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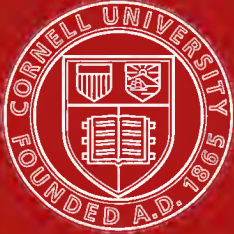
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A SYSTEM OF LEGAL MEDICINE.

VOLUME II.

A SYSTEM
OF
LEGAL MEDICINE

BY

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DUTIES AND RESPONSIBILITIES OF MEDICAL EXPERTS.

BY WM. B. HORNBLOWER.

ONE of the most important and striking developments of modern jurisprudence is in the line of expert testimony. The common law recognizes the right of parties to call as witnesses those who are specially skilled in or familiar with any particular art or science, in order to explain the meaning of words or phrases having a peculiar meaning in such art or science. From this has developed the practice of calling experts in mechanics to give opinions in patent cases, and experts in medical science to give opinions in cases involving medical questions.

The most important class of cases in which medical experts are called to give testimony is that involving the issue of sanity or insanity. Many embarrassing difficulties have arisen in cases of this kind as to the examination of expert witnesses, and many well-founded objections have been made to the methods employed in such examination in the courts in this country and in England. Some of the most salient objections are to the employing of persons as paid medical counsel by one side or the other; the examination of the experts by hypothetical questions framed in the interest of one side or the other; and the laying down of tests of sanity or insanity by the courts as matters of law, instead of treating the questions as purely medical ones to be decided by the weight of the expert testimony.

Before considering any of these objections it is proper to state in a summary manner what is the general practice prevailing in the courts of England and of this country. To cite authorities in illustration of the practice, or to endeavor to differentiate the practice of the various jurisdictions, or to state the limitations and exceptions to the rules laid down, would involve a treatise. My function is simply to give results and to state the practice in general as it now exists.

In the first place, it is a principle of our jurisprudence that the question of sanity or insanity, when it arises as an issue in the case, is to be determined by the court, or, if it be a jury case, by the jury, and is not to be decided by the medical experts. Again, the question of sanity or insanity presents itself in different shape in different forms of litigation, and the legal rules as to what constitutes sanity or insanity in the case before the court are laid down by the court for the guidance of the experts as well as the guidance of the court itself or the jury.

Thus, in criminal trials where the accused is defended on the ground of insanity, the courts have laid down certain rules of law as to what degree of mental or moral obliquity is sufficient to shield a man from punishment and to make him, in a legal sense, irresponsible. The courts have differed widely as to these tests, and no rule of law with reference thereto is universally accepted even now; but nevertheless the courts assume the right to instruct the jury as to what does constitute sufficient insanity to be a defense.

One of the tests laid down by some of the courts has been that defendant must have been so far under the influence of insane delusion at the moment of committing the act as not to be conscious of right or wrong. This test has the sanction of the House of Lords. Another test laid down is that the defendant is responsible for his act if he had sufficient intelligence to know the physical consequences of the act, and that it was a wrongful act and in violation of the law, whether he was under the influence of moral delusion or not. But whatever test be adopted, it is well settled in practice that the court is to declare the rule and the jury are bound to accept it.

Again, in the trial of will cases, the tests of competency to make a will are laid down by the courts. The most usual rule laid down is that the testator was competent to make a will if he had sufficient intelligence to remember and understand the nature of his property, the objects of his bounty, and those having claims upon him, even though he may have been to some extent mentally unsound.

Very severe criticism has been indulged in by some medical men and alienists upon this practice of laying down the test of criminal responsibility and testamentary capacity by the courts. It has been urged that the question of insanity is one purely of medical science, and that the tests of insanity should be derived from the testimony of the experts, and not from the opinions of the judges. This objection assumes that the issue is purely one of sanity or insanity. There are, however, various degrees and phases of mental unsoundness. A man may be to some extent mentally unsound, and yet he may not be in such a condition of mind that as between him and the community he should be shielded from the consequences of criminal conduct. So, too, a man may have mental delusions or weaknesses, and yet not be incapable of disposing of his property. It would seem, therefore, proper that there should be some general rules of law laid down for the various classes of cases where insanity is an issue, and that there should be some guide laid down for the instruction of juries and judges in the different classes of cases. At any rate, such is the practice.

The rule is thus stated by an eminent authority (Wharton and Stillé's *Medical Jurisprudence*, sec. 193): "While experts may be called to testify as to states of mind and conditions of health, it is for the court to declare whether such states and conditions constitute irresponsibility."

Another well-settled rule is that medical-expert witnesses may be permitted to state, in connection with their opinion, as to the sanity or insanity of a person, based upon the testimony in the case, the reason upon which it was founded; but inferences from the facts as to guilt or innocence of crime cannot be testified to. Nor can the witnesses be allowed to testify that certain facts indicate consciousness, apprehension, truthfulness, etc. (See *People vs. Barker*, 115 N. Y. 475.)

Again, another rule observed in the courts on the examination of experts is that their opinion is to be asked, not upon the case as a whole, but upon hypothetical questions presented to them. And it is further the practice to allow each side to call and to pay expert witnesses, and to obtain their opinions upon the hypothetical questions framed by the respective counsel. The theory on which the experts are examined is that they are testifying to the rules of a particular science as applied to a given state of facts. Those rules are themselves facts, just as much as are the other facts testified to by witnesses from their senses of sight and hearing. Thus the laws of chemistry may be testified to by a chemical expert—the chemical effects of certain acids, and the results of chemical analyses, for these are as much facts as is the label on a certain bottle, or the name of the apothecary from whom the bottle and its contents were purchased. The primary object, therefore, of expert testimony is, not to prove opinions, but facts in the shape of rules of science or art generally recognized by those who are especially instructed in such science or art. In certain domains, however, of science and art it is possible for men of equal attainments to differ in their views as to the rules applicable to a given state of physical or mental phenomena presented to them; hence comes the sphere of what is called "opinion evidence."

The object to be attained by the courts is to limit the opinion as much as possible, and to get as nearly as possible at the rules generally recognized by the profession of which the expert is a member, and thereby to keep the issue within the realm of facts. This is the theory on which hypothetical questions are based. When an expert witness has a hypothetical question put to him and is asked to give his opinion upon the state of facts presented, he is in legal theory asked to state what he understands to be the fact with regard to the medical rules applicable to that set of circumstances.

In criminal cases, or cases *de lunatico inquirendo*, it is, of course, feasible for the expert witnesses to personally examine and observe the party, and they can thus form an opinion as to his mental condition at the time of such examination, which they can express in the shape of a conclusion, explaining the grounds on which the conclusion is based. In will contests, however, which form a very large class of the controversies involving the issue of mental competency, this is impossible. In such cases the hypothetical question is the only recognized mode of eliciting the testimony of expert witnesses—i.e., a question putting a supposed case based upon the facts as claimed to be established by the other witnesses, and inquiring whether if such and such were the facts as to the conduct, character, and history of the deceased he would be in the judgment of the witness of sound and disposing mind and memory.

Many forcible objections are urged against the use of the hypothetical question. It is claimed, and with too much truth, that this form of question assumes as proved whatever the counsel putting the question has endeavored to prove, and combines insignificant with important circumstances, and alleged facts, supported by slight and perhaps worthless testimony, with other facts of which the proof is strong and convincing, while omitting still other facts of equal or of greater importance which may be overwhelmingly established upon the other side; that this form of question is in effect nothing more nor less than a summing up by counsel, assuming all the allegations of fact in his favor of which

there may be only a scintilla of proof, and omitting all other facts, however clearly established. Expert testimony based upon such one-sided hypothetical questions is almost of necessity favorable to the questioner, and the seeming inconsistency of expert witnesses of equal ability and learning is very largely due to this mode of examination. In other words, expert witnesses who might agree if the same hypothetical question were put to them almost of necessity disagree when directly opposite hypothetical questions are put to them.

Various remedies for this evil have been suggested, such as having the hypothetical questions framed by the court, based on the testimony of each side, and asking the witness to give his opinion on each theory. This practice, however, would only partially obviate the difficulty, unless the court should, in framing the question, assume to decide what facts had been established on either side.

In will cases there seems to be no escape from the necessity of hypothetical questions in some form so long as the issue of sanity or insanity is to be decided by the court or the jury. It manifestly is impracticable to ask the expert witness to give his opinion on the whole case as to whether the deceased was sane or insane, for this requires the expert to decide the whole case, and nothing remains for the court or the jury to do except, perhaps, to decide between conflicting expert evidence; and this, of course, is inconsistent with our whole theory of trial by court or jury. It might, perhaps, be feasible to have the court or the jury make findings of fact as to the evidence of conduct, character, and history, and then have a commission of experts decide whether, on such findings, the deceased was or was not insane. This, however, is also open to manifest objections, since it would involve, in order to be of any value to the experts, a multitude of findings involving minutiae of conduct which would be almost hopelessly bewildering to a jury, and in a long trial, intolerably burdensome to the court.

The true remedy for the evils that undoubtedly exist in the trial of cases involving the question of insanity is to have this question separately passed upon, as far as practicable, by a commission of experts. Legislation in the State of New York has set an example in this direction. By section 658 of the Code of Criminal Procedure of the State of New York, it is provided that when a defendant pleads insanity the court may appoint a commission to examine him and report to the court as to his sanity at the time of the commission of the crime. It is further provided that if a defendant in confinement under indictment appears to be at any time before or after conviction insane, the court may, unless the defendant is under sentence of death (in which case powers are conferred by other statutes upon the governor to examine into the question), appoint a like commission to examine him and report to the court as to his sanity at the time of the examination. And if the commission find the defendant insane, the trial or judgment must be suspended until he becomes sane; and the court, if it deem his discharge dangerous to the public peace or safety, must order that he be committed in the meantime by the sheriff to a State lunatic asylum, and that upon his becoming sane he be redelivered by the superintendent of the asylum to the sheriff, whereupon he must be brought to trial, judgment, or execution, as the case may be, or be legally discharged. (Code of Criminal Procedure, secs. 659, 661.)

These provisions of the Code of Criminal Procedure, enacted in 1881, supersede and enlarge the previous provisions of the Laws of 1874, chapter 146. That act, for some reason the propriety of which it is difficult to understand, restricted its provisions to the crimes of "arson or murder, or attempt at murder, or highway robbery," while the present act extends to all crimes.

There are constitutional difficulties in the way of making the findings of the commission conclusive against the accused in criminal cases if they find him sane at the time of the alleged offense, since that would deprive him of his right to a trial by jury on that issue, which is an essential part of the inquiry as to his guilt.

It would be well, however, if in all civil cases in which the issue of sanity arises that question could be submitted to a commission of experts. In equity and probate cases there is no constitutional right to a trial by jury in most jurisdictions, and in such cases this mode of disposing of this issue would seem to be feasible and expedient, and would obviate many of the objections now existing in the trial of cases where expert evidence as to sanity is called for.

There are certain cases in which expert evidence is frequently given where it would seem to be wholly inappropriate. Thus in murder cases the accused is very often defended on the ground of momentary or temporary insanity. This defense really amounts to little more than excusable and uncontrollable anger. It is usually availed of in extreme cases, such as where the accused has killed the seducer of his wife. In such cases the jury, prompted by the feeling that the accused was justified in the killing by reason of the injury received from the deceased, readily avail themselves of the excuse offered by the defense of temporary insanity. Yet it is manifestly absurd, in such a case, to call medical experts to prove or disprove the proposition that a man who is perfectly sane the moment before the act and perfectly sane the moment after can be temporarily bereft of reason by rage and indignation so as to be irresponsible for his acts. This is in no proper sense a medical or scientific question, but a question of common sense and common experience which a judge or a jury are competent to decide for themselves.

Much criticism has been indulged in by the courts as to the value of expert evidence. Thus Lord Campbell's remark in the case of the Tracy Peerage, 10 Cl. & Fin. 191, has been often quoted to the effect that "skilled witnesses come with such a bias on their minds to support the cause in which they are embarked that hardly any weight should be given to their evidence." This criticism is unduly severe. There can be no doubt that the function of expert witnesses is a most valuable one, and is in fact indispensable to the proper administration of justice in the courts.

There is much to be said in favor of having certain persons selected by the Supreme Court of the State from the medical men attached to the State insane asylums and other institutions, and from among those specially skilled in questions of mental disease, to act as experts whenever desired by parties in the trial of causes—such experts to be paid a certain sum *per diem* to be fixed by law. The experts so selected by the court would feel a degree of responsibility to the court, and a degree of freedom from obligation to the party calling them, which would tend to make them independent and impartial.

It is needless to urge the duty of medical experts to free themselves as far as possible from the bias of their retainer. It should be the aim and pride of the medical expert to realize that he is after all not a counsel, but a witness called upon to testify to facts of medical science with which he is supposed to be familiar, and that those facts should be testified to fully, frankly, and fairly, just as much as if he were called as a witness to prove what took place at the time of an alleged murder. It is, of course, natural that pride of opinion should be evoked, and that bias should be aroused, on the part of the medical expert, especially when subjected to harassing and sometimes annoying and disrespectful cross-examination. The obligation, however, to tell the truth, the whole truth, and nothing but the truth, should be constantly before the mind of the medical expert. It is not his function to carry on a dialectical warfare with opposing counsel or opposing experts, but to give a full and complete statement of the medical rules applicable to the case in hand, on the hypothetical questions put to him, without fear or favor.

INSANITY IN ITS MEDICO-LEGAL BEARINGS.

BY

ALLAN McLANE HAMILTON, M.D.

PART I.—GENERAL INTRODUCTION.

MIND is that manifestation of life which depends upon the functional activity of the brain, and is expressed in the exercise of feeling, thought, and volition. In the light of modern psychological research I do not believe it can be regarded as a distinct entity, as it has been for so long a time, and is to-day, by some metaphysicians and many theologians. It is my purpose to briefly consider normal and diseased function alone, referring my readers to the accumulated researches of a host of psychiatrists, physiologists, and anatomists for extended data.

The human being possesses an ego which is the basis of all mental activity, and through it he realizes the relations he bears to the external world, as well as the *value* of impressions which have been transformed into concepts, while previous experiences are stored up and form the basis of thought and action. The outer world bears an indirect relation toward him through external experience. All of his ability for weighing, coördinating, and using his own internal formulated impressions (concepts), as well as of putting himself in every way in proper touch with outside things, depends upon the faculty of attention (apperception). The power of attention and its connection with concept selection determines greatly the intricacy and degree of thought and action.

The many steps of mental development have been traced by painstaking observers whose results are incontrovertible, and in these days of progress we are furnished with indisputable facts which show how the mind may be partially or generally destroyed in a distinctly definite manner by morbid processes and focal disease. Extirpation of certain tracts or regions is followed by perversion or abolition, it being possible to repeat such experiments over and over again if one chooses. We have been shown that ancephalous monsters exist, and modern localization has thoroughly changed our inexact and speculative knowledge of brain function, which a quarter of a century ago partook largely of the nature of guess-work. It is, moreover, possible, after studying the questions of heredity and environment, to realize the influences that materially act in the genesis of mental development or decay. The healthy play of human passions and feelings depends upon cerebral integrity, and possibly before long our knowledge and appreciation of the origin of many of the

higher attributes of mental function will have a material and satisfactory explanation. For the proper study of the mind in health and disease we must view the subject first from the side of development and degeneration, and, again, we must consider the coördination and mutual dependence of cellular functional activity and efferent and afferent perfectness of communication. It is better to break away from the iron-clad so-called divisions of mind adopted by the older metaphysicians and to consider the manifestations of brain action as not only extremely variable but complex in their display. After all, the power and extent of mental action depend upon the capacity of the apparatus which gives birth to psychic activity. With the more primitive nervous organs we have nothing here to do, but the study of the mind of man is before us, and we shall proceed to the discussion of its impairment.

It may be assumed beyond doubt that *the growth of intelligence bears relation to the complexity of the nervous organization or the evolution of the higher ganglia*. It would be difficult to form any exact estimate of its extent, and the point to which it may be developed even in the lower animals, but it may be assumed that convolutionary perfection, completeness in the connection of cells and groups of cells, determines the possibilities of mental growth. There is no absolute indication of intellectual power to be derived from the size of the brain or the shape of the head alone, except in a most general way. Students of craniology have called attention to the asymmetry of the cranium and the irregularity and exaggeration of the fissures which divide the cerebral convolutions, but anything more than this is mere guess-work. Abundant statistics are on record to prove that the heaviest brains do not go with the grandest intellects, but, on the contrary, these statistics indubitably show that some of the greatest minds are the product of insignificant brains so far as mere weight is concerned. We are safe, however, in fixing the minimum weight of the normal brain, and assuming that certain figures must be associated with a very low degree of intelligence, or none at all. Gratiolet (*The Brain as an Organ of Mind*, Bastian, p. 36) has fixed the lowest limit compatible with ordinary intelligence at 900 drams; Broca at 907 for the female and 1049 for the male. The average weight of the human brain has been estimated by Sharpey as follows: maximum weight of adult male brain, 65 oz.; average weight of adult male brain, 49½ oz.; minimum weight of adult male brain, 34 oz.; maximum weight of adult female brain, 56 oz.; average weight of adult female brain, 44 oz.; minimum weight of adult female brain, 31 oz. Morris has reported the heaviest brain so far recorded, the weight being 67 oz. (*Brit. Med. Jour.*, October 6, 1872). After all, the true test of intelligence is that of general structural development, and it is probable that, if the microscope could be brought to reveal the most delicate commissural connections, the brain nearest perfection would show a well-developed convolutionary surface, plentifully supplied with cortical cells, and with intricate communications between separate groups. The brains of persons of low intelligence—idiots and others—on the contrary, show a flatness of the external surface, with imperfectly defined and separated convolutions, a notable degree of flatness of these, as well as asymmetry or a distinct difference between the two hemispheres. At another part of this article these matters will be considered *in extenso*.

The lessons of physiology and pathology throw much light upon the

functions of the brain and changes in the genesis of mental expression that follow its partial removal or impairment by disease. An experiment often performed in the physiological laboratory consists in the removal of the cerebrum from pigeons and frogs, resulting in the deprivation of all mental control and the persistence only of reflex function and an automatism which follows stimulation or suggestion and is shown in peculiar motor activity of one kind. Birds thrown in the air for a time fly, and swallow food only when it is placed so that the muscles of the throat are thus stimulated to reflex action, there being nothing volitional. The frog, if mutilated in this way, will only jump if pricked, and though when placed upon an inclined board it finds its way to the top, it is simply the result of a species of automatism which has no immediate intellectual connection, but is something acquired that has become habit.

The tolerance of the brain to injury is remarkable, for it may undergo very decided mutilation, even losing much of its substance, often without any considerable resultant impairment of function, and sometimes none whatever. Modern surgery has proved that all sorts of operative procedures, which until recently were supposed to have no other results than those of a fatal character, are now not only proper and remedial measures, but that the surgeon's knife can enter the brain in many places without any risk whatever to life. Hernia cerebri of magnitude often follows comminuted frontal fracture with loss of bone, and removal

or necrosis of the cerebral tissue does not always mean any great impairment or abolition of mental function. The celebrated New England tamping-iron case is familiar to many people. The subject was a workman who was engaged in drilling a hole in the rock. Through a premature explosion the blast went off, blowing the tamping-iron, which was several feet long and at least one inch in diameter, through the anterior part of the head, it entering below and passing out above, creating an opening of such size that much of the fore-brain was destroyed. (Fig. 1.) The immediate effects were, considering the serious shock and loss of substance, comparatively insignificant, and he lived for many years, eventually dying of tuberculosis. Except for an irritability of temper there was little mental weakness. Large tumors which may occupy the greater part of one hemisphere may exist for years, giving no indication of their presence; bony excrescences or spiculæ may also make what must be considered dangerous pressure, and still the sites involved seem to be those without function, or at least tolerate the unusual violence.



Fig. 1.

On the other hand, a very small lesion may create great mischief. This is especially true when it is situated at the lower and posterior part of the brain, where nerve trunks and important nuclear centers exist,

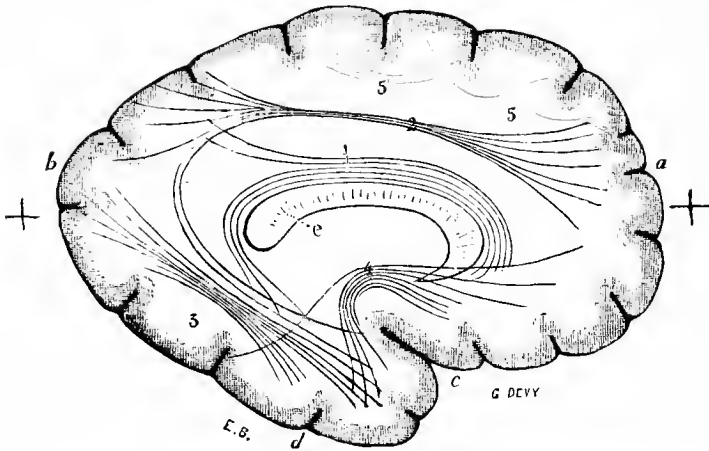


Fig. 2.



Fig. 3.

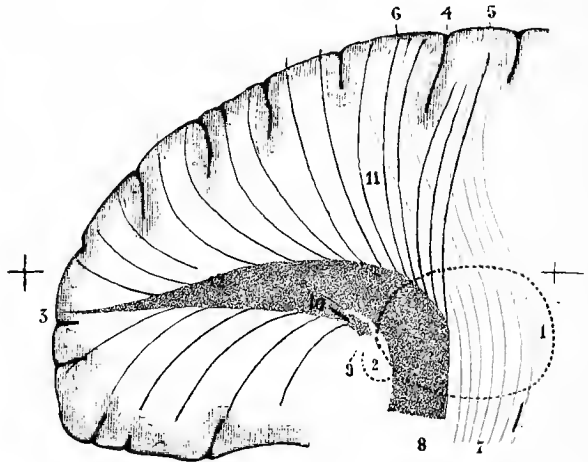


Fig. 4.

Diagrams illustrating the ramifications of fibers and the location of the basal sensory area of the brain. (Testut and Meynert.)

Fig. 2.—Intracerebral fibers: *a*, anterior extremity of left hemisphere; *b*, its posterior extremity; *c*, fissure of Sylvius; *d*, temporal lobe; *e*, splenium; 1, longitudinal fibers of the cingulum; 2, long superior fasciculus (*fasciculus arcuatus*); 3, inferior longitudinal fibers; 4, unciform fibers; 5, 5, arched fibers.

Fig. 3.—Diagram of arched fibers and those with close local connections: 1, short arched fibers going from one convolution to a neighboring one; 2, long arched fibers going from one convolution to a more distant one.

Fig. 4.—Diagram representing a vertico-lateral section of the left hemisphere, showing the sensory fibers and their irradiation toward the cortex: 1, optic thalamus; 2, geniculate bodies; 3, posterior extremity of hemisphere; 4, fissure of Rolando; 5, ascending frontal convolution; 6, ascending parietal convolution; 7, pyramidal (red), going to the motor zone; 8, sensory fibers (blue); 9, optic fibers; 10, sensory decussation; 11, vertical sensory fibers going to motor zone; 12, horizontal sensory fibers going to the parietal, temporal, and occipital lobes.

Here we find the origin of the cranial nerves, which play so important a part in special sensation, in respiration, the action of the heart, and digestion. Lesions at certain parts of the brain concerned in conduction, may wholly or partially involve the great bundle of nerve-fibers which descend or ascend, producing paralysis of sensation or motion, cutting off the centripetal impression or the centrifugal volitional flow. Above

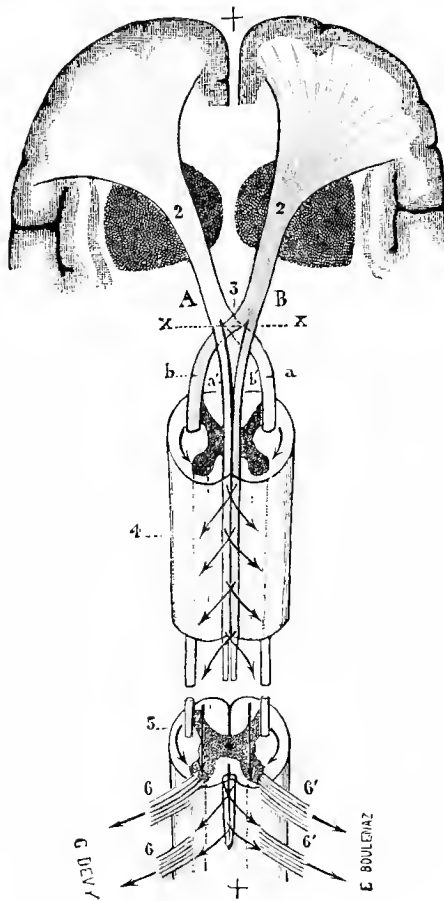


Fig. 5.

Diagram representing the course of the pyramidal fibers between the cerebral cortex and the cord and anterior nerve roots. (Testut.)

A, Pyramidal fasciculus on the right side (yellow); B, pyramidal fasciculus on the left side (red); a, a', direct and crossed pyramidal fibers of the right side; b, b', direct and crossed pyramidal fibers of the left side; 1, motor zone of the cortex; 2, internal capsule; 3, decussation of pyramids corresponding to the transverse axis X, X'; 4, trunk of cervical cord seen anteriorly; 5, inferior part of the dorsal cord; 6, 6, anterior nerve roots of the right side; 6', 6', anterior nerve roots of the left side. "It is seen in this diagram that one side corresponds to the other: first, the crossed pyramidal fibers entirely passing over to the other side at the root of decussation of the pyramids; second, the direct pyramidal fibers are crossed, bundle by bundle, throughout the length of the cord; in short, all the motor fibers issuing from one hemisphere, that follow the course of crossed or direct fasciculi, emerge from the cord as anterior nerve roots on the opposite side."

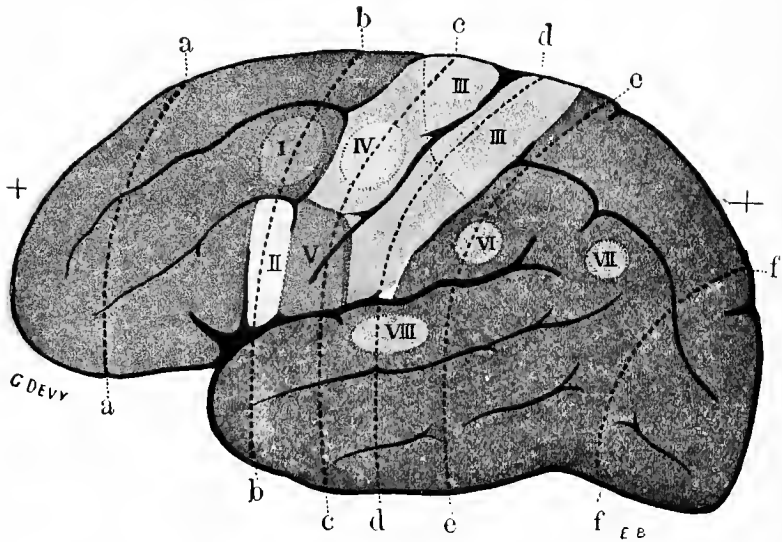


Fig. 6.

Diagram representing the topography of the cortical areas of the left hemisphere. (Testut.)
(The method of division is that of Pitres.)

a, a, Prefrontal section; *b, b*, pediculo-frontal section; *c, c*, frontal section; *d, d*, parietal section; *e, e*, pediculo-parietal; *f, f*, occipital section. The violet tinting indicates the *psychic* zone; *blue*, the *sensory*; *red*, the *motor*; *green*, the *geniculate centers* (of face, and nerves concerned in mastication as well as the hypoglossal); *yellow*, the *center of aphasia*. *I*, Agraphic center; *II*, aphasic center; *III*, center of lower extremity; *IV*, of superior extremity; *V*, motor center of face; *VI*, center of word-blindness; *VII*, center of hemianopsia; *VIII*, center of word-deafness. Besides these there is a center in the uncinate gyms, which probably controls the sense of smell.

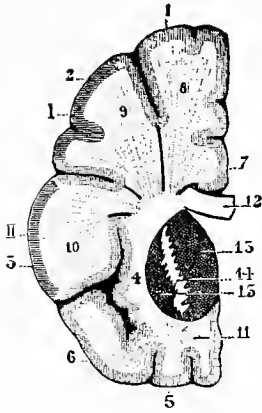


Fig. 7.

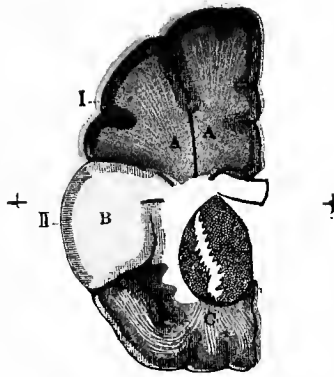


Fig. 8.

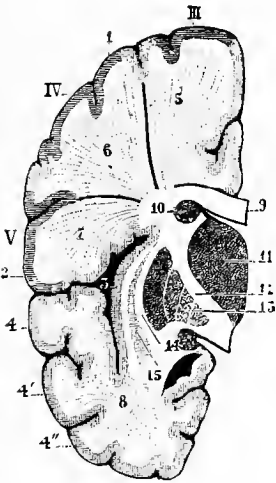


Fig. 9.

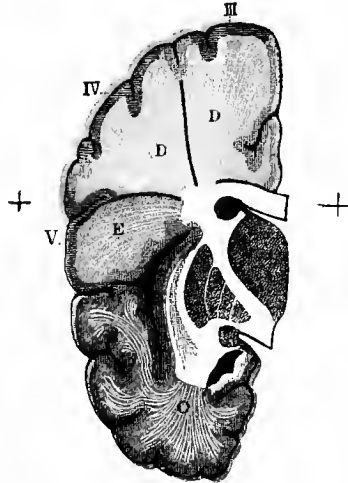


Fig. 10.

Sections of the cerebrum showing the association fiber system. (Testut.)⁴

Figs. 7 and 8.—Pediculo-frontal section: 1, 2, 3, first, second, and third frontal convolutions; 4, island of Reil; 5, orbital convolutions; 6, anterior extremity of temporal convolutions; 7, convolutions of corpus callosum; 8, superior pediculo-frontal fibers; 9, middle pediculo-frontal fibers; 10, inferior pediculo-frontal fibers; 11, orbital fibers; 12, corpus callosum; 13, caudate nucleus; 14, internal capsule; 15, lenticular nucleus; *I*, agraphic center; *II*, aphasic center (see Mill's article); *A, A*, psychic fibers (violet); *B*, aphasic fibers (yellow); *C*, sensory fibers (blue).

Figs. 9 and 10.—Frontal section of cerebrum: 1, ascending frontal convolution; 2, foot of ascending parietal convolution; 3, island of Reil; 4, 4', 4'', first, second, and third temporal convolutions; 5, superior frontal fibers; 6, middle frontal fibers; 7, inferior frontal fibers; 8, sphenoidal fibers; 9, corpus callosum; 10, caudate nucleus; 11, optic thalamus; 12, internal capsule; 13, lenticular nucleus; 14, external capsule; 15, claustrum; *III*, motor center for inferior extremity; *IV*, motor center for superior extremity; *V*, motor center for face; *D, D*, motor fibers (red); *E*, sensory (blue); *C*, geniculate fibers (green).

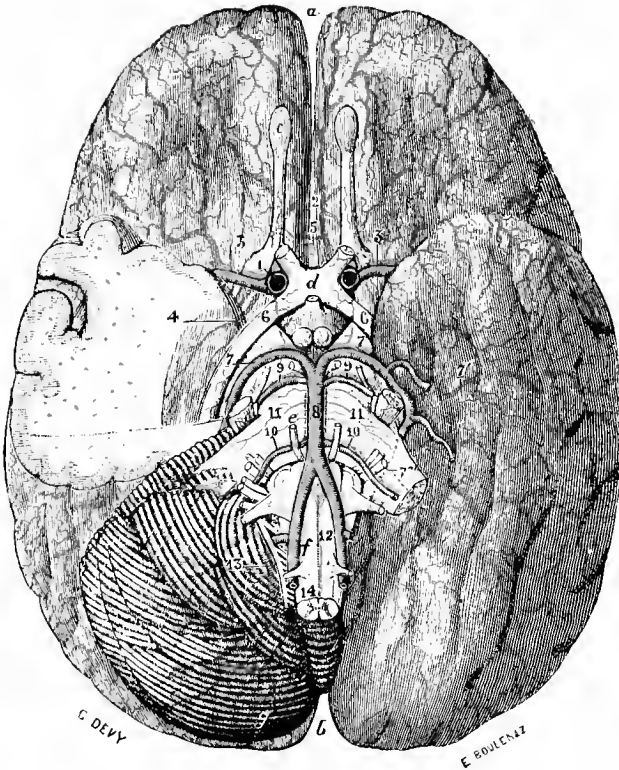


Fig. 11.

Showing the arterial supply at the base of the brain. (Testut.)

1, Internal carotid artery, divided at the opening of the cavernous sinus; 2, anterior cerebral artery; 3, middle cerebral artery and Sylvian artery; 4, choroid artery; 5, anterior communicating artery; 6, posterior communicating artery; 7, posterior cerebral artery, with (7') its anterior, (7'') its middle, and (7''') its posterior branches; 8, basilar artery; 9, superior cerebellar artery; 10, inferior and anterior cerebellar arteries; 11, bulbar arteries; 12, vertebral arteries; 13, inferior and posterior cerebellar arteries; 14, anterior spinal artery; *a*, anterior extremity of inter-hemispherical fissure; *b*, its posterior extremity; *c*, olfactory bulbs; *d*, optic commissure; *e*, pons; *f*, bulb; *g*, cerebellum. The left hemisphere of cerebellum and right temporo-sphenoidal lobe have been removed.

and in the cortex or investing gray matter we find the seat of that form of nervous action which is the direct output of cellular function. In some places are well-determined areas whose special office is to originate definite motor impulses. Thanks to Hitzig, Fritsch, Ferrier, and a host of other observers, we know that localized irritation of these will be followed by muscular contractions in distal parts, and that these are of a uniform character, as can be repeatedly proved. We know that posteriorly in the occipital lobes are located centers for vision; that above in the parietal region is what is known as the *angular gyrus*, a center for the coördination of symbols that play a part in audition; that anteriorly on the left side of the brain, at the foot of the third frontal convolution, is a center for speech, and that when destroyed the condition known as aphasia is a result; that at the base of the brain anteriorly is a center for smell. These, as well as many others, have been located by experiment and proved to exist by the results of disease.

What the exact location of the apparatus of *mind* is has always been a matter of active dispute, although the great mass of testimony goes to show that it is the fore-brain which is concerned. In the light of experiment and clinical observation this theory seems open to some question, and the views of Hughlings-Jackson and Exner are less conservative and more reasonable. I am therefore inclined to agree with them that no one part of the gray matter is alone concerned, but rather that mental action is the result of general and complex function. Figs. 2, 3, 4, 5, 6, 7, 8, 9, and 10, from Testut's admirable treatise (*Traité d'Anatomie Humaine*, etc., t. 2, Paris, 1893), will enable the reader to more readily recognize the intricate system of communicatory or associative fibers in the brain itself, as well as those which pass centrifugally. The sensory organs and tracts that are engaged in the production of mind are extensive and intricate, and not only connect the concept, propositionizing, auditory, visual, and other sensory and motor centers which may be almost adjacent, but those as well which are more remote, and others form important tracts which are direct or commissural. Figs. 2, 3, 4, 5, diagrammatically illustrate the course of these fibers. Figs. 6, 7, 8, 9, 10, indicate the general connection of these with parts of the brain in which special functions are located; Fig. 6 showing the entire lateral cortical surface of one hemisphere, with its function-zones mapped out and either represented in color or by limiting lines, and Figs. 7, 8, 9, and 10, the association systems of the fore-brain. Fig. 11 shows the important basal arterial circulation of the brain, which is often subject to obstructive changes or other disease, especially in those forms of dementia consecutive to thrombosis, embolism, or rupture from any other cause, the left middle cerebral artery being that most often involved.

Kirchhoff (*Handbook of Insanity*, p. 9) formulates the status of knowledge of localization regarding the deductions to be drawn from disease or non-development of the brain. He calls attention to the fact that:

1. "The interruption of certain systems of fibers leading from the cerebrum to the cerebellum gives rise to distinct slowness and difficulty of the mental functions.

2. "The optic thalamus seems to possess more intimate relation to the higher mental functions than does the corpus striatum, inasmuch as the former alone undergoes atrophy in congenital absence of the cerebral hemispheres.

3. "The disturbance in the intellectual development of individuals in whom the corpus callosum is absent is very small, indicating that the higher mental processes are not dependent upon the frontal brain alone; indeed, in these cases the occipital lobes are mainly atrophied.

4. "If the brain is imperfectly developed as a whole, as in some idiots, there can be no question of localization, nor is any further conclusion warranted from irregular development in the cortical layers, unless it is circumscribed."

In illustration of this he alludes to the discovery of only narrow pyramidal cells in the frontal lobes of a few idiots, which were so irregularly distributed that it was almost impossible to distinguish the layers. Here the imperfect mental development may be attributed to the imperfect development of the frontal cortex.

There appear to be no means of determining the seat of memory, but judging from the complex processes which operate in the formation of concepts, as well as their diverse nature, it is probable that they are stored up in no particular locality; in fact, the pathology of dementia and its morbid anatomy presume a progressive and general destructive change.

MENTAL ELEMENTS—NORMAL AND DISEASED.

Any extended consideration of physiological psychology in a book of this kind would be out of place, but it will suffice to state that the divisions of mind are three in number: *feeling*, which includes sensibility and emotion; *thinking*, which implies intellection or thought; and *volition*, which is a result of the exercise of the first two. These may be still further amplified and subdivided. In the older definitions of mind it was the custom to speak of judgment, reason, and memory, but, after all, these may be better included under the head of "thinking."

In the study of the normal as well as of the diseased mind we are to consider perception, which implies the recognition and appreciation of the relations of sensation and the agencies which affect the same. This means the recognition of the part played by the organs of special sense—the afferent nerves of conduction, the existence of groups of cells or nerve centers which receive the impressions from without, and the more important condition of consciousness. The kind of intelligence which is necessary for the mensuration of the form and physical attributes of objects must be taken into account, especially when we come to consider the formation of hallucinations and illusions. When a perception has been recognized and remembered, it becomes a *concept* or idea; and when comparison is made and the process of reasoning takes place, a *judgment* is arrived at.

One of the most important mental faculties is that of memory, which enables the individual to retain and store up impressions, and which really forms the basis of the most important forms of higher mental activity. Memory may be said to be of two kinds—that which consists in the retention of perceptions or external impressions, and that which concerns the acknowledged recognition of self and the inner condition (organic memory). Sensations of a personal kind are recognized and remembered, and form the basis of self-appreciation. This latter form of memory, when affected, results in the change of the ego which is so

marked in some hallucinatory insanities. The grouping of concepts or ideas, and their association, constitutes reasoning and judgment, and precedes volition, which may be the demonstrative active expression of their conclusion. The degree of this manifestation of course varies very much with the complexity and the extent of the mental operations which are behind it; and it differs from reflex action in the fact that the active demonstration is not governed by thought in the latter, but is the result of a lively external impression, which is spinal in character, and the motor expression may or may not be attended by unconscious cerebration.

The simplest form of reflex action may be illustrated by the rapid withdrawal of the finger from a hot surface, which produces actual physical pain, the cause or degree of which is not weighed or estimated by the mind, and the act itself is also too rapid to be a volitional one. Then, again, there are so-called instinctive reflex acts, where previous associations and experiences enter into the causation of particular muscular contraction, and where no apparent conscious appreciation exists. The importance of the volitional act is, of course, gauged largely by the participation of reason and judgment, as well as the concurrence of affective feeling; and we are presented in health and disease with many gradations in the acts of will which begin as impulses and reach the dignity of elaborate exercise of force after comparison, judgment, and discrimination have been operating. The capacity for inhibition, and, on the other hand, the influence of emotion and the absence of self-control, are to be considered.

