

THE ARTS AND SCIENCES

Psychiatry

THE PHYSICAL CAUSES OF MENTAL DISORDERS

BY HENRY A. COTTON

BECAUSE of the mysticism associated with insanity from time immemorial, it is not strange that misinformation and unsound doctrines about it are still prevalent in the minds of a majority of people. This is due largely to traditional theories handed down from the Middle Ages. The idea that mental disorders are hereditary, for example, is one of the bugaboos of the race. Many families are kept in terror by it. Worse, it has been widely accepted by the medical profession. This fatalistic concept is largely responsible for lack of progress in the development of rational methods for the care and treatment of those suffering from mental disorders. It has discouraged the search for natural causation. It has stifled the initiative upon which every successful scientific quest is based. It has been responsible for the false belief that custodial care is the chief function of an "insane asylum", and that to enter the portals of such an institution is to abandon every hope.

Fortunately, we are now in a position to say, with reasonable confidence if not with absolute finality, that mental disease *per se* cannot be transmitted from one generation to another. From the standpoint of the "inherited constitution" itself, a deviation from mental normalcy must be construed in terms of constitutional resistance to various toxins rather than in terms of instability of the mind itself.

The doctrine of hereditary insanity at last has been judged in the light of sound biological knowledge and has been found wanting.

The traditional view of psychiatrists that mental disorders are in fact diseases of the mind, and not, as we are forced to believe today, disorders of the brain, has led students of the subject to concentrate their attention exclusively upon the psychogenic or mental factors, ascribing to them and to heredity the most important rôles in the causation of these diseases. Mental factors undoubtedly have their place. But they are of secondary importance to the toxic factors.

Mental retardation and feeble-mindedness, of course, are generally regarded as hereditary. But even here the case for heredity is by no means conclusive. The formative group, in which brain defects or deficiencies are noticeable in parents as well as in offspring, can scarcely be brought into question, but the traumatic group, in which the brain tissue has been injured at birth or in childhood by hemorrhage or meningitis, and the functional group, in which the brain is normally developed but does not respond normally to stimulation, obviously cannot be explained on the basis of mental inheritance. As a matter of fact, many cases of the functional type which have come under observation have been found to possess multiple foci of infection. Elimination of the latter has resulted very frequently in speedy improvement of mental reactions and often in full recovery. The essential

thing is to distinguish between true feeble-mindedness, wherein anatomical defects of the brain are inherited from feeble-minded parents, and pseudo-feeble-mindedness, wherein the symptoms of mental retardation and defectiveness exist but are not congenital in origin.

That mental diseases are really disorders of the brain is no new theory. Hippocrates said that there must be changes in the brain to account for mental symptoms, and many later authorities have been of the same opinion. Thus Cox, writing in 1811, expounded the theory, and Maudsley, in 1865, also subscribed to it. But the psychogenic school, especially the Freudians, consider mental symptoms to be entirely independent of changes in the brain. If the control of insanity is to make any real headway, heredity, environmental defects, personality and improper training must be subordinated to the study of infections which can be attacked directly by resort to surgical methods, and eliminated.

In many instances which have come to our attention at Trenton, psychoses have been attributed to unfortunate love affairs, domestic difficulties, conjugal disharmony or financial reverses. But we have never failed to find serious and often extensive local foci of infection, and, if the disease had not been of too long duration, removal of the infection has resulted in a prompt mental readjustment, which was not undone by a return to the same environment and the same disagreeable conditions.

A recent case is illustrative. The patient had suffered from a depression of six years' duration with intervals of slight improvement, during which efforts were made to keep her at home. But having on two occasions made attempts at suicide, she was returned to a private hospital. During this time, she had no thought of

her husband. She was self-centered and was not concerned about his affairs. As a result, he became interested in other women. Three months after her admission to the New Jersey State Hospital at Trenton, in 1918, she recovered, following the removal of infected tonsils and infected teeth.

Her husband was reluctant to take her home, and, of course, she found the domestic situation very unpleasant. Our sympathy was aroused, and, upon investigating, we found that her complaints were not delusional, as her husband would have had us believe. She accepted a position in the hospital, hoping matters would improve. Finally she went home, and, after a year or more of extremely bitter experience, the situation adjusted itself and there was no further trouble. She never had any return of her former depression, though, from the standpoint of those who stress the mental factors, there was ample cause.

