

of mankind" and the "notion that there is something unrefined in the undisguised enjoyment of a meal." The cure for the first is a right education; the second is a relic of asceticism shown at its worst in the superstition that it is exquisitely refined and feminine for a girl to have no appetite. Epicures are healthy because they 'live on the quintessence of food' by constantly breathing through the nose. The epicure's habit of retaining this pleasure as long as possible leads to slow eating and complete mastication. Odors stimulate the flow of saliva and the other alimentary juices, and thus a gastronomist will never be a dyspeptic. Epicureanism is not gluttony: it is the ability to get pleasure out of commonplace foods. He may prefer "canvas-back duck to roast goose," but "he alone knows what an oriental rose-garden of magic perfumes may be found in the simplest crust of whole-meal or graham bread and butter."

In this strain Mr. Fincks develops the science of eating and of cooking, and applies its principles to several important classes of food-stuffs. He even proposes a new industry; namely, of so feeding poultry and other animals as to produce a special brand of meat with original *nuances* of flavor. And finally he promises us that the recognition of the royal position of smell in the gastronomic hierarchy would bring about an increase of twenty per cent or more in the average health and happiness of the community.

The notorious Jaeger holds that the soul is a smell: we have now been given reasons for believing that smell is at the least the breath of life.

J. J.

A RECENT CONTRIBUTION TO THE DISCUSSION OF HYPNOTISM.

THE French psychologists seem to be making their own the study of whole groups of mental phenomena. Of late years, almost all the valuable contributions to the subject of hypnotism, and all phenomena, have come from them. In fact, they have discovered so many new and striking facts, that almost all the old generalizations have been overthrown, and the multiplicity of facts has hardly as yet been digested into any new theory. One of the most interesting of recent discussions is that of Burgson in the November number of the *Revue philosophique*. It is valuable not only for the new light thrown upon some of the most mysterious phenomena of hypnotism, but for the suggestions which it offers to a study of the whole complex field of 'thought-transferrence.'

From time to time there have been reports of hypnotic persons who could see through opaque

objects, tell what was going on at a distance, etc. The case of some boys who could tell the title of the chapter at the head of a page, or the number of the page, when a book was opened but was held with its cover towards them, was reported to Burgson. Upon trying it, he found that one of the boys told correctly at least every other time what was required. Some experimenters would have stopped short with this, and would have heralded abroad a remarkable case of telepathic action. But Burgson continued experimenting. He noticed three things. When the hypnotized subject was asked how he knew, for example, the figures of a page, he replied that he saw them; and when he was asked to touch the back of the book, instead of touching the cover, he put his hand under and touched the open page. Another fact was, that, when the boy did not guess right the first time, he would often correct it, if the book were moved a few inches nearer or farther from the eye of the operator. The third thing was, that the figures were often read reversed, as 213 for 312. This suggested to the operator that the patient seemed to be reading as if in a mirror, and he began to wonder if it were possible that the latter read the figures or word as reflected in the cornea of himself, the operator. Simple experiments revealed, that, if the operator's eyes were closed as soon as the figure had been seen, the patient was rarely successful; that the attitude which gave the best chance for the formation of a distinct image was that in which the guess was most uniformly successful; and that the correctness of the guess decreased as the light was changed so as to obscure the reflection. The image in the cornea could not be, however, more than .1 mm. in size. In spite of the well-attested hyperaesthesia of organs in hypnotic subjects, there might be some doubt of an ability to see any thing so small. Experiments were then tried with a view to deciding this point. The most satisfactory consisted in giving the subject a prepared section of an orchid the cells of whose tissue were only .06 mm. in diameter, and telling him to draw the same. With microscopic fineness of vision this was done.

