

that the difference may be considered as coming well within the limits of error. The figures given by Impens for this animal accord fairly well with the results obtained by myself in experiments on ten rabbits made before I had read Impens' paper.

From those experiments I had concluded that 25 parts of isopral equaled in effectiveness and toxicity 40 parts of hydrated chloral. It is not necessary to give the protocol, as I am willing to accept Impens' figures for rabbits with the reservations mentioned.

Wassermeyer⁶ reports that he used isopral in doses varying from 0.5 gm. to 2.5 gms. If we accept 40 to 25 as the ratio of toxicity of isopral to that of hydrated chloral, 2.5 gms. of isopral is equivalent to 4 gms. of hydrated chloral or, if the ratio be 2 to 1, 5 gms. of hydrated chloral, an amount which no careful clinician would venture to employ.

Kress⁷ used isopral in doses of from 0.5 gm. to 0.75 gm., and particularly advises caution in its use in cases of disease of the heart and vessels, urging that it be employed only occasionally, because we know nothing of the injury resulting from its continued use or from its decomposition products.

In conclusion, I wish to reiterate my belief that my experiments on rabbits and cats and Impens' experiments on rabbits show that there is no essential difference between the action of isopral and hydrated chloral in effective doses on the respiratory centers, while my experiments on dogs show that isopral is more than twice as active in depressing the vasomotor and respiratory centers and the heart, my figures for the relative toxicity almost precisely corresponding to those given by Impens for the relative effectiveness of the two drugs for the dog.

Cautious clinicians will not experiment with isopral except in carefully selected cases.

It seems almost superfluous to add that isopral, like hydrated chloral, is wholly unsuited for use in those cases in which sleeplessness is due to pain, since it is an anesthetic only in extremely dangerous doses.

My thanks are due to two of my students, Messrs. Rulison and Flagg, for assistance in certain of these experiments.

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PARANOIA, ITS VARIETIES AND MEDICO-LEGAL IMPORTANCE.*

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Psychiatry is the most backward of the sciences. This is not surprising because it deals with the most complex problems and has received but little aid from psychology, the study of the normal mind. So long as we are ignorant of the processes of normal thought and of the relation of brain to mind our knowledge of the processes of morbid thought must remain far from complete. The study of each, however, will help the other, and one of the most encouraging signs of the times is that psychologists, or some of them at least, are now studying the matter clinically and comparing the normal with the abnormal.

6. Berlin klin. Wochschr., xlii, 1180.

7. Berlin klin. Wochschr., xlii, 487.

*An address read at the meeting of the Philadelphia County Medical Society, April 10, 1907.

As a result of our comparative ignorance, the classification of the types of mental disease is most unsatisfactory. This is to be expected, for science is nothing other than classified knowledge. At present, classification is not scientific and accurate, but unscientific, inaccurate and necessarily in some degree untrue. The use of the same word to mean different things and of different words to mean the same thing increases the difficulty of classification. There is no authoritative and accepted nomenclature. Thus, the word *paranoia*, which when introduced into modern medicine was given a fairly clear and definite meaning, has come to be vague or, if you prefer a gentler word, wide in its significance. A learned English writer has pointed out that if it be accepted in all its meanings and *dementia præcox* in all its meanings, then all men suffering from any form of alienation have either *paranoia* or *dementia præcox*. The difficulty of classification is further increased because there are at present two divergent streams of psychiatric thought: one tries to simplify matters by proving the unity of all mental disease or at least by classifying all types of insanity under a few heads, the other attempts to clarify knowledge by multiplying types and separating from each other forms of disease, which, while identical in essentials, differ in non-essential symptoms. The final outcome will doubtless be increase of knowledge, but the present temporary result is confusion.

Unsatisfactory as classification is, every one admits that all forms of mental disease may be divided into two great types: first, the accidental insanities, so-called, in which heredity plays a smaller part and stress of life and bodily disease are the predominating causative influences; second, the insanities of degeneration, in which heredity is the one great cause, and the disease the inevitable result of the conjunction of a germ cell bearing the potentialities of certain qualities with a sperm cell bearing certain other abnormal potentialities. The disease begins with conception and the result, in the biologic not the theologic sense, is predestined, and comes to pass independently of the presence or absence of external stress or bodily disease.