In the study of those conditions which suggest mental disease we are, of course, to ascertain, if possible, not only the previous life of the individual, but his environment and such causes as may have resulted in the mental degeneration. We are also to compare his mental expressions and conduct with that of others in the community in which he may be living, to consider his training and education, and to go back, if possible, into the remote past, to discover what influence, if any, has been exerted upon his development as a result of the willful faults or involuntary misfortunes of his progenitors. Mental disease is not, as a rule, of sudden origin. There is nearly always some predisposition or some long-existing cause, and in a very great many cases the process of mental dissolution is a slow one and the departure from mental health is prolonged. This should be borne in mind, especially in the consideration of cases which form the subject of legal inquiry; but the popular idea of insanity implies all sorts of possibilities and improbabilities which do not stand the test of clinical experience.

Special Indications of Mental Weakness.

Among the important evidences of mental deterioration are Hallucinations; Illusions and Delusions; Insistent and Imperative Concepts; Loss of Memory (both external and organic); Inharmonious Exercise of Ideation or Reasoning Power; Emotional Disturbance and Volitional Diminution or Exaggeration; Physical Changes.

HALLUCINATIONS.

An *hallucination* is a false perception, and in this respect differs from an illusion, by reason of the fact that the error leading to the creation of the latter consists in the distortion of an objective thing. Hallucinations are of three kinds :

First. Those due to a defect of the peripheral perceptive organ, or of the afferent nerves and centripetal fibers.

Second. The form which includes examples of disturbance of certain central organs.

Third. Where the disorder is chiefly confined to limited cortical areas.

It has been held by some authors that it is possible to have hallucinations without any cerebral participation, or, in other words, any mental aberration, the organs of special sense themselves possessing a certain local memory. This seems to me to be a meretricious distinction and one wholly speculative, for the reason that it is impossible to have an hallucination without a previously formed concept, no matter how ancient. Persons who become blind after a time may have visual hallucinations, but those congenitally blind can, of course, have nothing of the kind, as no image has ever been projected upon the sensorium.

It is important to consider hallucinations with regard to their pathology: first, in connection with the organs of special sense themselves; and second, where they are centrally originated, as a result of an irritation and stimulus of certain brain tracts where concepts have been stored up.

The simplest form of hallucination is that due to some local irritation or disease of one of the perceptive organs, and the false images need not necessarily be insane; in fact, a variety of spurious sensory images, without objective basis, may be recognized by the individual as the result of disease or temporary disturbances of the cerebral circulation, he being able to appreciate their source, and it is only when the higher powers of the mind are so diseased that comparison and judgment fail to act as correctives, that the mental integrity of the individual is questioned. All varieties of sensory impression are likely to be perverted by causes which it is not necessary to mention here, except in a general way; but we may consider the numerous factors that may pervert the innervation of the important organs which serve to keep us in relation with the outside world. It is not difficult to explain by purely physical agencies many startling varieties of disturbed special sensation.

Hallucinations are divided into *visual, auditory, olfactive, and cutaneous.*

Visual hallucinations are largely dependent upon retinal phenomena, and are often connected with ischemia or disturbed circulation at the back of the eye. The pulsation of the central artery or variations in the retinal light may give rise to rings or disks of light, dark spots, flashes, stars, or other scintilla, which may or not be used by a diseased brain as a basis for an elaborate morbid concept association.

What other expansion there is of the mechanism which results in the misinterpretation of simple distal variations, I am unable to say. It would appear, however, that a very indifferent form of peripheral stimulation will often start a train of disorderly thought at a time when inhibition is not exerted. During the condition of sleep, when the upper

cortical layers are inactive, the mere flashing of a light before the eyes of the sleeper is likely to produce complex dreams of fire and an unsystematized comparison of concepts of some intricacy.

There are some rules which govern the occurrence of peripheral visual hallucinations, and one is that they are more pronounced when the eyes are closed and in the dark, and they are more or less influenced by the condition of the ocular muscles generally. According to Kirchoff (*loc. cit.*, p. 48): "If the sensorial deception develops in one eye alone, the possibility of distinguishing it from a unilateral hallucination which has developed centrally is to be sought in the fact that the central development gives rise to much more complicated phenomena." The explanation of a unilateral hallucination would naturally lead us to consider the physiological pathology, and to look for some affection of the occipital lobes. It has been pointed out that in parietic dementia in which the frontal lobes are most frequently affected, there are seldom hallucinations; but in those cases where this symptom has occurred the occipital lobes have been found to be diseased.

Unilateral hallucination of vision can be explained by some disease of the optic commissure, or of the nerve nuclei of one side of the brain.

Auditory hallucinations, which may be of a very simple kind, or, on the other hand (as in the case of optical perversion), may form the basis of mental mistakes, are varied in their causation and occurrence. They perhaps more frequently have a deeper and more alarming significance than the others, are not so easily corrected, and are more general in occurrence than any other hallucinations. They usually consist of the recognition of the sound of imaginary voices and the repetition of many ordinary sounds. A distinctly insane hallucination of hearing has nearly always valuable diagnostic significance, for the reason that it indicates a more general derangement than those of the other senses. A person may readily have such a sane hallucination as hearing an imaginary voice, as the result, possibly, of an irritation of the middle ear; but the insane individual expresses his fear of the sounds of voices speaking through a telephone, the register, or cracks in his room; or, in a more disorderly condition, it is the figures in the pictures upon the wall who are addressing him.

Auditory hallucinations that convey no suggestion of insanity, like all other ordinary false perceptions, are nearly always immediately removed, are recurrent in the original form, and, of course, are not associated with other evidences of derangement. The auditory hallucinations of the insane patient form the basis of communications from divine personages, from invisible friends or others, who command him to perform various acts, and he cannot be convinced of his error even when his environment is changed and certain objects are removed which facilitated the creation of the hallucination itself.

There is a light grade of purely mental auditory hallucinatory disturbance that I have seen, and it is in some measure hysterical, the full image being called up at will, and the patient's declaration and behavior doing away with any real supposition that the ear or eye is at fault. I have recently seen a case of this kind, where the suspicion that an auditory hallucination existed was at first very strong, but frequent interviews convinced me that when the patient turned in one direction and addressed an imaginary person, such an act was led up to by an incoher-

ent conversation, in which the response to the imaginary mandate was prompted by a previous train of thought; and when I asked her if the persons she addressed were near her, she replied, "No," but that she was talking to them in the spirit. The consequences of hallucinatory mandates and subsequent delusions are apt to sometimes be serious, and those cases where patients refuse food and drink because they are told to do so by imaginary persons are often obliged to submit to compulsory feeding, or, if this is not done, death by starvation ensues.

Hallucinatory voices may be bilateral or unilateral, external or internal, and are not so common at night as in the daytime when the patient is awake.

Olfactive hallucinations are exceedingly rare, and may, like the others, have a local or a central basis. Perversions of both taste and smell, therefore, may result from some actual local condition, such as decomposition of epithelium in the mouth, bad taste, offensive discharges, etc. Sometimes these conditions lead to well-marked delusions, which are amplified usually in the direction of the horrible.

The odor of decayed matter suggests that of a dead body, while refusal to eat is the result of a delusion of poisoning. There are a class of purely central hallucinations of this character which owe their origin to some disease of the olfactory nerve itself, or probably to the uncinata gyrus. Such a case I have elsewhere reported, where occasionally hallucinatory perception of the odor of smoke was a symptom, and a subsequent autopsy revealed extensive disease of the region above mentioned. However, the patient is nearly always able to recognize the source of his trouble; but when he does not, we may then account for such a perversion as an incident due to insanity.

What are known as **hallucinations of feeling**, and what are really perverted or false perceptions of the skin and its appendages, the visceral organs, or an alteration of what is known as the muscular sense, are symptoms both of the lighter psychoses as well as of the graver forms of mental disease, and, like the other hallucinations previously mentioned, may not at times be attended by any considerable intellectual impairment. They play an important part in hypochondriasis, and in that affection of limited intellectual disturbance known as paranoia, where one or two dominant illusions exist. Their range, however, is usually very wide.

Disturbances of muscular sense lead to a variety of perverted perceptions, individuals declaring that they have been deprived of certain members, or that one part of the body or the other is absent. A common example of this form of hallucination is that in which the individual who has undergone amputation declares that he feels the presence of the lost limb. Sometimes these hallucinations are pleasurable and expansive, though very often they are associated with mental distress and not un rarely lead to suicide. They very often cause the victim to declare that he is being subjected to some occult influence, that he is being mesmerized, or is the subject of punishment inflicted by others. Of course, under these circumstances, the hallucination is the basis of a delusion.

Sensorial hallucinations sometimes have an important significance in the form of sexual perversion.

Curious cases are recorded where women prefer the most absurd charges of assault, or imagine themselves impregnated or sexually de-

formed, as the result of sensorial hallucinations. I have seen several men who through such a deranged mental state believed themselves pregnant.

As before stated, the expression of hallucinations of all kinds is very irregular, and does not necessarily indicate insanity. We find everywhere in literature instances of false perception, some of which are historical and familiar. Lombroso (*The Man of Genius*, London, 1891, pp. 56, 57) has collected numerous examples, as has also Brierre de Boismont. Brutus Cæsar and Napoleon had simple hallucinations, those of the latter being evidently due to some circulatory disturbance incident to exhaustion. Shelley thought he saw a child arise from the sea and clap its hands. Bunyan heard voices. Byron imagined that he was haunted by a specter. Dr. Johnson distinctly heard his mother call him "Samuel," although she was not present. Goethe saw his own image coming to meet him, and Van Helmont declared that he had seen his own soul in the form of a brilliant crystal. "When Oliver Cromwell was lying on his bed, kept awake by extreme fatigue, the curtain opened, and a woman of gigantic proportions appeared and announced that he would be the greatest man in England." Some of these cases probably belonged to the condition of semi-consciousness or troubled sleep. Others were due to fatigue, and still others to genuine mental aberration. Dr. Johnson, as is well known, presented a form of mental disorder which is now recognized as *folie du doute*, which however is not usually accompanied by hallucinations.

The hallucinations of acute alcoholism, as well as those due to *Cannabis Indica*, *opium*, and numerous derivatives of the *Solanaceæ*—*belladonna*, *hyoscyamus*, etc.—are examples of exhaustive or toxic causation.

It is possible to induce various hallucinations by *hypnotic suggestion*, and they are by no means uncommon accompaniments of those dramatic hysterical states which are so commonly witnessed in France. In women they not un rarely have a sexual relation.

Hallucinations are found Alone and Together.—It is rare for a single hallucination to last for any length of time, except possibly when it is of an auditory character, and in this case such an occurrence is reasonable when we consider how important and general is the excitement which stimulates the word-symbol centers, that play so important a part in the operation of all thought. So far as the connection of hallucinations with particular forms of insanity is concerned, it may be said that they are more frequently met with in acute mental disease.

In primary delusional insanity or paranoia, in confusional insanity, in conditions where the nerve centers are poisoned, especially in alcoholic insanity, in the insanity which is the result of fevers, we find hallucinations to be a common symptom, and they are always increased or developed by seclusion. Hallucinations are not only a common result of solitary confinement, but are expressed at night, when the patient is alone, and when sleep is fitful, and the insane person indulges in noisy outbreaks. As Lewis (*A Text-book of Mental Diseases*, p. 167) has pointed out, such individuals are benefited by removal to an associate dormitory. "Such hallucinations," says he, "often peculiarly vivify and fascinate the mental vision, and, according to their nature, call forth corresponding results. The patient may be passionate, wild, threatening, and defiant, shouting an alarm for succor; joyous, exultant, or in a boisterous merriment. Every phase of emotional life may present itself as the hallucinations vary and he enacts his little drama alone. . . . In general

paralysis these nocturnal orgies are frequent, noisy, restless, with or without hallucination, accompanying the latter stages of most cases."

A table prepared by Dr. Edward B. Lane is reproduced, which will be of service in showing not only the kind and extent of hallucinations, but the forms of insanity in which they appear. (*Boston Medical and Surgical Journal*, vol. cxxv., No. 11, p. 268.)

	Hearing Alone.	Sight Alone.	Smell or Taste.	Hearing and Sight.	Hearing, Sight, and Smell.	Hearing and Touch.	Hearing, Sight, and Touch.	Sight and Smell.	None.	Total.
Paranoia.....	38	1	1	18	5	2	1	1	..	67
Acute melancholia.....	32	5	..	9	4	..	..	..	5	55
" mania.....	15	..	..	3	..	..	..	..	20	38
Paretic dementia.....	9	2	1	3	..	..	..	..	19	34
Post-paralytic insanity.....	..	1	..	2	..	..	..	..	7	10
Other organic brain disease.....	3	..	..	2	*1	..	..	..	..	6
Epileptic insanity.....	4	4	..	..	..	..	..	..	..	8
Insanity of pubescence.....	4	..	..	2	..	..	..	..	5	11
Katatonias.....	2	..	..	2	..	..	..	..	..	4
Hysterical insanity.....	..	..	..	1	..	..	..	..	5	6
Senile insanity.....	6	5	..	2	..	..	..	..	16	29
Alcoholic insanity.....	..	1	..	2	..	..	..	..	..	3
Recurrent mania.....	..	..	..	1	..	..	..	..	3	4
<i>Folie du doute</i>	1	..	..	..	..	..	..	..	..	1
Simple mania.....	..	..	..	..	..	..	..	..	2	2
" melancholia.....	..	..	..	..	..	..	..	..	10	10
<i>Folie circulaire</i>.....	..	..	..	..	..	..	..	..	7	7
Senile dementia.....	..	..	..	..	..	..	..	..	6	6
	114	19	2	47	10	2	1	1	105	301

The appearance of hallucinations in primary delusional insanity has been referred to, and in such a condition they are usually persistent, and form a basis of that variety known as the *sensorielle Verrücktheit*, in which some delusions owe their origin to perverted perceptions originating in the skin or the visceral organs. In other cases, delusions of persecution and suspicion spring directly from hallucinations of hearing and seeing.

ILLUSIONS.

An illusion is a distorted perception of an objective reality; in other words, it is the false perception of something that has an existence.

Illusions are like hallucinations in their classification—they may be of various kinds, and are due largely to local disease; and while sometimes as elements of insanity they are by no means so important as the forms of false perception just described, which have no objective basis, may originate more or less stubborn delusions, or, on the other hand, may often be easily corrected by their possessor.

The distinction between an illusion and hallucination may be illus-

* And touch.

trated as follows: if a person looks at a tree and sees two, it is an illusion; if he declares that he sees a tree where none exists, it is an hallucination. If he misinterprets the sound of a ringing bell, it is an illusion; if he says that he hears a bell when none has rung, it is an hallucination. Psychologically, the processes consist in the inability to comprehend the nature of a physical impression, an imperfect concept being the result of a false perception upon which an imperfect judgment has been passed.

In an hypnotic condition or one of exaggerated receptivity, an individual is very apt to make illusional mistakes in identity, which would be out of the question under other circumstances; so that it is not unusual for insane people to eventually have distinct delusions of personality, which are due to their false appreciation of the figure and form of some person whom they have possibly never seen before. Like hallucinations, illusions are common in alcoholic insanity, as well as in paranoia and confusional insanity, and sometimes exist as a symptom of paretic dementia.

DELUSIONS.

A delusion is a false belief, and may be regarded as sane and insane. Under the former head are grouped all forms of erroneous or unusual beliefs which many individuals entertain whose mental integrity is unquestioned. These latter may be simply the offspring of ignorance or prejudice or misinformation, and unless they be the fruit of religious or other dogmas may be easily removed by sufficient evidence. When beliefs are held which to many seem unreasonable, but are nevertheless shared by a sufficient number of people to be simply matters of faith, they still need not be the product of diseased reasoning, though oftentimes they are eccentric and troublesome to the world at large. No one would think of questioning the mental health of the large religious sects that believe in the immaculate conception or the miracles of Roman Catholicism, the doctrine of Swedenborgianism or spiritualism, any more than they would the sincerity of a great majority who hold to any other faith the elements of which are more or less inexplicable. It is, however, when extravagant belief obtains such complete possession, or is connected with clearly erratic behavior, that our doubts of the subject's sanity arise. So long as the spiritualist has or pretends to have communication with visible spirits, and so long as his hallucinations or illusions or delusions do not tincture his conduct in a way that makes him a nuisance to his fellows, the law concerns itself but little; but when, as the result of a delusion, a crime is committed or a foolish business act is consummated, we more seriously question his responsibility. The law is exceedingly merciful, if not lax, in its attitude toward such individuals, and is disposed to accept excuses that may be offered as a defense. I can recall a case where a large amount of money had been left by an eccentric Frenchman to a philanthropic society for the suppression of cruelty to animals, and for the special care of cats.* His will was contested, and besides peculiarities of manner, it was the subject of contest by reason of this seeming mark of insanity. It, however, transpired that the testator had been for years a consistent believer in metempsychosis, and was, naturally, anxious that his transferred soul should be well taken care of after his demise.

* The Bonard Will Case.

In Catholic countries, where large numbers of people believe in visions and miracles—such belief oftentimes being primarily based upon the doubtful testimony of a hysterical girl or some equally unreliable observer—it does not do to too closely question what most of the world would consider delusions. In a future time, when the study of the genesis of religious belief is more thorough than it now is, and when pathologists and psychologists are brave enough to consider the subject from a material standpoint, much of the present uncertainty will be removed, and it will be possible to estimate the mental integrity and illogical organization not only of many existing forms of faith, but of the new and hastily digested varieties of fashionable religion that crop to the surface from time to time and are little more than vents for those in search of notoriety or of emotional excitement to find relief. I am in possession of a large amount of manuscript which throws a good deal of light upon this subject, and I think my experience is shared by other students of mental medicine, namely, that much that is accepted by representative believers who are searching for sensations has its origin in the insane asylums. In this connection I append the statement of a paranoiac patient, whose theories are explained by his disease. This man, like others, lived for some time in a community without attracting attention to his real state, and found sympathizers and believers.

In accordance with your expressed wish that I write you a statement of events in my life which happened from the time of my return from Europe, February 7, 1876, until the present time, January 6, 1878, I proceed as follows. I will freshen your recollection by brief reference to the chief points of my education up to the beginning of this time. Early home training and general schooling usual for Christian families. General university study. Graduation in ——— Medical Department. I went to ———, opened an office in one of the best buildings there, lived at the best hotel, boarded a valuable team which had been presented to me, and my expenses ran \$150 per month, only, as I supposed, consistent with my reasonable expectations on the education, and my at least presumable professional attainments. I pursued the usual course among people—went to church, extended my acquaintance, did some professional business about the hotel among Christians and Jews, had one or two misunderstandings on the matter of charges (very unpleasant to me). Received scarcely any business from the city, though my card was very conspicuous in the city column of the daily paper—simply name, residence, office, and telephone number. I met several of the best citizens. At the hotel at this time a gentleman, evidently one of the best citizens, was living. I saw him, and remember of thinking at the time, "Now, there is one of the best citizens; he can appreciate my merits, so I will not crowd myself upon him." In the dining-room of the hotel I happened to be seated full face to the entrance, but a goodly distance away. Times were active, and many people came in and out. One noon a young and stately lady came in, a young gentleman beside her (her brother). I noticed strangely apparent evidences of her disposition for me—this upon several occasions—so much so that one day I placed my glasses on to scrutinize her closely. After two or three manifestations of her preference I noticed her in company with her mother (a lady, to my mind, of the right type); then the gentleman mentioned before as a respectable citizen living at the hotel was with her. It now became apparent they were all of one family—father, mother, daughter, and two brothers. Of all I liked the appearance and conduct. The young lady's expressions went on; then I fell in love with her. The passion grew upon me, possessed me, ran away with me. At approaching Christmas I sent her, before having met her, a large basket of flowers with my name down in the middle of them. These the mother returned, saying on a note she could not allow her daughter to receive presents from gentlemen with whom she was unacquainted. But before this I had met the father and asked him for an introduction to the family. I sent a card and called, met the mother and brothers, but a meeting with the daughter was prevented—evidently until they should satisfy themselves from others' say-so as to me: who, what, whence, value, etc., etc. The girl seemed to me the entire fulfillment of all my early-life impressions, and all my desires might ask. I loved her in-

tensely. In this love my development was completed. I wrote the mother several times to introduce us, but was not gratified. I thought, too, they favored our affections, and I supposed their method would be their own; and probably a party at their house, or at that of a friend's family also at that time at the hotel, but presently to move into an home. The family with the young lady moved from the hotel into their home in the city. We were thus estranged. Another family, friends of theirs, came to the hotel, as I believed, to encourage me meeting them. This I would not do by any volition of my own. I was resolved if they had anything to say they must say it in unmistakable language, for by now I was out of all sympathy with them at their inhuman conduct, but still loved the daughter. The season at — came on. I continued my office in the city, and by appointment of the manager of the — Hotel I kept hours there too, it being but a half-hour's run between. At — another family, friends of the first, came to the lake. I met none of them as it happened. My young lady came out to visit them. I wrote her, asking privilege to meet her; got no reply. Asked an interview with the old lady she was visiting; got it, explained the situation, and asked her for an introduction to the young lady. She thought it would be wrong, as she was their guest. The next day they went boating; came direct from the lake to their train, where the young lady's mother received her and took her to the city. The old lady at the lake then advised me to see the young lady at her home or write her, and to do so at once. Accordingly I wrote her fully, the season at the lake being ended. I got no answer, but a brother came next day to the hotel and dined with their friends. Next day the young lady came. By this time, the proceeds of business not having been up to expectations, I was being closed down upon by creditors. A friend upon whom I had relied came and helped me out, and refused to cooperate with me in any further operations in —. I would not leave without an expression from this young lady. My friend went to the father for this, and brought me word that the young lady despised me. I then, much oppressed, had nothing to do but to go away. I went to Jonestown.

In Jonestown I opened an office, resolved now at all hazards to be independent of any one. I was thirty years of age, and determined to make my profession support me now, or starve out of it into something else or into death. After so much education and so many anxieties, I resolved I would prefer death rather than be on any one's charity, and besides felt that educational impressions had not confirmed and verified themselves. I went on, managed to live also in my office—one room—reduced expenses to \$45 a month, went to church, and extended acquaintance. Notwithstanding all this I had to borrow money. I borrowed of some Jews doing business in the same building, at a high percent. I made some money, and was getting on pretty well, and was being encouraged by the leading physician of Jonestown. I paid my rent according to statutory requirements and consistent with the understanding. However, I was peremptorily summoned to court (illegally, as I can show) for balance of rent and possession of the place. At the justices' court I presented my case (being too poor to obligate myself to a lawyer). It seemed a simple case of rights, and I was confident. However, a judgment was given against me—an unholy and an unrighteous judgment, *as I can show*. The officers, a few days later, came down on me for the rent and possession given in the judgment. I paid the rent then up seventeen days head, so I was left in possession. I tried then to induce the owner not to insist on possession. I found him determined, and learned that he was in a combination with my neighbor, also a doctor, to give the latter my place, and it became apparent, beyond all dispute, this doctor is an ignoble character. They kept on with their plot (every detail of which I can prove). I tried to obviate, circumvent, and even to allow them to execute their judgment with failure to themselves, until I saw it was absolutely impossible as by methods common among gentlemen. I saw they were determined to carry out their execution, which meant to me now a deprivation of business, office, home, and living, and I saw if they went on their way it meant a sacrifice of all honor to me and manhood. I determined it could not end their way, for though they had the law and power I had *right*. I resolved it should end my way; accordingly, with my knowledge of man, I resolved on a gunpowder policy, and knew my experiences would give me the nerve. I realized my good name would be put in hazard, and what I gained would be contestable; but relative to the matter in hand I intended to apply my way, let come what would: even death would have been preferable to resigning every human feeling by running away from my defensible rights. Knowing the possibility of meeting death—for the proprietor had himself been, as he from time to time had told me, a "Western tough"—I sat down the night before the day I intended to proceed, and wrote out my position, intention, and referred to possible results, also stating my beliefs in religion, views on God, conclusions on my life up to

this time, and changes in opinions on these subjects I thought it desirable should be made. I outlined these only briefly, as I did not have time to elaborate, saying if I fell I might desire to see these things done by others. If I died I knew this would be found in my desk. Next morning I went with a receipt for \$20, also a golden eagle, and a lease for six months. I laid down the money and receipt before the proprietor of the building, on his desk in his office. Said I, "There is \$20 and a receipt for it; sign that." He took it, looked at it, and said, "Well, I don't have to if I don't want to." Said I, "Yes, you do." and "covered" his face with a 38-caliber revolver (S. & W.). He exclaimed, "Well!" I saw he hesitated, and I must unnerve him. I raised the gun over his head and fired in the brick wall, high up. This brought him and two other men, who were in the office at the same time, to their feet. The two others came toward me, and I supposed would seize me, so I "pulled down" on them, held them at bay, and announced, "He's got to sign that receipt." He, meantime, was exclaiming, "I'll sign it! I'll sign it!" and he sat down and did sign it. He got up and handed it to me. I then gave him the lease; he took it. I said, "There is a lease for six months; sign that." "I'll sign it!" he said. He did so. I then emptied the pistol in his walls, excepting one ball. This I did because I knew the facts would come out, and as an evidence of no more use for such forces; to show only those ends may be attained by war which may be reached by peaceful, honorable means among fully accomplished men. The fifth and last ball I discharged at my office door, near my (lovely) neighbor, to show him all the forces to be considered in such foul designs as his; but while we had them we also knew how to control and direct them, but could reach our ends and prove our course if given a fair chance. I now went to sell the lease, to increase its possible value, and intended to sell at almost any figure. The value was \$90. When I came to the street cries of "There he is! take him! kill him!" etc., etc., were expressed. I was arrested, taken to the police-station; the proprietors swore in a charge of assault with intent to kill. I explained it was not so—I only had insisted on his signature. One gentleman spoke up and said, "Hello, Doctor, what's the matter?" This gentleman was a Mr. Z—, a Jew. The officers took me, locked me in a cell. Mr. Z— protested, and said he would go my bail. They fixed up the papers. I was taken to court. The charge was read. I denied it. Bail was fixed at \$750. Mr. Z— signed the certificate, and trial was set for a hearing next day. I was released. The writ for ejection was served on me Good Friday. I refused to leave my office. The officers said they would not act "until to-morrow at eleven o'clock." At that time they came. I refused to go, and the officers dragged me from my office, thus using their execution in spite of me. I was taken to the hospital, where I agreed to stay until the bond could be changed. This was extended indefinitely by Mr. Z— signing a new bond to which my friend also affixed his signature, he having been summoned by wire. While at the hospital Easter Sunday I desired to go to church, but was not allowed to. By extension of the bond, and the deductions I wished to announce from all this treatment, I have come on to New York City. I shall return to Jonestown for my trial. My execution in the writ of the landlord was served and executed at a remarkable time of the Christian year, viz., Good Friday. I was dragged away on the Jewish Sunday; refused attendance on church Easter Sunday. Yesterday I issued the following proclamation to the young ladies of Jonestown: "I call your attention to the treatment I have received at the hands of the Christians, and how differently the Jews have treated me. I call upon you to demand of your daily papers an open statement of the facts. I recommend you, unless the Jews are admitted to full acknowledgment and given full and equal share in all the joy of your coming Easter celebrations—I recommend you not to dance." (They are getting up an elaborate dance.)

Now, you will notice the contrast of treatment which I have received from Jews and Christians—an equal stranger to both. Deductions: that defect of teaching in religion prevented me meeting the young lady of E—; these defects, as medical men, we know; I refer to the technicalities and rites of the church—mystery of incarnation, resurrection, Adam and Eve, and such teachings out of harmony with nature and with fact, and wrong, leading us rapidly into dangers, if not national calamity. These dangers are not, of course, now particularly threatening. I tried Christianity under the old cross, and found but half a Christ and lost salvation. I do not relinquish Christianity, but in keeping it insist on changes, and don't want salvation without the Jews, for I think they for 1878 years have held their position against the unnatural conception, and have been the victims of much persecution which the hypocrisies of Christianity as now interpreted are responsible for, and it is time these things stop. This virtually brings us about up to date, and the elaboration of the details respecting changes will be made in due time. When I left Jonestown I promised

to the Jews, through my friend Dr. R—, my body, soul, and powers. I shall do what I can to my purposes, and whether the Jews accept the offer or not remains to be seen. If so I shall unite the Jews with Christianity in flesh and blood under the new cross. As I told you, our name is Christians of the Starred Cross. I realize this is but a beginning, but everything must start so and grow.

Before this was written he had perfected a complete scheme of what he intended to do, had ordered special badges, one of which he wore, and perfected the details of this new "Religion of the Starred Cross." The case is reproduced in full because I believe it shows most fully the genesis of a state characterized by significant erotic, persecutory, querulent, and religious insane delusions which are so often associated in cases which find their way into the courts, and where juries lose sight of their real nature, considering the education and ordinary behavior of the lunatic.

Without pursuing this subject at length, I may refer to the teachings of Luther and Swedenborg and other fanatics, whose lives were filled with plentiful instances of the same behavior.

Insane delusions are those which concern us most directly. An insane delusion implies the holding of a belief in something which has no existence except in the diseased imagination of a person, and which is not removable by satisfactory evidence of its falsity. Other definitions have been given, but I think this will do for practical use. Spitzka (*Insanity*, etc., p. 24) calls insane delusions "faulty ideas growing out of a perversion or weakening of the logical apparatus." Delusions are the outgrowth of a mental disorganization which is usually far-reaching and implies a certain involution of the mental processes. They may be eccentric and centric, depending in the first instance upon hallucinations or illusions or false appreciation of external objects, or they may be entirely connected with the subjective condition, the identity becoming lost or confused. They may exist severally, together, or there may be one more or less dominant delusion which is repeatedly and consistently expressed. They may, of course, be expressed in speech or shown in manner, gesture, and dress. They may be logically manifested as the result of a more or less common train of reasoning with false premises (systematized delusions), or they may be disorderly, confused, and entirely devoid of plausibility (unsystematized). The first very often go with astonishing vigor of intellectual power and capacity for analysis, such as we often find in reasoning insanity, but the conclusions, judgment, and volition are impaired. The disorderly or unsystematized delusions are much more dramatic and betray an acute demoralization.

A **systematized delusion** has some basis, and the difference between this and the other kind may be illustrated by calling attention to the fact that in the former the possessor of a delusion of suspicion or persecution may pick out some particular person as his imaginary enemy, giving reasons for the alleged persecution—possibly connecting the enemy with them—and is full of reasons for his mental attitude which are more or less plausible; while the possessor of the **unsystematized delusion** makes the vaguest and wildest accusations, complaining of persons concealed in the water-pipes, referring to the voices of imaginary enemies who are cursing him, and seems to have no basis whatever for his absurd belief.

Systematized delusions are usually limited in number, and belong to

the evolutional insanities, which include such affections as paranoia; while unsystematized delusions are usually plentiful, and are very often accompanied by the incoherence which belongs to the acquired and somatic insanities or to the involutional psychoses, which include paresis, and dementia.

The genesis of an insane delusion bears a proportionate relation to the failure of the object-consciousness, while the subject-consciousness is exerted; as Lewis (*loc. cit.*, pp. 126, 127) expresses it: "As subject-consciousness becomes more and more pronounced, with failure of object-consciousness, all impressions alike, received from the non-ego, become the pabulum for the growth of an all-pervading egoism. The subject broods over his multiform and novel feelings—morbid introspection and egoistic musings replace the healthy altruistic feelings and sentiments, and, since the emotional life is itself in part the origin of representative cognitions of the outer cosmos, so out of this source there now arise falsifications of the environment.

"We have been tracing in these mental operations the transformation of the environment to the alien's mind: out of the old tissue, by a species of rearrangement and reconstruction, is woven a fabric representing to him the reality of external things, and which to him is the only reality, but to his former state of sanity is an utter falsification. Since the morbid concept is projected out as the actual cosmos, and since internal order must correspond to the external, so a transformation of the ego itself responds to this altered state—the former identity is lost and replaced by the new.

"And here we have an explication of that newly acquired freedom which, at this juncture, appears to dawn upon the mind of the monomaniac. No longer are phenomena in the outer world laboriously investigated and subordinated to rigid laws of logic and of science—they pass, as through a magic crucible, the morbid tissue of his brain, and are transformed in accordance with no objective laws, but take their color wholly from the morbid emotional states present. Self-creations arise with wondrous celerity and of protean form; and the morbid imagination conjures up fantastic groupings utterly devoid of coherence and objective reality. A feeling of new freedom replaces the old one of restriction and aggression by the environment, and the ego is consequently endowed with new faculties, new powers—becomes a mighty potentate or a god. Still the environment is indelibly stamped with the malign character which the former emotional state fostered, and it is only in late stages of the malady that such realization of a new-got freedom entirely effaces the enmity of the non-ego from the mind."

The importance of delusion as a symptom of insanity cannot be too strongly held. It is the most conspicuous and least easily misunderstood embodiment of intellectual perversion, and therefore has been the strongest element in the formation of medico-legal tests. There are few definite insanities in which at some time or another it is not manifest, and it always involves the distortion or unconsciousness of self. All other sorts of aberrations enter in its production, and it is active and retroactive; and it is only when the power to recall concepts is destroyed that this impression of insanity is absent.

Insane delusions are, as a rule, strengthened by false adductions of proof—the natural result of a disordered perception; and their tendency

is to become more and more unsystematized. Trivial and oftentimes absurd happenings will be seized upon by the patient and dignified to the position of corroborative proof. No better example of what I have said can be presented than the case of a patient who, while insane, came from Chicago to New York by rail, and whose journal thus graphically reproduces her insane hallucinations, illusions, and delusions :

Extract of Journal.

Left Chicago by the 8.15 Grand Trunk Railway, telling Mrs. D—— good-by, but adding that I did not mean to do so to the rest ; that she would hear from me again, as but for her I would have enjoyed little rest at night—and so I do mean to write to her. On entering the car I immediately perceived one old man and one old woman, who coughed loudly and sent a meaning, too, and toward the man in front of me, and from this conversation I gathered (which took place in German, directed toward a fat, vulgar woman on the left) : “She has got to go through with it, because we’ve got to get paid. Have you gone through the other car?” “No,” replied the woman. “I’ll leave it to you to work through it—that’s all right.” A meaning nod and look of assent was exchanged by the conductor, and a woman behind me rose to look at me, nodded assent to the old man, who laughed and grinned, conspicuously cleared his throat, as much as to say, “You’ve got to pay us.” In enters a short, thick-set man with a black-silk cap. I believe he is the friend of the dark, tall man I recognized before in Chicago, so I knew well what to expect. About three o’clock at night I heard a lady opposite me, on a line with me, say : “That lady’s head must be aching—she has not changed her position from the time she entered the car.” The man in front of me, who carried on the conversation before in German to the woman, said (he was not the same man who sat there *first* when I entered the car) : “You see, they’re on the lookout. We’ll get so and so to stand in front of her so *she* can’t see her, and a string of them to pass from the next car, and that’ll make it all right.” And true enough a procession passed, each nodding assent, and the old man conspicuously again cleared his throat. I got up then and asked the lady who had mentioned almost my not stirring to sit with her, told her the conversation I overheard, and as I was traveling alone I should be so much obliged to sit with her until she left the car, to which she kindly assented. The car was filled with a low lot of German emigrants and detectives I had recognized from Chicago. Near Hamilton I overheard one say, “She’s *paid* her; now she must share with us.” When we left Hamilton I asked a nice, kind-looking lady from Little Falls, Mrs. L——, permission to sit with her; she was so kind, thanks to her. Rude glances and smacks. Even while talking to her, a woman deliberately knocked me, and on entering the car at Suspension Bridge it took all of my agility to evade a premeditated encounter from a man with a gray overcoat. A charming lady dressed in mourning entered the car, and I *did* enjoy my talk with her—so refreshing after the hard crowd I had been thrown with—and was so sorry when we parted in Buffalo, where I took the buss and changed for New York Central. As I waited at the station I asked the nicest-looking lady in the waiting-room to sit with her until she reached New York, and she readily assented; but I changed my mind, for, to my horror, I saw that same detective of Chicago with the black cap say to her that he had his bet on, “and you must share with us; she’s *paid* the others, and she will you;” and a nod of assent followed, and a quieting influence spread over all the German emigrants who had accompanied me from Chicago, and the vulgar woman and the wife of the old man said, “Of course she’s got to pay—we’ll *make* her; we’ll run her out of New York, just as they did out of Chicago; *we* work that game better than they *do*; we’ve got some of their own men on our side.” So, seeing a nice-looking lady behind me with a dog, I determined upon taking a palace-car, paying for my sleeper, but sitting in it, and followed the nice-looking lady in the palace-car, who was followed by an old gentleman who crossly insisted upon keeping her dog. The old gentleman left her and a dashy-looking one gave her a note to read in the car, sat by her. When he left I joined her, but I perceived after talking to her a while a *marked* reserve and coolness which I had *not* observed before she spoke to the man. On the contrary; and her eyes were fixed toward a man, as several at the back of us, and I saw a forced manner in her toward me was the result, and I understood, by a glance to the man in a line with us, that they had struck a bargain. The porter came, and I told him I wished to sit up all night, and I would pay him for my berth, as I did not wish to enter the car with the

low German emigrants. He said, "All the berths are taken." "Well," I said, "then find me a seat in another car." "Well," was his reply, "we'll see what we can do for you," and off he went. The man on a line calls him: "Here are five dollars for you!" "Yes, sir." The gentleman raised his finger: "Now you stick to it," and a nod of assent. Up he comes to me and asks for my ticket. I give it to him out of the bag, and instead of his returning it into my outstretched hand he puts it in my lap. The nod previous had made me suspicious of him, and I thought of asking the lady to take the ticket, but thought, "Surely she will think me cranky," and picked it up, and at once *saw* the nod of assent on the lady opposite directed toward the gentleman who had paid the man the five dollars, and looking at him; he meant, "Now you can say you saw her do it, and *now* I understand the whole business." The lady got up and changed her seat, and the porter, in an insinuating way, at once joined me, and said he could give me a berth above the lady. I told him I did not wish one, and at once got up and joined the lady on the other side. He followed me and said, "I can let you sit up, if you wish, down there, but it will cost you seven dollars." At once I saw through the whole business. He wished my seven dollars to cover the man's five dollars to whom he winked, so I firmly said I had no idea of paying that—to take me to the other car at once; and so I left, and he put me among the German emigrants, saying I was "crazy." The fact is, he was mad I had fooled them, and though I knew I would have a rough time of it, I determined to place myself in God's hands. After finding out the lady who first spoke to me in the waiting-room I asked her to be with me until we reached New York, and I took the end seat in the car, which was very uncomfortable. After a while a string of men passed, just as they did when I left Chicago. The man cleared his throat, all nodded in procession, and a low fellow in an impudent manner reclined on the side seat. I immediately changed mine, and asked to occupy the one *facing* the lady, to which she assented. Immediately the man with the cap came up and said something very earnestly to her I could not hear. She got up; a string—three—of men closed in upon me, and looked awful nasty and vulgar. I closed my eyes. The same performance took place in the night several times in the presence of the lady, who told me she left in the Weisland; and my only salvation was in turning around, closing my eyes, and saying, "Now I lay me down to sleep." What else could I do? Who else could help me? Toward 6 A.M. the vulgar woman said in German, "I trap geld"—it means fine, pay for punishment. Of course I pricked up my ears. "We's got her," said another. "Now we'll have her up and make her pay;" and I saw two grim-looking men opposite me. They looked like farmers, very fierce. I thought to myself, "I'd like to see you *dare* lay your hands upon me; I'd make it hot for some of you rascals."

The manifestation of delusions, of course, bears a direct relation to the particular form of insanity, and their development is largely dependent upon the habits of life, environment, and cause of the mental disease, as well as the emotional activity at the time. There are depressed, expansive, grandiose, erotic, religious, and hypochondriacal delusions, the latter being chiefly subjective, i.e., sensorial. They vary from time to time, are subject to many influences, and are more or less tenaciously held. What is known as a **fixed delusion** is one of a dominant character, which is obstinately entertained and rarely changed in any way, and forming the conspicuous symptom of the insanity.