Elimination of infected teeth and tonsils, as in the case just cited, often brings prompt restoration of mental health. But there are other sources of chronic infection which sometimes go unnoticed for years and which can be discovered only by means of the most thorough physical examination. Among these is infection of the lower intestinal tract. Treatment here is more difficult and complicated. Surgical means are usually necessary to produce results. This is especially true of lesions of the colon. In some case, a chronic infection of the appendix is found to be the source of the trouble. In others, the condition is more extensive, and the right side of the colon may be seriously involved. When this is revealed by radiographic study or by an exploratory abdominal operation, partial resection of the colon may be necessary—a procedure successful only

in the hands of a well trained abdominal surgeon.

We have estimated that about 80% of the so-called functional type of mental disorders are due not only to infected teeth and tonsils but also to congenital malformations of the colon, or large intestine. Very often these patients give a history of constipation since childhood. It seems strange, therefore, that anyone should hesitate to believe that intestinal toxemia could be responsible for mental conditions. A number of older writers emphasized the point, although some modern commentators still disregard it.

Many of our patients who had their colons removed as far back as 1918 are still living and are normal both mentally and physically. The generally accepted idea that people are unable to live without a colon is disputed by these many patients, who are today in sound condition. Improvement in the technique has lowered the operative fatalities, so that at the present time such an operation is no more dangerous than an ordinary appendectomy. After having removed the colons in some 300 cases, we decided to follow the work of Sir Arbuthnot Lane in London (with whom the writer spent a month or so in 1923) and to adopt his methods of releasing congenital bands of adhesions which were causing constrictions of the colon and producing intestinal toxemia. This has been done very successfully since that time. In many cases, it is all that is necessary for the restoration of mental health. The mortality is negligible, especially when all infection of teeth and tonsils has been removed. Hundreds of mental patients have recovered from the operation and are now living outside of institutions in a normal and happy condition, often earning their living and supporting families. But the pathological condition

in the intestinal tract is not always limited to the colon, as can be seen in the following case:

N. G., mental disturbance occurring in a white man, 28 years of age, married. There was nothing unusual in his family history or personal history. He had been married seven years and had three children. One child was stillborn, another died six or seven days after birth, and the third lived to be thirteen months old. He was a normal individual until about two weeks before his admission to the State Hospital at Trenton in November, 1921. The onset was acute. He was seized with a severe gastric pain after having his supper. A physician was called in to prescribe for him. He developed ideas of being poisoned and refused to take medicine. A week later his tonsils were removed with no apparent improvement. He kept a string around his wrist to prevent "poison" from entering his system. When admitted to the hospital, he complained of marked distress in the region of the stomach. He had difficulty in taking a deep breath. He improved very much physically under treatment, talked in a rational manner, but his complaints all centered on his abdomen.

A stomach examination showed a high percentage of hydrochloric acid reaching as high as 75 by the Rehfus method. The blood showed a four plus Wassermann, but the spinal fluid was negative. The diagnosis was a mental condition due to toxemia arising from gastric disturbances. He was allowed to go home two months after admission but was returned in a confused state with catatonic symptoms (refused to eat, to talk, and was inactive). His condition continued about the same. Most of the time he was mute and unoccupied. It was also noted that he had a distended abdomen and still complained of pain in his stomach. There was no evidence of intestinal obstruction, however. He was given cathartics regularly. His tonsils had been removed prior to admission; and one tooth had been extracted.

He died March 23, 1931, nearly ten years after admission. Examination after death showed that there was very good reason for his complaints regarding his stomach.

This organ was found to be markedly dilated and with a very distinct obstruction in the duodenal-jejunal juncture (where the stomach joins the small intestine). Other lesions were found, such as a chronic appendicitis, marked adhesions in the large intestine, and also disease of the liver.

The fact that this man's delusions consisted of ideas that his food was being poisoned, because of the continuous pain in his stomach, is a symptom we often notice in cases with gastro-intestinal disturbances. For nearly ten years he had suffered from a very marked obstruction which caused a dilatation of the stomach with gas, and his suffering was not imaginary, as so many people believe when listening to patients talk of their condition. The unfortunate thing is that the condition was not recognized during the ten years, as surgical procedures would no doubt have resulted in successful treatment. It is of interest that, during his entire residence in the hospital, all the notes, made from time to time, mentioned a distended abdomen and pain.