Paranoia is one of the most interesting examples of the degenerative insanities. Owing to confusion in classification, the opinions of authors vary much as to just what should be included under the term, and all that I can do is to describe, briefly, *paranoia* as I have seen it and to trust that I shall not add to the already existing confusion. Since *paranoia* is a disease of personality and character, its description is difficult because the symptoms vary as the congenital temperament varies, and, since no philosopher has ever succeeded in classifying the numerous types of normal men, the classification of diseased men is not easy.

The *paranoiac*, then, is the product not of environment, but of heredity. He is the victim, not of external stress or bodily disease, but of internal, inherent, congenital weakness. The inheritance is rarely direct; that is to say, a *paranoiac* parent rarely has *paranoiac* offspring, but always there is a bad strain in the family; some form of insanity, marked eccentricity, pseudo-genius, epilepsy, hysteria, alcoholism, or criminality. Statistics from hospitals do not agree with this statement, but hospital data as to family histories, as a rule, are incomplete.

In private practice it is much easier to obtain correct histories and I have never known a true *paranoiac*, whose lineage I knew, who did not show some ancestral defect.

I have never known a boy or girl of biologically good family history to develop paranoia. It must be admitted, however, that the personal equation of the investigator counts in deciding what constitutes a bad ancestry. Thus, from my point of view, one type of saintliness makes a bad father or mother. I mean the hard, rigid, ultra-religious person who thinks all pleasure sin and all beauty from the devil, who thinks so constantly about what is going to become of his soul as to forget he has other duties in the world, who forgets that possibly to give pleasure to others is "to acquire merit," who represses all manifestation of pleasurable emotion and who, in truth, is a supreme egotist masquerading as an altruist. Such a person is biologically a bad parent.

In studying the influence of heredity it must be remembered that the child is not simply the sum of his parents and grandparents and in gradually lessening degree of his earlier ancestors, but that one child may inherit predominately or even entirely from one near ancestor, another from another. Again, inheritances may either reinforce or neutralize each other or so combine as to bring a product unlike any of the primary constituents. Things inherited do not show themselves in early life only, do not all come to the surface then, but throughout life and at one time one inheritance may be most patent, at another time some other. Sometimes there is a continuous struggle through life between different inherited influences. We do not inherit moral or intellectual qualities, but merely their potentialities. We inherit brain cells which react this way or that way to stimuli and the reaction, not the cell itself, is the emotional or intellectual quality.

Before studying the development of the symptoms and the gradual unfolding of the entire picture of paranoia it will be well to consider the main and essential symptoms present when the disease is at its height. The essential symptoms, then, are intense, indeed supreme egotism, delusions of persecution and of grandeur which are always systematized and always reasoned about, absence or perversion of the moral sense and an apparently strong but really weak intelligence. The important minor symptoms are hallucinations, falsification of memory and sexual perversions. A negative symptom of some importance is the entire absence of any sign of physical disease either of the central nervous system or of the abdominal or thoracic viscera. Anatomic abnormalities, the so-called physical stigmata of degeneration, when dealing with large numbers, are no more frequent than in the general population, though individual patients sometimes show many marked signs.

More important than the mere list of symptoms is their mode of development and gradual evolution. Paranoia lasts throughout life and influences almost every act and more or less controls all conduct. The history of a case of paranoia is the biography of the man. As it is a disease of personality, the superficial aspect of any case varies from time to time, indeed from day to day, and, since the paranoiac has different moods, even as we have, and since sometimes his delusions may submerge themselves or he may consciously and voluntarily be able to hide them for a time, it is impossible to make a diagnosis from one examination unless the patient's previous history be known. To know a paranoiac, as some one has said, the physician must not make a study of a cross-section of his life (one day), but of a longitudinal section (many months or even years).