What are known as **concealed delusions** are those which are suppressed, the lunatic preserving, when occasion requires, so much self-control that it is impossible to extort from him his insane false belief, which, however, at other times he expresses very freely. It is very common, as I have said, for people with limited delusions to present little or nothing which draws attention to their real condition, such subjects being generally well behaved. These are the cases that lead to controversies in court and often end in the discomfiture of the physician. With freedom in view, the clever lunatic can be so aroused and on the alert as to deceive every one about him, and he is triumphantly discharged as an injured person. I can recall many instances of this kind which are

more or less dramatic, and one in particular where the delusion was of a religious character, and though it was referred to a dozen times a day by the patient while in the asylum, it was found utterly impossible to get him in court to give any indication of his disease. Finally, after the man had undergone a trying and perfectly satisfactory examination in regard to his business capacity and ability to take care of himself in ordinary ways, he was asked by the lawyer for the defense the question, "Who are you?" and replied almost immediately, his manner changing to one of excitement, "I am the Lord Jesus Christ." It was subsequently easy to convince the jury that he had, as a result of this delusion, indulged in threats which implied a use of his great imaginary personal power, and he was returned to the care of his custodians. Another case of the kind may be cited as an illustration—that of a small merchant who inherited a moderate competence. He had been more or less identified with local charities and church affairs, but the accession of the new fortune proved too much for him, and, with other symptoms, he speedily derived the idea that he was a great reformer, and proceeded to put his theories in practice. He hired a floor in the Bowery, and invited the half-grown boys and girls of that questionable locality to make the rooms their headquarters and trysting-place. While his relations with them were exceedingly questionable for a long time, it was not until the disappearance of clothes from the lines of the neighboring tenement-houses, and the noise and disorder, that the attention of the police was attracted and the place was raided. After his arrest, his family, recognizing the change in his mental condition, had him examined by two physicians, who committed him to an asylum; but through the efforts of a speculative lawyer a habeas corpus was procured and he was brought before the sheriff's jury. A long examination, which was chiefly directed to show his ability to execute business papers, compute interest, and to disavow that he was insane, resulted in his discharge, with a word or two of censure for the doctors. He, however, of his own volition went back to the asylum, where he stayed despite the efforts of the superintendent to get rid of him, and his behavior was clearly that of a lunatic, his delusions being freely expressed. He threatened to sue the physicians who committed him unless they gave him the opportunity to deliver his peculiar address before one or more medical bodies. I examined him and found the well-marked symptoms of early parietic dementia. He had delusions of power, and a confidence in his own capability as a reformer that was refreshing. His theory in regard to the immaculate conception was that it was through a kiss, and he proposed to do away with the ordinary method of intercourse and substitute a plan of his own which was in every way to be more pure. The patient was liberated upon application of a lawyer who was one of the strongest agitators in the movement which was directed to open the doors of lunatic asylums, and his interest in his client was very great. He, however, received a rude check when he presented his bill for professional services and the client proceeded to issue bonds and bank-notes for its payment, which he made with a pen and whatever scraps of paper he could lay his hands upon. This man has since committed suicide.

Instances of this kind could be multiplied, and these two examples are brought forward to show how easy it is to be mistaken, and to direct the attention of judges and jurors to the necessity for prolonged watch-

ing and the application of tests which must be more satisfactory than those ordinarily employed. Spitzka calls attention to the fact that the possessor of those systematized delusions which relate to social and political ambition, as a rule, possesses a higher intellectual activity than the holder of erotic and religious insane false beliefs. It is certain that the former, who are very numerous and usually behave themselves, comparatively, so well that they keep outside of the walls of the asylums, are often simply recognized as "cranks."

The erotic and religious delusions are more apt to be manifested by the possessors of acquired acute insanity. Systematized erotic and religious delusions are apt to be entertained by the same person, and spring more or less from each other. The erotic belief is often pure and has relation to abstract things, and is not connected with emotional excitement of a physical kind, though its genesis may depend upon a local irritation, with indulgence in masturbation.

INSISTENT AND IMPERATIVE CONCEPTS.

Insistent and imperative concepts mark a species of mental weakness in which the patient's conduct is more or less strongly influenced, he often being able to realize the domination of his affection. Sometimes this realization is lost and the morbid impulses gain possession, so that in a condition of high tension he commits some act which is followed by subsequent repentance and distress. A number of names have been applied to forms of mental disease of this kind, and they extend from the lower form, which may be called doubting insanity, or *Grübelnsucht*, to serious reasoning and impulsive insanity. The impulse which one feels when tempted to jump from a height, or to use some dangerous weapon that may be at hand, is an instance of an imperative concept of a low order. Certain insane acts may lead to the commission of others by patients of this kind with imitative tendencies, and this explains the epidemics of crime which occasionally occur whenever some particularly dramatic or widely advertised horrible "sensation" has taken place. Under this head we find the crimes of instinctive criminals whose disorder is manifested in such as kleptomania, pyromania, and other impulsive forms of derangement, in which the dominant concept produces a physical impression, etc., which is manifested in the exercise of explosive motor activity, the offense against society possibly being the culmination of months or years of temptation and resistance, and preceding well-developed and conspicuous insanity which has passed the bounds of inhibition.

The dominance of the concept is rather constant, and is governed by the patient's surroundings and occupation. To the same extent its influence may be antagonized by persistent exercise of will-power, by diversion and change in the mode of life. Intense concentration in one direction is apt to lead to the morbid exercise of activity and a frequent irritation and limited stimulation of ideational centers. The imperative concept may arise suddenly and without relation to the particular line of thought, being displayed in some erratic behavior. Where it exists there is nearly always inherited weakness, and often a remote history of alcoholism or epilepsy. The hysterical woman is more subject to this

form of mental disorder than the male, as she is in many ways more subject to ideational activity than the latter. There may be a condition which is almost automatic, the concept being repeated over and over, and quite beyond the control of other inhibitory or restraining influences. So far as its connection with special forms of disease is concerned, we find that it is present, as a rule, in the depressed forms of insanity, as well as insanities with limited delusions, paranoia being an instance.

Cases of suicidal and homicidal insanity, where the act is the result of so-called morbid impulse, are explained by the presence of dominant imperative concepts. Like delusions, these persistent concepts are often concealed by the patient, who surprises her friends or the community by some unlooked-for act; and my note-books contain numerous observations where people have thrown themselves from windows, or attempted suicide in one way or another, not having displayed beforehand any conspicuous failure of mental health. Very often the explosion or giving way is followed by a reaction and a subsidence in the patient's insanity, at least for a time. Persistent concepts are likely to lead to the formation of delusions, especially when no moral treatment is suggested. It may be stated that many of the cases of so-called moral insanity are, after all, nothing but a disorder characterized by imperative and insistent concepts.

A number of terms have been applied by writers to the above-mentioned forms of mental degeneration, where the conduct of the patient was determined by the existence of one kind of dominating concept and the more familiar forms of doubting insanity. These consist in the fear of open spaces—agoraphobia; fear of the stars; claustrophobia; fear of contamination; imperative impulse to count, to touch, etc. An illustrative case of much interest may be presented:

The patient was a man of thirty-five, presenting the stigmata of defective evolution. He was markedly dolichocephalic, his teeth were irregular, his forehead retreating, and his muscular motility impaired. His family history was essentially neurotic. His mother, after a life passed as an extreme fanatic, ended her days in a lunatic asylum. His father drank immoderately and died in an asylum. One of his brothers was intemperate, and his sister was hysteric and neurasthenic, while one of his maternal uncles was also a drunkard. He had for several years been a prominent figure in the town in which he lived, and had devoted himself to prohibition, his enthusiasm being expressed in constant litigation and self-glorification. His entire life had been modeled upon plans laid down by social reformers whose teachings were bad, and marriage guides and books upon domestic medicine played a great part in shaping his home life. In spite of his peculiarities he is a successful business man, and has saved enough to live in comfort without helping his brothers, who are his partners, in the management of their business. His manner at the time of his visit was very hesitating and full of indecision. There was much hesitation in telling his story, and in answering my questions he repeated himself frequently. He fully appreciated his mental state, and suffered very great agony of mind and want of faith in himself. His active mental unsoundness had lasted for several years, and began by a gradual fear of defilement from contamination. It was reasonable enough at first, and simply followed acts that naturally required subsequent resort to soap and water. But this increased so that he now

washes his hands from thirty to forty times daily, and always does so after handling money. The impulses that compel him to calculate are shown almost entirely in business matters, although his habit is now to weigh all coin that he receives or gives out, and this he has done for the past two years. The question of the honesty of others does not seem to figure largely in this procedure, for he weighs the money which he gives to them and counts the bills repeatedly, often following the recipient several times in the day to know whether the amount he has paid is correct. He carries scales with him, not daring to trust himself without them, and while admitting the irksomeness of his bondage, suffers intensely if he forces himself to place them beyond his reach. In his efforts to escape the imperative impulse he often asks his brothers to take charge of his business, and he has finally been obliged to leave everything in their hands.

Some time ago his imperative concepts took another form, which consisted in the belief that paper, pieces of tin, scraps of iron, on the sidewalk, street, or elsewhere, would do injury for which he would be morally, if not legally, responsible if he did not remove them. Paper upon the road that might frighten horses, scrap-tin that might wound them, loose cobblestones, and other objects, he would constantly gather and put out of harm's way. He was so dominated by his morbid fears and the possible consequences of neglect upon his part that he refused to sell nails to his customers without removing the splints, and if the nuts upon the bolts he sold were loose he would screw them up. He would question purchasers as to the possible harm that might have occurred, and upon one occasion, when he went to Long Branch for his vacation, after an hour of anxiety and doubt upon the steamboat, he turned back at Sandy Hook, to remove a banana-skin he had passed without picking up on the sidewalk in New York. His morbid fears were excited by any object which might do harm, matches, combustibles, and sharp tools being included, and he was finally obliged to seek new employment, taking charge of the bill-collecting part of the business. There was not in his case anything that might be regarded as a delusion. His relations with every one except the liquor-dealers were pleasant. He slept well, as a rule, and suffered from insomnia and disturbed digestion only when he underwent a peculiarly distressing period of doubt.

AFFECTIONS OF MEMORY.

An impairment of memory is an exceedingly common symptom of mental disease. It may consist in feeble receptivity—a condition of which implies something more than a failure of attention—which prevents the concept from retaining its place in the brain; or it is due to a convolitional condition where the mental impressions are light or fugacious; or it may arise from an epileptic condition, with temporary abolition of consciousness; or in a graver form it signals a species of involitional degeneration which follows or attains the actual destruction of the cells of the cerebral cortex. It is the all-important symptom in dementia, and most of the disorderly expressions of that condition are directly traceable to mental disorganization. Not only may a stage be reached where the individual stops storing up the freshly received impressions, but ulti-

mately all the concepts of previous periods are lost. It is distinct from congenital weakness, which is manifested in amentia, where perceptions are never attended by lasting concepts, the apparatus of reception and appropriation being undeveloped.

Loss of memory usually begins first in the direction of forgetfulness of substantives and proper names. "This," says James (*Psychology*, vol. i, p. 683), "seems due to the fact that common qualities and names have contracted an infinitely greater number of associations in our minds than the names of most of the persons whom we know. Their memory is better organized. Proper names as well organized as those of our family and friends are recollected as well as those of any other objects. 'Organization' means numerous associations; and the more numerous the associations, the greater the number of paths of recall. For the same reason adjectives, conjunctions, prepositions, and the cardinal verbs, those words, in short, which form the grammatical framework of all our speech, are the very last to decay." As Kussmaul says: "The concreter a conception is, the sooner is its name forgotten. This is because our ideas of persons and things are less strongly bound up with their names than with such abstractions as their business, their circumstances, and their qualities." One of the primary indications of mental impairment is the inability to renew impressions and to recognize their significance, to arrange them and to apply them to events and things; and for this purpose, of course, consciousness is essential. There is a form of cerebral activity which consists in the voluntary birth of ideas that force themselves to the surface without any effort, such a process being often instinctive.

For the estimation of how far the memory is affected in mental disease we must first test the patient's ability to recall concepts and to fix their importance, to group the ideas and to apply them to himself, and then determine his ability to bring forward details of the past, determine his power of time, localization, and perception, and incidentally his idea of space. With the enfeeblement of memory we find a certain degree of superficial adjustment which the patient uses to adapt himself to his surroundings, and which is the result of his desire not to appear different from others. Of course at a later stage this is lost, and the effort to group and arrange facts leads to incoherence. What might be called the automatism of life is demonstrated in diseases where memory gradually fails; the memory of recalled concepts, lasting when others are forgotten, showing that weak-mindedness of this character, in its insidious advance, is attended by a certain kind of ability upon the part of the patient to recall mental landmarks which he has referred to habitually. Sometimes this apparent integrity is sufficient to impress unthinking persons.

The minor grades of degeneration are seen in a familiar disease known as aphasia, which is described elsewhere; but it is proper for me to refer to the disturbance of automatism, which is manifested in tricks of speech which sometimes are functional disorders, or, on the other hand, foreshadow mental dissolution, which is not expressed until much later by unmistakable symptoms. These consist in the transposition or substitution of syllables, stuttering, hesitation, and phonetic peculiarities, which may or may not betoken the coming of physical as well as mental breaking down.

DISTURBANCES OF VOLITION AND EMOTION.

The various affections of will incident to mental disease may be considered as those of an exaggerated or active character and those of a depressed or passive character.

The first comprise those which are expressed as the dictate of an hallucination or delusion, or simply as an instinctive or purely impulsive act, or as the result of an imperative concept. To this class belong the peculiar explosions of the epileptic and hysteric and maniac. The violent acts of the former are usually sudden, attended by apparent unconsciousness, and are not remembered afterward. Sometimes the patient while in a precursory attack runs amuck, stabbing or otherwise assaulting those he may by chance meet. The outbreak is paroxysmal and the assault purposeless.

The impulses of the insane find expression in other ways: in destructiveness, self-mutilation, suicide, inordinate consumption of food, the taking of improper things into the stomach, perverted sexual acts, etc.

It is no uncommon thing to find women with hysterical insanity or acute mania tearing their clothing or destroying various objects. Sometimes the insanity of a patient whose condition has not attracted attention is for the first time expressed in an impulse to destroy frail articles. This symptom is most often present in mania and does not seem to be the result of delusion or hallucination, but is clearly an expression of continued and intense excitement. Various lunatics, under the force of dominant concepts, are likely to commit a destructive act of one kind whenever they get an opportunity. What are known as *piquers* in France are subjects of this class. Some of them cut and slash the dresses of women, or pour vitriol or corrosive fluids thereon, while others surreptitiously clip off the hair of young girls in the streets. This form of imperative concept is likely to go with sexual perversion.

The chronic epileptic is quite likely to commit purposeless acts of destructive mischief—setting fire to buildings or willfully destroying property with apparently no object in view. At other times the impulse is to brutally murder some one. When arson is committed it is apparently motiveless, although the insane love of fire or a desire for notoriety may instigate the act. Often the crime is repeated, and in one case that occurs to me the person, who was subsequently apprehended and tried, was clearly dominated by an imperative concept. Self-mutilation or the mutilation of others is frequent. In the former case it is sometimes suggested by an insane delusion, and the desire to commit a sacrifice may be apparent. Those who suffer from religious delusional insanity not unrarely cut off their right hand or pluck out their eyes as the result of a too literal interpretation of a scriptural command. Generally as a result of sexual perversion the insane person will horribly mutilate the body of a person he has murdered, or sometimes he will obtain a sexual satisfaction by wounding the genitalia of young women or girls. This is known as *sadism*, and was first practiced by the Marquis de Sade, whose insane orgies led to his apprehension by the French police. (Vide *La Corruption fin de Siècle*, Léo Taxil.)

Fantastic and ingeniously contrived suicides are often committed by the insane, either with delusional suggestion or impulsively. The para-

niac not infrequently infuses into his taking off some element that brings posthumous notoriety, and a crop of imitators repeat his widely advertised death. Kirchoff has called attention to the fact that the impulsive suicide of the lunatic must be distinguished from that where he jumps from the window or into a river to avoid an imaginary danger suggested by his hallucinations or delusions. The suicidal act is sometimes wholly inexplicable except by inheritance, there being an apparent blind fatality, and no recognizable immediate disturbance of intellect to explain the self-destruction. The writer has had a family of this kind under observation for many years, and no less than six sons and daughters have attempted suicide, or have actually succeeded in destroying themselves, at various times. As a rule the act was committed between the twentieth and thirtieth years, and in no instance was there the least apparent reason or motive.

A morbid propensity not only for the ingestion of large quantities of food, but of foreign substances as well, symptomatizes an impulsive insanity, which may or not be connected with some perversion of the physiological process which regulates the appetite. The tendency of hysterical women to eat chalk or drink acids, the morbid desire for various essential oils and aromatic substances, are minor indications of gustatory and olfactory perversion connected with impulsive acts; but there is an insane longing for foul and repulsive substances, which is present in the victims of evolutionary as well as acquired insanity, which leads to the devouring of faeces. Another form of disgusting impulse finds vent in the eating of human flesh. The abstinence from food is usually the result of delusion or hallucination, so that in many asylums the necessity for forced feeding arises, the patient refusing nourishment because he believes he has been gifted with supernatural powers of endurance, or that he is offending God by eating. In other cases where sensorial delusions exist the patient refuses food because he declares his stomach or intestine is tenanted by some living animal. At times refusal of food depends upon the fear of poisoning, such a delusion being one of the most frequent and important of all. Of course real disorders of the gastro-enteric tract will lead to a loss of appetite.

Sexual impulses of an unusual kind betoken the existence of mental degeneration. As a rule such perversion and loss of control belong to the possessor of the "insane diathesis," the victim of evolutionary insanity; but the general behavior of the sexual pervert need not be conspicuous. Like the victim of imperative concepts, he is in other ways, as a rule, fairly strong intellectually although he may be the possessor of a congenital weakness which means a complete transposal of his normal appetites and powers. Many individuals entertain sexual longings only for their own sex, and such find a form of gratification which it is not necessary to here particularize (see Dr. Chaddock's article). In many large cities the subjects of the contrary sexual impulse form a class by themselves and are recognized by the police. The men have their balls, where they dress as women even to the details of dainty underwear. (Fig. 12.) They adopt the names of women, and affect a feminine speech and manner, "falling in love" with each other, and writing amatory and obscene letters. In New York City alone there are not less than one hundred of these, who make a profession of male prostitution, soliciting upon the streets and in parks when they get the opportunity. Physically,

many of these men whom I have examined present the stigmata of degenerative insanity, or else physically approach the female type, and hypo- and epispadias are common. The female pervert or *Lesbian* rarely



Fig. 12.—Male Sexual Pervert.

differs from others of her sex, except that the active agent is gross, wears mannish attire, and cultivates masculine habits.* Other perverts enjoy sexual pleasure only when themselves subjected to physical pain and degradation; others derive enjoyment solely from torturing the objects of their passion; while others alone gain satisfaction in actual contact with fetiches such as women's shoes and other articles of wear. In mania hysterica and other expansive forms of insanity with exaggerated sexual activity, self-control is in part or totally lost, and we are presented with the conditions of nymphomania and satyriasis, as applied to the female and male, which lead the patients to indulge in reckless excesses, in-

decent and shameless proposals, and conduct which is a complete departure from the normal state. A refined and high-bred woman will make advances to car-drivers, porters, or servants—black or white; while the victim of satyriasis, who perhaps happens to be a clergyman or dignified banker, will expose his person in public or court the notice of the police. False accusations of improper assault are common with these people, and often lead to unhappy lawsuits or criminal proceedings. The sexual excitement, it must be remembered, may be only a local prompting and have no intellectual participation, and each case should be investigated carefully, with a view to the recognition of the person's ordinary mode of life, previous behavior, etc. As a rule there are concomitant symptoms of insanity.

The conversation of young women who suffer from hysterical insanity is quite apt to direct attention to the mental failure. For a long time before easily recognizable expressions of disease are detected, the patient will constantly talk about subjects naturally avoided by girls. One of my patients, a young person of very pure mind, devoted most of her time during the early development of her insanity to catechising a married sister about copulation and pregnancy, and finally extended her inquiries to the other female and male members of the household. In this

* The reader is referred to Krafft-Ebing's *Psychopathia Sexualis*; Taxtil's *La Corruption Fin de Siècle*, and various French romances, among them *Mademoiselle du Mau-pin* or *Mademoiselle Giraud ma Femme*.

case, as others, the interest in religious affairs becomes abnormally increased, and may or not be accompanied with a sense of self-depreciation which eventually deepens into a delusion that the "unpardonable sin" has been committed. Religious excitement and sexual irritation are the fruits of camp-meetings, revivals, and occasions when emotional activity is generated in crowds. It is not difficult to find examples of this erethism among the African devotees who practice the Assouia, the der-vishes, and in other times among the flagellants. The subject of so-called religious insanity is quite apt to become morbid, introspective, secluding herself, mortifying the flesh; then she becomes exalted, and has hallucinations and delusions of a semi-amorous or erotic nature, believing herself to be the bride of Christ or the agency of the immaculate conception.

Some diseases are manifested by exaggeration of sexual vigor, and this is marked in parietic dementia, in mania and excited forms of mental disorder. In established involutioual disease there is a decay not only of the sexual appetite, but a shamelessness and a weakness of desire which, in senile dementia, manifests itself in indecent exposure, urination in public, indecent assaults upon children, and libidinous loquaciousness.

Impaired or suspended volition characterizes conditions which may vary from ordinary feebleness to those which denote an actual suspension of consciousness. When in a state of hypnosis or partial mental inhibition the individual may be made to perform certain suggested acts, he meanwhile being the subject of trance. Attention is suspended and inactive, and he does not realize the nature of his act unless attention is artificially directed. How far the ego and automatic sense of control play a part in limiting the power of suggestion is a matter of question, yet it has been demonstrated that it is impossible to make an ordinarily virtuous person commit a crime.

The several indefinite conditions of semi-consciousness which constitute somnambulism, sleep-drunkenness, and dreaming, all imply a partial inhibition of self-cognizance and ideation; and the diminished exercise of volition is the result of some automatic process or outside stimulation of subcortical function. The insane are apt to display an atonic indisposition. This not only characterizes the apathetic and stuporous varieties of melancholia, but is a feature of quiet dementia. Fixed positions are adopted, muscular movement is slow and rarely made without suggestion, immobility is the rule, and at times the muscular condition is one of a cataleptic character. There need not be the rigidity attended by anæsthesia and loss of consciousness, characteristic of catalepsy proper, but in connection with great intellectual torpor there is a disposition for the legs or arms to remain in whatever position they may be placed. Recurrent attacks of this condition characterize a form of insanity known as *katatonia*, in which a primary melancholia is followed by an excited delusional condition, with verbigeration, secondary inaction, and muscular rigidity, and termination in dementia.

The chronic insane are sometimes exceedingly indifferent to external irritations or influences, especially when a condition of dementia has been reached. This is due not only to the mental torpor, but to an actual anæsthesia. Burns, the contact of irritating substances, or the bites of insects, provoke no impression and no attempt at removal. This indifference indicates a suspension or impairment of consciousness which

is usually of slow duration, and divorces the patient from the rest of the world. He is unable to weigh and separate his concepts, or to estimate and regulate their importance or association. They cannot be voluntarily summoned, and eventually it is impossible to coördinate internal impressions. Self is no longer recognized, and in the confusional condition a double personality may perhaps develop.

DEFINITION AND CLASSIFICATION.

The disorganization which results in the inharmonious operation of mental function must be considered as a gradual and intricate disturbance of psychic coördination. The comparatively orderly balancing and expression of feeling and thought that belong to sanity suffer a change, in which the conduct of the individual indicates a departure from a previously existing normal standard. His new behavior places him at once in antagonism to the conventions of the intelligent majority of his fellows. Sometimes he never reaches a point of ordinary mental integrity—he is the product of neurotic stock, the degenerate representative of faulty reproduction. Under some circumstances he is the weak-minded one—is the inventor “with a bee in his bonnet”—the “ne'er-do-well”—the “crank”—the reformer who suggests great issues and when possessed of misplaced power persecutes for trifles, always mingling with his work his own desire for notoriety. Should he pass through childhood possessing ordinary power, he may at puberty be subjected to the strain of development and go under, falling into the ranks of the incurably insane. Others of poor fiber are confronted at subsequent life epochs which they do not pass through safely, developing evolutionary and involutional insanities. Some individuals whose weakness takes the form of moral degeneration may manifest such slight intellectual aberration, and be so much like ordinary depraved people, as to bring them within the pale of the law, which is at times indisposed to make allowance for their doubtful indications of insanity. To this class belong the *mattoids* described by Lombroso, whose unbalancing is a mixture of cleverness and dullness, and these are the eccentrics, in whom the gap between sanity and insanity is a mere crack.

Insanity is then usually a profound alteration; certainly it is not, as we are sometimes induced to believe, a condition that may originate in a day or two, exist for a few hours, and disappear as quickly, although occasionally an explosion which means a lapse of responsibility for a short time may occur in the course of an imperfectly recognized psychosis, which laymen are apt to disregard.

DEFINITION.

It is an exceedingly difficult matter to give a perfectly satisfactory definition of insanity, or one that will meet the requirements of the law. In another place this matter will be gone into; it is sufficient here for me to point out the radical difference between the views entertained by the doctor and lawyer as to what constitutes mental aberration, though a common ground is being gradually attained. The latter has hitherto been guided by the hard decisions of another day, when a lunatic was

considered as "a wild animal," and only excused for the commission of crime when he knew the abstract difference between right and wrong. His standard of civil responsibility was only a slight grade higher. In a recent English case (*Regina vs. Duncan*) an American expert* who advanced the rational theory of will enfeeblement effected a revolution in the legal practice of at least one part of Great Britain; and only a few years ago the writer made in a New York court the distinction between the abstract knowledge of right and wrong and the *applied knowledge*, which meant the internal power of discrimination. (*People vs. Liebkuchner*.) The medical idea is the outgrowth of actual familiarity and study of the insane, which cannot be gained in any other way, and the conclusions that are drawn for the defense of the weak or erring are as firm as those of the clinician who estimates the significance of cough or rise of temperature in diseases the pathological nature of which is undisputed. There is, unfortunately, a group of lawyers and physicians (I am happy to say, of limited size) which advocates capital punishment for all insane murderers—a proposition which can only be tolerated by those whose ideas of evolution and the survival of the fittest dwarf all interest in humanity. Small wonder is it that the estimate of what constitutes insanity which is held by many people is still unsettled—many technical writers even do not attempt to define it.

Bucknill defines insanity as "a disease of the brain (idiopathic or sympathetic), affecting the integrity of the mind, whether marked by intellectual or emotional disorder."

Mandsley's definition is as follows: "Insanity is, in fact, disorder of brain, producing disorder of mind; or, to define its nature in greater detail, it is a disorder of the supreme nerve centers of the brain—the special organs of mind—producing derangement of thought, feeling, and action, together or separately, of such degree or kind as to incapacitate the individual for the relations of life. Mind may be defined physiologically as a general term denoting the sum total of those functions of the brain which are known as thought, feeling, and will. By disorder of the mind is meant disorder of these functions." It will be seen that Bucknill insists upon actual *disease* of the brain, while Mandsley rather leans to the view that the mind as a function is disordered, he makes the distinction, however, calling attention to the fact that numerous diseases of the brain are not attended by *insanity*, but are attended by mental changes. Spitzka (*Insanity: Its Classification, Diagnosis, and Treatment*, New York, 1883) formulates a definition that is an excellent though cumbersome one, but its length is justified by the merit of its comprehensiveness: "Insanity is either the inability of the individual to correctly register and reproduce impressions (and conceptions based on these) in sufficient number and intensity to serve as guides to actions in harmony with the individual's age, circumstances, and surroundings, and to limit himself to the registration as subjective realities of impressions transmitted by the peripheral organs of sensation; or the failure to properly coördinate such impressions and to thereon frame logical conclusions and actions; these inability and failures being in every instance considered as excluding the ordinary influences of sleep, trance, somnambulism, the common manifestations of the general neuroses, such as epilepsy, hys-

* Dr. Walter Kempster.

teria, and chorea of febrile delirium, coma, acute intoxications, intense mental preoccupation, and the ordinary immediate effects of nervous shock and injury."

I have for some years advocated the use of a definition which, though inferior to others in fullness of description, is convenient because it does not so directly draw the medical witness into a wrangle with the cross-examining counsel. It is as follows: "Insanity is a condition due to *disease* of the brain, and expressed by impairment of feeling, thought, and volition." Such a condition must not be confused with the *acute* toxæmia of fevers, drugs, or other agents of the kind. I make this qualification because though a kind of temporary aberration may result from alcohol, for instance, no one would think of applying the term insanity to a state that so directly implies cause and effect. Of course actual insanity commonly follows the protracted use of alcohol and other agents of the kind, and after fevers or septic diseases we find prolonged mental disease directly traceable to a definite and adequate cause.

Dr. Ray adopted the use of the qualifying word "prolonged," because "there are many conditions in which there are temporary departures from the normal standard of thinking, feeling, and acting, which are not called insanity," and in this I agree with him; but it is difficult sometimes to fix the duration of many conditions which produce temporary mental disturbance, or to say when insanity really begins.

The definition of insanity is, after all, the province of the court, and by this is meant the legal definition which determines the question at issue. It is the simple duty of the medical witness to present the facts of the case in such a way as to make the decision of the court possible, and to enable the latter to arrive at a conclusion which will be possible under law. It is not even the jury's duty to decide the question of law; in fact, they are not permitted to do so; they being incompetent so far as the affixing of precedents or the determination of definite rules is concerned. (Wharton and Stillé, vol. i., p. 114.)

CLASSIFICATION.

The changes incident to unsettled opinion and study stand in the way of making a classification which is entirely satisfactory or always faithful. In the early part of the century there was much confusion, although a very limited number of terms were used; and this disordered and imperfect understanding of the subject existed until about fifty years ago, when the school of alienists which included the late Forbes Winslow, Greisinger, Faret, and a few others, seriously attempted to bring order out of chaos, and to systematize the nosology of mental disease. At this time, and even until comparatively recently, the conventional divisions of insanity were only four or five in number, and for the most part included idiocy, imbecility, mania, melancholia, and dementia. The varying and relational expressions of the excited or depressed states were not understood, especially when they appeared alternately, and little or no attention was paid to the mental expressions of coarse disease of the brain, all such conditions being looked upon as "softening." The other school, while recognizing the existence of the forms of insanity just alluded to, still paid much attention and gave great weight to so-called

"moral insanity," which many of them believed could exist without any intellectual disturbance whatever. In the ranks of the latter belonged Ray and afterward Maudsley, but it was not until about a quarter of a century ago that a greater advance was made, which had its birth in Germany and has resulted in a very comprehensive and rational method of classification and study, its strongest exponents being Krafft-Ebing, Schüle, Emminghaus Kirchhoff, and others. The basis of the German classification rested upon the consideration of the degenerative type.

Much of the confusion that resulted from the descriptions of different authorities has depended upon the coining of terms, and from a degree of inexactness which has arisen from attempts to classify either from the somatic or epochal standpoint.

In the various classifications the subject is approached from a number of directions. The majority are based upon the *clinical* aspects of the disease, and the symptom-manifestations are alone regarded; others incline to the adoption of terms relating to the epochs of life, e.g., *adolescent* and *pubescent* insanities, the *insanity of pregnancy*, of *lactation*, etc., *climacteric* and *senile* insanities; other alienists give prominence to the somatic nature of the insanity or the etiological factors, Van der Kolk, Morel, Skae, Tuke, Clouston, and various English writers strongly advocating and generally using such limited terms—as examples may be mentioned *masturbatic*, *ovarian*, *phthisical*, *syphilitic*, *rheumatic*, *puerperal* insanities, etc.

While the use of these terms is convenient and almost general, it is sometimes open to confusion which is often to be deplored but not always avoidable. As has been said, the German school has made the greatest progress in the systematic and advanced study of psychopathology, Krafft-Ebing especially having recognized the importance of the underlying condition of heredity. He and his followers have rather considered the matter with reference to whether there was a congenital influence, i.e., whether the insanity appeared in connection with an undeveloped brain, or whether the insanity was an acquired one, the brain being of average development; and incidentally whether it was curable or incurable. This seems a most rational and scientific theory. He classifies insanities as follows:

A. MENTAL DISEASES OF THE DEVELOPED BRAIN.

I. PSYCHONEUROSES.

1. Primary curable conditions.

- a. Melancholia. { Simplex.
 } Attonita.
- b. Mania. { Exaltation.
 } Frenzy.
- c. Stupor or curable dementia.
- d. Wahnsin.

2. Secondary incurable states.

- a. Secondary monomania. (*Secundäre Verrücktheit*.)
- b. Terminal dementia. { Agitata.
 } Apathetica.

II. PSYCHICAL DEGENERATIVE STATES.

- a. Constitutional affective insanity. (*Folie Raisonante.*)
- b. Moral insanity.
- c. Primary monomania. (*Primäre Verrücktheit.*) Persecutory, grandiose, erotic, religious.
- d. With imperative conceptions.
- e. Insanities which are developed from constitutional neuroses.

}	Epileptic.
	Hysterical.
	Hypochondriacal.
- f. Periodical insanities.

III. CEREBRAL DISEASES, WITH CONSPICUOUS MENTAL SYMPTOMS.

- a. Paretic dementia.
- b. Lues cereбрalis.
- c. Chronic alcoholism.
- d. Senile dementia.
- e. Acute delirium.

B. CONDITIONS OF MENTAL WEAKNESSES WITH ARRESTED DEVELOPMENT OF THE CEREBRUM.

- a. Idiocy.
- b. Cretinism.

This classification, which is practically that of Spitzka and Kirchhoff, as well as other psychiatrists who have recently written, has at least the merit of considering mental disease chiefly with reference to its expression and form, while the question of cause, which is very often apt to create confusion, is left unmentioned.

The writer has for some time been impressed with the possibility and convenience of classifying insanity with reference to development, believing it possible to avoid the faults of various disputed schemes. With this object in view, bearing in mind the question of normal brain development, he has divided all insanities into three classes: (1) those of evolution; (2) those occurring in connection with normal development; (3) those of involution.

The first group comprises insanities or conditions of mental weakness incident to the period when the brain has not reached its full development. Perhaps it has suffered arrest; perhaps a tax incident to a lifeepoch which it cannot bear. This should include idiocy, imbecility—which comprises the forms of degenerative disease described by the German school, the *primäre Verrücktheit*—the adolescent, circular, epileptic, hysterical insanities, etc. The second group includes those forms of mental disease which are quite likely to appear under ordinary circumstances, disconnected with any hereditary etiological factor, the development of mind being unquestioned—the simple states of depression and exaltation, the somatic disorders, whether caused by traumatism or general or special diseases; and the third those forms of mental disease where there is dissolution and a retrogression to amentia.

These three forms may for convenience be thus grouped:

I. EVOLUTIONAL INSANITIES.

- (Hereditary.) Idiocy; cretinism.
 Insanities with limited delusions.
 Insanities with predominant moral weakness.

Periodical and alternating insanities.
 Insanities with imperative concepts.
 Epileptic, hysterical, and periodical alcoholic insanities.
 Infantile paretic dementia of Clouston.
 Adolescent insanity—acute dementia of youth.

II. INSANITIES OF NORMAL DEVELOPMENT.

(Acquired.) Mania. } Acute.
 Melancholia. } Chronic.
 Traumatic, toxic, and somatic insanities.

III. INVOLUTIONAL INSANITIES.

(Retrogressive.) Terminal dementia.
 Consecutive dementia.
 Senile dementia.
 Paretic dementia.

Maudsley's classification is as follows:

I. AFFECTIVE OR PATHETIC INSANITY.

1. Maniacal perversion of the affective life. { Mania *sine delirio*.
2. Melancholia depression without delusion. { Simple.
Melancholia.
3. Moral alienation proper approaching this, but not reaching the degree of positive insanity in the insane temperament.

II. IDEATIONAL INSANITY.

1. General.
 - a. Mania.
 - b. Melancholia. { Acute.
Chronic.
2. Partial.
 - a. Monomania.
 - b. Melancholia.
3. Dementia. { Primary.
Secondary.
4. General paralysis.
5. Imbecility.

This is open to the objection that so-called moral insanity is isolated and that so-called partial insanity is distinguished. As Wharton says, "The affective life is made independent of the mind, capable of being diseased when the mind is undiseased."

The Causes of Insanity.

Hereditary influence is undoubtedly the greatest factor in the production of insanity, at least forty per centum of all cases being traceable to such taint, and some writers make a still greater claim. Clouston (*Neuroses of Development*, p. 130), who is a close observer and conservative authority, says: "There are two very general laws or tendencies that prevail in different families as to the neuroses. In one case nature tends to revert back to the normal and healthy type, and disease gets less in

intensity in different generations, till it disappears; in others it gets accentuated in each successive generation—nervous instability or neuralgia or headaches in parents becoming hysteria and chorea and asthma in the children, epilepsy in the grandchildren, melancholia in the great-grandchildren, and adolescent insanity, with its dementia or idiocy, and extinction, in the next generation.” So far as the rules which govern transmission are concerned we cannot speak with much positiveness. The transmission of the tendency is from male to male and female to female, though this rule has its exceptions. Actual insanity may not reappear in the progeny, but as some other peculiarity. Of course if there be insanity on both sides the danger is greater than if on one only; and the existence of acquired insanity is less potent in its evil effects than when the strain is a saturated one. In courts of law, when disputed questions arise, it will make a great difference if the origin of the insanity of the parent is proved to have been at a period after the birth of the child. We must also remember that the inheritance of mental unsoundness occurs, as Kirchoff points out, first, in the majority of instances as variable symptom-complexes, such as inebriety, moral perversion, criminal impulses, their relations and transition being irregular; second, a group which comprises the identical form of insanity which existed in the progenitor, hereditary suicide being an example.

Men of genius are apt to have insane or feeble-minded children, as are consumptives and inebriates. Historical instances of this are numerous, and we either find criminality or the evidence of weak-mindedness. Scipio Africanus, Petrarch, Mozart, Peter the Great, Tacitus, Mercadante, Thomas Campbell, Donizetti, Volta, and Victor Hugo, all had sons or daughters who were insane. The influence of drunkenness upon impregnation is generally admitted, and the writer can trace in more than one large family the mental weakness of certain children to the bad habits of the father during their procreation. The question is often asked, How soon after cure can persons who have been insane run the risk of having children who are not liable to inherit the taint? I think the answer can be, At no time after the existence of well-defined insanity which is not of a toxic or traumatic nature can the danger of hereditary taint be said to be absolutely averted by treatment. This is said with the fact in mind that occasions do happen when the individual between attacks of insanity may produce children who are apparently vigorous both physically and mentally. Fleming and Demaux adduce statistics to incontestably prove that “even habitually sober parents who at the moment of conception are in a temporary state of drunkenness beget children who are epileptic or paralytic, idiotic or insane, very often microcephalic or with remarkable weakness of mind, which at the first favorable occasion is transformed into insanity. Thus a single embrace, given in a moment of drunkenness, may be fatal to an entire generation.” (Lombroso.)

Lucas (*De l'Hérédité*) refers to the fact that all the descendants of a great soldier—a Hamburg noble—became insane at forty; and Lombroso speaks of a watchmaker who, having recovered from an attack of insanity, caused by the Revolution of 1789, finally poisoned himself; later on his daughter became insane and fell into a state of dementia; one of his brothers stuck a knife into his own abdomen; another became a drunkard and died from starvation; his sister, who was of poor health,

had a son who was an epileptic lunatic, a daughter who became insane after her confinement and rejected food, an infant who refused to be suckled, and two others who died of cerebral diseases. Berti has collected the records of one family, and during four generations there were eighty individuals descended from an insane melancholiac, ten subject to insanity (nearly always melancholia), nineteen who were neurotic, three who had special ability, and three with criminal tendencies. The disorder was aggravated in the later generations and developed at an earlier age. In the third and fourth branches the insane and neurotic appeared in every generation; in the others the hereditary influence passed over one generation in the men and two in the women.

