

explain them. There must be some modification of the cerebral innervation, a receptivity and an aptitude very different from those in the normal state.

A distinct and strong impression must be made upon the somnambulist in order to command his attention, — a nervous shock arresting the course of his thoughts. This cerebral shock, if it may be so expressed, seems to be the *sine qua non* of success: it produces a sort of cerebral modification, some particular unknown state, without which impressions can have no effect. It is of interest to inquire whether we do not find analogous physiological or pathological states. There would seem to be certain features of surgical shock following severe operations, and causing singular conditions of mental alienation, that are similar; and is there not also a resemblance shown in the condition of deep mental abstraction witnessed in some persons? The characteristic trait of all these different conditions is a momentary suspension, more or less complete, of cerebral activity. This suspension may present all varying degrees, from the profound collapse following surgical operation, to the simple mental distraction.

THE NATURE OF SO-CALLED DOUBLE CONSCIOUSNESS AND TRIPLE CONSCIOUSNESS.

THERE is a rather widely spread impression that human beings can be subjects of double consciousness, and can lead two separate lives, in each of which the individual has a distinct set of personal characteristics. Illustrations of this supposed psychological possibility are found in many recent works of fiction, notably in the 'Archibald Malmaison' of Julian Hawthorne, and 'Called back' of Hugh Conway. Some medico-legal interest has also been attached to the question in a number of instances. Having had one case somewhat of this character under observation, I have been led to examine the matter critically.

There are on record in French, German, English, and American medical literature only seventeen cases whose history in any way entitles them to come under the designation of cases of double consciousness. Most of them were reported from forty to sixty years ago, and without very great accuracy in detail. An examination of all these histories, and the study of cases allied to them, lead one very positively to the conclusion that such a thing as a true double consciousness, or dual life, does not exist. There are several striking instances in which persons have lived an apparently double life, but in each case the second life represented simply a partial activity of the

patient's brain. In the second and morbid state a portion, viz., the higher volitional centres, have their activity inhibited, the mind is dull, the disposition apathetic, and memory of the past is gone. Indeed, this loss of the faculty by which stored-up impressions of the past are revived is the main psychological feature of some cases.

In 1845 Dr. Skae reported the case of a lawyer, of whom he said, "He appears to have a double consciousness, a sort of twofold existence, one half of which he spends in the rational and intelligent discharge of his duties; the other, in a state of helpless hypochondriasis, almost amounting to complete aberration." His attacks occurred every other day. In the classical case reported by Azam, the patient, in one mental state, was dull, apathetic, and little better than an automaton, showing here, again, that it was a condition in which some of her mental faculties were suspended. A Kentucky farmer twenty-three years old was accidentally struck on the head with a hammer. He was unconscious for several hours, but recovered, and seemed as well as ever. He married, and had children, but, after eight years, began to show signs of insanity. He was trephined, and his mental faculties were completely restored; but the whole eight years since the blow on his head was a complete blank. He did not know his wife, or children, or any of his later associates. This was not so much a case of double consciousness, though so reported, as of loss of memory.

The theory that the two mental states correspond with special activity of one side or the other side of the brain, is not at all tenable, because, if for no other reason, one of the cerebral hemispheres may be almost entirely destroyed, or its connecting commissure may be injured or absent without producing any such phenomenon as double consciousness, or a change in personality. Besides, there have been at least two cases reported in which three different mental states occurred. One of them was recently reported by J. Voisin. A young man suffering from hysteria major had an attack of amnesia, or loss of memory, lasting for a year: there was entire forgetfulness of his past, a change in his character and demeanor. This state could be artificially changed into a third state by hypnotizing him, after which he would return to his second or abnormal state. After being restored to his normal mind for a year, he had another attack of amnesia, lasting three months, and during this time he remembered only what had happened in his previous attack.

States of double or triple consciousness are either disorders of memory, or instances of suspension of the higher volitional powers, being then cases of hypnotism or of the epileptic automatic

state. Double consciousness or triple consciousness never occurs in healthy people, but only in the hysterical, epileptic, insane, or in those who have had severe shocks or injuries to the head. Dramatists and writers of fiction should bear this in mind, if they wish to cling to the realities.

