mind-readers.' The more the intelligent public hears about thought-transferrence, the more it is convinced that a conclusion is going to be reached by a study of the evidence solely, and not by abuse and sarcasm aimed at the gentlemen who are giving their time, their labor, and their money to these investigations.

IN 1883 A COMMISSION was appointed in Germany to consider and report on the advantages and disadvantages of vaccination. In the commission were three anti-vaccinationists. The following are among the conclusions reached by the commis-

sion, whose report has recently been made. The length of time for which vaccination protects against small-pox varies greatly in different persons, but in the mean it is about ten years. 1°. Re-vaccination is necessary ten years after the primary operation; 2°. Two well-marked vesicles are necessary to insure a successful protective vaccination; 3°. There is no evidence as to any increasing special disease or of general mortality which can be considered as due to the introduction of vaccination; 4°. The use of animal vaccine is preferable; 5°. Vaccination should not be performed while scarlet-fever, measles, diphtheria, whooping-cough, typhus, or erysipelas are epidemic or unusually prevalent in the neighborhood: 6°. Infants should not be vaccinated before they are three months old unless small-pox is prevalent in the vicinity; 7°. The greatest care as to the cleanliness and disinfection of the instruments used for vaccination should be insisted on.

We heartily indorse most of these views and recommendations. The objection to vaccination during the prevalence of communicable diseases, with possibly the exception of erysipelas, is, we think, not a valid one. If any of these diseases exists in the family where there are children un protected from small-pox, vaccination should undoubtedly be deferred until the danger of contagion is passed. But in our large cities these diseases are so continuously present, that, if vaccination were to be postponed until they disappeared, we fear the operation would never be performed, and we should soon have a vast amount of susceptible material which would furnish a rich field for the propagation of small-pox. The admonition in reference to the care of the lancet is well-timed and important, and is a precaution which is too apt to be overlooked, both in private and public vaccination. Passing the lancet through an alcohol flame will accomplish the object in a perfectly satisfactory manner, or, if the vaccine-point is itself used to scarify, the danger is equally avoided.

CRUDELI, AS THE RESULT of a long observation of malaria in Italy, finds that while a certain amount of moisture is necessary for its development, yet it is by no means confined to swampy and low regions, but is often met with in elevated regions. In a recent discussion of this subject before the Boston society for medical observation, Dr. Bowditch reported a case of malaria which he believed to have developed in the Adirondacks. Dr. Folsom had observed that many cases occur in comparatively elevated localities, referring especially to an outbreak in a small town in the western part of Massachusetts, in which all the cases occurred on the top of a hill. It was his experience that persons might live for a time in a well-developed malarial region and remain free from the disease while there, and subsequently have the disease manifest itself after a year's residence in another place.

THE SUBJECT OF HYPNOTISM, which has become so famous through the recent experiments of Charcot, engaged the attention of Dr. W. A. Hammond of New York some six years ago. At that time he hypnotized a young man in the presence of the members of the New York medico-legal society, causing him while in this condition to commit imaginary thefts and assaults. Dr. Hammond prefers the name 'syggignoscism' to that of 'hypnotism;' meaning the agreement of one mind with another mind, — a condition of automatism in which acts are performed without the conscious willing of the subject. Dr. Hammond finds that persons who are educated and are accustomed to direct others are not so easily rendered hypnotic as those who have always occupied subordinate positions. Mesmerism, so called, is closely allied to hypnotism. The theory of Mesmer was, that there was an inherent quality or power in the person operating, which accounted for the effects produced; whereas the peculiarity is in the subject, and any one can put such a subject into the hypnotized condition.