So far as the heredity of the criminal instinct is concerned, there are numerous recorded examples where the progeny of illustrious men have gone to the bad or have shown a weak moral nature clearly due to disease. It is a matter of easy recognition that not only do habitual or instinctive criminals present the stigmata of degeneration, but often become violently insane.

The environment of the individual has much to do with the development of mental disease: thus we find that those in America who live in retired country places, with little chance for diversion or intellectual stimulation, more readily become insane than the inhabitants of great cities; and this condition of affairs has its parallel in solitary prison confinement, where absolute silence is imposed, and hallucinatory insanity develops. Rational education prevents insanity or tends to regulate the disordered mind, while of course injudicious and tactless care increases the weakness which tends to demoralization. This applies to the forcing of weak minds, punishment, and a neglect of the physical needs. Application and system operate against the development of insanity, and a significant proof of this is that busy merchants and students often undergo a mental break-down when they relinquish their active work and lose mental stimulation. According to Kirghoff, brain-workers are especially endangered. This statement will have to be taken with modifications, and the writer is of the opinion that brain-work only of a disorderly or excessive character is that which is injurious. Under such circumstances there is an implied irregularity, an excessive use of the emotions, and an output of force that brings exhaustion.

Predisposing diseases and bad habits of course have much to do with the genesis of all forms of mental disease, and these may be enumerated as syphilis, the opium, cocaine, and the chloral habits, alcoholism, and dissipation generally.

The other causes of insanity may be divided into the *direct physical* and the *indirect physical and emotional causes*. (Burr, *Psychology and Mental Disease*, Detroit, 1894.*)

The former include injury and its results, bodily disease—such as cancer, pulmonary affections, Bright's disease, cardiac disease, rheumatism, uterine and ovarian disease, hemorrhoidal or other losses of blood—metallic and bisulphide-of-carbon poisoning, and sexual excitement, the

* Burr estimates the frequency of cause as follows:

Direct physical, about 36 percent.

Indirect physical and emotional, about 14 percent.

Vicious habits, about 25 percent.

Constitutional and evolutionary causes, about 25 percent.

effects of child-bearing (puerperal insanity) and prolonged nursing (lactational insanity). The resulting pathological condition is one of exhaustion through shock, inflammation or depletion through drainage, poisoning of the nervous substance, or various alterations in the integrity of centripetal sensory conduction.

The somatic forms of insanity are not often recognized by persons who are not careful, the mental disturbance overshadowing the other organic disturbance. Phthisis sometimes produces in its last stages a derangement attended by alternating depression and exaltation, in which delusions of a grandiose character are expressed. Asthma is sometimes likely to give rise to melancholia, but whether this is the result of the defective aëration of the blood or the action of the remote hereditary predisposing cause that is usually behind the asthma itself it is difficult to say. La grippe, which in large measure may be said to be a disease of the respiratory organs, has played a part of no small importance in the genesis not only of an acute confusional insanity, but of occasioning a permanent delusional insanity.

Cardiac lesions are at best only associated conditions, and are not important etiological factors. In cerebral hyperæmia of the passive variety we are apt to have depression, and the hypertrophy of the right ventricle with which it is often associated may possibly be regarded as a causative element. "It is a fact that patients suffering from cardiac lesions are more likely to develop anxious and suspicious delusions than those of an opposite nature." (Spitzka.) Circulatory disorders, such as exophthalmic goiter, which is most common in women, are attended by attacks of depression often approaching simple melancholia in degree. The fact should not be lost sight of that in secondary dementias due to cerebral thrombosis or embolism, the heart will probably show some evidence of disease.

Rheumatism is an uncommon cause. Its pathological result is usually an irritation or actual inflammation of the cerebral meninges, with pressure symptoms, a rise in temperature, headache, a confusional condition often approaching delirium, which is less violent during the day. The prognosis is good, though dementia sometimes supervenes.

Bright's disease is an occasional cause of insanity.

Uterine and ovarian diseases are, I am convinced, not nearly so important causes of insanity as is generally supposed. Especially is this the case when the uterus is displaced. It is true that in feeble-minded women the uterus is often found undeveloped, as are other organs; and although many operations of the most diverse character have been performed upon insane women, I do not believe the results are ever as satisfactory as might be inferred from the enthusiasm and reports of the operators. Personal experience which has been recorded elsewhere permits me to speak authoritatively in regard to at least one gynecological procedure, that of oöphorectomy. Pelvic disease attended by profuse hemorrhage is often, however, a cause of insanity, notably of the depressed form, and I have witnessed repeated cures when the loss was arrested and the drain stopped.

Local excitement which is due to a variety of causes, such as masturbation or the irritation of vaginal discharges, is apt to result in a moral disturbance, introspective insanity, and hysteroid disorders under fitting circumstances. So far as the psychoses which depend upon pregnancy

and delivery are concerned, there is much to be learned about their pathogeny. The general disturbance of the sympathetic system during the nine months before delivery is in some women a serious one, and the tax upon the vital powers is very great, so that in women with a predisposition to mental trouble there often occurs a form of aberration of variable degree and continuance. This is due sometimes to uræmia or other forms of blood-poisoning, to variations in the blood-pressure, and to moral causes. Illegitimate pregnancy is, for the last reason, particularly apt to be attended by insanity. The insanities of a puerperal nature, like those incident to prolonged lactation, are due either to septic poisoning, depletion after hemorrhage, or exhaustion. Climacteric insanity is due to the profound process which indicates the commencement of involution. This epoch plays the part, sometimes, of changing existing neuroses, transforming migraine into epilepsy or epilepsy into insanity.

Excessive sexual excitement is likely to enfeeble the central nervous system to an extent which leads to the production of mental impairment, though as a rule nature regulates capacity, and sexual appetite is sated by exhaustion of the spinal centers and fatigue of the normal ideational centers. Of course with unnatural abuses which are suggested by a central condition of existing mental disorder, the individual may goad his wearied sexual apparatus. Those who resort to false means of gratification not unrarely belong to the class of moral perverts, and their vicious appetite is the product of a diseased imagination. In established insanity, especially dementia, the act of masturbation is the direct result of the insanity.

Emotional causes, such as grief, shock, or fright, are alleged to have much to do with the genesis of mental disease. These influences, I think, are often exaggerated, the effect necessary to unbalance the mind depending upon the existence of hereditary influence, or a previously exhausted nervous system which is due to brooding, insomnia, and irregularities. Kirchoff looks upon psychical influences as important, especially those which are concealed. "Constant gnawing fears, without actual material losses, may lead to the mental break-down. We always find two factors in these causes, viz., the repeated and constant occurrence, and the painful element of feeling. Both together prevent the inhibitory counter-effects of other ideas." Overwork, anxiety without the prospect of affairs getting better, thwarted ambition, and failure, all under certain circumstances act as causes. Disappointment in love and marital discord have, I believe, little to do with insanity, nor has religious concentration, unless there is a degenerative basis.

The feigning of insanity undoubtedly results, in some cases, in the establishment of a real psychosis. I know of two such cases, and there can be no doubt of its easy production in neurotic individuals who are long incarcerated, a laborious effort at deception being made which implies morbid concentration.

The usually curable insanities due to febrile disease are undoubtedly explained by microbic infection or exhaustion. The mental disorder ordinarily follows the febrile condition, and is characterized by a confused train of hallucinations, illusions, and delusions, with moments of apparent lucidity. Suicide is not uncommon.

Injuries to the brain are apt to develop or cause insanities of a more or less constant and progressive nature, though sometimes a blow upon the

head will modify or cure an existing insanity. Affections of the memory from shock are common and of sudden or rapid origin, or an inflammatory condition may be inaugurated which is expressed by the liveliest symptoms, such as illusions, delusions, and violence, which lead to outrageous assaults. A blow may effect, sometimes, a complete transformation in the individual, turning a peaceable, high-minded, honorable man into a lying, brutal thief.

Intracranial disease, the most important etiologically being meningitis, not only effects a blight in development, but gives rise to various psychoses, such as imbecility, epilepsy, hysterical insanity, delusional conditions, and loss of memory, with ultimate dementia. The cutting off of the blood-supply, for example, through an occlusion of one of the middle cerebral arteries, is apt to lead to softening of a considerable cortical area, with dementia as a consequence.

The Course and Termination of Insanity.

The course of insanity is nearly always downward and the proportion of *real* cures comparatively small. Statistics are apt to give false impressions, as they usually do, and the temptation to make good records has occasionally led the chronicler to amplify the list of recoveries. Earle (*Curability of the Insane*) cites the instance of one woman who was reported as *cured* twenty-two times in twelve successive months, although the fact probably was that she had twenty-two paroxysms of mania during this time. This careful observer collated the statistics of twenty American asylums and found the percentage of recoveries for five years to be 29.9, which is a much smaller number than it was during either of two periods of five years that preceded; showing that there was a better system of reporting, or that the means of cure and treatment are more imperfect than in the past, which is improbable, or, what is more likely, that a mistake had been made. He appends another table, which includes the statistics for one year relative to the insane in 58 American asylums: of 14,372, 27.88 percent. recovered, and 20.74 percent. died. The prognosis of insanity as a rule, therefore, is not good, and the outlook becomes more unfavorable as the time of improvement is prolonged.

Blandford (*Insanity and its Treatment*, 3d ed., 1886, p. 249) presents a table showing the history of 244 insane persons who died at or after discharge from the York Retreat from 1796 to 1840, with the number who died during or after recovery from the first or subsequent attacks of mental disease:

Cases followed through Life.	Died Insane during the First Attack.	Total.	Recovered from the First Attack.			
			Recovery Per- manent.	Had Died Sane.	Subsequent Attack.	Died Insane.	Total.
Males	113	58	21	6	31	37
Females	131	73	24	14	35	49
Total	244	131	45	20	66	86

These cases were well watched and recorded, and the deductions to be drawn are like those of Earle—neither favorable nor encouraging.

The insane die most often from exhaustion. Sometimes the acute

stage is fatal in a week or two after complete insomnia and refusal of food, although in most cases hypnotics and artificial feeding will keep many of these cases alive. Heart failure is, however, sometimes induced, especially in cases whose real condition has not been appreciated, and who have been kept at home and permitted to exhaust themselves. Sometimes malpractice upon the part of an ignorant physician or nurse will result in the death of a patient from careless feeding. I was called to see a case where the liquid nourishment had been forced through a soft catheter into the trachea, the patient being unconscious at the time. A resulting mechanically produced pneumonia proved fatal in a few days. Death from exhaustion in acute cases may be prolonged after a gradual and unpreventable waste of energy, and such an ending sometimes occurs in acute mania, the brain after death presenting great hyperæmia or sometimes no gross change whatever. Rapid exhaustion, with the development of unsystematized delusions and hallucinations, is a grave indication.

Chronic cases show great vitality, occasionally physical improvement, and a great accumulation of fat occurring after a time without any mental improvement. In fact this condition of affairs is always unfavorable.

Acts of extravagance, so-called impulses of an immoral character, and sexual abuses in a patient with an insane family history are bad signs.

Insanities expressed by periodical attacks have a bad prognosis. Even though the interval of lucidity may be marked it is unsafe after two attacks of mental aberration to make favorable predictions. Other exacerbations are probable, and a termination at some later time in dementia is to be looked for, the intervals usually growing shorter in such cases. If the recovery from an attack of mental derangement be very rapid the indications are that there will be a recurrence. Curable cases of any kind as a rule present a gradual disappearance of symptoms; the patient showing his favorable progress by anticipating the future, making plans, and analyzing his old delusions after explaining them satisfactorily. The general physical condition of the patient improves; his skin becomes moist; sleep returns; and should the patient be a woman, sometimes the menstrual flow is reëstablished. One writer calls attention to the return of former ailments as a coincident indication of commencing recovery. However, a cunning lunatic, seeing in what manner his false ideas impress others whose favor he seeks to obtain, will conceal and disguise his real delusions as far as he can. This often occurs in connection with the desire for liberty. Sometimes he cannot thus dissemble, disclosing another delusion at the same time that he strives to control the one that has gotten him into trouble. He may deny his delusions to one person, but express them to others, or he may verbally disclaim any mental infirmity or false belief while he still shows it in his manner and dress, or in his unconscious actions. A fixed delusion may lead to exhaustion and starvation through refusal of food. The case of a patient occurs to the writer whose delusions were of a religious character. He would not ride on Sunday even to church, and displayed a morbid conscientiousness of an extreme kind. As his symptoms grew worse and insomnia could not be overcome by ordinary means he was sent to an asylum, where his condition did not mend. He still manifested a fear that he might do something to shock the Almighty, and

absolutely refused to sit down. He stood so constantly that his feet and ankles became cedematous and he grew more and more weak, as coupled with this was a refusal to take food. It was finally found necessary to strap him in bed, but despite artificial feeding and enforced rest he failed and died in collapse.

Auditory hallucinations are indications of a more grave form of insanity than visual, and the same is true of sensory and olfactive. In verbigeration or confused speech, the compounding of words attests an involved dissolution. Many forms of chronic insanity are characterized by periods of remission. Recurrent insanity, or *folie circulaire*, is one of such. In the intervals the patients are apparently so much themselves that they are treated as sane persons. Paretic dementia, or general paralysis, is another affection in which such an apparent return to sanity is found.

Changes in the organic structures of course point to an unfavorable course and ending. This is true of the destruction of the cortex which belongs to paretic dementia, a disease of remarkably rapid progress. With extreme exhaustion due to a continued light grade of excitement we are apt to have an oedema of the brain, with collapse. This is particularly true of anæmic cases. The prognosis of insanities due to epilepsy, meningitis, sunstroke, injury, and syphilis is bad; and when lesions exist and produce progressive paralysis, convulsions, obstinate disorders of motility or ocular disease, we can never take a favorable view of the patient's condition.

The progressive appearance of symptoms in childhood or advanced age is bad. In the latter case an early fatal termination is to be feared, as the powers of resistance are feeble. The insanities of childhood are usually due to hereditary influences; and though the psychoses of puberty when acquired are favorable, the reverse is true where the insane diathesis exists. It is held that "there is a difference, as regards prognosis, between hereditary psychoses whose outbreak is due to late accidental causes, and those in which heredity has produced a morbid development of character in early childhood. If the patient with hereditary taint has been mentally normal until his attack of insanity, the prognosis of the single attack is more favorable than in non-hereditary cases, but there is a greater predisposition to relapses." (Kirchhoff.)

The following table is presented, which is based upon the observations of Krafft-Ebing, Schüle, Spitzka, Kirchhoff, Clouston, Blandford, Savage, Stearns, and my own experience, which indicates the gravity of symptoms alone or associated:

<i>Unfavorable Indications.</i>	<i>Favorable or not absolutely Bad Indications.</i>
States characterized by slowly developing loss of consciousness, indifference, or hebetude, with staring.	Rapidly developing unconsciousness, except in repeated attacks like epilepsy.
Loss of facial expression; organic flattening or change in shape of features.	Return of harmonious play of facial muscles; quick reflexes of emotional states.
Moral indifference; degeneration shown by impulsive criminal or destructive acts, including filthy practices, self-defilement; protracted indifference, with involuntary discharges of contents of bladder and rectum.	Self-defilement in puerperal condition or acute mania not necessarily bad; incontinence in acute conditions compatible with recovery.
Protracted sexual excitement; manifest	

Unfavorable Indications.

ation of sexual excitement or perversion in extreme youth or old age.
 Loss of sleep, with exhaustion.
 Motiveless acts subsequently justified by patient.
 Imperative concepts of long duration and their results.
 Periodical attacks.
 Continued depression and absorption, with picking of fingers and mucous membrane.
 Limited delusions constantly expressed.
 Tendency to homicide or suicide, with continued depression.
 Auditory hallucinations.
 Unequal contraction or minute symmetrical contraction of pupils.
 Verbigeration.
 Chronic alcoholism or coarse cerebral disease.
 Congenital or other stigmata.
 Cutaneous anæsthesia; tremor, with paralysis; ocular symptoms; optic neuritis; absent or greatly increased tendinous reflexes.
 Catalepsy, with verbigeration.
 Constant drooling of saliva, with characteristic posture.
 Involuntary discharges as result of indifference, as in dementia.

Favorable or not absolutely Bad Indications.

Increase of weight, with corresponding mental broadening.
 Unconscious acts of violence in acute mania as result of transient delusion.
 Rapidly developing mania, with sudden change to depression.
 Simple depression, without fixation of ideas; excitement; irregularity.
 Confusional insanity.
 Visual hallucinations.
 An existing bodily condition such as anæmia or a febrile disease to account for the mental change.
 Dilatation of pupils.
 Temporary causes, such as the influences of pregnancy and the puerperal state.
 Paroxysmal hysterical attacks; hyperæsthesia, with increased reflexes.
 Catalepsy, with simple or apathetic melancholia.
 Spitting as result of delusion.
 Involuntary discharges due to indifference, as in mania.

Excitable forms of disease are more hopeful than those in which depression predominates, and while an attack of acute mania may recover in two or three months, one of decided melancholia is at best apt to drag on for a much longer time, or actually end in dementia.

Alcoholic and toxic insanities are recoverable unless the organic changes are profound or there is a transmitted inherent weakness.

The Morbid Anatomy of Insanity.

In all cases the configuration of the brain, its size, and the depth of the gray cortical substance, as well as the signs of recent disease, must be considered. If a small brain has an increased specific gravity which is disproportionate with its size, we shall probably detect the existence of sclerosis and atrophy. It has been found that the weight of this organ undergoes decided modifications in connection with insanity, and Clapham (*West Riding Reports*, vol. vi., p. 11) presents a table which includes twelve hundred cases of insanity. It would appear, according to this, that the brain-weight is greater in the insane, between the ages of forty and fifty in women and between fifty and sixty in men, than at any other

time; that in the male the brain weighs more proportionately in idiocy than it does in the female; that its average weight is greater in mania than melancholia, and in other forms of acute insanity than in senile or organic dementia, imbecility, or paretic dementia.

<i>Disease.</i>	<i>Grammes.</i>		
	<i>Encephalon.</i>	<i>Cerebellum, Pons, and Medulla.</i>	<i>Age.</i>
Idiocy	1148.947	156.7	21.94
Imbecility	1285.009	174.6	36.2
Dementia (simple).....	1310.956	169.7	49.132
Senile	1278.382	163.8	64.843
Organic.....	1291.949	170.5	53.810
Mania, melancholia, and acute forms.	1350.425	172.8	42.082
General paralysis.....	1270.271	174.0	41.610
Epileptic insanity	1314.410	164.4	36.646
Chronic mania.....	1327.267	171.9	46.863
Brain wasting	1256.644	164.3	60.929

We are enabled to detect the depth of the gray matter of the convolutions by means of an instrument invented by Dr. Herbert Major. This consists of a glass tube, finely graduated, by which portions of the cortex of the brain may be removed by thrusting the gauge into the particular convolution the depth of which it is desired to determine, and removing a plug of white and gray matter. It will be found that the depth of the gray matter in certain forms of insanity has undergone material diminution; and in those where congenital deficiency is suspected we shall find that the proportion of the white and gray substances is very much changed, the latter being reduced. In measuring the depth of the gray substance of the convolutions it will be found that it is reduced from eight one-hundredths of an inch to six or seven one-hundredths. Bucknill and Tuke prefer measurements made with a hair-divider, a variety of small compass, to the instrument invented by Herbert Major.

Benedikt and other German writers place great reliance upon peculiarities in the arrangements of the convolutions and sulci in the brains of insane criminals. While I do not believe that Benedikt's ideas are always susceptible of proof so far as it is possible to definitely connect gyral and fissural anomalies with specific forms of moral departure, it is still a noteworthy fact that in the cerebrum of the congenital criminal there is great complexity and irregularity in the arrangement of the convolutional folds and fissures. In his book upon the subject he presents a number of autopsies the subjects of which were criminals, and in every instance there were certain peculiarities which he has minutely detailed, and these consisted not only in the excessive fissure development, but in the repeated existence of asymmetries of the brain and the skull itself. The parietal lobe was usually dwarfed, the cerebellum was only partially covered by the occipital lobe, and there was a deficiency in Wernicke's fissure; the interparietal fissure communicated very frequently with the fissures of Sylvius, and the parieto-occipital with the horizontal and interparietal. Asymmetry of the two hemispheres and convolutional errors of development should always be noted.

The brain in imbeciles and idiots presents malformations and arrestment of development which are quite characteristic. These modifications

take the form of atrophies of parts or groups of convolutions of the cortex; and the partial atrophies are revealed by a thinning of the folds, and by a corresponding enlargement and depth of certain fissures. These are principally in the frontal convolutions, which present irregularities of formation. Asymmetry is very noticeable in the brains of idiots, the two lobes often showing a want of correspondence which is decided, as well as a poverty in the number and depth of the sulci; and convolutional flattening. Such brains are often exceedingly small and unformed. That presented by Ireland is a good example (Fig. 13) of imperfect development. From a pathological point of view we find arrested development depending upon defects in the apparatus of nourishment in the cortical substance.

Luys (*Traité Clinique et Pratique des Maladies Mentales*, 1881) has devoted much attention to the subject of the convolutional anatomy of the brain in the insane. He finds that the fissure of Sylvius is usually enlarged, and extends much farther back than it does in the normal brain, exposing the insula; while the fissure of Rolando is nearly normal, but its continuity is interrupted by irregularities which jut out from the marginal convolutions.

This writer has collected pathological data of great interest, showing that certain definite convolutional changes are to be found in many cases of insanity. According to him, the most frequent are those seen in the frontal convolutions, which are much more irregularly disposed in the right than in the left hemisphere. The first frontal, especially, is very frequently atrophied and diminished in breadth. Luys has found in a case with well-marked hallucinations that in the internal aspect of one cerebral hemisphere the paracentral lobule was prominent, the first frontal depressed, and the second frontal had undergone at its anterior part decided changes. Here its continuity was broken up by a series of secondary multiple folds having a vermiform appearance and bridges over the superior frontal fissure, which was obliterated. In certain cases of chronic dementia the second frontal convolution becomes almost rudimentary. The third frontal convolution (the speech center) is rarely modified, except when there is aphasia. Luys has found in three deaf-mutes that it was atrophied upon the left side.

The ascending frontal convolution often presents a change in its length and continuity. At its union with the second frontal we find numerous variations, and a change is seen at the origin of the third frontal. The ascending parietal is quite rarely affected, except in cases with para-

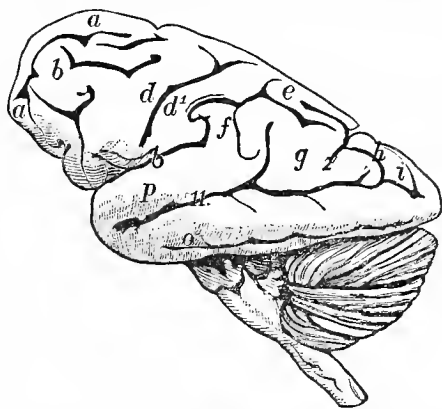


Fig. 13.—Brain of Microcephale (Ireland), showing the unfinished fissure occipitalis perpendicularis externa, the parallel fissure, the central fissure, which is incomplete, and the posterior branch of Sylvian fissure. *a*, The superior frontal gyrus; *b*, the inferior frontal gyrus; *d*, anterior central gyrus; *d'*, posterior central gyrus; *c*, paracuneus; *f*, lobulus supra marginalis; *g*, gyrus angularis; *i*, cuneus; *p*, gyrus temporalis superior; *o*, gyrus temporalis medius.

lytic symptoms. The angular gyrus is sometimes affected when there are auditory hallucinations. The paracentral lobule is often the seat of pathological changes, on one side or both, and in advanced cases of dementia both sides will be affected.

In the insane it will be found, especially in forms of chronic mania, or where there has been excitement, that the meninges are thickened, hyperæmic, or that there are hæmatomæ. The dura mater is often adherent to the skull, and the other membranes show evidences of various grades of inflammation, so that it is difficult to remove the arachnoid and pia mater without tearing away more or less of the brain substance. Lesions of the blood-vessels may be found which vary from simple congestion to atheromatous degeneration or permanent dilatation, and these are either in the substance of the meninges or in the brain itself.

The vascular condition of the brain substance is either one of hyperæmia or anæmia. Evidences of hyperæmia are common in disease attended with excitement, such as mania or dementia paralytica. The gray substance is darker and the white is more pink than in health. Minute extravasations or local tracts of active congestion are found. In general paresis these spots of hyperæmia have been found to be more marked in the frontal region, though in this disease it is common to find very general congestion. In melancholia we meet with a pale condition of the tissues, with diminished caliber of vessels and perivascular accumulation of fluid, and the brain is blanched and soft. Territories of œdematous brain are found in association with the plugging up of small vessels by an embolus, or as the result of thrombosis. There may be bony plates in the dura mater, which are very common in chronic insanity, or adventitious substances scattered over the surface of the brain, both at the convexity and the base. The brain itself presents certain changes in the appearance of its convolutions and deeper parts which are quite conspicuous, and softening and sclerosis, giving rise to atrophy, depression, and changes of color.

The lining-membrane of the ventricles is often thickened and the seat of a granular change; and an accumulation of serous fluid, not only in these cavities but in the meshes of the arachnoid, both at the upper surface and at the base of the brain, is present. The substance of the brain may be the seat of a diffused change, there being small collections of indurated tissue, which are so frequently present in parietic dementia. In insanity produced by alcohol this appearance is particularly noticeable. In other cases we find collections of gummatous substance peculiar to syphilis. In still others, those with diseased vessels, there are one or more partially organized blood-clots, and perhaps some softening. In many brains we shall find a condition known as the *état criblé*, which consists in a number of small openings giving to the brain a porous appearance, and it is a result of a previous hyperæmia from probable exudation of serum and atrophy. It is rare to find increase in size of the brain as an indication of chronic insanity—atrophy is much more common. Attention may be called to the thickening of the cranial bones in chronic insanity and the existence of bony spiculæ. Greiding presents 216 autopsies: 167 of these showed thickening, and 38 more or less thinness of the bones.

In *melancholia* Luys has found in several cases great hyperæmia of the gray substance of the third ventricle. The left optic thalamus presented on its internal face hyperæmic redness, which was also found in the third ventricle. The gray substance of the cortex of one of these patients was thin, and most of the convolutions appeared of a pale color, with irregular vascular arborizations irregularly disseminated. It seems to be a peculiarity of this form of disease that there is a general ischemia, with localized spots of hyperæmia. In some cases of profound *melancholia with stupor* the brain was found to be completely exsanguinated, the white substance deprived of vessels, and an appearance of atrophy of the cortex and small vascular groups was presented (*des petits bouquets vasculier disposer en îlots*).

In cases of *paretic dementia* excessive and abundant proliferation of the neuroglia, with choking of the nerve cells, is apparent, the latter being diminished in number. The white substance as well as the gray presents the same appearance of sclerosis; the nerve fibers appear as withered filaments, and are torn and much reduced in size; and there are areolæ which indicate the disappearance of nervous elements.

In *acute mania* evidences of active and violent hyperæmia in all parts of the brain are found, but the vessels of the corpora striata are most dilated and engorged, and the white substance not as much injected as the gray. In one of Luy's cases there was yellow coloration of the insula, with degeneration of all the nerve elements of this region. In another, an old foyer of softening, occupying the center of the pons, was found, the walls of which were incrustated with coloring-matter, granular corpuscles, and crystals of hæmatoidin, which indicated the existence of prolonged congestion, and which for some time had played the rôle in this region of a pathological point of irritation.

The causation of meningeal inflammation by bacteria has recently been fixed to a certainty by several observers. In acute delirium Rasori (*Centralblatt für Bakteriologie*, etc., October 2, 1893, quoted by Potts) described a bacillus resembling the pneumonia coccus, and quite lately Potts (*Philadelphia Medical News*, June 30, 1894, p. 718) has reported a most carefully observed case which ended fatally. The temperature reached 108.2 just before death, which was preceded by a carbuncle, and later by acute delirium, insomnia, active delusions of persecution, and hallucinations of a lively nature which were chiefly visual. The autopsy was made about seventeen hours after death. The brain and meninges appeared to be normal, as were all the other organs of the body. Some of the cerebro-spinal fluid that had drained into the base of the skull was collected in a small bottle previously sterilized with boiling water, and from this cultures were made, with the result that the presence of a bacillus, answering to the description of the so-called *Micrococcus lanceolatus* or pneumonia coccus of Fraenkel and Weichselbaum, was demonstrated. The *Staphylococcus pyogenes aureus* and the *Staphylococcus pyogenes albus* were also present.*

The microscopic appearances of diseased nervous tissue are perhaps

* Microscopic examination of the cerebral cortex showed the appearances described by Osler, i. e., perivascular dilatation and leucocytes in the lymph sheaths and periganglionic spaces.

of greater interest than any others, and in cases where no grave lesions are presented the microscope will often reveal delicate changes, which consist most commonly in degeneration of the nerve cells of the cortex, and vascular hyperæmia and its consequences. The large cells of the cortical gray substance often break down, and leave in their places collections of granular matter, which may be either found in isolated masses or the cell wall may be intact and its contents entirely disorganized, there being disappearance of the nuclear elements. (Plate I.) We shall also find that the intercommunicating fibers and nerve-cell processes are broken off, and that the intercellular connective tissue is increased, with proliferation of the neuroglia cells, and perhaps there may be the appearance of amyloid bodies. The blood-vessels are choked. There is exudation of coloring-matter and infiltration. In hyperæmic states the vessels are dilated, their walls being covered by fat granules and hæmatoidin crystals. Sometimes masses of pigment are found. The vessels are varicose or disrupted, and the perivascular spaces may be filled with exudation corpuscles. The nerve cells undergo notable changes in disease. It has been found that in cases of insanity with hallucination they are greatly increased in size, and Meschéde has found in parietic dementia that the increase is very decided. Luys, on the other hand, has found a reduction of the cells in parietic dementia, as well as a diminution in their number. In some brains we find small vacuoles, others than those due to congestion, scattered through the brain substance, which, however, are more often the result of careless manipulation than of a pathological process.

In this connection a word of caution is necessary, for it is a very easy matter, through improper hardening or incautious staining, to so alter the arrangement and character of the anatomical elements as to produce appearances in every respect resembling those of actual disease. Hardening in alcohol is quite likely, unless great care be used, to have this result, and sometimes carmine-staining with a badly prepared solution will give granular changes which are very confusing. In hardening the brain, especially where medico-legal questions are involved, we must frequently change the fluid, protect it from dust, and conduct our manipulations in a systematic and careful manner; and it is well to have our observations confirmed by another person.

Physical Signs of Insanity.

The external evidences of existing mental disease are usually more or less pronounced. The objective evidences in cases in which arrested brain development exists are varied and characteristic, consisting mainly in asymmetry of the head, the cranium, and face; a misshapen frame, club-foot, as well as trophic defects of various kinds. These blights may be recognized at an early age or do not develop until later. Clouston aptly says: "It is a truism that each age has its own beauty; it is equally true that each age has its own deformity. A beautiful child may become an unprepossessing youth, because, through hereditary influences, the development of the countenance, the form, and the movements has not

PLATE I.

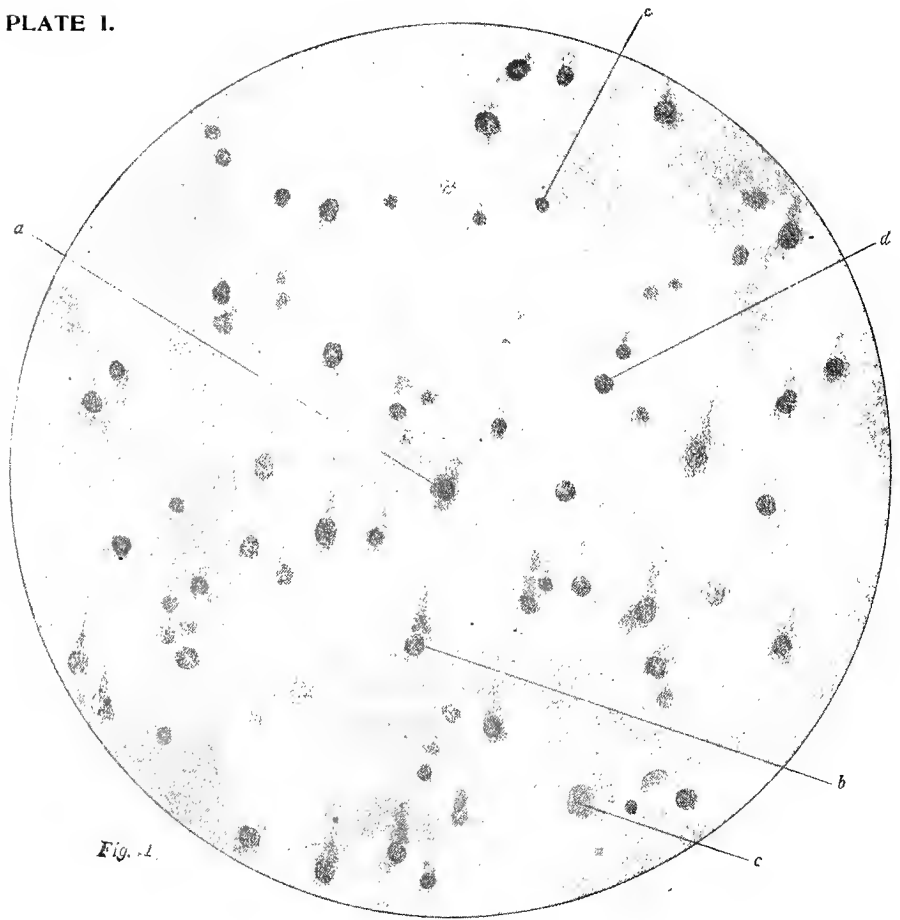


Fig. 1.

× 300

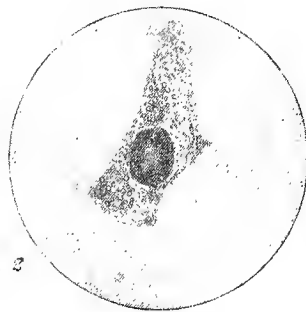


Fig. 2

× 650

Microscopic appearance of brain of epileptic dement, showing cellular degeneration. (Clouston.)

Fig. 1.—*a*, Nerve cell showing well-stained nucleus, with small amount of protoplasm round it; *b*, nerve cell showing remains of apex process and granules of pigment in protoplasm; *c*, mass of cell protoplasm without nucleus; *d*, nucleus of nerve cell, apparently destitute of protoplasm; *e*, nucleus of neuroglia cell. (× 300.)
 Fig. 2.—A nerve cell showing granular condition of protoplasm, collections of pigment granules, irregular staining of nucleus, and atrophy of protoplasm and processes. (× 650.)

gone on the lines that make for mature beauty. There has been a lack of harmonious progress; the bodily ideal of the age of adolescence has not been attained, through the working of an evil heredity. Some features have been retarded in growth, some distorted, some overgrown. It is beyond a doubt in families with neurotic hereditary taint that we find marked ugliness, asymmetry, dwarfishness, hunchback, squint, ungainly movements, hoarse laughing, hobbledcheyism, uncomfortable limbs, and such like departures from the anatomical and physiological ideal."

By far the most suggestive index of the insane temperament is the misshapen head. While a large number of insane persons have the long or *dolichocephalic* head, such a cranial peculiarity has not the suggestiveness of one of a rhomboidal type, or when the two sides are asymmetrical, but at best such appearances are only indices and not proofs of mental weakness. The teeth of imbeciles are uneven, the incisors being sometimes crenated; the ears are misshapen or irregular, contain the Darwinian tubercle, and are satyr-shaped or abnormally large or small. Hypermetropia is common. The finger-ends are expanded and the movements of the body indolent.

The appearance and conduct of an insane person of course depend very much upon his form of disease, as well as its stage and duration. It is always possible to witness a radical and progressive alteration in cases that have become chronic, a physical change keeping pace with the mental deterioration. Women who have been comely become ugly. Expression alters, the lines of the forehead and lower part of the face becoming deepened, and the dominant affective feeling leaving its impress. The facial furrows that form are referred to by many as important diagnostic marks in chronic insanity, especially the depressed conditions such as hypochondriacal insanity and melancholia. In the latter there may be a distinct transverse furrow, which sometimes extends across the entire forehead or is again unilateral, appearing over one eye. Through contraction of the frontal muscles, the corrugator supercillii, horizontal folds of the forehead and deep vertical folds extending upward from the root of the nose are produced. (Fig. 14.) As a result of the persistent and constant contraction of other muscles, we find drooping of the lower lip and relaxation of the muscles at the side of the face. In mania and other elated conditions there are no constant



Fig. 14.

traces left except in chronic states, but the muscles being in lively play the experience is one of pleasure and joy, or anger and excitement. Through trophic changes and muscular atony we find that the features

lose their character, the furrows disappearing, and the mouth becoming changed in mobility. Blankness eventually comes, with mental vacuity. (Fig. 15.) The attitude, gestures, locomotion, all undergo changes, and



Fig. 15.

the speech is hesitating, explosive, and embarrassed, or the subject indulges in *verbigeration*, which consists in the repetition of words in an irrelevant way, so that the resultant effect is a rodomontade of a meaningless kind. New words are coined, and syllables joined incongruously, so that the result is a compound creation which usually conveys a bombastic hint of the patient's grandiose delusions. The formation of new words is often the result of hallucination or delusion. In the

first case the distorted percepts and absurd concepts which usually spring from auditory hallucinations lead the patient to put into words the things he imagines he hears. The words used are often most distorted and confused, and not only consist of those of his own language, but combined words made by the conjunction of syllables from some foreign word with one of his own tongue. There is in excited and confused patients a tendency to indulge in phrases that have a mystic significance. Sometimes a repeated distortion of a syllable will be persisted in. One of my patients in a conversation of a few minutes used the word "came" for "come," "becase" for "because," etc., at least a dozen times. *Echolalia* is a term applied to the form of speech in which the last syllable of words heard or the last word articulated by the patient himself is repeated.

The letters of the patient ordinarily convey the best idea of his confusion, even when he is on his guard in other ways, and I append the production of an insane subject, which illustrates a form of phrase repetition and extravagance of fantastic word use which chronic patients so often indulge in. This paranoiac patient thus describes a flag she has designed:

CHURCH SUNDAY SCHOOL AND STATE BANNER OF THE UNITED STATES OF MINNEHABA AND COLUMBIA.

Ordinarily quite Large White Silk for the whole of the background of Church Banner and a tinge off into blue as dark as perfect taste would allow for State Banner of United States of Minnehaha and Columbia including Mary Fidelia Bourne Stellar or Planetary Universe.

State Flag of the United States near the top with either the full number of States and Territories or the Original Thirteen Meaning twelve originally ours and one great Cruelty we adopt to protect in full natural color with Abraham Lincoln holding underneath the Motto Malice toward none Charity for all. And the Holy Dove above. Below on the Right Side an Orange Tree in full Bloom and delicate fruit in natural color with Justice written upon it. In the center lower than top of Orange tree a group of figures in whatever color perfect taste orders an American or Hebrew Cross with Lilies of the Valley and ordinary Espiritu Santo twining over it and perhaps grape

vine and by me held by me as Goddess of Liberty and America Benevolence and Truth written upon it at her feet coming up perhaps as far as the knees agricultural instrument with grapes in bloom or fruit over it on each side two well-known Monarch with weapons of defusive warfare and work One and Anstaradat as Peter Bowne the Great of Russia who no menial service honestly and noble performer wrong for the highest dignity to do he over the right with a well known face Then on the left of Goddess of Liberty and America Charles the 5th of Twelfth of Spain Conqueror of the Netherlands Prescott has a memoir highly interesting of him a Thorough penitent with a well known face and ten Commandments in tablet form in Instrument of Agriculture with Laborore et Ovare and Return for Evil together Underneath Orange and Peach tree, a number of Irregular Lumps of Dirt and Stone with Tiger Lily very beautiful and Dandelions and jealousy grass at the bottom over Lump of Dirt two skeltons Hands with know number of Stoned unjustly in America or its Representation to please Cruelty who were Cosmopolitans Aristocrats chiefly from British India and knowing heathendom practically many did not wish to be redeem back to it nor to mention Jesus name after as it brought a bad fate or to know the private affairs of Gods or Goddess and wished to be impartial for that reason were probably starved by the cruel Creation a number of Friends of Goddess of Liberty or America being among the number several private friends all her political ones who loved to hear the Truth as the Spirit of Truth of Truth Through Catholic Aposlitic or Methodist Episcopal declared it. In its purity and truth.