Let us now go back a little and, leaving individual symptoms, study the evolution of the disease. Though the greater number of patients do not present marked evidences of insanity till sometime between the twenty-fifth and thirty-fifth year and are not until then regarded as seriously ill and, though often, to the lay mind, it appears that the onset is sudden on account of some outbreak of violence or excitement, yet really the onset is slow. There is a prodromal period of years and the beginnings of abnormal manifestations occur, as a rule, at puberty or during adolescence. This is not to be wondered at, for the growth of sexual feeling and power is closely associated with emotional and intellectual growth. The world of the adolescent is altogether unlike that of the child and puberty is the greatest internal stress to which man is subjected. The symptoms, then, are prone to make their first appearance somewhere between the fourteenth and seventeenth year. At first they are insignificant; no one pays any serious attention to them, and they are regarded as evidences of viciousness or bad breeding. The first symptom is change of character. The boy who previously was intellectually ordinary or perhaps precocious begins slowly to alter, or instead of there being a steady decline there may be successive rapid falls, he remaining for a longer or shorter time at each succeeding level. He had the crude but real generosity of the healthy boy; he grows selfish. He had love and respect for his parents; he becomes unaffectionate, impertinent and resentful. He had the virtue of the average boy; he is vicious. He was truthful; he now lies, often for the pleasure of it, and always plausibly. He was popular among, or at least not disliked, by his school mates; he becomes more than unpopular. He was social; he is unsocial. He was physically alert and properly fond of play; he is physically languid and wants to lie abed. He had the unconscious grace of movement of the healthy youth; he is clumsy, awkward and his gait slouching. He stood well at school, or at least as well as a healthy boy ought; he falls back, and, though he is full of excuses and plausible and may study some one subject well, or make pretense to be deeply interested in books far beyond his power and age, he is always behind and can not keep up with his class. He almost surely masturbates and may show the beginning evidence of any form of sexual perversion.

At a time when he should be making school boy love and suffering from the milder attacks of love sickness he will have nothing to do with girls. This goes on for months or even for several years. He varies from time to time. Now there seems to be some improvement, now rapid degeneration. No one suspects disease. Everybody blames him. No one can tell what the future will be, save that it almost certainly will be evil. No one can tell whether he will be a criminal, a dement, a mattoid or a paranoiac. No one can even say with certainty that he has not a chance to recover mental equilibrium.

Though he may not fulfill the promise of childhood, yet he may become a fairly normal man, at least a harmless one, able to take care of himself. Such recoveries do occur. But in those doomed to paranoia, sooner or later, usually in the twenties or early thirties, distinct signs of insanity appear. As selfishness increases it expands into supreme egotism and vanity. The patient becomes suspicious, often of those of his own household, and thinks they do not treat him right and that he is superior to them. Soon he is alienated from them. Suspicion becomes deeper and reaches the dignity of a

delusion of persecution. Vanity and egotism bring delusions of grandeur. What particular grandiose delusion develops depends on many known and unknown factors. Probably education and environment determine the matter much more than ancestry. Sometimes it looks like mere accident and chance. Probably in erotic paranoia heredity always determines the delusion.

The country-bred youth who has never seen or heard much talk of factories and machinery will scarcely come to believe that he is a great inventor. The weak-minded youth or man, whose intellectual food is "the yellow press" and anarchistic oratory, may well come to believe he is appointed by God to save the country by murdering its ruler. He whose ambition outruns his wits may develop almost any kind of grandiose delusion.

What makes him take up one delusion of persecution rather than another also may be plain or undiscoverable. Whatever the subject of his delusions may be, those of persecution usually come first or are at first more patent and those of grandeur are used to explain the persecution. Certain subjects, love, religion, politics or science, are particularly likely to be chosen for the delusions. Whatever the delusions may be, the patient reasons about it. The reasoning is, of course, always faulty, but superficially may seem logical. Thus, he knows people are persecuting him because they look at him so strangely, or they are talking about him because when he comes near them they look guilty and cease talking. He reads meanings into letters and newspapers that are not there. He misinterprets things said to him. Almost always there is some slight truth on which he builds his delusion. Further, though there may be several delusions, they all pertain to one or at most a few subjects and concern some central idea. Another characteristic is their permanence. They last for years and fade out only when mental feebleness has become marked. Falsification of memory is common both in the sense of remembering things that never happened and in the sense of drawing, years afterward, some false deduction concerning an event.

Much is said of the intellectual strength of the paranoiac, but it is apparent rather than real. He is usually, but not always, in the earlier stages, a great talker, though some are sullen and silent throughout. At that time he argues about all things and has opinions about everything. He is always right, the rest of the world wrong. He is plausible and may make a great impression on those who know nothing of what he is talking about. This plausibility is one of the things which make him dangerous, because sometimes he can give such apparently good reasons for his belief that he is persecuted that kind-hearted persons are led astray. He is cunning and for a purpose can hide his delusions for a time, but his vanity is his weakness and by an appeal to it he can be induced to show what he thinks and believes. From the start there is intellectual weakness, but not a true dementia till very late. He reasons, but his reasoning is crooked and perverted.