THE PROBLEM OF PROTECTING from adulteration the food supply of large cities is one of increasing difficulty and complexity. For its successful solution it depends not only on energetic and intelligent inspectors but on the active support of public opinion. The recent report of Dr. Saunders, public analyst for the city of London, shows that in one case, at least, where the first of the above conditions is conspicuously present the second is conspicuously lacking. The report states that the public at large continues to show marked apathy toward the working of the food inspection laws, and that if the inspectors were not ordered to secure samples independently of complaints being made, no check would exist upon the adulteration of the foods and drugs sold in the city of London. During the year 1886 the department made one

hundred and eighty-eight analyses, of which sixty-one were of milk, twenty-two of whisky, nine of gin, sixteen of mustard, twenty-seven of drugs, ten of disinfectants, six of water, four of butter and butterine, and the remainder of miscellaneous articles. The discrepancies of opinion between analysts resulting from the employment of separate methods, and the unsatisfactory character of some of the laws relating to food supply, are given as reasons which have prevented the work of the department from impressing itself more firmly upon the community. The water supply of the city has maintained its high character during the year, the same freedom from organic impurity noted in previous reports having still existed.

IN A PRESIDENTIAL ADDRESS — now published as a magazine article — before the Society for the study of comparative psychology, Dr. T. Wesley Mills of McGill university said a great many interesting things about the objects and problems of that department of science which the society was founded to advance. Animals, he said, are the 'poor relations' of man: the latter is one of them not only in body but in mind. But poor relations though they are, yet "in not a few respects they are not only equal, but superior to man." Dr. Mills grants that it is not inconceivable that special faculties, not existent in the lower animals (we presume he uses the adjective 'lower' merely in deference to a custom of some antiquity) have been implanted in man, but the trend of investigation, he asserts, is to establish the fact that at least the germ of every human faculty does exist in some species of animal. Brutes reason, says the writer. They can and do form abstract conceptions. They have, furthermore, a moral nature, and are capable of forming a conception of right and wrong. Man has only developed a superiority to the brute because of "his social tendencies, resulting in the division of labor, with its consequent development of special aptitudes, and its outcome in the enormous amount of force which he can, on occasion, bring to bear against the various tendencies making for his destruction."

Now, before Dr. Mills puts forward any such conclusions as these, or goes to work with the method and premises he has assumed, he must first establish the legitimacy of that method and those premises. And to do this he must, we fancy, meet the argument of Prof. C. Lloyd Morgan on the subject of the study of animal intelligence. That he has not faced this argument is evidenced by his naïve and apparently conclusive question, "Since from experiments on the brains of the lower animals we argue as to the nature of the brain of man, why may we not pursue the comparative method for the soul?" Perhaps we may; but it must be done under such limitations, and in the light of such considerations, as Professor Morgan has indicated. The first and most fundamental of these is, that, while we are justified in believing in the existence of intelligence or mind in animals, it must be steadily borne in mind that this has to be interpreted not only by human consciousness, but *in terms of it*. Again, in all the stories related of the intelligence, morality, and so forth, of animals, there are two distinct elements, — first, certain actions performed under certain external circumstances, which may be called facts; and, secondly, certain inferences which are drawn from the facts. These inferences must be rigidly excluded from the class of facts; and, when so excluded, that portion of them which is ejective must be treated as such, and not as objective. These limitations and considerations carry with them many consequences, but we can find in Dr. Mill's address no evidence that he has ever given them any consideration.

THE BEST METHODS for the disposal of garbage must necessarily differ according to circumstances. For some communities its utilization in the feeding of swine is a practical solution of the problem; while for others no better way seems to have been devised than to deposit it at sea, so far from land as to preclude the possibility of its return by wind or tide. Still another plan is that of its destruction by fire or cremation, — a plan which theoretically is perhaps the most satisfactory from a sanitary stand-point, but one in regard to which practically there seem to be so many difficulties as thus far to have prevented its adoption in the largest cities of the United States. This problem is now being discussed at Milwaukee, Wis. One proposition is to take the garbage to the country and then feed it to animals, another is to deposit it in the waters of the lake, and a third to consume it by fire. A company proposes to erect two cremators, at an expense of ten thousand dollars, for this purpose, claiming that the running expenses will not exceed $15.50 per diem

DURING THE PAST WINTER, which was an unusually severe one at sea, the fish commission succeeded in hatching thirty-five million cod-eggs, bringing the young up by hand, so to speak, to the age of self-feeding adolescence, and turning them loose into the ocean. This crop will be 'ripe' four or five years hence. The fish commission will also attempt to repeople our coastal waters with halibut, the supply of this valuable food-fish having been depleted in waters where it was once common. The attempt will probably be first made to plant the halibut in Chesapeake Bay. Advices just received from New Zealand state that a million and a half white-fish ova, sent by Professor Baird from Northville, Mich., last December, to Sir Julius Vogel of New Zealand, arrived there in January in excellent condition, only five hundred having died.