On the lefthand side of group as high as Orange a Mississippi Peach in full bloom and delicate fruit natural Color on it Mercy written.

Written in Lumps of Dirt and Stone Cruelty Selfishness Wrong Ingratitude Falsehood Treachery Kindness in prosperity, unkindness in adversity or False Friendliness. Meanness Uncleaness Lust or Cruelty Selfishness Ingratitude Tyranny Error Falsehood Treachery Kindness in prosperity unkindness in adversity Uncleaness Lust.

At the bottom underneath Jealousy grass and dandelion the Words Faith Hope and Charity on State Banner with perhaps the passage of Scripture.

As I live south the Lord God I have no pleasure in the Death of the Wicked but rather that He may turn from his wickedness and live turn ye turn ye for why will ye die.

11. P. M. (post meridian
 also, probably morning like=
 wise, possible mercy more=
 over, past merging) but,
 call it, "cl. P. 11!"

Fig. 16.—Writing of a paranoiac.

The handwriting itself undergoes a decided change in character, and is often feeble and uncertain or else suggests an exaggerated vigor and nervous force resulting in the production of bizarre scrolls, markings, and interlineations. (Fig. 16.) Of course the disposition to write varies with

the diseased mental activity, those who are atonic or demented, writing but little, while the victim of chronic mania has a veritable *cacoëthes scribendi*. This is especially the case in paranoia, the person of one idea filling pages with diagrams, sketches, and symbolic references, often of a mathematical or religious character. One of the best cases of this kind is that of a Mr. B., an artist, sent by me to Bloomingdale, where his extraordinary ideas found expression in exquisitely executed illustrations which have been collected and published by Dr. Noyes.

I wrote

a letter ^{to you} ~~to you~~ to show it
 to you I will be in Chicago
 on ~~the~~ ^{the} Monday. I will allow
 or about and they were
 Baltimore. I suppose ^{you} ~~you~~ ^{you}
 earn my letter I have ~~over~~
 and gave a dog and
 frown. I will ~~the~~ ^{the} oral in
 spring I they were going
 to a horse ~~and~~ ^{and} ~~of~~ ^{of}
 if do it improve

Fig. 17.—Writing of an educated parietic dement; advanced stage.

In paralytic dementia and other insanities where there is mental weakness and lack of attention, it is common to find words omitted or unfinished, as well as tremor and irregularity; and specimens taken at different times, when compared, show the degeneration very beautifully. (Figs. 17 and 18.)

The attitude of the lunatic is as a rule largely determined by the nature of his hallucinations, should they be present, and he changes his position and behaves in a measure as he would if the impressions he received were real. Should he be the subject of one of the exalted kinds of mental disease, he shows it by his excited manner, flushed face, bright eyes, quick play of features, bristly hair, quick speech, and restlessness; while the reverse is true of atonic melancholia, where inaction characterizes the condition. The patient is listless, taciturn, absorbed, and will not usually move unless stimulated and urged. When anxiety is a feature we are presented with the expression we would find in a normal condition, only intensified.

indefinitely, & I think wisely
as it has been a sad upset here
but I am on a very pleasant

the spring bed to be sold
the sofa to be sold,
also the revolving table
& also the carpet in way

be confessed you
well obliged by getting
more str. of water out the

1850 | Mr Charles Boyard & Co
a March 3 | 5 Geo Beans 26
July 29 1850 P. Curran

Fig. 18.

Writing showing deterioration in parietic dementia. (Bacon.)

a, b, Writing of educated man, with interval of several months; c, d, writing of uneducated man with commencing parietic dementia, c being written soon after admission to asylum, and d his writing in health.

The existence of delusions is often reflected in dress, and in asylums one or two patients are usually shown who decorate themselves with all the bits of bright metal and gay colors they can find. This kind of adornment is usually associated with unsystematized delusions of power, the patient believing himself to be a potentate.

The Ear.—Attention has been called to the misshapen ear, which is likely to be an index of a prolonged degenerate condition. There is another deformity of the ear belonging to chronic insanity, and this consists in a striking deformity due at first to impaired function of the sympathetic fibers and a low condition of vitality of the organ, and to subsequent injury and inflammation and ultimate contraction, so that there is a resultant change in shape and size which is conspicuous. While the ear is congested, as is often the case in chronic insanity, it is liable to be injured or bruised, and laceration of small blood-vessels occurs, followed by extravasation. The condition is known as *othæmatoma*, or the “insane ear.”

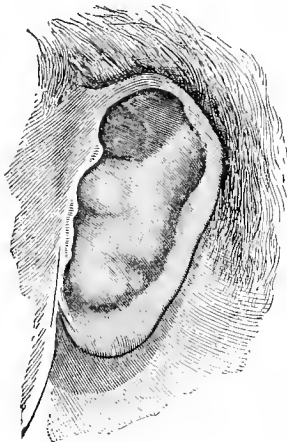


Fig. 19.

Othæmatoma may be associated with nearly every form of chronic insanity, and is usually of grave omen so far as complete recovery is concerned. (Fig. 19.) Through constant pulling or tugging upon the part of the patient, even though the above condition may not exist, the ear often undergoes a distortion.

The Eye.—The pupils constantly present changes or inequalities that are suggestive and valuable in verifying other indications of disease of the brain. In organic insanities, especially parietic dementia, there is at times unequal dilatation, or symmetrical contraction or dilatation. In parietic dementia there is often pupillary action with accommodation but not with light stimulation. In mania they are usually contracted, in melancholia of all forms dilated. The dilated, mobile pupil of the epileptic is present in about half the cases. In insanities due to coarse brain disease, or in alcoholic insanity,

it is not unusual to find paralysis of the motor apparatus of the eye, as well as atrophy and disease of the fundus oculi.

The *muscular condition* of the insane is sometimes significant, especially when the disturbances of motility consist in fine tremors, which indicate a lowered muscular tone. These may best be witnessed in the muscles of the face, tongue, and hands in parietic dementia. Convulsions, ataxia, and certain automatic movements are prominent diagnostic signs of certain insanities with distinct organic causation, such as the syphilitic and alcoholic psychoses. The tendinous reflexes are as a rule increased in insanities where mental inhibition is suspended, and in such degenerative affections as parietic dementia they are more active, or, on the contrary, absolutely gone.

Cutaneous Anæsthesia.—Lowered cutaneous sensibility is highly characteristic of stupid or demented states, or forms the basis of delusions and hallucinations in the manner elsewhere described. It is undoubtedly due at times to autohypnotism, which is associated with those qui-

escent states of will feebleness. Kirchoff says: "If there is very extensive diminution of sensibility the patient's feeling of his own personality may be extinguished and he may believe himself dead. If the anæsthesia is confined to certain viscera—for example, if the ingestion of food takes place without feeling—the patient believes that he has no stomach."

The *secretion of tears* is diminished in melancholia, but is abundant in parietic dementia and is apparently in no way connected with mental suffering, the tears flowing with the least excitement.

The *skin* of the insane is apt to be dry and harsh, especially in the depressed forms; but this is not necessarily a feature of all insanities, as it is claimed. The violent muscular action incident to mania gives rise usually to profuse sweating. The writer has witnessed an oily condition of the skin in adolescent and evolutionary insanities.

The *temperature* in melancholia and dementia is, as a rule, lowered; the surface temperature, especially, is reduced, so that the skin is cool and clammy, and through sluggishness of circulation is pale, dusky, or mottled. The subnormal temperature may be as low as 96.5° or less. In mania and other excited states the temperature does not rise, except when there is the condition known as typhomania, in which delirium is present. In stuporous insanity and the apathetic forms, where great exhaustion exists, its extreme reduction usually foreshadows a fatal termination.

Digestion and appetite are likely to be more or less deranged in every form of acute insanity, but in mental disease of long standing the appetite and digestion are entirely unaffected. In melancholia there is a history of indigestion and defective assimilation—the urine is usually loaded with urates, except in cases where its secretion is abundant—the atonic examples. These patients often suffer from diarrhoea and the passage of undigested food, which symptomatize the insufficiency of mastication. Constipation associated with tympanites belongs to the hypochondriacal variety of melancholia, and the fecal matter is deficient in biliary coloring matter. The ravenous appetite of mania is largely psychical and not due to any actual craving for food. In hysterical and puerperal subjects there is also an evidence of mental degeneration which consists in the craving for nauseous and indigestible substances. In parietic and other forms of dementia the patient is apt to eat too hastily, thus producing gastric disorders; or he may, through paralysis of the pharyngeal muscles and anæsthesia of the epiglottis and upper part of the larynx, be asphyxiated by the lodgment of a bolus of food or piece of meat in the latter.

Trophic disorders are likely to ensue in cases that have existed for an extended length of time. Cutaneous alterations, such as deposits of pigment, staining, changes in the growth and color of the hair, herpetic and other eruptions, are among these, as well as brittleness of the bones, fractures being very common among the chronic insane. Bed-sores usually attend the last stages of protracted insanity, and are common among dements or those who have undergone very great exhaustion.

The *urine* of the insane may present the ordinary evidence of bodily waste, especially in mania or psychoses where great wear and tear exists. In agitated conditions the quantity of urea is increased, and after epileptic paroxysms it has been found to contain albumin and even sugar. Some years ago the writer conducted a series of experiments at the Hudson

River Hospital for the Insane, which disclosed the fact that the appearance of sugar in the urine of paralytic demented was to be looked for at some time or other in most cases. Its presence has been detected in periodical mania. In alcoholic insanity it is quite natural to look not only for casts and other evidences of renal disease, but albumin as well. These evidences of increased blood-pressure in connection with acute states are found not only after attacks of mania, but after the convulsions occurring in the course of parietic dementia.

The Insanities.

I. IDIOCY.

This term, as here used, implies a congenital defect in both mental and physical development, and differs from imbecility ("acquired idiocy" of some writers) in the fact that such defects, whatever they may be, are prenatal, and are due to causes which act directly through the parents. Injury inflicted during delivery—from forceps, pressure, and the like being exceptions—for the true idiot possesses purely atypical defects due to defective organization.

The remote influences causing the anomalies of development that belong to a feeble child of this kind are more apt to be alcoholism and syphilis than any others, although sensitive people who desire to find a less degrading explanation are prone to assign the weaknesses of their offspring to such traumatisms as falls, the carelessness of nurses, or actual injury inflicted by the forceps during delivery. Such causes are comparatively unusual, as the study of the physical aspects of the disease will prove.

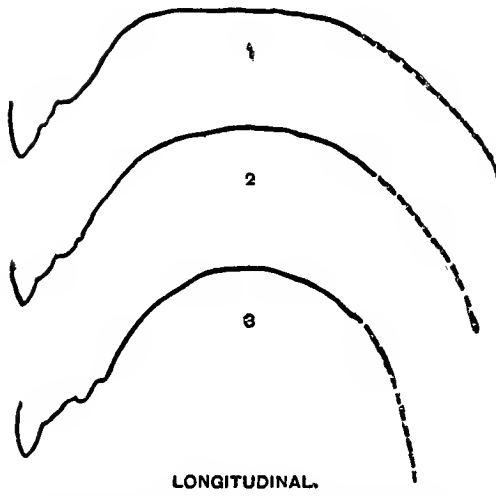
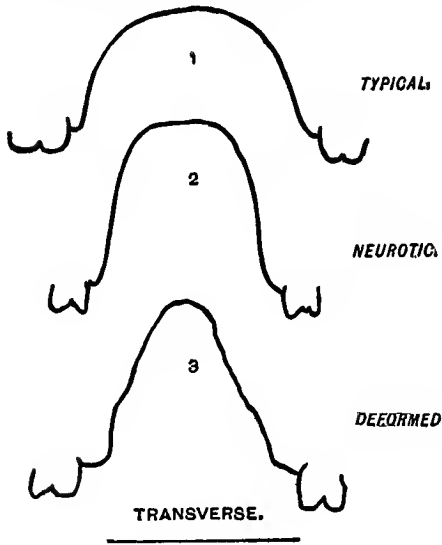
Idiocy is due much more often to the intemperance of the progenitors than to any other cause. Of 359 idiots seen by Dr. Howe, it was found that in 99 cases the parents were confirmed drunkards. Consanguineous marriages are believed by Maudsley to lead more often than is generally supposed to degeneracy, which is manifested in succeeding generations by idiocy. Exactly how much syphilis predisposes to this condition it is difficult to say, for its manifestations are irregular. Not only can it result in late forms of degeneracy—in infantile general paresis, as has been witnessed by Clouston—but it is ordinarily behind congenital feeble-mindedness, with associated epilepsy.

The physical peculiarities of idiots are varied and striking. The configuration of the cranium is one of these, and Broca has described several varieties, the most important of which is the *microcephalous* head. The diminutive head may have a circumference of but thirteen inches, and an exceedingly great facial angle. Broca holds that the possessor of a skull with an anteroposterior diameter of 148 millimeters is a *microcephale*. Of the two principal varieties, the dwarfed idiot and the idiot of ordinary height (*les nains et les individus de taille ordinaire*), the latter are almost always deprived of the faculty of language—sometimes they can pronounce a few words, without any appreciation of what is meant; the cranium is larger than that of the first variety, and may be 140 to 145 millimeters in length, with possibly a circumference of 420 to 425 millimeters and a capacity of from 600 to 700 cubic centimeters.

The greater number of microcephalous idiots are of the first variety (dwarfs) and rarely grow taller than a boy of eight years. (Broca.) Many always remain undeveloped, others are taught to talk, and but few advance beyond the mental status of a child of two years. The antero-posterior diameter of the skull may be no more than over 10 to 13 centimeters, the horizontal circumference may be from 32 to 37 centimeters, and the capacity is always below 600, and may be no more than 300 cubic centimeters. The case of the microcephale John Rouse is one well known in psychiatric literature. He was under my care for several years, and as a microcephale ranks with the cases reported by Ireland. John Rouse is about fifty, weighs 72 pounds, is 4 feet 7½ inches high. The circumference of the head, taken at a point one inch above the root of the nose anteriorly and the occipital protuberance posteriorly, is 15 inches. The biaural arc is 8 inches, and the anteroposterior arc is 8 inches. These measurements must be reduced about an inch by reason of the existence of thick, coarse hair. His teeth have disappeared, and he has a double cataract. The left ear is the seat of a hæmatoma. His intellect is almost nil. He can only say a few words, without any idea of their meaning. Broca also describes the demi-microcephale. Very often weak-minded children of this kind present no diminution in the size of their crania; in fact, I think the majority of my own cases were the possessors of unusually large heads. The *scaphocephalous* deformity consists of an exaggeration of the vertical and longitudinal diameters; the *plagiocephalous* or oblique-oval deformity, depends upon premature obliteration of one of the branches of the coronal suture and of the lambdoidal suture. In the *platycephalous* deformity the sinciput is flattened and the vertical diameter is diminished; in the *acrocephalous* head, on the contrary, the sinciput is conical and there is an increase in the vertical diameter.

Indication of premature closing of the sutures is often present, and should be looked for. The height of the palatal arch has been referred to, and an increase with basal narrowing is regarded by most authors as an invariable sign of defective development. I present an excellent plate of Clouston, which enables the reader to compare several types of mouth-roof—the normal, the neurotic, and the deformed. The mouth of the idiot is large, and the lips coarse and full; the teeth are uneven or in a double row, and perhaps connected with fissuring of the hard palate; harelip, or that projection of the lower jaw known as *prognathism*, may be present, and when it is, is highly characteristic. The features of the idiot are coarse. His vision is defective or he may be actually blind, or he is apt to suffer from disease not only of the eyeball itself, but its muscles as well, so that there may be atrophy of the disk, cataract, or strabismus, and there is an inability to fix the eye upon small objects. The hair upon the body is sometimes coarse and plentiful, or, on the other hand, is unusually fine and silky, though this latter condition of affairs is, I think, more marked in imbecility. Idiots are slow and awkward in their movements, disinclined to work, as the muscular system is weak. Cutaneous sensibility may be either elevated or depressed; in the latter case there is a remarkable tolerance of external disagreeable irritation. Sometimes there is loss of smell. The gait is often waddling and unsteady, and the grasp weak. His habits are untidy and disgusting; he gorges himself with whatever may be placed before him,

SECTIONS OF STANDARD PALATES.



The Soft Palate is represented by a dotted line.

Fig. 20.—Casts of vault of mouth showing defects in hard palate. (Clouston.)

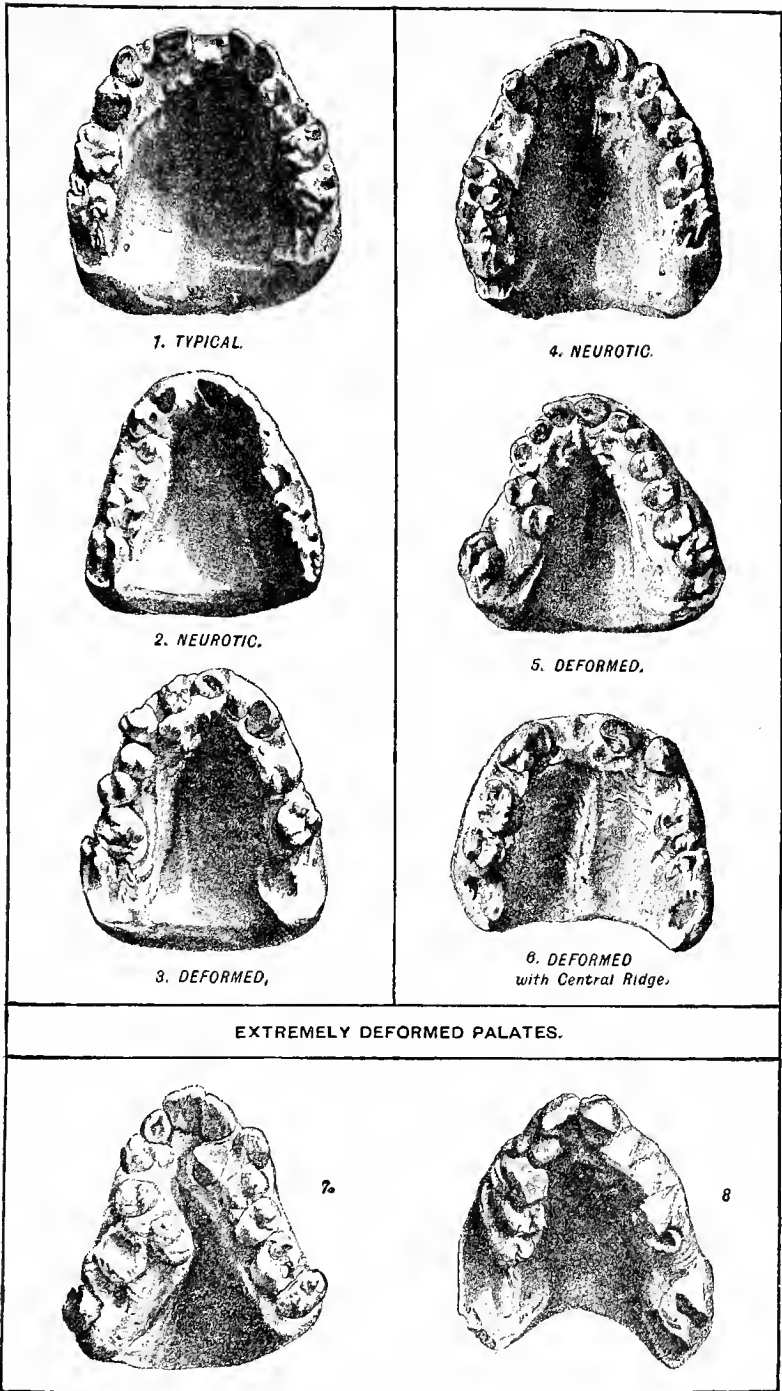


Fig. 21.

Casts of palates, showing standard types on left, and changes found in adolescent insanity on right. (Clouston.)

and often carries, for hours at a time, in his mouth a bolus of food. He voids his urine and feces wherever he may be, and very often indulges in masturbation and objectionable amusements of a vile character.

The idiot is either *non compos*, or his capacity is, as Pinel has observed, below that of another person of his own age. In some cases the intelligence is even upon a par with that of some of the lower animals, and mental expression is chiefly emotional. He manifests feeble degrees of pleasure when shown bright objects, and indulges in fitful and short-lived gusts of passion without cause. He delights in rhythmical, musical sounds, or to indulge in automatic movements. His instincts are animal; and without the restraint of judgment he gratifies every appetite, however low. In completely idiotic persons there is no sign of recognition, no indication of memory, and the intellectual capacity is rudimentary. There is the absence of the primary mental apparatus, the absence probably of a sufficient number of sensory cells and their connecting filaments, and the result is the absence of mind. The general conspicuous mental weakness of an idiot is the lost power of attention, and this accounts for most of the peculiarities. Nothing impresses him; perception is dulled, concepts are weak, and emotions are not, therefore, legitimately aroused. The basis of mental expression is the bodily or instinctive feeling; the senses of hunger, pain, satiety, comfort, and the like, influence the conduct, and his outward manifestations are of a feeble nature and bear a close connection with the condition of the ego. The expressed feeling is unbalanced, inharmonious, and is often evoked by unexpected or ordinarily ineffective stimuli.

The speech of idiotic children has always been considered an interesting index of the mental failure. Its connection with the disorderly complexity of organized ideas, and the manifestations of its forms of impairment, perhaps point as fully as any other symptom to the degeneracy. The defects of speech vary from absolute mutism to a state of apparent, though feeble, development, where perhaps a free flow of words exists, without systematized mental creation or regulation. Many vagaries are found. Sometimes the vocabulary is very limited, being confined to a dozen or more words which the child invariably uses for the expression of its simple wishes. Hun reported a case of this kind, and Clouston another. In the case of the latter, ten words served to designate her nurse, her own name, those of various animals and objects, as well as to convey information as to her needs. Such examples are common enough, and the simple words are curious, and frequently have no phonetic connection with any particular object. The range is rarely extended, though occasionally skillful teaching may result in the use of new and applicable expressions. The speech-defect is sometimes a genuine aphasia, and is associated with hemiplegia and epilepsy. Other children substitute consonants, using T for K, D for G, D for Z, etc. *Echolalia, stammering, screaming, the utterance of rhythmical and monotonous sounds, the mimicry of the noises and cries of animals*, are all morbid expressions.

There are many beautiful children who come into the world with an utter arrest of cerebral development, whose beautiful and expressive faces are strangely at variance with the paucity of mind. Clouston, in detailing a case where there was an hereditary arrest of development of the mental cortex alone, the trophic, motor, and sensory centers acting

normally, while there was no emotion, reasoning power, no power of attention or speech, yet "an exceptionally sweet face, fine, expressive eyes, wonderfully good walking, and a well-formed body," says: "The face and eye of such an idiot tell lies when they thus express mind."

The sexual organs of these subjects are sometimes the seat of malformations, and monorchidism, hermaphroditism, and atypical errors are disclosed upon inspection. Their sexual appetite is perverted, and when any desire exists, which is not often the case, the adult idiot is apt to commit violent assaults upon women and children. Although copulation is possible, fertilization does not, I believe, occur, although it is so claimed by some.

The idiot, strange to say, is usually susceptible to more direct and prompt development from training than the imbecile, for in the former there is often no actual destruction of nervous matter, but rather a dormant condition that can be much improved by education—by an approach from without, that is to say, through an appeal to the senses primarily, and a removal, if possible, of the inhibition of speech. Teaching should be directed to symbol formation and association.

Cretinism is a form of idiocy attended by a degeneration of the thyroid glands, owing its origin to endemic influences. It is common in southern Europe, especially in the Pyrenees, and seems to be rather a disease of high altitudes than elsewhere.

The physical and mental peculiarities of cretins consist in a dwarfing of stature; imperfect development of the base of the skull; a puffiness and swelling of the face, which is so marked in myxœdema, for, in fact, this disease belongs to the same group. The fingers are clubbed, and the tips spatulous; the skin is of a dirty, waxy color; the surface temperature is lowered; the voice is high-pitched, raucous, or muffled; the hearing is defective; the mind is dull, and there is not so much motor activity as in ordinary idiocy.

II. IMBECILITY AND KINDRED DEGENERATIVE STATES.

Mental weaknesses beginning during the first years of life are apt to be unnoticed and neglected, and it is not until the third or fourth year that the parents realize that the real backwardness of the child is due to some defect in organization. It perhaps does not speak or walk as soon as do others of the same family, and possibly has a spastic gait, or does not hold up its head, but drools. This state may develop after an attack of convulsions, a febrile disease, or "brain-fever," or is associated with epilepsy. In other cases there is no such condition to explain its origin, and, in fact, the mental weakness itself may not consist in anything more serious than a "queerness" and perversity, which causes the subject to be looked upon as an unusually bad or an unusually clever child, or gains for it frequent and useless punishment, or adulation or injudicious praise when it has performed some difficult feat of mathematics or memorized some very long verse or piece of prose. To this class belong the musical and mathematical prodigies. These children are usually correspondingly dull in other things, or grow up to be stupid men and women. The moral perversion which belongs to this kind of weakness is irregular in some ways, entirely beyond control, and is fre-

quently ineradicable. The boy commits a cruel act of some sort, torturing dumb animals or even his own kind; again, as in the Pomeroy Case, he actually commits wanton murder. Lying, stealing, indecency, and purposeless, impulsive acts are common. There is afterward little remorse; the child knowing the abstract nature of its offense, often talking about it, but feeling no shame. Occasionally the subject is troubled by doubts and fears that constitute actual introspective insanity, and acts under the influence of imperative concepts; but this is not common. The mental after-life may be a continuation of that of childhood, and if the grade of degeneration be such as to permit an actual attempt at progress and a battle with the world, it will soon be found how improperly equipped is the luckless individual. His school life is a succession of defeats and failures; his business career is fitful and unsuccessful, and he soon drops out of the pushing crowd. His disordered moral nature gets him into trouble, while delinquencies, expressed in the direction of theft or petty crimes, lead him first to the reformatory and afterward to prison. There is a very large number of people in the community who mingle freely with their fellows, and whose real condition is not recognized. They are one-sided, imitative, and perform limited intellectual work where little inventive skill is required. In some ways such people are decidedly smart, and often indulge in feats of memorizing and *tours de force* which impress their friends. They are, however, without sufficient reasoning power, and their judgment is bad. One of them may be a harmless person in every way, the butt of the town, the village wit, or he may be an exceedingly troublesome member of society, with criminal instincts; in fact, a very large number of instinctive criminals are but imbeciles.

So far as the physical make-up is concerned, we find peculiarities of head configuration—what is known as “developmental ugliness”—strabismus, defects in the shape of the ears or teeth, eccentricity of dress, and tricks of manner and speech. The term coined by Guiteau is most often applicable to these people, for they are often cranks in action and appearance. An advanced grade of mental degeneration is manifested in disorders that run all the way from “crankiness” or insane eccentricity to actual

III. MONOMANIA OR PARANOIA.

The use of the word “monomania” by various authors has led to much confusion. It has been applied to forms of melancholia and mania, to intellectual insanity (Hammond), and by others to a number of widely differing psychoses. By some it has been considered synonymous with “partial insanity,” that convenient legal excuse for criminals whose alleged irresponsibility is connected with mental integrity in all other directions save one. From the fact of its being an expression of initial degeneration it has received the name “primary delusional insanity.” (Folsom.)

Monomania or paranoia is an insanity in which the mental aberration consists in the existence of limited delusions that are either of a grandiose or depressed or persecutory nature. The general mental health of the subject is not always bad; in fact, sometimes the paranoiac, except for his own dominantly expressed delusion, may conduct himself with

considerable propriety, displaying a great deal of intelligence. Again, his prominent delusion is a central one, about which may be grouped others of a dependent kind, with a growing mental dissolution which is finally clear to all. A case of this kind has been referred to when describing religious delusions. Hallucinations more rarely occur, and when they do are limited like the delusions, and there is no incoherence; like reasoning insanity, the patient reaches conclusions from false premises. The emotions correspond with the delusions, and are relatively painful or happy. Paranoias may be divided into several varieties.

The *persecutory* form, which is the most common, where the individual entertains delusions of suspicion and persecution, believing himself to be the object of attack or of a conspiracy, that he is deprived of his rights, that he is misunderstood and misjudged. Possibly his delusion may be succeeded by others—of power—he believing himself to be the inventor of some important and useful piece of machinery or process, of which later on he says he has been or is to be robbed of. Sometimes he is the great general, reformer, or manager, and if he really has had any office or calling which he has improperly filled, he refers his want of success to his imaginary enemies, who have plotted his ruin. Persons who sit opposite to him in the cars are enemies and detectives. At some time or other he misapplies quotations, both biblical and otherwise, and invests himself with new imaginary power. His delusions become unsystematized eventually, and are accompanied by auditory hallucinations. He “has a mission to perform,” and occasionally murders some one to further it, usually a president or sovereign or public functionary.

The *reformatory paranoiac* would regulate society according to his own methods or system. If he occasionally has sufficient influence he gets himself appointed or elected as president of some society with a more or less noble aim, makes and enforces persecutory or nonsensical regulations, and his zeal is insane in its exhibition, and draws forth censure and newspaper abuse, no matter how sincere he may be. He may be and usually is eccentric in dress, and should his delusions be of a grandiose character, decorates himself with medals and decorations. In an extreme form, which has received the name *megalomanie* from the French, we find the most extravagant delusions of power expressed. There is usually an expansive *bien être* and benevolence displayed which lead the individual to promise the



Fig. 22 *

* From the author's *Types of Insanity*, with kind permission of William Wood & Co.

favors that only a king could confer. He is invulnerable and impervious to the bullets that may be fired at him; he makes his attendant a general or duke, or promises his visitor a million or two as a pledge of his good-fellowship. He, too, is decorated with shining bits of metal, buttons, feathers, boot-heels, and a thousand and one glittering gewgaws he has picked up or begged. (Fig. 22.) Should he be interviewed in an asylum ward he calls attention to the fact that all those about him are insane, and he alone is in possession of his faculties, but does not seem to wish to escape.

In one case of which I know the patient called attention to his invention of "painless death." The secret was "too dangerous to generally communicate," but he gave me the formula, which I produce. The painless death was to be produced by a blow with the fist, not in a vital spot, but anywhere. It was suggested for the execution of criminals, but the secret "should not be imparted to persons likely to use it for revenge."

About Painless Death formula, you multiply the weight of the man who strikes by the length of his extended arm and by the length of the advance of his foot as he throws himself forward; the total divide by 2000 or 2240 lbs., giving the energy in foot-pounds—generally $1\frac{1}{2}$ to $1\frac{3}{4}$ tons. This should be verified by actual test on scale register.

Upon reminding him that blows of this kind rarely resulted in any serious injury though inflicted every day, he replied that "some of the conditions were absent."

A class of paranoiacs infest the courts of law, bringing suits for all sorts of imaginary injuries, and badgering and bothering judges and juries. This *paranoia litigiosa*, or *querulent insanity*, is common, and its victims are usually public nuisances who are always getting into trouble. An evidence of this form of disease is presented in the shape of the indorsement of a brief executed by a paranoiac who imagined himself persecuted and deprived of his rights as a lawyer. The bombastic phraseology is highly characteristic. This paper consists of a legal form, which is addressed to "the United States and whole world, as before the Court and Counsel, yet with this legal estoppel: *et justitia ad infinitum*," and within:

It appearing to my satisfaction that Mr. G. K. is the Chief of the Bar, and is clothed with all rights, privileges, honor, and justice,

Ordered that the Hon. J. S., Justice of said court, is in full sympathy with the said K., and that he has sworn that his obligation is in all respects toward the said K., to do anything to his aid and advantage for the modification of 61 Barb. p. 573, even unto death, as our inviolable rights and only legal settled citizen title, as registered *in rem*.

J. S., Justice.

On the back of the paper appears the following:

TAKE NOTICE.

To all to whom it may Concern:

That the within is a copy of an order this day filed in the Clerk's Office of the 5th Judicial District Court, as this our home and international legally settled jusgentium measured inviolable privileged benefit, for the other nations and people of the other sections of the globe, for all religious denominations and sects, and the various political parties and fractions and representations. You will please restrain and hold over, and do the same by signing same.

N. Y., May 9th, 1883.

JOHN SMITH.

These and many others are familiar to the public through their extraordinary behavior, accounts of which have found their way into the newspapers; but the real condition, unless it is very pronounced, is rarely appreciated.

The development of paranoia is slow, and, as it has a congenital, neurotic basis, we find a previous life characterized by some of the early peculiarities of conduct alluded to in describing imbecility. The downward progress of the disease is slow but sure, the patient entertaining a limited number of delusions for many years before lapsing into dementia. The subjects are tolerated members of society, and not unrarely do much good in directions where their diseased intellect does not interfere. Paranoia is essentially a chronic disease, though lately a form has been described which is said to be acute. I am, however, disposed to believe that the very matter of time must exist to determine the nature of the disease, for short-lived, single delusions, even with insane predisposition, may be found under other circumstances, and may symptomatize many ordinary acute insanities. It therefore does not do to speak of an acute paranoia. Suicide is not common, and homicide is resorted to only when delusions of persecution or conspiracy exist, or when the person is being restrained or his acts controlled.

A form known as *Sensorielle Verrücktheit* exists when the limited delusion springs from some alteration of sensation and relates to the body; by some authors it has been called hypochondriacal paranoia.

The following statement is that of an ignorant paranoiac of this kind whose disease had had a hypochondriacal beginning, and developed so that unsystematized delusions of persecution and conspiracy followed a period characterized by the existence of limited hallucinations and corporeal delusions relating to his own internal organs. He came from insane stock. The "Arenoughts" (Argonauts) were throughout responsible for his persecution.

THE ARENOUGHTS.

March 11th 1886

My Bowels Moved 3 times Before night parties or arenoughts, quite, quiet I commenced Tacking the Medeson No 1862 . . . 3 11 86 Prescription from G R C—Have taken the first dose in the evening 12th 1886 The parties threaten me with Blindness; I have faith to Believe G— DL— and J— F F—; I Have ben threathont Several times before and a Blur Before my eyes Bowels Moved twice today now 8 Oclock at night I Beleive the parties Have power of My Mind and Brain and they have aenowladged thy have My papers and a Receipt Book and a pair of Shomakers Pincers and Receipts of My Trade whitch I Hope and Pray May Be Restoared back to Me And they further Have aenowladged they have ben Pested by Myfolks and that they are going to Noculate Me the same This said tonight the Twelfth Whitch I think the Parties noculated My famely and went up to Be free from the law and Me By the famely being put from Me by their commandments; also they have claimed they are going to Mation Me for their Brother J— F— and all My acts of Mine and J— F— is not to Be found He J— F— agreed to Make Me clear of Debt if I would Stick to him until He got His Pention whitch I Did and the contract was never done

My Head and Chest Bounced like ones Hart after running fast a long distance at Night the Parties notime letting up entirely

16 they Sometimes punch Me at the root of My Tongue and other times at My toes and other times at My Heals. The parties claim that there is nothing the Matter with them and Say that I was spirited So if they are blowed off they will come back or send Some won else as thy Now the Spirit in Me and can throw on me at any time

Mr A— What will be the expence to Have you and Me go to N Y city to a Mitton Horsepittle or any Horsepittle and Have this Tested*

Pleas Return this

My Medeson 3 quorters used up

* His urine.

March 20 1886

The arenoughts Say this Morning that They wont come S— D— on Me for I hant the Money to buldoze him backwards and forwards

As i am thinking about a bill Dr L— ast Me to pay yesterday; While I was talking with L— the parties were operating on my Njrvs so i trembled allover astho I was as cold as could be without freezing; and they continue to operate on my ears daly; for thatmatter all over Me from place to place; A L— Bill \$10.50 cts; survises 10th of Feb copy March 18

They say Im capable of Putting Him down And putting Him up in one Minute when they were Making Me shack astho Im Half froze Ive thought of burning Sulfor in My Durtcellar and get in the back side will it Harm me if I sit in the bottom at the backside at the bottom My bowels scarcely any better Moving 3 or 4 times a day

20 while sitting in Sloats shop The parties up in The air said; He wont be able to plead His own cause so Splay And My Head Had a dull Heavy Ach and then spoke as thoug speaking to one in company with him Oh will He go to Adamases; I feeling half asleep

21 They said That my place would be sold to findout whare My Money was and if I didnt By it; It would be given back to My wife and if I didnt Live with Hur They would Murder Me and Saying that Mis Wimon was diseased by them and They were going to Mation or Mition them and My Money Had to pay them for it & tonite They were operating on my body So I could hardly Breath Near my Nabol & felt as though it was Strained out; near the same as ones finger in a vice and turning Black with the preshure; Now as I am riting they say is he arny worse of than he was & the other says He would if we wasent Afrade of Adams;

22 Tonite The parties commenced pumping on my Head up and down the Hollar of My Neck About whare the spine is and so down about as far as the bottom of my Sholder Blades. I think one could have seen My Head Move this done after I got in bed; Soon as I got up to rite this they let up after I again got in bed they commenced to operate again I was thinking about going up to The Justice of the Piece and they said they would put me so low I couldnt plead my own case I not nowing whitche to see first you or the offer; They said By God they did not now whitche way to do as they did not now whitche way I would go;

23 My Bowels so loos it runs from me like water I not Being able to now some-times before its dun;

IV. ADOLESCENT INSANITY.

One of the critical points of life, when the mental equilibrium is most sensitive to disturbing agencies, is that of pubescence. It is at this time that the second period of brain development really begins. "Looking to the gradual development of mind up to puberty, and the enormous and rather sudden leap that is then taken toward the higher mental life of the adult, we must assume an almost completed apparatus lying ready to be brought into use, just as the centers of respiration are ready for their functions at birth; and considering that the very highest mental and moral qualities of all, with the subtle differentiation between the male and female mental types, are only fully seen between eighteen and twenty-five in the average human being, we must look still to the apparatus through which all this is brought about in the brain cortex." (Clouston.)

In children possessing the insane diathesis a very serious and often incurable psychosis develops, and is apt to afterward end in dementia. In those with unstable brains various forms of mental disease may appear much earlier than at puberty, and insanity in children of even five or six has been observed. The variety above alluded to, known as *adolescent insanity*, is, however, quite peculiar. It is symptomatized by excitement, irritability, and impulsive acts, though melancholia exists in a fair percentage of cases. The moral sense is blunted and sexual perversion is

common. The male subject is insanelly vain and conceited, bombastic, and generally morbid. Some writers have described the disorder as masturbatic insanity, because the habit of onanism is supposed to precede and cause the insanity. I do not think this term is proper, or the etiological theory of masturbation tenable, for the sexual vice is rather more apt to be the cause than the result. Various emotional disturbances are common in both sexes, and there is a certain periodicity which resembles *folie circulaire*. A large number of cases recover wholly or partially, though about thirty per centum lapse into a profound dementia characterized by good physical health (primary dementia of youth.) The affection must always be considered as a developmental psychosis.