The moral sense lessens steadily from the beginning until it is absent altogether. The paranoiac has no feeling of altruism and gets no pleasure from giving pleasure. The pain and troubles of others cause no pain to him. Whether he becomes a criminal depends on circumstances and on whether or not he has the pseudo-courage necessary to commit murder. He is always a liar and frequently has perverted sexual instincts. Erotic and political paranoiacs are the type most prone to commit serious crime.

I wish also to say a few words about the mattoid, because, by not a few authorities, he is classed with the paranoiac, though he differs in some respects. The mattoid may best be defined as the imbecile dreamer of great dreams without power of accomplishment. He has been well described by dramatists and novelists. Indeed, the great poets, novelists and dramatists are better clinical psychologists than some professional psychiatrists.

Thus, Daudet, in his novel, "Jack," has described one kind of mattoid with relatively few words and in language that every one can understand. You will remember he was a poet who only thought he was a poet. He bought several reams of nice note paper and several gross of pens and then each afternoon shut himself up in his room with a sufficient quantity of beer and left word with his servant he must not be disturbed because he was composing his great epic. Nothing of the poem save the title was ever written. He was worthless, garrulous, plausible, hypocritical, seemingly brilliant and at heart criminal. Indeed, vanity, intellectual conceit and selfishness associated with mental feebleness are the great qualities of the mattoid.

Sexual perversion, which, of course, occurs in many other conditions and may be merely vice, is not infrequent and may vary in intensity from the most bestial habits to a mere sickly but harmless estheticism. The mattoid is prone to have an appetite for drink or drugs which he uses to increase his dreaming ability. Sometimes, however, he is temperate or even abstemious. His dreams and his thoughts of greatness usually concern what he would call "the higher things." In his own mind, he is a poet, a painter, a dramatist, or a philosopher, who has solved, but never to the satisfaction of any one else, the riddle of the universe. He thinks the esthetic quality is highly developed in him and that he is of finer fiber than the poor creatures who live around him. He often has much religiosity.

He is often a reader of books he does not understand. He often writes and sometimes gets printed books on fantastic subjects no one can understand. The paranoiac does the same and sometimes does it better. He differs from the paranoiac in that, though he may feel that the world has used him badly and not given him the credit he deserves, yet he does not develop real delusions of persecution. He hopes on for recognition to the end. Though he, also, is extremely conceited he never gets delusions of grandeur; he never thinks he is pope, cardinal or king. God or the devil. He never hears voices or has visual hallucinations. His dreams are self-induced and recognized to be such. He is rather proud of his ability to day-dream. He is always lazy and indolent. Selfish though he is and much as he will impose on a poor wife or mother or any one who will slave for him while he dreams, he rarely commits serious crime, and if he does murder it is, as a rule, from the same motives as the average man. He is not entirely devoid of moral sense. His disease soon reaches its height and then remains stationary. He rarely develops dementia. If he becomes distinctly insane in the technical sense, save in old age, it is caused by stress, alcohol or drugs. He runs his course for many years useless and a parasite and dies.

The recognition of paranoia is difficult because many cases are not typical; all do not run the same course, all do not show the same wealth of symptoms; many are mere aborted or fragmentary cases. Some one has used the illustration that if the thick end of a wedge be used

to typify complete paranoia, cases will be found less and less typical and less and less serious till at the thin edge it is impossible to say whether the patient is normal or diseased.

There is, indeed, a great borderland of wide extent and indefinite boundaries wherein live many people whom it is impossible to classify as either sane or insane. At times they seem normal, at other times abnormal. We all know people who throughout life are suspicious, resentful, egotistic and perverse in their manner of reasoning, but who would never commit any of the grosser crimes, and yet are continually doing little social crimes which show a lessening of the moral sense and who lead miserable and unhappy lives not on account of any external stress or because they have had any serious trouble, but because they are born so.

Again, there is the man who with much conceit and little resentment and not much suspiciousness never gets along in the world though he is ambitious and always busy, always doing things, always inventing something that will not work or would be useless if it did, or preparing ways to hasten the millennium or doing other similar things. We have all met the litigious paranoiac. He is the man who is always going to law over trifles. In the worst cases he will spend his all to prove his rather worthless rights. Even in erotic paranoia there is every grade.