It only remained to see if the hypnotic patient's power of forming conclusions from very subtle and ordinarily imperceptible signs was confined to cornea-reading. It was easily proved that it was not. The operator hypnotized the subject sitting before him, and then made the latter believe that he was one with the operator, so that whatever affected him would also affect the subject. Then a third person, standing behind the operator, pricked some part of the latter, generally a part of his hand held behind his back. The

subject would then locate the spot where pain was felt in himself, and was correct even to a very narrow and definite limit. It seemed a wild guess to suppose that he formed his judgments from the small portions of the movements of the arms only of the third person, which were visible to him; and yet further experiment showed, that, if a screen were placed so that he could not see any of the movements of this third person, his ability to locate entirely disappeared. Experiments somewhat similar showed that the patient could tell what word the operator was writing, simply by the general movements of the arms of the latter.

Burgson himself calls attention to these experiments more as evidences of what he terms unconscious deception on the part of the hypnotized subject, than for other reasons. He calls attention, however, to the necessity of repeating those experiments of the English members of the Society of psychical research which seemed to point to mind-reading pure and simple. The average literary man who handles these latter facts does not seem to be aware of the great objection which holds against them scientifically. Absolutely the only way hitherto known of mental communication is the expression of an idea through physical media, and the retranslation of this back into a mental state. Mind-reading pure and simple does away with the intervening physical medium of expression. It is a fact of a different order from any now known. If it can be shown that what really takes place in these cases is cornea reading, or some similar occurrence, the facts are reduced to those of the same order as ordinary mind-reading or muscle-reading, and they admit of a scientific explanation.

But these experiments also afford, as it seems to me, the most conclusive evidence yet offered of the law laid down by Helmholtz, that the existence of a sensation is always neglected in behalf of the meaning conveyed by it. Here the minute image on the cornea is perceived, not as what it is, but as a series of two or three figures which are definitely and correctly located in their proper spatial position. There is in these experiments no question of conscious deceit. The subject does not secretly and consciously perceive the image on the cornea, and then pass off the knowledge thus gained as if he had actually seen the figures. He himself is a victim of the deception. He thinks he sees them on the book. His sensations, in short, are mere signs or symbols, to which in themselves he pays no attention. He observes only the objective bearing, the information conveyed. The proof of the theory did not require such a crucial experiment as this, perhaps, and yet it is as striking an evidence as could be desired.

But it also shows that the interpretation of the sensation is governed by the conceptions already in consciousness, and this affords a valuable contribution to the growing theory of apperception. There is an increasing tendency among psychologists to regard all perceptions as judgments passed upon sensations by means of the conceptions present in the mind at the time of their occurrence. The sensation is interpreted into harmony with these dominant conceptions; so that we see not merely what is really there to see, but what the mind is adjusted to see, what it can read in out of itself. All hypnotism is one page of evidence to the influence of dominant conceptions, but the present instance is typical of the extent to which it may be carried. It is to be hoped that someone will carry the experiments further, and particularly see how far unsuspected cornea and muscle reading has entered into the as yet unexplained cases of mind-reading, so called. J. D.

VOLUNTARY AMPUTATION AMONG CRAYFISH.

In referring to limb-shedding as a voluntary act among certain crustaceans, Professor Huxley tells us in his 'Crayfish' that "this voluntary amputation is always effected at the same place; namely, where the limb is slenderest, just beyond the articulation which unites the basal joint with the next. The other limbs also readily part at the joints; and it is very common to meet with crayfish which have undergone such mutilation." Quite recently (Sept. 4) M. H. de Varigny, in a very instructive paper which he has published in the *Revue scientifique*, entitled "L'amputation réflexe des pattes chez les crustacés," presents us with the results of a long series of experiments of his, undertaken with the view of throwing additional light upon this subject. M. Varigny studied the phenomenon in quite a variety of species and in several hundred individuals. He claims that in every instance the amputation is voluntary, and is truly an amputation, and not a disarticulation due to the feebleness of the inter-articular membrane of the joint. Much less is the throwing-off of the limb ever due to a fracture.

Then referring to the previous researches of M. Frédéricq, M. Varigny further claims that this act on the part of the crustacean will not only follow a direct blow, but may often be induced through either scratching or bruising the claw, or simply rubbing it, or through the action of the electric current. Moreover, it is found that the amputation is reflex, and depends upon the action of the central nervous system, for when the latter