Other cases show the importance of disturbances of the colon in causing various types of mental disorders. For example:

Mrs. F. B., was a married woman of 45 years, admitted to the hospital in 1924 in a very depressed and melancholic condition. The condition had existed for more than four years. She had spent two years in a State hospital in Salem, Ore., and, although she had remained at home the following two years, she was depressed and agitated. The family history was negative. There was nothing of consequence in the personal history. The patient had been married at the age of twenty-four. Two children were living and healthy. There did not seem to be any reason for her depression at the time of the onset. She had false hearing at the beginning. She had badly infected teeth; these were extracted. Infected tonsils were removed, but she did not improve. An x-ray examination of the gastro-intes-

tinal tract was then made, and she was found to have a moderate degree of intestinal stasis, or constipation. She was operated on three months after admission. She was found to have congenital bands which were constricting the colon in various places. She recovered rapidly and was discharged from the hospital three months after the operation. A recent letter from her son says that she has entirely recovered her mental health and is able to keep her home and look after a younger son.

Formerly, dementia praecox (a type of mental disorder arising in the adolescent years) was considered incurable. Some 300 cases have been successfully treated, however, in the past thirteen years. In the majority of them, no return of the mental symptoms has been noted. If the infection is very extensive, involving more of the bowel than it is considered wise to remove, the disease must be attacked by either vaccine or serum. This is especially true when the infection is found to spread throughout the whole length of the small intestine. Anti-streptococcic and anti-colon bacillus serums from strains isolated in the laboratory of the State Hospital at Trenton have proven very successful in extreme cases of the latter type.

There can be no doubt that the endocrine system plays an important part in the mechanism of mental disorders. The ductless glands, notably the thyroid, thymus, pituitary, adrenals and sex glands, when functioning normally, furnish very definite and specific secretions which are necessary to the proper development and functioning of the various activities of the entire organism, including the nervous system. But our experience is entirely in accord with that of Billings, Barker and others, that chronic infections have a direct influence upon the ductless glands. We are inclined to believe, indeed, that, with regard to a majority of patients suf-

fering from glandular irregularity, infection and toxemia are the primary factors, disturbance of the ductless glands being secondary.

From this discussion it can be seen that the causes vary in different individuals. In some cases heredity may produce a distinct physical susceptibility and create a more fertile soil for the development of mental disease. Emphasis must be laid, however, upon the fact that, while heredity may favor such a development, it is not the dominant consideration. Furthermore, while psychogenic elements, when present, also exert an important influence, they may be absent and yet a psychosis may develop. The most important and constant factor is the toxemia resulting from chronic infections.

In the majority of mental cases, there is undoubtedly a combination of the factors already outlined. All should be taken into consideration in the effort to restore the patient to a normal mental condition. The main attack should be directed, however, upon the factors which can be eliminated from the patient's system and not focused upon hereditary influences that are immutably fixed and environmen-

tal circumstances that often cannot be changed.

The do-nothing policy of those who continue to oppose any form of physical treatment, because they are convinced that insanity is the result of hereditary causes and constitutional defects of an inevitable and incurable nature, is inexcusable in the light of modern biological and physiological knowledge.

For the afflicted individuals, however, there is prospect of the dawn of a brighter day. Relics of medical superstition and barbarism are being gradually supplanted by up-to-date conceptions as to the true relation of structure and function. The inhumane neglect that has resulted from the old discredited philosophical dualism is being overcome by the idea of unified mind and body. Insane patients need no longer be regarded as doomed to life-long confinement in custodial institutions. They can and will be restored not only to mental health, but, in many cases, to lives of usefulness. Economic independence will follow, superseding dependence upon the State, and, what is of obvious social significance, the alarming increase in insanity will be checked.

Insurance

OLD-AGE INSURANCE IN CANADA

By J. A. McFADGEN

IN 1908 the Federal government of the Dominion of Canada set up what is known as the Canadian Government Annuities System. This is a plan by which any citizen may deposit a part of his savings, either periodically or in odd amounts, with the government, and thereby provide a definite, guaranteed income for his declining years. The an-

nual deposits now amount to approximately \$4,000,000, while annuitants are being paid some \$1,750,000 each year.

The plan is quite simple. Any person over five years old may open an annuity account with the government by making an initial payment. A contract or policy is then issued, setting out the basis upon which subsequent deposits will be received. Payments may be made at any postoffice. A pass-book is issued to the annuitant and payments are entered, stamped with the official stamp, and in-