To still further complicate the matter some men of great talent or even genius present fragmentary evidences of paranoia. There have been men who did much for the progress of the world whose vanity was supreme and whose conduct was vicious in the extreme; men who did things not from any altruistic instinct, but simply from the pride of ability. Some have even been distinctly delusional. There have been others whose ability was restricted in extent, but prodigious in intensity, who were cranks and queer all their lives—the men of much uncommon but no common sense. There are others who, distinctly paranoid in the eyes of those competent to judge, yet have intelligence enough to deceive the public or a large part of it for years and to live well on generous dupes. Some patients with aborted paranoia have no moral defect. Their disease is purely intellectual.

Paranoia never shortens life. Most patients live to old age; none recover. The intensity of the symptoms may vary from time to time and the quiet and discipline of a well-regulated hospital may cause the delusions to become submerged temporarily, but they emerge again. Dementia finally ends the scene.

If this were all, complex as the problem is, the diagnosis would be relatively simple compared with the reality. Unfortunately, however, there is the so-called secondary paranoia. In other words, in alcoholism, in senility, following certain acute maniacal and hallucinatory states, and in one form of adolescent insanity there occur periods which, taken by themselves and considered without regard to the past history and, of course, without knowledge of the future, present a more or less resemblance to true paranoia. As a rule, in these cases there is a large element of dementia, and hence the ability to reason is far less than in paranoia. Then, too, hallucinations play a much larger part than in primary paranoia. Indeed, many of the delusions are based on remembered hallucinations; e. g., visions of God and the Holy Ghost or voices threatening injury. Sometimes subjective bodily sensations are interpreted as being caused by poison or electricity. Thus, paresthesia

of the hands and feet are thought to be caused by batteries worked by enemies.

Whether or not there is any kinship between primary and secondary paranoia is a matter of opinion. Some instances of the so-called paranoid type of dementia præcox look like, and indeed probably are, very rapid cases of true but atypical paranoia. They run the entire course of the disease, ending in complete dementia in a few months. Why certain persons suffering from alcoholic insanity, mania or senile insanity should develop paranoid symptoms can not be determined with certainty, but it is probable that in them the congenital tendency to paranoia, though present, is not sufficiently strong to show itself until bodily disease or stress of life has weakened them.

Paranoia is of medicolegal interest, because its victims are often so intelligent as to appear to be entirely responsible for their conduct and because they often come in conflict with the law. Compared with the total number of patients, crime is not frequent among paranoiacs, but many of their crimes look like the acts of sane men and are carefully planned and cunningly done. They also, of course, may commit crime under the influence of sudden impulse. Many who never commit a felony cause much trouble and fear by writing threatening letters or obscene love letters to people whom they do not know or scarcely know. As it is impossible to foretell whether or not threats will be followed by action, the result on the peace and happiness of the recipients of the letters may be serious.

Some paranoiacs have a delusion that some particular person or group of persons has stolen money from them or is keeping them out of an inheritance or has misappropriated a trust fund and will bring or attempt to bring suit to recover or, taking the law in their own hands, kill the suspected persons. Erotic paranoiacs sometimes murder the persons for whom they have developed an insane love. Some paranoiacs who have never been declared insane make wills which later come into dispute. Very often they develop delusions of infidelity concerning husbands or wives and abuse the object of their delusion so that separation is imperative if they can not be confined in an asylum. In determining whether an alleged paranoiac is really sane and responsible for a crime, competent to take care of himself, and able to understand the nature of a contract, or insane and ought to be restrained in an asylum, have a guardian appointed for his estate, or be relieved from the consequences of a contract he may have undertaken, the same factors come into consideration as in any other alleged insane person. The physician's duty in court cases is simply to discover the mental condition of the patient. That having been done, the question of the responsibility or irresponsibility, competency or incompetency of a man in his mental state is a matter of law and to be decided by judge and jury.

A Journal to Discuss Borderland Questions of Theology and Medicine.—A German physician and clergyman have combined to publish the *Zeitschrift für Religionspsychologie*, to be issued by K. Marhold, Halle, Germany. The aim of the publication is to develop a healthy religious life—the “psychagogics of practical theology;” to study the anomalies in religious life, the hypernormal and hyponormal manifestations, and the development of the religious life in all ages and countries and under various influences. The *Münch. med. Wochschr.* states that the first number has already appeared and contains articles on “Biblical Religious Psychology,” “Religious Conscientiousness,” and “Obsessions and Religious Practices.”