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FOOD-ACCESSORIES: THEIR INFLUENCE ON DIGESTION.

THE results of experimental inquiries on the subject of foods and food-digestion, when scientifically conducted, cannot help being of great practical importance to man, so intimately is his physical perfection and intellectual activity dependent upon his alimentation. Among the results of certain experiments on this subject by Sir W. Roberts, as given in the *Nineteenth century*, the following will be found of interest.

Man, as the author says, is a very complex feeder: he has departed, in the course of his civilization, very widely from the monotonous uniformity of diet observed in animals in the wild state. Not only does he differ from other animals in cooking his food, but he adds to his food a greater or less number of condiments for the purpose of increasing its flavor and attractiveness; but, above and beyond this, the complexity of his food-habits is greatly increased by the custom of partaking, in considerable quantity, of certain stimulants and restoratives, such as tea, coffee, cocoa, and the various alcoholic beverages, which have become essential to his social comfort, if not to his physical well-being.

But the generalized food-customs of mankind are not to be viewed as random practices adopted to please the palate or gratify our idle or vicious appetite. These customs must be regarded as the outcome of profound instincts, which correspond to important wants of the human economy. They are the fruit of colossal experience, accumulated through successive generations. They have the same weight and significance as other kindred facts of natural history, and are fitted to yield to observation and study lessons of the highest scientific and practical value.

First, with respect to the action of ardent spirits on digestion, experiments were made with 'proof-spirit,' and with brandy, Scotch whiskey, and gin; and the conclusion is, that, so far as salivary digestion is concerned, these spirits, when used in moderation and well diluted, as they usually are when employed dietetically, rather promote than retard this part of the digestive process; and this they do by causing an increased flow of saliva.

The proportion must not, however, much exceed five per cent; and gin seems to be less injurious than either brandy or whiskey. It was noticed in these experiments that both of these interfered with the digestive process, precipitating the starch more readily, altogether out of proportion to the amount of alcohol they contained, and brandy was worse than whiskey; and this circumstance appears to be due to certain ethers and volatile oils in them; and brandy contains a trace of tannin, which has an intensely retarding influence on salivary digestion. Even very small quantities of the stronger and lighter wines — sherry, hock, claret, and port — exercise a powerful retarding influence on salivary digestion. This is due to the acid — not the alcohol — they contain, and if this acid be neutralized, as it often is in practice, by mixing with the wine some effervescent alkaline water, the disturbing effect on salivary digestion is removed.

In the case of vinegar, it was found that 1 part in 5,000 sensibly retarded this process, a proportion of 1 in 1,000 rendered it very slow, and of 1 in 500 arrested it completely; so that, when acid salads are taken with bread, the effect of the acid is to prevent any salivary digestion of the latter, — a matter of little moment to a person with a vigorous digestion, but to a feeble dyspeptic one of some importance. There is a very wide-spread belief that drinking vinegar is an efficacious means of avoiding getting fat; and this popular belief would appear, from these experimental observations, to be well founded. If the vinegar be taken at the same time as farinaceous food, it will greatly interfere with its digestion and assimilation.

Effervescent table-waters, if they consist simply of pure water charged with carbonic acid, exercise a considerable retarding influence on salivary digestion; but if they also contain alkaline carbonates, as most of the table-waters of commerce do, the presence of the alkali quite removes this retarding effect.

With regard to 'peptic' digestion, the results are still more surprising. It was found that with ten per cent and under, of proof-spirit, there was no appreciable retardation, and only a slight retardation with twenty per cent; but with large percentages it was very different, and with fifty per cent the digestive ferment was almost paralyzed. It was also observed that the weaker forms of alcoholic drinks (wines and beer) differed greatly in the influence on peptic digestion from that of the distilled spirits. They retarded it altogether out of proportion to the quantity of alcohol they contained. Port and sherry exercised a great retarding effect. Even in the proportion of twenty