V. PERIODICAL INSANITY.

(*Folie Circulaire; Alternating Insanity.*)

The clinical features of this form are recurring attacks of mania and melancholia, ordinarily in subjects with hereditary tendencies, though an acquired form is mentioned where states of elation or depression may be repeated. The attacks are separated by intervals of apparent lucidity, but it is a question whether the intervening condition is ever one of absolute integrity. The exacerbations seem to be due to internal causes, and are evidently the result of cumulative physical depression and mental disorder. The actual attacks of insanity tend to become more and more frequent, and eventually run together, the resulting condition being a terminal chronic psychosis, though this is by no means an inevitable consequence. Sometimes the attacks are always of melancholia or mania, or they alternate irregularly. The former are apt to be simple and not hallucinatory, and the delusions are often in regard to personal unfitness or are of a clearly religious nature. The delusion does not last very long, but rapidly disappears. The remembrance of the attack is at first clear in the interval, but after subsequent attacks the mental condition and power of attention is confused, as it is in old epilepsy, and the recollection dim. When the character of the disease is excitement, such excitement is apt to be of sudden occurrence and subsidence. There is great irritability, sharpness of memory, loquaciousness, self-aggrandizement, and morbid self-confidence; incoherence and active hallucinations in a small number of cases. The feature of both mania and melancholia of this kind is the short duration of the separated attacks, which usually last but a few weeks. Seasonable factors seem to influence the changes that are observed, but it is difficult to say how.

VI. REASONING INSANITY.

(*Reasoning Monomania; Monomania sine Delirio.*)

Many patients possess a remarkable ability to convince themselves, as well as others, as to the apparent consistency of more or less insane acts which they perform. This form of insanity, therefore, is one that

is apt to be the basis of litigation, because of the apparent intellectual vigor of the subject. Its elements are originally false premises, from which he oftentimes reasons most logically, arriving at a conclusion which may amount to a powerful imperative concept. In most ways his ordinary mental conduct may be all that it should be, but the false insane idea exists, and is defended and justified with great vigor. Not un rarely the patient recognizes his weakness at some time or other, and undergoes great agony of mind. As the result of this dominating kind of thought he makes purchases he can ill afford, or buys useless things, or is dangerous to society. His acts are often preposterous, but after their commission he is filled with remorse and makes a manful effort to avoid the mandates of his specious conclusions. This disorder closely resembles the other affection which is expressed in the origination of morbid imperative concepts, and may be said to be an exaggerated form of that psychosis, as in it there is often a neurotic element or a history of alcoholism in other generations. The patients are usually adults. I have lately seen several children who, however, have developed the psychosis.

A few months ago a boy of fourteen was sent to me who presented a form of this disorder, which I believe to be unusual, and which was due to improper religious training in a subject of defective organization. He studied hard and was ambitious, and, as a consequence, had developed headaches a year ago, with indigestion and general ill health. Some months ago his mother noticed that he washed his hands more frequently than usual, and that he would stand a long time before the basin in an apparently abstracted state; that he would spit in the coal-scuttle repeatedly, and that he picked up pieces of straw and matches, which were always thrown into the coal-scuttle. He explained his actions by saying that the pieces of straw resembled crosses, and he could not show disrespect by carelessly stepping upon them. His habit of spitting, he said, was due to the fear lest the saliva in his mouth should interfere with the full effect of the communion-wine, and this was carried still further by spitting in his handkerchief. Of late he occasionally has delusions that his food is poisoned, but he denies this to me. When he crosses the railroad tracks that run near his house he is impelled to pick up stones that lie between the rails; if he does not do so he is filled with fear lest there may be a railroad accident. He has all the distress of mind common to other sufferers from this form of trouble if he neglects to follow his first impulses, and often returns to obey the dominant concept.

He often remains for a long time in the water-closet, sometimes for ten or fifteen minutes, and when his mother enters to find the reason of his seclusion, she discovers that he has littered the place with many pieces of discarded water-closet paper, refraining from desecrating by use any piece that contains creases that may bear any resemblance to the common symbol of Christianity; he examines each piece carefully. He sleeps very badly and has nightmares, and grinds his teeth. His pockets, when examined, are often found to contain various nails and sharp things that he has placed there after picking them up lest they might injure some one.

When I talked with him I found little or no intellectual disturbance, and consider that his objections to his food were not so much because he

thought it was poisoned as because it might in some way interfere with his religious professions and duties; but from his mother's account he undoubtedly at other times has well-marked hallucinations and delusions. He expressed much distress in regard to his condition, and I think to some extent realized its hold over him. Upon interrogation I found that whenever he walked in the street he carefully put out of the way or picked up any object, especially pieces of straw, wood, or paper, that in any way in their arrangement bore the least resemblance to a cross, for fear that he might commit some act of sacrilege. After much questioning it turned out that he had received a deep mental impression from a story in a semi-religious school "reader," which was in use at the Roman Catholic school which he attended; and upon examining the book I found a highly colored romance which had evidently been prepared for the purpose of appealing to impressible children of his particular faith.

VII. EPILEPTIC AND HYSTERICAL INSANITY.

These forms are characterized by the primary existence of epilepsy, or a fundamental hysterical state which becomes more and more pronounced until the expressions of emotional excitement always rise to the surface and give the mental disorder a distinct tinge. In the former the mental aberration is of irregular development. It is always hereditary, and may follow the occurrence of frequent attacks of *petit mal*, when the type is that of mental feebleness, finally possibly amounting to dementia. In other varieties there may be attacks of excitement, which take the place of epileptic paroxysms, during which the patient commits acts which he does not afterward remember. This form of disease must be distinguished from the epileptic manifestations of general paresis, of embolism or coarse disease of the brain, where the attacks are generally symptomatic. Sometimes the insanity is expressed in melancholia, with delusions. The mental disturbance may be short-lived, taking the place of or following a fit. There is great irregularity in the occurrence of the isolated attacks, and, in fact, in regard to the progress of the disease. It rarely affects children, except as a symptomatic expression, but often develops about the time of puberty.

With the motor automatism which we often find the patient commits curious, purposeless acts which are so eccentric as to leave no doubt of mental unsoundness. One of my patients would disrobe wherever she happened to be. Others unconsciously pursue the accomplishment of acts that were in process of commission before the seizure or lapse of consciousness, of which they have no recollection. While the functional activity of the higher cortical centers is suspended, the patient may wander sometimes to a great distance, take railroad journeys, and travel with other people, who detect nothing unusual in his conduct. On his return he is often oblivious of any irregularity, or remembers nothing of where he has been or what he has done. The importance of such a state cannot be disregarded as an element of legal proceedings, when it is claimed that certain acts are not the product of the free will of the subject. The relation of epilepsy to criminal responsibility will be later considered, but attention is here directed to the possibility of the commission of an act by an epileptic with a masked or aborted form of the

disease, which would jeopardize his civil rights. Such a person might very readily make a civil contract of which he would have no recollection subsequently, and which would not be approved by him in his normal state.

The hysterically insane are subjects of the neurotic temperament, and it is not difficult to find some history of degeneration. They belong, as a rule, to families other members of which are alcoholics, insane, or instinctive criminals. The elation, vanity, irritability, and general emotional instability of these patients lead to exaggeration, moral blunting, and consequent impropriety of conduct, which is also expressed in alcoholic and epileptic insanity. The delusions and hallucinations are rarely adhered to, are changeable, and are not always real, but are due to what may be called a willful autohypnotism or voluntary indulgence in image-forming. So lively and absorbing is this process that a morbidly active woman may pass into an ecstatic condition, examples of which are common enough during times of religious revivals. Such patients are disposed to mutilate themselves for the purpose of gaining sympathy and notoriety, and are untruthful, sexually debased, and prone to make unjust charges against innocent people.

Helen Miller, whose case is reported by Dr. Channing (*Am. Journal of Insanity*, January, 1878, p. 368), came under my observation some years ago. She had committed thefts from doctors' offices, and was arrested and sent to prison. While there she began to feign insanity and was sent to the Asylum for Insane Criminals. She had been of hysterical habits, had eaten opium, and was treated by one of the physicians she had robbed for dysmenorrhœa. Her first exploit in the asylum was to prick her gums, and the blood therefrom was mixed with urine and crumbled bread, so that an attack of hematemesis was suggested. She had several attacks of hysterical dysmenorrhœa, was irritable, depressed, and had fits of temper. Then she began a system of self-mutilation which was something extraordinary. At various times she thrust pieces of glass, splinters, and other things into various parts of her body; cut herself with pieces of tin and a broken bottle. Upon one occasion she broke her chamber over her head. Dr. Channing removed no less than ninety-four pieces of glass, thirty-four splinters of wood, two tacks, four shoe-nails, one pin, and one needle, at various times. In this case the woman's pride seemed to be that she was the object of surgical interest and of sympathy. I saw her after her transfer to the Blackwell's Island Asylum, where she was sent after her second arrest for theft, as she had been discharged from the Auburn Asylum when her first sentence had expired. She was hysterical, but I found no impressing intellectual derangement, and I should not consider her legally insane, though her psychosis was in some respects a grave one.

Cases are detailed where women have set fire to buildings, or the clothing of children, and were unable to give any motive for the crime. There is another class of cases the subjects of which claim that they have been outraged or maltreated, and give the impression that self-inflicted wounds were made by their assailants, and as a result innocent persons are occasionally arrested. In such cases local examination will rarely reveal any indication of violence, but in cases of women of questionable purity it is a difficult matter to swear positively from any examination that their stories are not true.

The papers were filled some years ago with the remarkable declarations of a young woman, who lived in an interior town in New York, and who claimed that while alone in the house she was surprised by the entrance of masked robbers, who bound and gagged her, and applied chloroform upon a cloth to her face, and after assaulting her brutally she became unconscious. The story was so palpably fraudulent that it should have received little or no recognition by those about her; but, as in other cases of the kind, we find sympathetic friends and a sensational press ever ready to believe in and give publicity to the hysterical plaint of the impostor. In this case the ropes that bound her were evidently applied by herself, and the quantity of chloroform alleged to have been used, a small bottle having been found (which it transpired she had bought herself), made her story appear at once manifestly absurd. This case is unlike the last in the superficial character of the disease.

Hysterical insanity is occasionally epidemic, and may appear as the result of imitation. *Folie à deux*, which is generally considered a more serious form of insanity, is, I believe, nearly always of hysterical origin. I have known of one isolated and clear instance of imitative hysterical insanity in which two members of an unfortunate family became the subjects of a condition bordering upon hysterical mania. An hysterical girl was taken to the mountains for her health, but no benefit was derived from the change, and she grew more violent and unreasonable. Her mother, and a sister very nearly her own age, were her companions and constant nurses. Upon their return-journey to New York the sister showed an unnatural excitement, which developed before they reached Troy into a veritable hysterical mania. They raved, and became so violent that the hotel proprietor in that city turned them out of his house and put them on the cars; but in Albany they again rested, and their sad condition being mistaken for drunkenness, they were arrested, but were finally released and again began their journey to New York, the mother being now in a partially responsible state, as she had been half crazed by the excitement and disgrace. They finally reached New York and went to a hotel, where they stayed for a night only, as one of the sisters tried to force her way through the fanlight over the door of her room, and so alarmed the guests that the police were called in and they were arrested and taken to headquarters. They were removed by some friends, and I subsequently examined them. The mental disorder in this case was sexual, and it became so much worse that the patients were finally sent to an asylum.

In such cases as this the question of responsibility is an interesting one, and it is evident that the final action of the Albany judge, who first thought the patients intoxicated and afterward sent them out of town, went to show that the behavior of the girls was not looked upon as criminal.

VIII. ALCOHOLIC INSANITY,

Or, more properly, the insanity of *alcoholism*, is an acute or chronic condition produced by the toxic use of alcohol in its various forms. Where the alcohol is fortified by an essential oil, as it is under the form of absinthe, the effects are correspondingly modified. *Acute alcoholism*, or *delirium tremens*, does not properly come under the head of insanity,

and is not ordinarily so considered. Its frequent presentation as an excuse for crime meets with no favor, for the law usually very properly holds that when an irresponsible state is *voluntarily* produced, the individual is liable for his acts; yet there are periodical drinkers whose culpability is certainly deserving the leniency of juries. To this class belongs the dipsomaniac, whose excesses are separated by periods during which his conduct is irreproachable, and when he does lapse it is under the dominance of an *insane* appetite. The mental disturbance of acute alcoholism is the lively delirium, visual hallucinations and delusions, motor activity, and exhaustion.

Chronic alcoholic insanity is manifested by a train of progressive symptoms of mental degeneration which vary greatly. The most important indication of the prolonged saturation of the nervous organs with alcohol is an impairment and weakening of the mental functions, conspicuous among which is the moral enfeeblement. The familiar change of character is one that needs no description. Nervous irritability, the disregard of obligation, untidiness in dress, sexual perversion, lost sense of honor, manifested in lying and other directions, indifference as to domestic and social duties, are all every-day results of a prolonged abandonment to drink. Advanced grades of deterioration are manifested in the appearance of delusions, such grave indications of decay as continued depressed or excited states, and a dementia which resembles parietic dementia.

The delusions of the chronic alcoholic are usually those of persecution and suspicion. One quite characteristic is that entertained by married men regarding the chastity of their wives. Persistent hallucinations of hearing are also present, are always of a distressing character, and the patient may be urged to suicide by imaginary voices; while sensory hallucinations which originate in the abdominal organs or those of generation lead him to believe in the occurrence of some horrible mutilation, and often in the removal of the testes.

"Hallucinations prevailed in 22.7 percent. of the recurrent cases of the criminal insane collated by Lewis in which alcoholism largely figured. The visual and aural in about the same proportion, and both associated in a few cases; olfactory hallucinations or illusions were seldom noted, and gustatory were notably absent. Delusions occur in at least half the cases (53 percent.). Both hallucinatory and delusional states vary with the proximate cause of the outbreak: if alcoholic excess enters largely into the causation, we may anticipate associated ideas of self-importance, rank, power, wealth, and suspicion of perfidy upon the part of those around him. One patient receives a nightly visit from his satanic majesty; another sees imps around him, hears voices beneath the floor, the noise and rumble of machinery, which his morbid imagination frames into some idea of coming torture. Another patient, twenty-eight years of age, addicted to intemperance in drink, and the subject of a serious cranial injury in youth, calls himself Sir Roger Tichborne, and accuses his relatives of filling his bedroom with the vapor of chloroform. Another young alcoholic subject owns property "to the value of thousands a year," has extraordinary muscular power, and can "walk eighty miles a day continuously" (*loc. cit.*, p. 215).

Such physical symptoms as motor incoördination, trembling of the hands, facial muscles, lips, and tongue, are common. The tremor of the hands is worse in the early part of the day. After a time an actual

paralysis of the lower part of the body develops itself, and may be attended by cramps, deep pains, suggestive neuritis, or by an incöördination, with plantar anæsthesia, which often leads to the mistaken diagnosis of locomotor ataxia. This anæsthesia is pretty general, especially if the consumption of alcohol is constant, and points to a gradual inflammation not only of the large nerve trunks, but of the ultimate filaments as well. The skin of the legs is apt to be "shiny" and smooth. Although some of these symptoms may improve or disappear if the alcohol be withdrawn, there can be only one ending as a result of continued indulgence.

The "paresis" of alcohol is very much like classical parietic dementia, the delusions of grandeur, perhaps, being more constant in the former, and the delusions of suspicion more systematized. The tremor is coarser and more general in alcoholic paresis. The gastritis of alcoholic paresis is of course not found in the other insanity, nor is the anæsthesia or the fulgurating pains (except in the ascending form which follows tabes spinalis). Parietic dementia is not modified by treatment, as is the variety under consideration.*

The medico-legal importance attached to all forms of alcoholic insanity is fully proved by the frequency of cases where it is the issue. It is alleged as a cause of testamentary weakness, or in fact where the assumption of an improper obligation arises; and the protection of the courts is often sought for individuals who are said to be incompetent. In all of these cases the question of the existence, degree, and duration of the

* *Alcoholic Insanity complicated with Paresis.*

Headache.

Active hallucinations affecting all the senses; disordered vision (illusions).

Delirious conceptions depending upon hallucinations; ideas of persecution, tendency to suicide, evil instincts, consciousness of degradation.

Embarrassed speech, depending somewhat upon fear, upon startings of the muscles of the face, and especially upon tremulousness of the tongue.

Feebleness, little marked, of the inferior members; equal on both sides.

Trembling of the hands and the arms, more marked in the morning; formications, cramps, and startings of the tendons of the forearm.

Pupils nearly always dilated.

Anæsthesia of the extremities of the limbs, extending generally in the superior limbs to the elbow, and in the inferior to the knee.

Sleep disturbed with dreams; sometimes sleeplessness.

Diminution of appetite, acid eructations, vomiting of mucus in the morning.

Diminution of the generative functions; frigidity.

Readily cured or modified.

Occasional supervention of *delirium tremens*.

Parietic Dementia.

Generally no headache.

Enfeeblement of the understanding; rarely hallucinations.

Ideas of grandeur and self-importance.

Embarrassed speech, depending upon feebleness of the conceptions and paralysis of the muscles of the face.

Feebleness of the inferior members, more marked generally upon one side than the other.

Nothing appreciable in the superior limbs; sometimes default of coördination.

Pupils often unequal, often contracted.

Sensibility normal, or obtuse over the whole surface.

Sleep generally normal.

Appetite augmented.

Augmentation of the generative functions.

Progress of the disease ordinarily rapid, always fatal.

Tendency to congestions and to epileptiform attacks.

cause is to be determined, as well as whether the alleged irresponsibility is due to a comparatively rapid toxic origin, or the mental disturbance masks a gradual and permanent disorganization. The connection of alcoholism with insanity at Charenton has been studied by Thorneuf (*Annales Medico-Psychologique*, 1859, p. 365); who thus classifies alcoholism :

1. Acute alcoholic intoxication, in which the effect is always immediately linked to the cause, and the duration of which is dependent upon the existence of the cause.

2. Subacute alcoholic intoxication, supervening to the immediate action of the cause, usually melancholic in character.

3. Chronic alcoholic intoxication, which results in organic changes in the brain and nervous system, with accompanying insanity.

Of 350 lunatics treated in Charenton, when Dr. Thorneuf was an interne, the insanity in 102 cases was due to alcohol: of these, 15 percent. were of delirium tremens; 6 percent. were of drunken mania; 1 percent. was of congestive mania; 34 percent. were of parietic dementia; 4 percent. were of *folie circulaire*; 2 percent. were of dementia; and the remainder presented epileptiform convulsions and anomalous psychical symptoms.

IX. MELANCHOLIA.

This most familiar and common form of insanity is classified, with regard to its duration and clinical features, as *acute* and *chronic*, and clinically as *simple melancholia*; *melancholia apathetica* or *atonita*, or *stuporous melancholia*; and *melancholia agitata*, or *anxious melancholia*.

Simple melancholia is a state which is accompanied by intense depression, with painful delusions of a fixed but limited character, usually consisting of those which imply complete dejection and hopelessness, and may lead the person who entertains them to commit suicide. Through a condition of impaired organic memory there may be more or less loss of identity, or a false belief as to the identity of another. Among the commoner delusions that are tenaciously held is that of financial or moral ruin. The patient may in reality be a very rich or a very good man, yet he asserts that he is going to the poorhouse or is in danger of eternal punishment. Such a form of melancholia is of slow development, and is preceded by continued ill health, loss of appetite and insomnia, which becomes more and more profound unless relieved. A naturally happy and joyous person becomes sad, reserved, and takes little interest in her surroundings. There may be an over-sensitiveness and a sense of personal shortcomings and a feeling of self-depreciation; the patient is tortured by doubts regarding her religious views and her fitness for association with others. She may imagine that she has committed some unpardonable sin, or that she is beyond help. She will not go to the communion-table, believing her presence there will pollute those whom she may meet; and one who has led a blameless and pure life may consider herself the lowest of women. In other cases the depression exists in regard to more worldly things: the merchant will believe that he is bankrupt, that he is dishonest, or that he is the special object of contempt among his business associates.

The patient is slow in his actions, and moves sluggishly and with

reluctance. It is with difficulty that his attention can be aroused, and that his mind may be fixed for a short time upon some given subject. If an effort is made to reassure him he is incredulous and as dejected as ever. The appearance of melancholia of all kinds is characteristic, and the physical symptoms are those indicating the existence of anæmia (Fig. 23). The skin is often harsh, dry, and pale, as are the mucous membranes. The whites of the eyeballs are of a dull, flat white; the pupils are dilated and sluggish. The inner surface of the lids shows an absence of healthy vascular supply. The tongue is flabby and indented, and the breath is vinous or bad. The finger-tips are usually rough, and there are hang-nails, which are due to defective nutrition and the constant habit of picking. The extremities are cold and clammy, with poor reaction to rubbing. The hair is damp and limp. Occasionally the patient will pluck out the eyelids or the hair from the head, with resulting deformity and highly characteristic change in appearance. Respiration is apt to be slow, as is the pulse. The patient may urinate copiously when excited or especially anxious, and the excretion will be of light color and low specific gravity. Constipation is also characteristic of melancholia. The surface and the deep temperature are lowered, the latter being often subnormal for long periods.

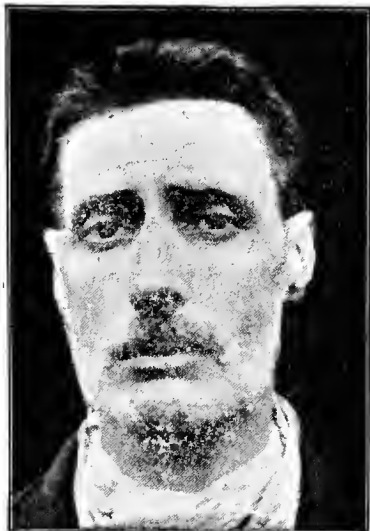


Fig. 23. (Shaw).

Many patients complain of occipital or vertical pain and the sense of pressure, which are probably due to cerebral anæmia.

Hypochondriacal melancholia is a persistent form of disease which may be the outcome of ordinary hypochondriacal introspection; the subject ultimately believing that a serious and material alteration has taken place in his internal organs—that his brain has been removed, or that his bowels are impervious, that his food “passes through him,” that his semen is constantly escaping, or that the testicles are absent or that he is impotent. His false beliefs may range from simple systematized delusions to those of the most improbable and unsystematized nature. In some cases the condition resembles a primary delusional insanity.

Graver varieties are **stuporous melancholia** and **melancholia agitata**. In the former the atony and depression may be extreme in their depth. The patient can be aroused with the greatest difficulty, and immediately resumes his constrained, fixed position and absolute silence. He often sits for long periods, occasionally sighing, and his external appearance is indicative of his mental torpor and bewilderment. Such patients will for hours retain morsels of food between their teeth and cheeks, being too indifferent to masticate or swallow; at times forcible feeding is absolutely necessary. Occasionally, especially in youthful subjects, there will be a tendency to catalepsy, the muscles of the extremities being

at times so rigid that it is possible to put the members in constrained positions which are maintained for a long time. The profound depression is sometimes varied by fitful flashes of intelligence or some impulsive act, which is as likely as not to be suicidal. These patients upon recovery are able to recall the delusion, and its influence which has possessed them.

Melancholia agitata or **anxious melancholia** is one in which excitement plays a part. The patient is always tortured by some distressing delusion, with attendant painful emotions. Restlessness, violence, and often suicide or self-mutilation are exhibited or resorted to. The patient is active by day as well as night, can be taken care of only with the greatest difficulty, and wears himself out in useless effort. Delusions, hallucinations, and illusions are ever present, and auditory hallucinations are the most torturing. The patient is told to do certain things by voices that come from water-pipes and holes in the wall. Visual and sensory hallucinations, too, add to his mental terror. His bed swarms with imaginary vermin. If he be suspicious that he has been poisoned, he will make more or less successful efforts to vomit, and call attention to the escape of the worms and "microbes" that he throws up or the snakes that crawl over the floor. In some ways the delirium of acute alcoholism is sometimes suggested, at others it approaches the excitement of mania; but in the former there are actual persecutory delusions and in the latter there is incoherence, due to the rapidity of outside stimulation, which reflects the elated and pleasurable state of the emotions. There is rarely any disposition to the infliction of injury in melancholia, except so far as suicidal attempts are concerned. These are common, and the results of the hopeless delusions and hallucinations.

So far as the physical disorders relate to the mental state it is the fact that there is much more general constitutional disturbance with anxious melancholia than any other form. Some of it is due to want of sleep, and to the attempt at voluntary starvation which springs from the delusion.

Chronic melancholia is the natural outcome of a continued depression which need not necessarily end in dementia. Sometimes, especially in the sexual forms in women, the chronicity is attended with a great deal of reasoning acuteness, and what Kirchoff calls a *folie raisonnante* in a melancholic form, with alternate depression and angry excitement. Melancholia is often curable. The first danger of exhaustion from starvation is the only one likely to bring an early fatal termination, except it may be suicide or intercurrent disease. If the patient's disease lasts one year it is apt to be permanent and incurable. When it originates at periods of sexual development, such as puberty, at childbirth or the climacteric epoch, it is rather apt to be obstinate. This is especially true of the puerperal form.

X. MANIA.

Mania, like melancholia, is an acquired insanity; though under certain conditions it may symptomatize both evolutionary and involutional insanities. So far as its duration is concerned, it, like the depression psychosis, may be either *acute* or *chronic*. The term *subacute*, sometimes used, has, I think, no clinical value. It is eminently a mental disorder of expansion, and is characterized by excitement of greater or less violence and

continuance. Like melancholia, it is apt if not cured to end in terminal dementia. The emotional activity and intellectual exaltation are manifested in a rapid flow of ideas, which are not inhibited, and the result is incoherence. Acute mania is often of quite sudden development, though usually the way is paved by some decline in the general health. In the cases that usually come under notice a history of alteration in mental health is evinced by an exhilaration and liveliness which contrast with the ordinary habits of the patient. The apparently increased mental activity is disorderly, and the exercise of intellectual vigor spasmodic. His self-satisfaction and sense of importance prompt him to enter into schemes more or less wild, his generosity is exuberant, and he makes the grandest promises, without any idea as to how he shall fulfill them. If he is crossed or doubted his anger is quickly aroused, but short-lived, and the affront is forgotten immediately. His mind seems to be a kaleidoscope of ever-changing ideas, which later become more and more confused. He is restless, forgets obligations and appointments, sits up until late, and sleeps but for an hour or two, and afterward not at all. He gesticulates, and his manner is hurried and impetuous. His letters reflect his topsy-turvy state of mind and refer to his schemes. These are often innumerable, and he writes to every one he has heard of. The telegraphic wire is kept busy with irrelevant or unnecessary messages. His dress reflects his condition, for he is slouchy, and his clothes are carelessly put on and often unbuttoned. Sometimes he orders and wears garments that are extravagant in color and shape, and affects a style that brings him into notoriety. His features now indicate the excitement under which he labors, for his facial muscles twitch, his eyes are prominent, his face is flushed, and his pupils are dilated and mobile. The patient will busy himself doing and undoing, fussing, and arranging and rearranging furniture, clothes, or other things. Various moral changes appear in conversation and conduct. These vary greatly, and the commission of shameless acts, the making of indecent proposals, or, at a later period, when the incoherence and confusion prevail, the defilement of himself with feces, are common evidences of loss of control or evidences of sexual irritation. As the psychosis becomes more and more pronounced, the patient becomes more frivolous in dress or absolutely indifferent. He occasionally decorates himself with fantastic objects. One of my patients, who was the subject of chronic mania and had acute exacerbations, was in the habit of putting on a white satin



Fig. 24. (Dickson.)

and rearranging furniture, clothes, or other things. Various moral changes appear in conversation and conduct. These vary greatly, and the commission of shameless acts, the making of indecent proposals, or, at a later period, when the incoherence and confusion prevail, the defilement of himself with feces, are common evidences of loss of control or evidences of sexual irritation. As the psychosis becomes more and more pronounced, the patient becomes more frivolous in dress or absolutely indifferent. He occasionally decorates himself with fantastic objects. One of my patients, who was the subject of chronic mania and had acute exacerbations, was in the habit of putting on a white satin

ball-dress when she arose, and loading her neck and wrists with diamonds. She would give herself up to amorous thoughts and conversation, and write erotic letters and poetry to men she knew but slightly or not at all. So-called kleptomania is apt to be an incident of such development, and it differs from the kind due to imperative concepts by reason of the fact that in this disease the intellect is disordered. The thefts are of all kinds, and bits of worthless rag, keys, bits of glass, or trifling objects are stolen and secreted very much as a magpie would. The patient is also at times prone to indulge in low vituperation, and makes use of oaths and expressions which are so foreign to the normal moral integrity as to make every one wonder where they were learned. Young, innocent girls will repeat foul words of the gutter and cannot be restrained.

When the disease has increased to the point where the excitement is intense and the patient is incoherent, the hallucinations, illusions, and delusions are dominant and so active as to suggest delirium. All forms of intense motor activity make themselves apparent in violent muscular movements of various kinds—cries, shouts, loud singing, laughing—or in automatic movements which are repeated for a long time. Sometimes the patient declaims energetically, flourishing his arms, and walks bombastically up and down. Sometimes there is an exaggerated dramatic power of expression, a simple act being performed in a grandiloquent way. He decorates himself, as well as his room, with odd objects, mixes up his food in a disgusting mess, and eats ravenously. His hallucinations follow one another with great rapidity, and he has frequent conversations with imaginary people he sees, which are not interrupted by the casual entrance of a visitor. Sometimes the illusions result in a loss of identity, the patient believing the visitor to be a relative, a lover, or some improbable person. He is showered with kisses or is the subject of demonstrations of the most marked kind.

Local anæsthesia or hyperæsthesia, the former of which consists in insensibility to extremes of temperature, and the latter to headache and subjective discomfort, may be mentioned as symptoms. This heightening of sensation may be the origin of olfactive hallucinations, which are present in about fifty percent. of all cases. Fig. 24 represents very well the expression of exaltation so characteristic of this form of insanity.

Mania is nearly always preceded by some depression, and the activity of mental operations which is sometimes evinced by a revived acuteness of memory must be looked upon with suspicion. After the continuance of the acute condition, which is expressed by the impulsive conduct and is variable in duration, we find convalescence and ultimate cure, or a chronic mania or terminal dementia. The duration of cases which are to get well is variable, the time varying from a few weeks to a year. Stearns says that when a case has passed the twelfth month it is to be regarded as chronic. This, I think, is the generally accepted conclusion, and a safe prediction. When a case becomes chronic the mental condition is often one of extraordinary evenness, though all sorts of disorderly manifestations may occur from time to time. The chronic maniac of asylums is usually a moderately noisy, active patient, who always has a collection of rather uniform delusions and hallucinations which are easily evoked, and the former tincture the manner and are shown in dress. There are other patients whose unsystematized delusions become more

and more disorganized and absurd, and whose incoherence is not confined to any part of the day or night. Some who present the incurable form of this disease are harmless enough, and are capable enough to do farm-work requiring little or no individual exercise of judgment. According to the statistics of the Hartford Retreat it would appear that 52.1 + percent. of acute cases recovered and 20.2 + percent. were improved. Of the chronic cases 27.4 + percent. improved or recovered. Of course the progression depends upon the frequency and extensive violence of the active congestion of the brain and the causation of organic changes.

Typhomania (*délire aigu*) is a form of intense excitement of sudden origin, often due to shock or fright, and is characterized by a complete mental blotting out, or, as Lewis calls it, mental oblivion. There seem to be absolute incoherence, babbling and confusion, and physical signs of extreme exhaustion from which it gains its name: these are a rise of temperature, great exhaustion, sordes upon the teeth, scanty urine, a glazed or brown tongue, involuntary stools, etc. The patient falls from the first, and usually succumbs in a short time.

XI. PUERPERAL INSANITY.

Puerperal insanity is a psychosis of women, having relation to child-bearing, as its name implies, and is connected with the accomplishment of delivery. It is sometimes dependent upon exhaustion or septic poisoning, or both, and develops in from one to several weeks. The insanity of early appearance is usually maniacal. The patient does not sleep, but manifests great incoherence and violence. She smears herself with fecal matter; curses, and manifests great motor activity. Exhaustion is rapid and great, and death may even follow in a week or two. A later form appears in a month or more, and is melancholic in character. The woman usually develops an indifference or actual hatred toward her child, which she may murder, while the tendency to suicide is by no means unusual. Sometimes there may be no indication of the real state until a crime of violence is perpetrated. This is especially the case in remote and isolated regions of the country, where all the subtle indications of growing mental weakness are disregarded and looked upon as evidences of "ugliness." In this connection an abstract from the confession of a puerperal patient who killed her child may be presented. This patient was tried for her life and sent to the Utica Asylum, narrowly escaping the penalty of the law. The case is suggestive, because it shows the existence of imperative concepts and perhaps auditory hallucinations.

The subject was a young woman (see vol. i., p. 194, Figs. 36 and 37) who less than one year after her marriage killed her child. During her imprisonment she prepared the following statement. The first part, which is omitted, deals with her early married life and her disagreement with her husband, who selfishly ignored her real state of mental disorder:

I did not want to live any longer; it seemed as if I had no friends, as if all were against me. Through the summer these spells gained upon me; would walk my room nights and cry as if my heart would break. M—— [the husband] would be angry with me for disturbing his rest. He said at one time "he thought it very strange. Some-

times I could not do enough for him, then at other times I acted as if I hated him." The 4th of July we went to O—. I proposed going, as we had not been away from home but a few times since we were married; told him I should enjoy the dance much more than ever before, to have him join, as it was no comfort for me to go when he played.* I gave him money enough to pay the bill, as he would not have went if he had had to pay. Mother had paid me at different times for helping her, and out of this I gave him. I was not right for a few days before the dance, felt very strange, but thought I might feel better for going, but did not. It was a miserable night to me; going home I wept, felt very badly all that day and night. . . . After the baby was born it slept with me one or two nights. Then I remember Mrs. H—, my mother-in-law, came to my bed and took the child away from me, pretending that she was afraid M— or myself would accidentally hurt it, as we were not used to children. I was afraid of her, and dare not speak, and let the child go. I remember when my milk came she seemed determined not to have it nurse. Whenever Mrs. D— or Mrs. A— tried to have him nurse, she was as angry as could be, and said she thought they would kill the child. She never tried to have him nurse me. Whenever I would hold him and rock him, she always seemed displeased, and would say it would get him into bad notions; so I dare not do anything with him—hardly hold him; she seemed to want to take all the care of him. When he was about a week old A— H— and wife came one day, and as I was not able to do anything I held him most of the forenoon. Mrs. H— hinted about it several times, saying that was what spoiled him. A day or two after this I began to have such horrible feelings. It seemed that as if he or I could die it would be much better, as there was no comfort for me in the world. Something seemed to say to me, "It must be done." One day, as I was lying on the bed beside him, the thought suddenly came to me to strangle him by pressing the clothes tight about his neck. I did so, then got up and left him. Mrs. H— soon went after him to feed him. She thought he was dead; she seemed much excited. I remember I was sitting by the stove as she brought him out, and remember her saying he was as limpsy as could be. Afterward she told the men that the clothes must have got over his face. About a week after I tried again, in my anguish and sorrow, to end his days by smothering, but, as before, he came to. It seemed as if it must be: something constantly seemed to say to me, "It must be done: he must die or yourself." . . .

A few days after I was confined Mr. H— came to the bedroom door and asked me what was the matter, as he had seen from the kitchen that I was crying. I don't know what reply I made. Before the E— dance, also the L— dance, I felt very strange and cried. M— said "I was only mad because he was going." The only objection I ever had to his playing was I never could go with him but there was trouble. He was jealous of me without any cause whatever. He told me before we were married that after we were married he never should play for another dance; that he did not want to play and was not obliged to for a living, and wanted to give it up.

The first I knew about that box of poison † M— called my attention to it when we were first there. It was in a small cupboard in the kitchen. He took it from the cupboard, saying S—'s folks had left it; also said that a little of it would soon finish any one. From that moment the thought went with me that I could take a dose myself, or give it to the baby, and we would be done suffering. I tried to drive this thought away, but could not. It did not seem wrong or as if it would be wicked. It seemed as if it must be: that voice or voices *constantly* seemed to say to me, "It must be done; it must be done." One day when I was alone I had such horrible feelings; that voice sounded so loud, saying those words, "It must be done," that I took the box, and was just going to take a dose myself when old Mrs. B— came in. I replaced it, and talking with her seemed to arouse me. After she had gone I shuddered to think how near I had come to death; went and put the box upon a high shelf in the pantry where I thought I would not be apt to get hold of it when I had those spells. Told M— when he came home that night where I had put the box, as I was afraid to leave it in its former place. We did not take the baby with us when we went to housekeeping. I did not want to take it. Mrs. H— seemed willing to take care of it, and I was very willing she should. When at H—'s I preferred doing housework instead of taking care of it or holding it.

The Saturday before the 1st of April, M— and myself went over to my father's,

* The husband and wife were hop-pickers; he played the violin at country dances.

† Box of "Rough on Rats" with which she poisoned her child.

as I had some machine-sewing to do. While there I began to have such horrible feelings—such a terrible feeling in my head—that I hardly knew anything. Mother finished my sewing, as I could not. All I could think of was that poison. It seemed stamped upon my mind, and those voices repeated again and again those same never-ceasing words, “It must be done; it must be done.” The last I can remember are those words ringing in my ears. From that time until the 1st of June everything looks dark to me, and do not have a distinct remembrance of anything.

During this time she actually forced rat-poison down her child’s throat. After its death, even, her conduct was looked upon as a display of simple perversity, and in most matters she behaved as she always had.

XII. TRAUMATIC INSANITY.

Considerable medico-legal importance is attached to those insanities that follow head and other injuries; and suits for damages, though not so common as when spinal concussion is urged, are sometimes brought. As a result of a recent or ancient blow to the head, or other exhibition of force that may result in what is known as *commotio cerebri*, we are furnished with mental disorders of a more or less serious nature, the mode of causation of which has been before alluded to. Such disturbances of intellect are extremely variable, and may on the one hand consist in temporary confusion, or in much more grave and lasting psychoses due to degeneration. Rigal (*Annales d’Hygiène Publique*, April, 1894, p. 340) has recently written upon the insanity due to cerebral commotion, and says that the important forms of alienation are: (1) Reasoning insanity, which Trélat calls *folie lucide*, because the intellectual faculties are generally so active, but there is a perversion of the moral side; (2) monomania (paranoia) of brusque development, and rapidly ensuing dementia; (3) a confusional condition. In fact this author, as well as Magnan, Ball, and other French writers, believes that there is hardly a form of mental disease that under certain conditions cannot be produced by head-injury. Under some circumstances a slowly forming organic insanity follows, which may resemble paralytic dementia. Spitzka is disposed to lay stress upon the fact that the subjects who are most likely to develop this kind of mental disease after injury present the “traumatic neurosis,” or preparatory basis. Such a foundation exists in the cases where there is a hysterical tendency, just as it does in “railway spine,” and a psychosis of an irregular nature follows, which is symptomatized by a sensory hyperæsthesia and motor weakness.

Intellectual changes of slow growth often follow slight shocks. These manifest themselves in the departure from former habits and tastes; moroseness or excitability, immoral tendencies, and mental weakness are induced. Gall speaks of a man who was injured by a falling tile, which penetrated the brain. Before the accident he was an amiable, steady man; afterward he was quarrelsome, and flew into a rage at little things. “W. H., about whom I was consulted some time ago, was a steady and respectable tradesman until he fell from some steps while cleaning a shelf in his own shop, and was stunned for a few seconds. From that time he underwent a change. He no longer attended to business, to which he had been formerly devoted; he speculated and lost his savings; he manifested antipathy toward his wife and two out of his five children, and

saw his whole family reduced to penury through his own rashness and neglect without displaying any compunctions. When complete pecuniary ruin had been effected he suddenly became himself again, and resumed industrious ways, but ever since he has had attacks of restless excitability, with hatred of his wife and children, twice or thrice a year. He is at all times intelligent, rational, and free from delusions, and when at his best period joins his relatives in deploring the sad visitations to which he is liable." (Browne.)