CRUELTY OF OLD CUSTOMS.

WE have several times referred to the case of Rukmibhai, the native lady whose wrongs aroused so general a feeling of sympathy in England and India; but, as the case now appears to be on the point of reaching a crisis, it may be well to recapitulate the facts briefly, as given by the Calcutta correspondent of the London *Times*. Rukmibhai was married, according to Hindoo usage, at the age of eleven, to a youth some years her senior. She remained at her parents' house, was carefully educated, and grew up, according to all accounts, into a refined and highly cultivated lady. Some eighteen months ago she published in the *Times of India*, under the *nom de plume* of 'A Hindoo lady,' a series of forcible and striking letters on the miseries entailed on her sex in India by the barbarous customs of infant-marriage and enforced widowhood. Last year her husband tried to get her to live with him, and, on her refusing, instituted a suit for the restitution of conjugal rights, in the Bombay high court. The case was tried in the first instance by Mr. Justice Pinhey, when, it having been proved that the husband was too poor to support her, was utterly ignorant and uneducated, — in fact, a mere coolie, — and was, moreover, consumptive, the judge expressed the opinion that it would be a barbarous, cruel, and revolting thing to compel her to live with such a man. He further held that such suit could not lie under Hindoo law, and dismissed it.

The husband appealed, and the case was argued before the chief justice and Mr. Justice Bayley. Those learned judges, while expressing their entire sympathy with Rukmibhai, felt compelled to rule that Mr. Justice Pinhey was wrong in law, and remanded the case to the lower court for trial on its merits. It has now been reheard before Mr. Justice Farran. Rukmibhai's counsel could only repeat that his client had never consented to the marriage, and never regarded the man as her husband; that the husband was poor, ignorant, and unhealthy; and that if ordered to return to him she would be forced to disobey, and was prepared to take the consequences. The court had no option save to pass an order that she should join her husband within a month. Should she fail to do so, she would be liable to six months' imprisonment. The case has excited much sympathy among the Anglo-Indian community. The English newspapers are publishing articles and letters on the subject, and steps are being taken in Bombay to raise a fund on her behalf. Among the native community, however, hardly a single voice, except that of Mr. Malabari, a Parsee gentleman, has been raised in her favor, and the so-called reformers who agitate loudly for representative institutions, etc., say no word for the alteration of the cruel law which the Bombay court has been reluctantly compelled to enforce.

Upon this case the *Times* comments as follows: "There can be no doubt to which side opinion in this country will incline. Our correspondent tells us a tale of monstrous wrong and of injustice in the disguise of law. But the disguise, unfortunately, is impenetrable. The law is the law, and in the view of Rukmibhai's fellow-countrymen there is nothing shocking or revolting in the end which it has been employed to serve. The Hindoo marriage-law can claim, with justice, to have the sanction of immemorial usage. Whether it is based or not on a correct interpretation of the sacred books, — and there is room for grave doubt on this point, — it has prevailed for some thirty centuries, and it is closely interwoven with the moral and religious sentiments of the people. Religion pronounces that every Hindoo girl must be married. The parent who has an unmarried daughter of full age in his house is not only an offender against social usage, but is guilty of a religious crime, threatened with puishment in a future state, and one which his outraged neighbors will not be satisfied to leave to its deferred theological sanction. The father would be a degraded man. His daughter, therefore, must be married to some one, and if no fit person is forthcoming, she must be joined to some unfit person, and this at the earliest age possible, so as to settle the matter and make things safe for the father. Rukmibhai has been treated with somewhat exceptional favor in having had her marriage ceremony put off until she was eleven years of age. Many