Dr. Charles H. Hughes (*American Journal of Insanity*, 1875) alludes to the peculiar mental state of duality which sometimes follows head injuries—a condition in which one hemisphere apparently fills a vicarious office. He refers to a case presented by Joffe, and gives the main points of the history, which is the following: "He was a married man, aged fifty-three, healthy in childhood and youth, in manhood had headache and giddiness; was a soldier fourteen years; in encounters with smugglers received several cuts in the head. His temper was irascible; he was fond of drink, had hemorrhoids and constipation for ten years. Disposition serious. His memory failing, he became unfit for service and was discharged in 1861. His pecuniary circumstances caused him great anxiety, and in the same year (1861) he exhibited unmistakable signs of mental disturbance. He continually employed the expression 'we'—'we will go,' 'we will run,' 'we will do it,' etc. The 'other' man pulled his ear, plucked his arm, etc. His left arm had spasmodic twitchings. He invited himself to dine with his sister, saying that the 'other man' compelled him to be her guest. While eating he said, 'I have eaten enough, but the other has not.' After the meal he ran out of the house; when arrested said the 'other' was to blame—he was doing what he could to make him stop. Tried to murder a child, assigning a similar cause for the attempt. He rolled into the gutter, thinking he was wrestling with 'the other,' and finally attempted to commit suicide, imagining he was killing 'the other.' This brought him to the hospital. The conformation of head was normal, pupils contracted unequally, reaction to light in both limited. Hearing normal, but saw small animals, insects, etc., with left eye, and vision dim in right eye. Tearing pains in left ear and side of face. Physiognomy anxious and expressive of suffering. Skin dry, and temperature and sensibility of body natural. Pulse seventy-eight. Reflex movement to tickling soles of feet prompt. No digestive trouble.

"The 'other' person was in his left side under his skin. He called himself the right D—— (D—— was his name); the left D—— was a rascal and caused all his misfortunes. He sometimes presented the picture of anxiety, dripping with sweat, and holding fast his shirt with both hands, in order, as he said, to make himself stop. He had violent impulses to motion, lasting an hour or two, occurring several times in the course of six weeks, and which were probably epileptic or epileptoid seizures. After conversing some time, long enough probably to weary and morbidly disturb the sound hemisphere, his ideas grew confused, and it was impossible to gather any sense from what he said.

"He died of dysentery, and during the progress of the disease had no apparent delusions. 'The autopsy revealed a thickened dura mater. On the left side of the falx there was a lamina of bone half an inch long and a quarter of an inch broad. The membranes along the course of

the vessels were opaque, infiltrated with serum, their veins quite full. Convulsions of the anterior lobes, especially the left lobe, very much thinned on the convexity—*left anterior lobe* half an inch shorter than the right. Anterior half of ventricle of this side was adherent and hard. Optic thalamus and corpus striatum atrophied—especially the latter. Brain moist, anæmic, tough. Ependyma of the lateral ventricles thickened and granulated, corresponding to the thinned convolutions of the anterior lobe. The cortex was thinned, and the adjacent medulla was indurated to the touch.”

The loss of memory that may occur after cerebral injury may or may not be connected with other symptoms of insanity. When we consider that the lesion may vary from a simple ischemic one, due to concussion, to a minute and general disorganization of the brain substance, it is reasonable to expect widely varying symptoms. Bell arranges the defects that may follow a cerebral traumatism as: “1. An instantaneous unconsciousness, that is to say, loss of recognition of one’s individuality, followed by giddiness, stupidity, foolish talking, etc., which may pass off sooner or later, but still is in immediate relation to the accident, and gradually disappears. 2. A set of phenomena very various in nature and amount, beginning a few hours after, and depending on structural and inflammatory changes in the cranial contents, feverishness, delirium, dreams, etc., passing off into fever or lapsing into coma, from compression: if from hemiplegia these may be very rapid; if from meningitis they may be slower, and the development is to be counted by days and weeks. 3. A state of phenomena of a much lighter and more dangerous character, beginning with structural changes in the cranial contents in the direction of atrophy or softening, where you may have delusions, loss of memory, paralysis, and dementia.” He alludes to numerous cases where, in addition to the above, the patient had forgotten entirely, not only the circumstances connected with the accident, but “a certain length of time, varying in different cases from minutes up to hours and even days, with all its actions, pains, and pleasures, before the accident happened.” A recognition of this condition of affairs is of immense importance in those cases where testimony is given concerning the details of the accident, and a strong point is very often made (and sometimes unjustly admitted in court) that the story of the patient is false, because he cannot remember the manner in which he was injured, or his behavior at the time; and it may perhaps be insisted that he was drunk, when such was not the case.

After surgical operations of various kinds the subject may suddenly develop a confusional insanity, which is short-lived, and violent while it exists. Whether due to shock, loss of blood, or reaction following mental apprehension, it is difficult to say. It would appear that gynecological operations in particular are those which are most frequently followed by the lighting up of mental symptoms.

XIII. POST-FEBRILE INSANITIES.

The fevers and other diseases in which exhaustion has been great, or where pathological destruction or injury has invaded the brain, may be followed by insanities which rather suddenly make their appearance,

either at the turning-point in the particular affection or during convalescence. There is no regular expression of symptoms, and illusions, hallucinations, and delusions, which are generally unsystematized, are irregularly expressed and are varied. Sometimes the condition, by reason of its incoherence, is confused with delirium, but unlike the latter is inconstant, and seems most pronounced in the night, the patient being fairly in possession of his faculties during the daytime.

The writer has seen several cases of insanity after typhoid fever in which the symptoms appeared one or two weeks after the subsidence of the symptoms of the fever itself. In one of these cases there was wild incoherence, a rise of temperature, and refusal of food. A few of the cases become chronic or run into dementia, but as a rule they recover gradually, and sometimes suddenly.

XIV. DEMENTIA.

This degeneration, which when it occurs always implies the beginning of the vital end, may be the result of a continued simple (acquired) form of insanity, such as melancholia or mania, when it is known as *secondary consecutive dementia*; a disease by itself, when it is known as *primary dementia*, *paretic dementia*, and *senile dementia*; or a result of destruction incident to such forms of coarse brain disease as hemorrhage, embolism, or thrombosis.

All forms of dementia depend primarily upon the loss of stored-up impressions; in other words, an actual deprivation: in this respect dementia differs from amentia, where no development has taken place. Its extent depends upon the richness and variety of stored-up concepts, and its progress upon the acquired degree of automatism and the habitual regulation of concept stimulation and coördination. Memory is impaired proportionately with the degree of enfeeblement, and the involution, which keeps pace with the advance of the disease, implies, first, a loss of memory of substantives, a blotting out of recent impressions, and a retention for a time of those acquired before the destructive effects of disease had begun to extensively make themselves felt.

In comparatively recent cases old concepts are recognized, expressed, and acted upon, while new percepts make fugacious impressions or none at all. The business man will automatically follow out the routine work of years, while new creations are impossible and other forms of capacity may be lost. An isolated instance of ability and shrewdness will be urged as an index of the mental health of the alleged lunatic, when he occasionally correctly performs some long-learned and frequently practiced act. Ultimately everything goes, and the mind becomes a blank, and the dement is physically and mentally slow and inactive. He later becomes little more than a child, with all of its weaknesses and silliness and irritability. He is occasionally petulant, and sometimes violent in a weak way. When the disorganization has sufficiently advanced the patient sinks into a vegetative state, disregarding the ordinary decencies of life, urinating or defecating in his clothes, or masturbating publicly. The posture he assumes is usually one of relaxation, or in old cases actual rigidity due to his maintained posture. He sits bent forward, his eyes fixed upon vacancy, or they are averted, while the saliva drools from the corners of his mouth in a glairy stream.

XV. SENILE DEMENTIA.

This term has been applied to a variety of primary dementia occurring in aged people, the word *primary* being used to denote an original condition, and not a disease which is a sequence of other morbid states. It is rare before sixty, and when it occurs later in life is difficult to distinguish from the natural decay of old age. Its early symptoms may be depression or exhilaration, amounting on the one hand to simple melancholia, or on the other to a light grade of mania; or there may be nothing else but an apparent increasing mental feebleness, with loss of memory, irritability, and superficial delusions of suspicion and persecution, and he is apt to believe that he has been robbed. He conceals and hides his papers, or puts useless objects he may have hoarded in out-of-the-way places. He may tie a stone or cigar-end in his pocket-handkerchief, or secrete bits of thread, buttons, etc., in his different pockets. He is wakeful and is inclined to wander from room to room during the night, or away from home, and, like a young child, is afterward unable to give much account of himself. His unconcealed immoralities are noticeable, and he indulges in orgies, and may hire the entire *personnel* of a house of prostitution for a sexual debauch. He makes indecent advances to little girls or boys, exposing his genitals in the streets. In a more advanced form he urinates publicly and ostentatiously; is careless of his dress, leaving his trousers unbuttoned. He is vacillating, and apt to squander his money recklessly; enters into absurd schemes, or gives his property away to persons who have no claim upon him whatever. He is the prey of sharpers or confidence men. His erotic excitement will often subject him to the arts of designing women, who for one purpose or another seek to gain control of his property. Such old men are apt to marry women many years their juniors, and to resent the interference of their children, upon whom they turn, often disinheriting them. In fact they are inconsiderate and without affection. Sometimes their sexual weakness leads to the writing of love-sick letters to numerous women at the same time, the writer being unconscious of the ludicrous position in which he has placed himself. The mind toward the end becomes more and more weakened, and the patient sinks into an exhausted condition and finally dies.

XVI. PRIMARY DEMENTIA (OF YOUTH).

Primary dementia, so called, is a somewhat misleading synonym for stuporous melancholia ending in dementia. It has by some been applied to the dementia of adolescent insanity. Spitzka classes this dementia and that of senility together, very properly believing them both to be involuntional degenerations—in which conclusion I am disposed to agree. *Acute* dementia has been spoken of, and has been used to designate that form of rapidly developing mental weakness so common sometimes in youth. These patients, as a rule, manifest a depression, with introspection and silliness. The depression deepens into a state of hebetude, with silence which is so pronounced that it is often impossible to draw forth any response. The young subject may be indifferent to his surroundings and to all the demands of nature. Occasionally such dementia is pre-

ceded by an insanity which consists of elation, inordinate conceit and vanity, religious doubts, and sexual aberration manifested by masturbation or onanistic hypochondriasis. A degree of forgetfulness and confusion follows this. There are not necessarily hallucinations or delusions.

XVII. PARETIC DEMENTIA.

(General Paresis; General Paralysis; Dementia Paralytic.)

This important disease is of a progressive nature, runs a comparatively rapid course, and is symptomatized by important departures from the normal psychical and physical condition. True paretic dementia is a disease of adult life, though exceptional cases have been recognized in childhood as a result of congenital syphilis. Such an one is that observed by Clouston.

Paretic dementia runs a course which is comparatively characteristic, but two forms of mental disease closely resembling it. One is "alcoholic general paresis," which is an irregular form of chronic alcoholism; the other "pseudo-general paresis," which is due to active coarse cerebrospinal destruction, due to syphilitic infiltration, and the spinal symptoms are as important as the cerebral. Some writers have sought to make close differentiation of forms which have a syphilitic origin from others with no such basis, but I believe this to be a difficult matter.

Paretic dementia is a disease in which conspicuous mental and physical symptoms are presented. Beginning with slight alterations in manner, which are often disregarded or mistaken, and with very subtle physical changes, the affection very rapidly advances, so that before many months there can be no doubt as to its nature. It nearly always follows dissipation, remote syphilis, or high living, and is modified by alcoholism, though undoubtedly in a few patients no such causes exist, and irregular mental overwork is sufficient to account for its genesis. In America, especially, we find that the unreasonable haste to accumulate riches, and the overvaulting ambition to keep abreast with the more successful, have had much to do with the development not only of nervous diseases in general, but paretic dementia in particular.

The appearance of symptoms is somewhat irregular. In a large number of cases we find a preliminary depression which has a hypochondriacal tinge, and this is common where there is early alcoholism, and is associated with hopelessness and simple melancholia. In others the early active symptoms are expansive, and in a third class of cases shiftlessness and forgetfulness betoken a departure from the normal mental health. Sometimes a convulsive attack will be the first thing to impress the friends of the patient with his real state. The usual mental change, after carelessness in appearance and habits, may be a boastful vanity which renders the individual ridiculous, when mere lying is followed by the wildest Munchausen braggadocio. He will perhaps tell you that he has horses which are faster than any in the world; that his diamonds exceed in value the crown jewels of all the European courts; or that he has made impossible explorations and voyages. Later on he grows more expansive and reckless in his statements. One man told me that he had hired Patti, Nilson, and all the great prima donne, and had built an opera-house ten

miles long; another that he could speak all the known languages, including Arabic, Sanskrit, and Hebrew, although he was a printer with scarcely any education of which to speak. Many paretics believe themselves possessed of extraordinary physical force, and avow their power to lift the heaviest weights and perform the most extraordinary feats. The grand delusions of some take the form of sexual capacity, and it is not rare to find them boasting of powers that excelled those belonging to any of the personages of the Old Testament who possessed innumerable concubines. With this there is foolish extravagance and the purchase of useless things. One man will contract for property for which he cannot pay, or buy numberless pictures for which he has no use. He will order large quantities of jewelry or precious stones. He resents interference and the counsel of friends with violence, and plunges into the wildest excesses. He debauches himself and consorts with prostitutes, and no form of bestiality satisfies his desires. At this time it will be noticed, perhaps, that his pupils are unequally dilated, one being larger than the other (usually the right), or that they are contracted to the size of pinheads. His tongue, when protruded, trembles slightly, the tremor being fine, and accompanied with sudden retraction of the whole organ when the effort is continued to keep it protruded. As the disease advances the lips in turn become tremulous, and the corners of the mouth uneven. The speech is clumsy, and there is great difficulty in pronouncing the labials and lingual consonants. The mental state keeps pace, and the delusions are more marked—they are, however, occasionally concealed, but this is rare. It is common to find fits of violence from time to time, and in these the patient may be actually dangerous.

Paretic dementia is characterized by periods of remission, which may last several weeks or sometimes much longer, during which the patient is apparently sane; but they never continue for any great length of time, and the mental and physical symptoms reappear with great violence. As the malady becomes established there are changes in the gait, which is titubating and unsteady. The patient's ocular condition may vary, the pupils for a time becoming equal, and afterward unequal again. The temperature is elevated during the disease, more particularly throughout the late stages, and generally after periods of excitement or convulsions. These convulsions are not confined to any one stage, and they may even occur up to and into the state of established dementia. When they do occur they are a most striking symptom of the malady, and should settle our doubts. The writer has recently seen a patient whose early mental disturbance was very irregular, inasmuch as there was a condition of extreme excitement, violence, and unsystematized delusions and hallucinations which were expressed. His state for weeks was one of absolute incoherence, and the diagnoses of acute mania and confusional insanities were suggested. The doubt of its being paresis was temporarily strengthened by a rather rapid cessation of his excited state, and by considerable resolution of all his symptoms; but quite recently a series of convulsions, with slight facial hemiparesis and a return of the old expressions, has removed all doubts.

Dementia finally comes, and with it an enfeeblement of all the mental powers takes place. The disease is remarkably rapid in its downward progress and commonly ends fatally in three years; yet there are cases where it has lasted eight or ten years, but these are by no means com-

mon. The French authors are disposed to consider the average duration of the affection to be less than two years, and some English writers fix it at twenty-two months. The duration of the remissions is extremely variable. Baillarger has reported nineteen cases, in which the period of remission varied from one month to two years. Legrand du Saule has presented six cases, in which it varied from ten months to two years. Dagonet believes that during the remission there is a state of mental feebleness quite incompatible with perfect responsibility. I have known of one case where an apparent remission lasted for several years, but every indulgence in liquor, even to the extent of one or two ounces, immediately put the patient back for a month or two into his mental slough.

The early stages of parietic dementia are sometimes likely to be the subject of legal inquiry. In the beginning of the disease the individual's extravagant plans are apt to be looked upon by laymen as simply evidences of great business tact and energy, and sympathetic juries do not take the trouble to ascertain whether the expenditures are in keeping with the means of the individual. So, too, during the apparent lucid intervals, legal steps may be taken which are not warranted by the history of the disease. The existence and manifestation of the irregular symptoms of parietic dementia continue, the physical weakness advancing. Simple lowering of muscular tone and incoördination deepen into flatness of the face and a loss of expression. Local paralyses, especially of the face, actual hemiplegia, or complete loss of power supervenes, and the patient dies of exhaustion. Pulmonary tuberculosis is not uncommon.

The emotional state from the first is disturbed, and the shedding of tears must not necessarily be looked upon as an index of feeling, but rather as a result of relaxation due to defective innervation. The parietic often cries without corresponding stimulation. Later he grows very irritable and even violent, is noisy, salacious, extravagant in his gestures; or he may be amiability itself, making presents and wishing all to enjoy his success. With this phase of feeling there is a sort of vanity which leads, as was the case in one of my patients, to frequent visits to photographers and the soliciting of newspaper puffs. Toward the end this all changes, and actual indifference and mental and physical inaction reflect the establishment of the final mental decay.

PART II.—THE INFLUENCE OF MENTAL ABERRATION UPON THE CAPACITY OF THE INDIVIDUAL.

THE attitude of the law in regard to insanity, as will be subsequently shown, is radically different from that of medicine. The stern requirements demanded for the protection of the individual and the community have necessitated the divorcement of sentiment from science, and the drawing of lines which sometimes, perhaps, seem unnecessarily narrow; but the great result, after all, adduces to the good of the many. Possibly in time, when psychiatry has become more definite in its teachings, and there is less uncertainty regarding the significance of insane manifestations and their course and termination, we may expect still fur-

ther advances in the acceptance and application of our exact findings, and greater liberality upon the part of the courts. The law often looks askance at the term "insanity" as used by the doctor, and prefers others of its own adoption, such as *unsoundness of mind*, or *non compos mentis*, etc.

Unsoundness of mind is used in the most varied ways to express conditions which incapacitate. By the older English jurists, idiocy, imbecility, partial lunacy, furor, monomania, and a number of other inexact appellations were supposed to constitute unsound mind. Coke discarded the term "lunatic," which, after all, implies a mental condition of the individual which is influenced by the changes of the moon. To-day many lawyers are inclined to look upon "unsoundness of mind" as a weak state which is not absolute insanity.*

The term *non compos mentis*, however, is that in conventional use, and if this exists, and is determined by inquisition, it usually settles the matter of incapacity in the eyes of the law, the fact of the incarceration in an asylum on proper affidavits of physicians or other persons not interfering with the civil rights of the individual.

The law recognizes what are known as *lucid intervals*, believing that "no lunatic is wholly without reason," and satisfying itself that though his conduct may perhaps be scandalous, and most of his actions may be irrational, he may still in some things be clear enough to intelligently and properly discharge the particular act which forms the subject of doubt.†

How fully the opinion of expert witnesses is accepted, depends upon the intelligence of judges and juries, who are sometimes disposed to cling to their preconceived ideas of what constitutes insanity, and to ignore the teachings of psychiatry and the evidence itself. It is to be regretted that what is sometimes accepted as an apparently normal display of intelligence is, after all, either a sudden flash in the intellectual pan or a misleading expression which only the student of mental disease can perfectly understand, and not always describe. "A lucid interval, in law, means a suspension of the active manifestations of mental disorders. . . . It only means restoration to the degree of enabling the party to judge soundly of the act." ‡ (Ordronaux.) This disposition to give value to isolated acts of insane people has led to the use of the term *partial insanity*.

* *Wallis vs. Luhring*, 134 Ind. 447. Action to contest the will of Catharine Wallis. Unsoundness of mind and undue influence alleged. The testimony showed that the deceased had been of unsound mind for some years before her death, although none of the witnesses regarded her as insane. No experts were called, but her family physician testified that in his opinion "she was not fully sound in mind or body for several years before she died," although he did not consider her insane or crazy. The Trial Court refused to charge the jury that "unsoundness of mind, in law, means the same thing as insanity." The jury found for the contestants, and on appeal to the Supreme Court the judgment was affirmed.

† *Matter of Macpherson*, 1 Connoly, 223. Mrs. Sara J. Macpherson, the testatrix, was in ill health and very excitable for some time prior to her death, and exhibited considerable antipathy to her relatives. "These symptoms were chronic for some time, but at periods she was in full possession of her faculties." The will was drawn in accordance with verbal instructions, which were afterward substantiated by a note of instruction. At the time of its execution she conversed rationally on the matters connected with the will. Probate allowed.

‡ *Hall vs. Warren*, 9 Ves. 605; *Boyd vs. Eby*, 8 Watts, 66; *Gombault vs. Pub. Adm.*, 4 Bradf. 226.

It is no more possible, in my opinion, for a partial disease of the mind to exist than a partial variola or a partial phthisis. It is true that certain insanities have limited forms of expression, but I have never seen a case, even of paranoia or some of its allied psychoses, or "moral imbecility," where sooner or later there were not more or less decided indications of general and profound intellectual disturbance. It is at best a difficult thing sometimes for any one, no matter how competent and experienced he may be, to say definitely how much the mind has escaped general disorder, or, on the other hand, how potent is the exercise of reason, judgment, and volition in insane persons whose disease is imperfectly or not at all recognized by the world at large.

Sir John Nicoll's view of lucid intervals has the ring of common sense: "In cases of permanent, progressive insanity the proof of a lucid interval is a matter of extreme difficulty, as the court has often had occasion to observe; and for this, among other reasons, namely, that the patient so affected is not unfrequently rational to all outward appearances, without any real abatement of his malady; so that, in truth and substance, he is just as insane in his apparently rational intervals as he is in his visible raving fits." (*Brogden vs. Brown*, 2 Add. 445.)

The law imposes responsibility upon the insane person whose acts performed during the lucid intervals are the subject of question; but the burden of proof is upon those who seek to excuse or negative such acts. The fact of his being under restraint in an asylum at the time the act was committed is no excuse, for it is presumed that he may have a lucid interval there as well as elsewhere. (5 Dow, Pr. C. 236.) This attitude of the law is to be borne in mind by those persons who obtain the signatures of patients to deeds, notes, checks, or other instruments, either before actual commission or after incarceration. As has been before said, nothing fixes the status of the insane person but a regular inquisition.*

General Questions Relative to Capacity.

The civil issues that occur where the question of responsibility arises are those which relate to the individual and his ability to care for himself and his property, to understandingly enter into contracts, and to dispose of his possessions. These are numerous and constantly occupying the attention of courts of law. It is the duty of the medical witness to carefully examine the person whose sanity is questioned, and to pass judgment upon his written and other productions; to obtain a history of his conduct, and to form an intelligent opinion therefrom. It becomes necessary to discover, if possible, the existence of a delusion which will invalidate the particular act, as being a result of an *insane* exercise of judgment and reasoning power. The word "insane" is used in contradistinction to the careless or conscious error which any normal individual may make, and which does not necessarily indicate impairment of responsibility. If a business arrangement is entered into by a person who is *non compos mentis* and does not realize what may be the consequence of his act, he is entitled to the protection of the law. We are to determine just

* Shelford on *Lunacy*, p. 340; *Hix vs. Whittemore*, 4 Mete. 545; *Haden vs. Hayes*, 9 Pa. 151; *Jackson vs. Van Dusen*, 5 Johns. 144; *Stevens vs. Van Cleve*, 4 Wash. C. C. 262. The author is indebted to Ordonaux for many of these citations.

what form of aberration incapacitates, although sometimes the general showing that insanity exists will suffice. Careful judges require the exact estimation of mental disease that destroys responsibility, and how it does so, recognizing the fact that extensive disorder may exist which spares the individual so far as the ability to perform certain acts is concerned. Usually the conservation of the power to know the provisions and consequences of the particular act, and the ability to exercise will-power, are sufficient to meet the demands of the law, no matter how deranged the person may otherwise be. This is shown in the admission of wills to probate which have been made by insane men who, so long as they were not subject to undue influences or laboring under a delusion touching the matter at issue, were considered competent.

The German law in regard to capacity differs but little from that of our own country in admitting that no matter what the condition of restraint or general state of a patient may be, the existence of testamentary capacity must be specifically determined by his knowledge of the particular act. In a recent case which was decided May 7, 1889 (*Entscheidungen des Reichsgerichts in Civilsachen*, vol. xxiii., p. 140), it was held that though a man had been under the care of a legally appointed guardian, and had been declared insane in 1885, the court, after an inquisition, considered him in 1889 sane enough to make a will. The contesting parties alleged that a person under the care of a trustee is incompetent to make intelligent disposition of his or her property; the will, however, was admitted to probate by reason of the assumed existence of a lucid interval.

TESTAMENTARY CAPACITY.

It would appear, then, as if the ability to legally dispose of one's property depended upon the possession of but a limited degree of intelligence, for the requirements are a knowledge of one's possessions and the objects of one's bounty. Erskine's charge in the case of *Harwood vs. Barker* was as follows: "Their lordships are of opinion that in order to constitute a sound disposing mind a testator must not only be able to understand that he has by his will given the whole of his property to one object of his regard, but he must also have capacity to comprehend the extent of his property and the nature of the claims of others whom by his will he is excluding from all participation in that property; and that the protection of the law is in no cases more needed than it is in those where the mind has been too much enfeebled to comprehend more objects than one, and more especially where that object may be so forced upon the attention of the invalid as to shut out all others that might require consideration."

With regard to the proof of a disposing mind an English judge (Brett) said that "it was not sufficient for the testator to understand merely that he was making a will, but they [the jury] had to say whether, at the time the will was made, the testator had sufficient intelligence to understand substantially the state of his family and of his affairs, and the disposition of his property as made by the will; and if he had sufficient power of mind to intend to make such disposition."

We are to investigate the condition of the testator at the time he makes his will, and decide whether his disposing capacity is affected in

any way—either by the natural decay of old age, by senile dementia, or by other kinds of insanity—or whether there exists a delusion which prevents him from intelligently disposing of his holdings.

Wills made in Extremis.

Wills made *in extremis* usually have no value in the eyes of the law, and these, as well as contracts, are often contested.

Tardieu, Laségue, and other French writers have extensively written upon the mental condition of the individual during the last moments of life. They announce their belief that either as a result of general disease or insanity the brain is always affected just before death, and intelligence obscured to some extent, so that the capacity for will-making is at least doubtful. There certainly can be no question as to the mental weakness that occurs when pulmonary decarbonization fails, and the brain is supplied with vitiated blood; and there can be no doubt that just before death there must be a dissolution and incoördination of concept arrangement. The instances of hallucinatory disorders that are gravely presented in good faith by credulous people as death-bed utterances and prophecies are numerous and, after all, significant indications of disorganization. It therefore cannot be denied that the last hours of life are frequently attended by mental obscuration or perversion, even when such does not appear to be the case to outsiders; and a person with some assistance may be helped to sign and apparently understand a will. Some diseases, when the cause of death is toxæmia or great exhaustion, must sometimes interfere with the clear exercise of judgment. An aged man whose will was lately the subject of contest died after a week's illness, the nature of which was strangulated hernia and peritonitis. Shortly before death he was made to sign a will, notwithstanding the fact that soon after he was so delirious that it required the efforts of several men to hold him down, and he presented the signs of collapse; yet he was pronounced by the consulting physician in his case to be of sound mind.

For obvious reasons it is impossible to fix a limit of time before death when a will should be rejected. Of course the particular circumstances should be determined and weighed. In a condition symptomatized by mental indecision due to weakness, especially where semi-consciousness is present, the assertion that testamentary capacity exists should be received with some hesitation; and where the person's condition is such that he has to be supported and a pen held in his hand—the aid not being alone required because of existing paralysis—I think we cannot be too careful in sifting to the bottom the testimony that may be admitted.

Old Age and Dementia.

Much has been said about the distinction between the mental decay of simple old age and the appearance of senile dementia, and it is important to make the distinction when we are called upon to testify. Dr. Ray says: "This form of the disorder, or senile dementia, is so often the subject of medico-legal inquiries, especially in connection with wills, that it deserves particular attention. Senile dementia, it must be recollected, is something more than the mere loss of mental power which results

from the natural decay of the faculties: it is not only feeble, but it is deranged. Were it not so every old man would labor under a certain degree of dementia." Senile dementia, as Pritchard has written, is not the lot of old persons universally, though it is a condition to which old age has a tendency, and to which the last stage of bodily decay approximates. Extreme old age sometimes prevents the testator from knowing the objects of his bounty, and from intelligently disposing of his estate. If his mind is so weak, either through disease or advanced years, that he may be tricked or swindled; if his memory and perception are so blunted as to prevent him from knowing the extent or condition of his property or the persons to whom he wishes to give it—then true doubts arise in regard to his competency. Simple old age does not necessarily bring with it incapacity, for there are men who have attained very great age without any suspicion of mental unsoundness arising. In the Watson Case an old man of eighty-six was held to be competent to make a will, and cases are on record of wills made at ninety, or over, which stood.* The law is that "if man in his old age becomes a very child again in his understanding, and is become so forgetful that he knows not his own name, he is then no more fit to make a testament than a natural fool, a child, or a lunatic." (Browne.)

Lucy H. Eddy died in Rahway in 1879. She was a daughter of the late Thomas Eddy, of New York, who was distinguished for his public spirit and philanthropy, and inherited from him his strong mental qualities and convictions of duty. She left a will dated January 15, 1875, and a codicil dated September 5, 1876. This will was contested in the Prerogative Court on the ground of lack of testamentary capacity. Deceased was eighty-three years old at the time she executed the will, and none of the witnesses for contestants testified that deceased was of unsound mind, but only averred to weakness of memory regarding recent occurrences, which might be expected in a person of such advanced age; and some would not even say that she was unfit to make a will. On the other hand, it was shown that she read the classics and histories, and would excite admiration by her able discussion of them; that she seemed to remember old events; she answered questions intelligently; knew what she was doing; that she knew who her relations were; that she used an old will as the basis of her will of 1875, and made all the necessary memoranda thereon herself. Another point advanced by contestants was the confidence reposed by deceased in her attorneys, and her indifference to the fact that much more money had been expended on the building of a house for her than was at first contemplated, and it was claimed that this was evidence of the want of that capacity requisite to the making of a will; but it was held that this merely amounted to natural confidence in capable business men. Held, also, that mere forgetfulness of recent events is no evidence of incapacity to make a will. The will was there-

* *Brady vs. McBride*, 39 N. J. Eq. 495. The testatrix, Margaret Devine, executed her will February 24, 1876, at which time she was blind and over eighty years of age. In October, 1878, a commission in lunacy found that she was of unsound mind and had been so more than three years past. There was much evidence that the testatrix was rational at and about the time of the execution of the will, not only as to the details of the will but also as to her financial affairs and other matters.

The will was admitted to probate, and on appeal judgment affirmed, the court holding that the finding of the commission in lunacy was not conclusive as to her mental condition at the time of the execution of the will.

fore admitted to probate. (32 N. J. Eq. 701.) In other cases the forgetfulness of recent events might lead to the disregard of those dependent upon the testator as well as the condition of the estate.

Influence of Delusions.

The existence of delusions regarding the next of kin or others who have a claim upon the testator, or in regard to the condition of the property, or which in any way influence the judgment of the testator, is usually sufficient to invalidate the bequests that may be made through such error. As has been stated, delusions of the most absurd nature may exist, but do not negative the existence of a disposing mind. Cockburn held the following opinion (*Banks vs. Goodfellow*): "No doubt, when the fact that the testator had been subject to any insane delusion is established, a will should be regarded with great distrust, and every presumption should in the first instance be made against it. When insane delusions have once been shown to have existed, it may be difficult to say whether the mental disorder may not possibly have extended beyond the particular form or instance in which it has manifested itself. It may be equally difficult to say how far the delusion may not have influenced the testator in the particular disposal of his property, and the presumption against a will made under such circumstances becomes additionally strong when the will is, to use the term of the civilian, an insufficient one—that is to say, one in which natural affection and the claims of near relationship have been disregarded. But when, in the result, the jury are satisfied that the delusions have not affected the general faculties of the mind, and can have no effect upon the will, we see no sufficient reason why the testator should be held to have lost his right to make a will, or why a will made under such circumstances should not be upheld."

The celebrated Jumel Will Case was one in which the question of delusion arose. Madame Jumel died some years ago, leaving a large and valuable estate to different religious and charitable institutions, cutting off her family. It was shown that the testatrix, who was a very old woman when the will was made, was peculiar and crotchety, and that she labored under the delusion, among others, that she was the victim of a plot—that her relatives had attempted to poison her—and so deep-seated was her belief that she refused all food until she procured it herself. The case was tried in the Supreme Court of New York in 1866, and the court took the position that if she was insane because of these delusions, she was incompetent to make a will.

The instances where insane delusions have interfered with testamentary capacity are numerous and bear a common relation, and the reader is referred to the comparatively recent decisions in the cases of *Merrill vs. Rolston*, 5 Redfield, 220; *Miller vs. White*, 5 Redfield, 320; *Dickie vs. Van Vleck*, 5 Redfield 284; *Leslie vs. Leslie*, 15 N. Y. Digest, 56. In all of these cases the existence of delusions was urged.* The existence of

* Also see *American Bible Society vs. Storer*, 12 N. Y. Weekly Digest, 213; *Kingsbury vs. Whitaker*, 32 Louisiana Annual Reports, 1055; *Cole Will Case*, 49 Wisconsin Reports, 179; *Le Bou vs. Vanderbilt*, 3 Redfield, 384.

insane delusions of a pertinent character is sometimes disregarded, the law preferring to believe that at some time the individual was able to dispose intelligently.*

General Symptoms of Alleged Incapacitating Insanity.

The suits brought by dissatisfied beneficiaries to annul wills that have been made by persons who are alleged to be insane disclose peculiarities of conduct which often reach the dignity of mental disease, but more often are simply evidences of a purely eccentric nature.† The drag-net which is hauled by every available helper brings into court the thousand and one little weaknesses, the instances of moral delinquency, the moods and idiosyncrasies, which most men possess. These are colored and tinged by interested witnesses, persons with pliable memories, or those having ends in view or unredressed wrongs. It may be the son or daughter whose cupidity brings forgetfulness of a father's kindnesses, a discharged servant, or some stranger who solely desires the notoriety of appearing in court.

Influence of Eccentricity.

Mere disproportion in the division of property, or eccentricity, is not necessarily evidence of testamentary incapacity; and although the law is very careful in regard to the question of undue influence, great care should be taken to distinguish cases in which the individual defers with perfect propriety to the suggestions of intelligent and lifelong friends instead of bad children who never have shown any filial respect or interest in the testator until the question of the division of property is raised.

* *Manley's Executor vs. Staples* (65 Vt. 370). This was a contest of the will of Madison S. Manley, by his daughter, Miriam A. Staples. The will was executed April 24, 1888, and he died July 4, 1888. Manley was a miserly and ignorant old man, and was infirm and almost helpless. Some years before his death his wife procured a divorce from him, with alimony amounting to over one half of his property, which, upon her death, previous to the execution of Manley's will, she bequeathed to the contestant. For some years before his death Manley had an "insane delusion" concerning his wife and daughter, and accused them of being prostitutes and of conspiring to poison him. After the death of his wife he attempted to make a contract with contestant to take care of him during his life, but failed. Afterward, on November 14, 1887, he made a contract with one Fisk for his care during his life, and by the contract conveyed most of his property to Fisk. He lived with Fisk until his death, and during that time was less eccentric than before. His will recited and confirmed the contract with Fisk, and bequeathed all his property to Fisk, except some income which he bequeathed to two grandsons, who were sons of the contestant. The Probate Court sustained the will. The Supreme Court of Vermont, affirming the judgment, held that the fact that insanity existed for a number of years, while strong evidence of permanency, was not conclusive of it: this was a question of fact for the jury. "That insanity continues is not a presumption of law, . . . but an inference of fact, varying with the circumstances of the case." There was no evidence that he entertained an insane delusion concerning his daughter after he went to live with Fisk and at the time he executed the will. Objection was made at the trial to Fisk as a witness because he was a party to the contract mentioned in the will. The court held that as the contract was not in issue Fisk was competent to testify to the execution of the will.

† *Prentis vs. Bates*, 88 Mich. 567; rehearing 93 Mich. 234. This case was a contest of the will, dated July, 1886, of Mrs. Adaline King, who died in Detroit in November, 1886. There was testimony showing that Mrs. King, who was sixty-seven years

When, on the other hand, a kind father, whose relations with his children are of the pleasantest kind, becomes, during the latter years of life, morose, irritable, and shows unwarrantable dislike or neglect, with moral and intellectual weakness, grave doubts arise.

Eccentricity should not be misunderstood and looked upon as disease, nor should superstitious belief, or the striking exaggeration of character of old age we sometimes find, which, however, are perfectly consistent with mental integrity. The belief in spiritualism, or any other ism, which, perhaps, leads the testator to leave a legacy to some religious body, no matter how irregular, is not necessarily insanity, and should not be so considered.

In courts of law it is often contended that because the individual wears certain loud colors and ungainly, conspicuous dress, or because he eats or drinks or walks or sleeps in an unusual way, he is of unsound mind. Not only lifelong peculiarities, but personal traits which may be the offspring of ignorance or vanity or even vulgarity, may sometimes be sufficient in the eyes of snobbish or ungrateful children to stamp their parent as of unsound mind.

In the case of *Hartwell vs. M'Master* (4 Redfield, 38) it was shown that the deceased executed his will on September 25, 1880, and died October 1, 1880, aged seventy-two years, leaving no children. He had been in business in New York City, had taught school, preached, and had some knowledge of electricity. On behalf of contestants it was claimed that testator lacked testamentary capacity, and it was shown that he did not believe in the doctrine of the "real presence" or transubstantiation, nor in the necessity of baptism in infancy; that he lived alone and locked himself in during his last illness; that he had once disturbed a religious meeting by abusing the minister; that he wished to attend a public school as a pupil; that when over sixty years old he fell in love with a girl of twelve. It was very properly held that these things alone were not sufficient to prove that testator was insane or lacked testamentary capacity.

The Influence of General Diseases.

Bodily disease may result in an insanity that may destroy the disposing powers of the individual. Such somatic insanities as that due to Bright's disease are frequently referred to, but more often great stress is laid by counsel upon the existence of the cerebral symptoms of this.

old at the date of the will, was eccentric, fickle-minded, continually interfering with and scolding with workmen about her house. It was also shown that a sister of Mrs. King, who died in 1863, had been insane, and had several times from 1840 to 1858 been placed in retreats. She could not remember from one day to another when she had taken a bath, and frequently after ordering meals at a restaurant (in 1884) denied that she had ordered the food that was brought to her. She continually complained of aggravated stomach trouble, and shortly before her death ate a bowl of chicken broth which she had kept in her room for three days, and which was not fit to eat. (*Sic.*) A few days thereafter she died of dysentery. A post-mortem examination showed no chronic stomach disease. At one time Mrs. King was a patient at a sanitarium. Dr. Gallagher, one of the attendant physicians, testified that he took pills to her; she would not take them—said they were flies' heads. He then got a fly's head and she took it. The probate of the will was disallowed, and on appeal the Supreme Court reversed and ordered a new trial (88 Mich. 567). On rehearing the judgment of reversal was upheld except as to costs (93 Mich. 234).

and other diseases, and their effect upon the conduct of the individual. Very often such petitioners are apt to formulate decidedly original views regarding the pathology of the conditions, and to draw unwarranted conclusions therefrom. Such was the issue in the Jesse Hoyt Will Case, where great contention was caused and much irrelevant testimony given regarding the morbid anatomy of the kidneys. Beyond the irritability, stupidity, aphasia, and very rare epileptic conditions, nothing can be shown; but when we consider the renal disease, with cardiac disease, as precursors of actual degeneration of the cerebral vessels, it has a decided importance. The demonstration of the connection between embolism or cardiac disease with cerebral softening and dementia, of syphilis with parietic dementia or epilepsy, is of the greatest moment.

The distrust of the courts in considering such matters is often shown. When the will of the late Alexander D. Fraser, of Detroit, was contested, the issue was raised that his testamentary capacity had been destroyed by cancer. The will was dated May 17, 1877, and the evidence showed that the deceased was over eighty years old and had been suffering for over twenty years from a cancer on the nose, which ultimately consumed the flesh on one side of his face and also his eye, and from which he finally died on August 2, 1877. Prior to the winter of 1876 he had been very fond of society, had always been neat in appearance, and kind and considerate to the members of his household; but after that time he secluded himself, became slovenly, and frequently abused and assaulted the members of his household. He was eccentric in dress, and at the execution of the will appeared attired in a night-gown and Scotch cap. After the execution of the will (in May, 1877) and up to the time of his death he frequently had delusions and raved to such an extent as to disturb his neighbors. On these facts five physicians believed him insane. On a trial before the jury a verdict was rendered sustaining the will, which verdict was, on appeal to the Supreme Court, affirmed. (42 Michigan Reports, 206.)*

Cases which are familiar, and where, as a rule, there is sufficient disease of the structure of the brain to effectually weaken the mental powers to the degree of irresponsibility, may be illustrated by the following:

Sarah M. Blakely executed her will April 7, 1876, and it was contested by her husband on the ground of insanity. It appears that she had a stroke of apoplexy in December, 1875, and for some time thereafter was subject to paroxysms of grief and crying. In April following she executed the will. In the summer of 1876 she had another stroke of apoplexy, and on September 26th was sent to an insane asylum, where she died March 10, 1877. In February, 1876, she wrote several clear and coherent wills. For a long period she had manifested a great dislike for her husband and entertained groundless suspicions of him. She was nervous, flighty, excitable and hysterical, discontented and unhappy. Dr. Barnett, who attended her, says that after the paralytic stroke in December, 1875, her mind became enfeebled, and that she was suffering from dementia, and he did not consider her in a proper condition of mind to attend to business in the spring of 1876. Drs. Hunt and Russell testified, as to her condition before the paralytic stroke, that her conduct might be the result of nervous excitement or childishness. Dr. Kemp-

* Also see *Mairs vs. Freeman*, 3 Redfield, 181.

ster, superintendent of the asylum in which deceased was confined, from an examination made in September, 1876, believed her to have been of unsound mind in April, 1876. (*Blakely Will*, 48 Wis. 294.)

Seth H. Evitts died September 22, 1877, aged eighty years. On August 27, 1875, he executed a will, bequeathing to plaintiff all his property with the exception of a few small items. On April 2, 1876, and September 22, 1876, he made two other wills, which were substantially the same as the will of 1875, the only change being in the minor bequests. These wills were severally offered for probate, but rejected on the ground that testator was not of sound mind when he executed them, and the will of 1875 was probated. On December 20, 1876, deceased executed a deed to defendants, transferring most of his real estate. His deed it is now sought to set aside on the ground of mental incapacity in the grantor. In setting aside the deed the Maryland Court of Appeals said, in reviewing the evidence, that after the execution of the will of September, 1876, the defendants, through false statements, produced in the mind of deceased an insane delusion that plaintiff was treating him badly and robbing him of his property; that he had always been on affectionate terms with plaintiff; that there were no grounds for the delusion; that he had several strokes of apoplexy in 1876, and was permanently paralyzed; became imbecile; was childlike; had few ideas; his mind became inert; was easily controlled and influenced; his memory failed; was unable to walk without assistance and required constant attendance; his hobby was politics. (*Cherbonnier vs. Evitts*, 56 Maryland Reports, 276.)

Epilepsy.—The wills of epileptics are sometimes contested. In the case of Ross (12 N. Y. Weekly Digest, 34) the will was made in an interparoxysmal period and was sustained. On April 29, 1879, the testator, who had been subject to attacks of acute mania, superinduced by epileptic convulsions, was committed to a lunatic asylum. He was discharged May 12, 1879. The superintendent of the asylum testified that testator's mental condition was then good, and that between the epileptic attacks he was of sufficient mental soundness to understand what he was doing. On May 21, 1879, testator executed his will. His family physician testified that he was then of sound mind and memory, and capable of making a will. Testator was again attacked with an epileptic convulsion on June 11, 1879, and died June 24, 1879. Held that testator was sane at the time the will was made.

The following case is somewhat more complicated, pneumonia with delirium occurring at about the time of the execution of the will:

Elizabeth M. Riffin was, on November 14, 1868, at the age of sixty-two, attacked with an epileptic fit, and rendered unconscious; an attack of pneumonia supervened the epileptic fit, accompanied with high fever and occasional delirium, during which she would be unconscious. Previous to her illness she was intelligent and cultivated, robust and strong, though nervous. She was regarded as a gifted and brilliant woman. Witnesses on both sides, who were present during her illness, stated that while occasionally out of her mind, at other times she was rational and intelligent, her mental condition being clearly the result of delirium attendant on high fever. No witness claimed that she had wholly lost her reason at that period. On November 23, 1868, she executed her will. Between that time and her death, which occurred in July, 1875, she executed three codicils. Each of the witnesses to the will and codicils testi-

fied to the sanity and intelligence of deceased at the time of executing them. On the trial of the issues in the Circuit Court of St. Clair County, in April, 1877, before a jury, it was found that the will and codicils were not those of the testator, Elizabeth M. Riggin; that is to say, that she was insane at the time she executed them, and they were therefore null and void. On appeal to the Supreme Court of Illinois this finding was reversed. (*Brown vs. Riggin*, 94 Ill. R. 560.)

Alcoholism.—The will of a confirmed drunkard will stand in law, provided the person who made it is not in a condition to be so unreasonable and irrational as to be unable to exercise anything like healthy judgment. A man may be a hard drinker, and make the will after a debauch, but unless its character is so absurd as to betray mental unsoundness, he cannot be reasonably deemed irresponsible. In a recent case in which the writer appeared, the testator was a man of bad habits, who drank immoderately and steadily. Evidence was produced to prove that he had done all manner of foolish things before and after the will was made, but no evidence was brought forward to show that at the time the paper was signed the testator was in any condition to prevent him from fully knowing the nature of what he was then doing. We are to consider in such cases the degree of the drunkenness, the habits and physical condition of the person.

A case fell under the writer's notice two or three years ago, the testator being a man of middle age, who had for months been addicted to drinking, although in a periodical way. A vague history of bad temper, broken sleep, and many extravagant acts, none of which, however, were necessarily manifestations of insanity, was testified to by the contestants, and one physician gravely asserted that a proof of the mental perversion consisted in the irritability of the testator's throat during the time he was making medicated applications to the same. He was alleged to have declared that "he could not retain anything upon his stomach"; that "he resorted to memoranda that he should not neglect his engagements"; that "he abused the doctor who had treated his wife during her last illness, and threatened him with violence"; that "he complained of being homesick": and various persons who had seen little of him testified to having observed him drunk on several occasions; that "he was extravagant, and bought large quantities of oranges," which, however, were for his sick wife; and that he "talked wildly about his business." It appeared, on the other hand, that he was able to attend to his affairs for some time before his death, which was not due to alcoholism; that when he made his will it was at a time between two of his sprees, and that there was no want of sagacity or any irregularity shown in the disposition of his property. In this case, as in many others, the popular ideas of insanity are apt to be thoroughly ventilated, and it is strange that this kind of testimony should receive any attention whatever in courts of law. It is a very easy matter to exaggerate the disorderly behavior of an individual who is in no sense insane. The "excitement" alluded to by interested witnesses is probably nothing more than a moderate emotional exhilaration, and the business schemes which attract the wonderment of those who wish the will broken ordinarily display a mind of unusual shrewdness. The speculations nearly always turn out well, and the despondency does not rise above the dignity of an ordinary attack of the blues. In the above case the husband's devotion to his

dying wife seemed to have astonished those persons who appeared upon the side of the contestants; and this peculiar behavior, which was regarded by them as evidence of mental unsoundness, consisted in such kindly offices as removing her to the window, so that she might get the fresh air, and bringing her fruit; and though his exuberation of affection might have been that which is so often intensified by occasional libations, it was in this case nothing unusual. It did not appear that there was anything in the character of the will that indicated insanity; but that it was legally witnessed, and made at the time when the individual was perfectly sober, and was therefore very properly admitted to probate.

In another case of a different kind the patient had for several years indulged in large quantities of alcohol, and it was common for him to shut himself up in the room with a box of champagne, and not leave until he had recovered from the effects of the intoxication produced by the dozen bottles he finished, one after the other, in rapid succession. This man, for several years before his death, drank all kinds of liquors to excess, squandered his money, giving large amounts to persons who had little or no claim upon him, and betrayed a change in character which was remarkable when contrasted with the regularity and sobriety of previous years. Within a short time before his death he manifested symptoms of the inevitable diseases which are due to excesses of this kind, and he finally succumbed to cirrhosis and died comatose. When supported in bed, and surrounded by those to whom he left his money, he made a will and died a few hours afterward. This will was very properly contested by his brother, and it was admitted to probate by the surrogate, though the decision of the latter was subsequently reversed. It is quite likely here that the man's mental condition was one which, even some time before his demise, would prevent him from properly recognizing the objects of his bounty, and render him an easy prey to designing persons; but a will made under more outrageous circumstances it is difficult to conceive of, for he was literally in a condition of *extremis* when his name was signed to the document.

The following is a case of alcoholism where a mental disturbance existed, with delusions, which, however, were proved not to relate to the will itself or those who were to be benefited:

Betsy Marsh died April 7, 1876, aged sixty-five years. She was eccentric in dress and coarse in language. Her death followed a short illness—undoubtedly a disease of the brain, which gave rise to frequent delusions. These delusions appeared only occasionally. On the 3d of April, 1876, she executed her will, and stated in answer to a question that she knew what she was doing, and later in the same day sent for a Dr. Kinch, who had drawn her will, to make some alterations in it. These alterations were never made, for the next day she was found intoxicated in the woods, and from that time she was very ill, until she suddenly died on the 7th of April. It was testified that deceased was of sound mind at the time the will was executed; that her delusions were only intermittent, resulting from her disease, and that they consisted of presentiments of death, and did not relate to any person who might have been an object of her bounty. The will was admitted in the Union County Orphans' Court, and on appeal to the Prerogative Court this action was affirmed.

In chronic alcoholism with organic brain diseases but no alleged insanity the question of responsibility naturally arises. In most cases of advanced structural disease the character of the testator undergoes a series of changes which render him weak, vacillating, childish, and without vigorous memory. At such times it is extremely probable that the person is a prey to designing relatives and suffers enfeeblement of the will.

Care should be taken not to confuse the mental impairment of old age or eccentricity with the peculiarities of disposition and habits resulting from chronic alcoholism. (*Lee vs. Scudder*, 31 N. J. Equity Reports, 633.)

Undue Influence.

A much-abused term, which, however, has an important legal value, is what is known as *undue influence*. Just how much pressure may be considered undue is of course a matter for judges and juries to decide; yet it is a grave question whether any one is capable, without a deep insight into the character and mode of life of a particular individual, to estimate his susceptibility or powers of resistance, and to say how much he has been made to do anything against his will and at the dictation of others.* It is at best an awkward term, and should be done away with. The relation of human beings, and the doctrine of the survival of the fittest, presume the existence of individuals of varying mental attributes—some who receive suggestions more readily than others, and who lack individuality, others who shirk effort, and others whose susceptibility to emotional excitement and affective influence is very great. It is therefore of vital importance to establish the existence, if possible, of actual insanity and a prolonged departure from the former habits of life.

Medical witnesses are frequently asked to express an opinion whether the patient's mental disease is not such as to make him an easy prey to designing friends and relatives, who may have ends of their own to gain, and through the agency of undue influence may lead or force the person to dispose of his property in a way he would not were he in full possession of his faculties. It is sometimes a difficult matter to give such an opinion, for although the physician may have no doubt of the mental status of the testator, he is often bound by rules of evidence to answer a badly drawn hypothetical question which is unscientific and negative. Undue influence may be brought to bear in cases where, through disease, the individual is either unable to reason correctly, or where, to avoid opposition and worry, he injudiciously accepts the arrangements made

* *Johnson vs. Armstrong*, 97 Ala. 731. John C. Johnson died, aged seventy, in January, 1891. Will was executed September 20, 1890. In 1879 he was stricken with paralysis, his health and mind becoming impaired. In consequence his moral nature changed, and he took a woman, whom he claimed was his illegitimate daughter, to his home and lived illicitly with her until 1880, when he became estranged from his nine children and removed to another county, where he continued to live with the woman until he died, children being born to them. There was some evidence as to acts and peculiar conduct of deceased, quarrels with his children, his wife, and others. The probate of the will was refused by the Probate Court, and on appeal the Supreme Court reversed the judgment on the ground that undue influence had not been proved, and that there was not sufficient proof that Johnson was insane when the will was executed, habitual and fixed insanity not having been proved.

by other people, or where his will-power is so much impaired that he cannot resist well-directed and decisive demands of interested plotters. The suspiciousness and unreasonable delusions which the insane man harbors toward those he has always loved are very often played upon by interested persons, and in certain stages of delusional insanity, as well as the first stage of dementia, it is possible to lead the insane individual to do many unjust acts, under the delusion that indignities have been heaped upon him, and that insults and slights have been offered to him. It may readily be seen how the subject of religious melancholia may be made to give all his money to the church, and instances of this kind are exceedingly common, especially when the testator is a woman who is tortured with ideas of future unrest and punishment. The majority of cases where undue influence is alleged to have been exercised are those where there is a history of dementia in old people. The senile dement is prone to make foolish and trivial disposition of his property, and particularly is this the case when he is aided by designing people who surround him; and the individual of this kind is very apt to be easily turned from his original purpose by fresh suggestions or new influences. He is liable to imposition and unjustifiable prejudice.

In parietic dementia the victim is very likely to squander his property and to fall a prey to the many parasites who are ever ready to take advantage of his bonhomie and boastful good nature. In a recent case the parietic, whose illusions of grandeur were of the most magnificent character, became involved in a variety of schemes devised by ingenious sharpers, and when legal proceedings were instituted it was found that he had gone so far as to buy for his new friends a cargo of bric-à-brac, and, to secure a place for the sale of the same, he had bought up the stock of the occupant of the store, spending \$30,000, so that his friends might take immediate possession. In patients suffering from the first stages of the disease it may readily be seen how any one, by judicious flattery and acquiescence in the startling projects and ideas of the individual, may wheedle him into parting with property.

In other forms of organic insanity a condition of mental feebleness akin to dementia is manifested by irresolution, irritability, or intellectual torpor. It will frequently be found that disease of the cerebral vessels, especially on the left side of the brain, is very apt to be followed, if at all extensive, by degeneration of the mental faculties; and if such degeneration has an early fatal ending, and a biased and unjust will is made, even though there can be brought forward very few instances of mental irregularity, we should still question the ability of the patient to withstand the arguments of interested friends. Softening is so common after accidents of the kind mentioned above, and is so frequently symptomatized by loss of memory, indecision, and childishness, that intellectual competency should always be questioned.

On October 12, 1872, Mrs. Elizabeth Greenwood, then sixty-two years old, executed her will. She died August 9, 1875, leaving an estate worth \$26,000. By the terms of her will she bequeathed to two of her children, Eliza Smith and William Greenwood (the contestants), \$100 each, and the residue of her estate to Olive Newsome, a granddaughter, and Mrs. Mary Cline, her remaining child. The will was contested on the ground that the testator was of weak mind at the time it was executed, and unduly influenced. It was not claimed, however, that she was incapable of

executing the will, but that she was laboring under a delusion with regard to contestants, brought about by the undue influence exercised upon her weak and impaired mind by Mrs. Cline and Mrs. Newsome. Upon the trial of the issues in the County Court the will was rejected, the court holding that while deceased had testamentary capacity, the will was executed under undue influence. On appeal to the Circuit Court this judgment was reversed, and contestants then appealed to the Supreme Court, who reversed the judgment of the Circuit Court and rejected the will, on the same ground taken by the County Court, and also sustained the claim of contestants that deceased was laboring under a delusion regarding them at the time she executed the will. The evidence, which is voluminous, shows that deceased had a severe attack of paralysis in 1866, from the effects of which she never recovered; that her memory became defective; she could not tell who was working for her; would lease a piece of land and forget it next day; would ask the same question repeatedly. Two medical doctors who had known deceased testified that she was very despondent; was different from the majority of people; at times exhibited mental obliquity; her mental powers were impaired. Others testified that her eyes had a dead expression; she sometimes acted like an intoxicated person; in 1872 she was peculiar in her conversation; would stop short while making a remark, and fail to finish it; was absent-minded; while ill she imitated, with empty hands, the action of a person breaking a piece of quartz and examining for gold; she very readily gave up her opinions, and would side with anybody who disputed them; that while going from Salem to Howell's Prairie alone, she became turned around in the road and was coming back to Salem without knowing it; that she did not appear cheerful, or laugh; paid no attention to her housework; she was frequently told that her mind was not right; that on the day she executed her will she submitted herself to a short examination by two doctors, from whom she obtained a certificate of her sound mind and competency to make a will; that Mrs. Cline by means of a pretended communication from her deceased husband, obtained through a spiritual medium, stating that her son William was a rough character and would squander her property, and that she should get it all out of his hands, produced a delusion in her mind regarding the character of her son. There was some evidence on behalf of proponents regarding the sanity of deceased, but as this was admitted it is not necessary to give a *résumé* of the evidence. The will was rejected on the ground of undue influence—that it was the offspring of a delusion regarding the contestants. (*Greenwood vs. Cline*, 7 Oregon Reports, 17.)

Hypnotism.—Since the revival of interest in hypnotic suggestion and the attention paid to the subject by the newspapers, the claim has been frequently advanced in courts of law that certain unsatisfactory wills were made by decedents who were unduly influenced by hypnotism. After much research I am unable to find a single authenticated case, of the kind, but, on the other hand, rather a great deal that shows how ignorance and prejudice flourish, as they did in what were supposed to be less enlightened ages. As a rule no mention is made of hypnotic suggestion until after the will is found. That a person can be made to perform an unjust act through the suggestion of others is of course possible; but as a rule the suggestion must be an abstract one, that is, provided the subject is possessed of ordinary mental health and normal

independence of will. It is quite possible that while actual hypnotic unconsciousness is not produced, an old person may make an unjust will through the constant suggestion of an idea by interested persons. Such acts are common with aged people who fall into the hands of sharpers, cure-alls, or disreputable exhorters. The experiments of investigators should certainly go to show that it is impossible or extremely difficult to make hypnotized subjects do things that are naturally repugnant to them. The suggestion of disrobing was made to a number of women, half of whom were of known immoral character. The virtuous women would not do so, but the others, without hesitation, took off their things. Possibly a determined induction of hypnotism might throw a testator into an irresponsible condition, when his will would be subservient to that of another; but he would be very likely afterward to question and regret the nature of his act. It may be said that insane people are with difficulty hypnotized; so if insanity is alleged as a contributory part of the incapacity it will be important to determine the extent of attention possible.

Suicide.

The validity of the will of a suicide is sometimes questioned by reason of alleged insanity. The last hours of most suicides are, as a rule, marked by some expression which will enable one to determine the probable mental state. De Boismont, Winslow, and others have collected an immense number of written expressions of suicides, and the former has gotten together over three hundred and twenty letters which show the most diverse forms of mental torture. Eighty-five wills were collected by this observer, the greater number showing clear and intelligent disposing power; and it does not follow that because a suicide has probably shown peculiarities of conduct before his death he has lost the power to discriminate in the matter of choosing the objects of his bounty. On the other hand, there are many wills made by suicides that are irrational and absurd—some of which contain clearly insane directions in regard to the disposal of the body, the personal effects, etc. These should always be received with great caution.

CONTRACTS.

The plea that a contract has been entered into by a person when in an irresponsible state is often urged. In contracts that are disputed because of the alleged insanity of one of the parties it is necessary to examine not only the individual, but the instrument. If it is discovered, in addition to the insanity of the contracting party, that the bargain is clearly disadvantageous to him, the question of fraud and imposition is raised. It sometimes happens, on the other hand, that the question of mental unsoundness is agitated when it is the aim of a person to shirk a responsibility.* In a recent case in which the writer appeared, the ques-

* *Lilly vs. Waggoner*, 27 Ill. 395. Bill to set aside conveyance of real estate, by George Waggoner, conservator of Elisha Waggoner. In 1851 Elisha Waggoner conveyed real estate to A. Lilly. In 1858 an inquest declared Elisha insane, and George was appointed conservator of his estate. It was alleged that "for a long period previous to the inquest" in 1858 Elisha was insane, but there was no positive proof. On

tion of melancholia was urged, and it was averred that the plaintiff had made a contract under the impression that his business was in a ruinous condition, and that this was a delusion resulting from melancholia. In this case I was unable to find any characteristic intellectual derangement, but only simple emotional disturbance of a depressing character. I found that his view of the state of his affairs was perfectly in accordance with the real facts; that the contract was dictated by him and contained pertinent marginal corrections and interlineations; that his letters, written at the time, were intelligent; and that his motives in bringing the suit were to upset a bargain that did not bring him subsequently what he considered to be his proper share of the business he conducted with the contracting parties. We must take cognizance of the fact, in such cases as this, as well as others, that no question of the insanity existed at the time of the alleged imposition; that usually the friends of the person do not consider it necessary to seek legal advice, and it is not necessary to resort to an asylum or other means of protection. Casper relates a case of interest in this connection: "In a civil process the accused merchant, W., asserted that from his ailing condition he was unable to prepare a statement of his affairs and to confirm it by an oath. I had to satisfy myself in regard to this, and at the same time to give an opinion whether he could be arrested personally, if necessary. The investigation proved that W. certainly labored under the well-known disease called hypochondria, which in itself could be regarded as a mere simulation, though it could not be denied that the manifold ailments alleged to exist were either intentionally or unintentionally exaggerated. 'Granting, however,' I said, 'that W. is ill, nevertheless, since he is not feverish nor confined to bed and is of clear intellect, it is not easy to see why such an employment as the one in question—the preparation of a statement of his affairs in his own apartments—should be impossible for him or likely to be injurious. When he alleges that the mere addition of sums causes him anguish, such a statement is to be rejected as inconsistent with medical experience. Only if he were to be forced and hurried in the performance of such a work could there be a possibility of injury resulting.' Accordingly I declared that W. was in a fit condition to prepare a statement of his affairs and to confirm it by oath, provided a few weeks were granted to him for this purpose, and that if necessary he might be personally arrested. This opinion was communicated to W., and a statement of his affairs was very speedily thereafter handed in."

William L. Rusk, who had previously been successful in business in the city of Baltimore, and was remarkable for his energy and industry and shrewdness, was, on April 19, 1861, suddenly thrown into a condition of intense excitement, caused, it was believed, by the military preparations and excitements of those times. He remained in this condition for some time, and was removed to the residence of his sister, and finally,

the other hand, it was shown that Elisha had been engaged in numerous other transactions about 1851, in all of which he appeared rational; that he "was about like the other Waggoners—was always somewhat singular." One medical witness testified that "if there was reason for it, there would appear to be some marks of simulated insanity." The land had risen from four to twenty dollars per acre, and the court regarded this as a reason. The Circuit Court decided that the deed was void, but on appeal the Supreme Court reversed the decree and dismissed the bill, holding that Elisha was not insane at the time of the conveyance.

in the latter part of May, was admitted to have been insane. His disease was declared to be a case of general brain trouble, caused by the financial excitement, etc., of that period. On December 27, 1862, while residing with his sister, he executed a deed, for a nominal consideration, of property valued at upward of \$10,000, to Robert Turner, in trust for his mother, who was then seventy-five years old, and after her death absolutely to his sister. He left his sister's in 1864, and lived with his mother until 1875, when she died, and after her death the *cestui que trust* claimed the property named in the deed. He then brought suit to have the deed set aside on the ground that he was not mentally capable of making a valid deed at the time it was executed, and the deed was declared void. It was shown that although the property stood assessed in his name no mention of the transfer had ever been made to him, and he claimed to have no recollection. It was also proved that he was incapable of transacting business at the time of the execution of the deed, and that he had not completely recovered from the effects of his attack in 1861 until several years thereafter. On appeal to the Court of Appeals the judgment declaring the deed void was affirmed. (*Turner vs. Rusk*, 53 Maryland Reports, 65.)

The protection of persons who deal in good faith with lunatics has been assured* when the contract has been equitable and there was nothing in the manner of the alleged lunatic to attract attention to his condition. Should the person take advantage of the supposed lunatic, he having been apprised of his state of mind, of course the contract may be set aside. In fact, fraud of all kinds, when proved, is a barrier to the claims of those who seek to avoid obligations incurred with persons of weak mind.

The Degree of Unsoundness.—The degree of unsoundness necessary to invalidate a contract as fixed by the law is uncertain and indefinite. The requirement of sufficient intelligence upon the part of the contracting party to know the nature of his act, however, no matter what may be the form of mental disease, is all that is demanded. He may be an imbecile or idiot, but unless the latter condition be an extreme one he does not escape the obligation incurred. His estate is liable for debts contracted to supply his immediate needs, and he or his administrator may be sued. He is also liable for debts contracted during his lucid intervals, but no inferred insanity, such as is urged in the fact of his having been in an asylum and discharged, is sufficient proof of his recovery. (Wharton and Stillé.) The contracts made by a lunatic during life are void; but the incapacity must be proved, for the obvious reason that there may have been only a partial incapacity during life.† In such cases the administrator may be held liable. There are decisions which have held that any contracts executed by lunatics are in themselves void.‡

* *Jenkins vs. Morris*, L. R. 14 Ch. D. 674; *Mitchell vs. Kingman*, 5 Pich. 431; etc.

† *Ducker vs. Whitson*, 112 N. C. 44. This was an action brought against Whitson as administrator of W. R. Murray, by heirs of said Murray, to whom he in his lifetime had executed notes, with a written agreement that they were to be paid out of his estate after his death. The defense was that at the time the notes were executed he was weak in body and mind, and not mentally capable of making a contract. There was evidence that he had made other contracts, had been justice of the peace and postmaster, and attended to his duties. There was also much other testimony as to his mental capacity, the details of which are not stated in the report. Judgment for plaintiff affirmed.

‡ *Curtis vs. Brownell*, 42 Mich. 165. This was a bill to set aside a mortgage, on

Marriage and Insanity.

It sometimes happens that an attempt is made to invalidate a *marriage*, one of the contracting parties being alleged insane. It may be that the person in whose aid the power of the courts may be exercised is at the time of marriage a declared lunatic, in which case all that is required is a showing of the finding of a previous commission. More often the contracting party is one of weak mind, who has been entrapped by designing persons. The same influences that may have been brought into play to make a man link himself with some prostitute or adventuress may be brought to bear to make him an earnest defendant when his family bring action to set aside the marriage. In such a case he is amply provided with friends and advice, who supply the brains he unfortunately does not possess. It will be readily seen that the sexual perversion inseparable from various forms of insanity may lead to a union perhaps with some one far beneath him, and in the other sex the influence of nymphomania leads to impulsive acts which the person, who perhaps is a hysterical girl, does not stop to consider. The celebrated English case of Miss Bagster is an example of this kind. "Miss Bagster was proved by the evidence to be a frivolous and weak-minded girl, whose education had been much neglected. She was a lady of fortune, and she ran away with and was married to a Mr. Newton. An application was made by her family to dissolve the marriage on the ground that she was of unsound mind. Among other facts urged before the commission as proof of the allegation, it was mentioned that she was occasionally violent and self-willed, that she was passionate as a child, and that even in maturer years she had little or no self-control; that she was ignorant of arithmetic, and therefore incapable of taking care of her property; that she had some erotic tendencies, which were evinced by her want of womanly delicacy, and by her having engaged herself,

the ground of insanity of the mortgagor at the time of its execution, to secure payment for a set of mill machinery. The evidence showed that he had been engaged in business all his life, and managed a farm and other interests. He had always been visionary and speculative; had various absurd schemes; planned great improvements in his neighborhood; had periods of exaltation, and of depression, when he feared destitution; planned to manufacture pianos and furniture; to build a town on an adjacent farm, with a church and school; claimed to have invented an excavating machine; talked of setting up a woodyard in his village, and attempted to make contracts for wood; and claimed he had \$80,000 at his command. The mortgage was made in November, 1875. In the following spring he committed suicide under peculiar circumstances. At times when he indulged in his extravagant talk and actions he was pale and haggard. Judgment for plaintiff affirmed.

Lancaster County Bank vs. Moore, 78 Pa. St. 407. On December 30, 1871, George H. Moore, a man of property, about fifty-four years of age, called at plaintiff's bank, and obtained the discount of two notes signed by him, amounting to \$1000, the money being placed to his credit and afterward checked out by him. This money he applied to the payment of a debt. There was nothing in his actions to warn the officers of the bank as to his mental condition. On June 5, 1872, *de lunatico* proceedings were instituted, and on August 10, 1872, inquisition returned that Moore was a lunatic, and had been for three years past. In this action to recover on the notes, Moore's insanity at the time the notes were executed was set up as a defense. There was no evidence of Moore's insanity beyond the record of the proceedings in lunacy and neighborhood reports, which latter it was held were not sufficient to constitute notice to the bank. Verdict for defendant, which was reversed, the Supreme Court holding that "the law

with a view to marriage, to several individuals. On her examination before the commissioners her answers were intelligent, and her conduct in no way different from that of ordinary individuals. Seven medical witnesses were summoned to support the commission, and each of them deposed that she was of unsound mind. The commissioners, however, had recourse to Drs. Morrison and Haslam, who visited her, and who came to the conclusion that she was neither imbecile nor idiotic, and that her inability to manage her affairs arose from ignorance. She was aware of her deficiencies, and deplored her ignorance of arithmetic, and explained it on the ground that her grandfather had been too ready to send excuses for idleness when she was at school. Her conversation greatly impressed Drs. Haslam and Morrison with a belief in her sanity. The jury, by a majority of twenty to two, returned a verdict that Miss Bagster had been of unsound mind since November, 1830, and the marriage was consequently dissolved."

Breach of Promise and Insanity.

Breach-of-promise cases are often defended upon the plea of insanity and irresponsibility. In the case of *Harford vs. Singleton* it was claimed that the defendant's softening of the brain and insanity were cogent reasons for his non-fulfillment of the marriage contract, which plea, however, was unsuccessful. This action was defended on the ground that at the time defendant had promised marriage he was advanced in life, viz., sixty years of age; and that before a reasonable time had elapsed from the request to marry, namely, in May, 1855, he was, by a "visitation of God," attacked by a fit of apoplexy, since which time he was in an infirm state and afflicted with softening of the brain, in consequence of which he could not perform his promise without putting his life in great peril and hastening his death. Evidence was called, on the part of the plaintiff, to prove the engagement and to show that no apparent impairment of health or vigor remained after recovery from the attack. It was stated by defendant's counsel, Mr. Ball, that in 1849 he had suffered from dropsy and disease of the kidneys; that in 1852 he had an attack of apoplexy and congestion of the brain; during the interval from that time until May last he had promised to marry the plaintiff; but that in the latter month he was afflicted with another attack of apoplexy, and was now suffering from paralysis and softening of the brain. The defense then called several medical men who had attended the defendant. They testified that he had had apoplexy and was paralytic, was suffering from

is well settled that persons who are not *sui juris*, and have no general capacity to contract debts, are nevertheless liable for their torts, and may bind themselves for necessities." The bank having acted in good faith and without notice, the estate of Moore was liable.

Mutual Life Ins Co. vs. Hunt, 79 N.Y. 541. Action for foreclosure of a mortgage executed by defendant April 23, 1870, for \$4000 money loaned, payable September 1, 1871. Interest was paid to March, 1871, but in September, 1871, default was made. In December, 1871, defendant was adjudged a lunatic. At Special Term judgment was granted for plaintiffs, which was affirmed at General Term (14 Hun, 169). The Court of Appeals sustained the judgment, holding that the fact that defendant was declared insane after the mortgage was executed cannot prevent plaintiffs from enforcing the contract, which was made in good faith by them, and without notice or fraud on their part.

loss of memory and other mental symptoms, and that he was liable to another attack, and that any excitement would increase the tendency to such attack, but would not say that he might not marry without imperiling his life. The jury returned a verdict for the plaintiff of £300 damages and costs. The ground of this verdict, it is said, was that the jury considered that an unreasonable time had elapsed between the date of the promise of marriage and the date of the last attack of apoplexy.

Divorce, Annulment, Legitimacy, and Insanity.

The plea of insanity is sometimes urged as a ground of divorce, and in one case which occurs to the writer the husband of an insane woman, whose disease developed after marriage, brought suit for separation. In ordinary cases such inhumanity, in disregarding the existence of the affection as an unfortunate calamity for which the patient is no more responsible than she would be for smallpox or typhoid fever, rarely finds favor in the eyes of the law; but it can be realized that in instances when insanity has existed before marriage, and when the husband or wife has been kept in ignorance of the fact by the patient, or by his or her parents or near relatives, a delicate legal point may arise.*

The attitude of the German courts regarding this question is most moderate. A late decision of the *Reichsgericht* (vol. xxvii., p. 158) concerns a petition for the annulment of a marriage because the husband had an erroneous opinion in regard to the sanity of his wife when marrying her. Evidence was brought to show that the defendant had a hereditary predisposition and had been temporarily insane before as well as after her marriage. The plaintiff had married the defendant in 1886, and after the birth of a healthy child in 1887 he left her, and in 1889 brought an action for divorce, alleging that his wife was the subject of hereditary insanity, and that she had before marriage and afterward shown signs of what he claimed to be incurable insanity, and that he was unaware of this fact when he married her. The defendant only admitted that she had been temporarily deranged after the birth of her child, such insanity being puerperal, and, moreover, that the plaintiff

* *Banker vs. Banker*, 63 N. Y. 409. The defendant, Ellen M. Banker, and John Banker were married March 8, 1869. In February, 1869, proceedings *de lunatico inquirendo* were instituted, and on March 10th, two days after the marriage, it was found that John Banker was a lunatic, and had been for six months previous. Mrs. Banker had notice of these proceedings. John Banker subsequently died, and David A. Banker, as heir at law, brought this action for annulment of the marriage, on the ground that John was a lunatic at the time the marriage was contracted. The jury found that John Banker was not insane on March 8, 1869; that he had lucid intervals, and affirmed his marriage after that date; that he was not insane at the time of his death; and that Mrs. Banker had notice of the lunacy proceedings. Judgment was then entered dismissing the complaint, which the General Term affirmed. The Court of Appeals also affirmed the judgment, "the inquisition is conclusive against subsequent acts and dealings, and presumptive against prior ones," irrespective of notice.

Rawdon vs. Rawdon, 28 Ala. 565. This was a bill filed by Mrs. Elizabeth Rawdon for a divorce from her husband, Isaac Rawdon. It was alleged and proved that they were married; that Isaac was insane at the time of marriage, and for some time afterward, unknown to his wife. His insanity was caused by brain-fever. About the time of the marriage he had a lucid interval, but after the marriage she began to notice his strange conduct, although he was considered an intelligent man by many. About six years after marriage he developed religious mania, and his lucid intervals ceased en-

had been aware of her state of mind from her very youth. The fact that the brother of the defendant had passed two years in a State lunatic asylum in 1882 and had been discharged uncured was admitted. The court decided against the plaintiff on the following grounds: That after its investigation, as well as upon the medical report of the director of the asylum, it was clear that the defendant, at the time of the settlement of her marriage, was not in a state of chronic mental disease, nor was she then suffering from even a temporary attack of mental disturbance. It was determined that she was hereditarily afflicted and was thereby exposed to the danger of mental disease, and that twice in her life, once before her marriage, at the occasion of the death of her sister, and again about six months after her accouchement, she had suffered from attacks of acute mental disturbance in the form of passive melancholia. It was the opinion of the court that no one had ever gone so far as to decide that a temporary disturbance of mind which was unknown to the other party, occurring before marriage, even if this disturbance reappeared after marriage, could serve as a cause for annulment, and, moreover, he was unaware of any precedent for the annulment of a marriage because one of the contracting parties was hereditarily afflicted with a predisposition, and a temporary derangement had appeared after the consummation of marriage, such disorder being provoked by sufficient causes. In the case under consideration the defendant recovered completely each time after a few weeks. It was also held that the defendant had no reason or cause, nor was she obliged in any way, to communicate to the plaintiff the fact or nature of her previous illness.

It has also been held by the German courts that an innocently acquired insanity of husband or wife does not constitute sufficient ground for divorce. (*Ibid.*, vol. vii., p. 154.) The courts even go so far as to protect the insane defendant whose disease prevents the consummation of certain customary habits of matrimony (sexual intercourse, etc.). The *Allgemeine Protestantische Kirchen-Recht* (General Protestant Church Law) considers wedlock as a communion standing above a common agreement and binding the whole personality of the contracting parties in all situa-

tirely. During his paroxysms he frequently attempted to kill his negroes, and actually did kill their only child, erected a scaffold, and burned the body, saying that he "offered his son a sacrifice to God, as Abraham had offered his son Isaac"; and he had since been confined in an asylum. The bill was dismissed on the ground that the marriage was contracted during a lucid interval; and on appeal the Supreme Court affirmed this judgment on the grounds named above. The court also laid stress on the facts that the marriage was contracted in 1826, in 1836 Rawdon developed insanity, and Mrs. Rawdon did not file her bill until 1854.

State ex rel Setzer vs. Setzer, 97 N. C. 252. In August, 1859, Reuben Setzer and Sophronia Morens were married, and lived together until 1862, when he enlisted in the Confederate army and was killed. This action was brought by the State on the relation of Jacob C. Setzer, the only child born of the marriage, against the defendant, who administered the estate of Reuben Setzer on his bond for a share of the personal estate. The defense was that Reuben had been an imbecile from his youth up, and was insane at the time the marriage was contracted. A jury declared that the intestate did not have mental capacity to contract the marriage, and judgment was rendered for defendant, which on appeal was reversed by the Supreme Court, the court holding that the question of the validity of a marriage could not be considered in an action by children of the marriage claiming as next of kin, neither of the parties to the marriage being before the court, and that "the present verdict cannot take from the relator any of his rights as a son of the intestate to a share in the latter's estate, nor render his birth illegitimate."

tions and possibilities of life until one or the other of the parties becomes by his own fault unworthy of the other. Unconsciously acquired madness, if developed after marriage, is therefore no ground for divorce. The German law (*Allgemeines Landrecht*, sec. 6982), however, holds that rage, insane fury, and dangerous madness justify a divorce when such a derangement has lasted for more than a year and there is no possible hope of recovery.

The famous Mordaunt Divorce Case, in which the Prince of Wales figured, is one in which puerperal insanity was urged as the basis of irresponsibility. Lady Mordaunt, after her confinement, admitted that she had committed adultery before the birth of her child, and the evidence substantiating her story was seemingly very strong, for entries in her diary a year before recorded the visits of a nobleman at an hour of the night inconsistent with the strictest propriety. This occurred two hundred and eighty days before the birth of her child. It appeared from the testimony of servants and others that there had been no signs of anything peculiar in the conduct of Lady Mordaunt either before or after her delivery, and this was in contradiction of those friends of the patient herself who asserted that her confession was the result of a delusion; for not only had the wife admitted improper relations with other men, but swore that the child was not her husband's. The patient was delivered of her child on the 28th of February, 1869, and a week or two later made her extraordinary admission. The physicians called by the plaintiff were inclined to think that she was not insane, and that there was nothing in her conduct inconsistent with feigning. The reasons assigned as evidences of her insanity were of the most extraordinary description, but they were met with much that was contradictory. It was shown that her habits had become filthy, that she destroyed her clothing and was unclean in her habits; and in 1870 she was demented and could not comprehend communications that were made to her. The jury and the judge took this latter view of the case, and it was decided that as early as the 30th of April the respondent had not sufficient capacity to bring the suit, and had been unfit ever since. The charge of the judge to the jury was, that he did not ask them to say whether Lady Mordaunt was sane or insane, but simply to decide "whether she was or not in such a state of mental disorder as to prevent her giving instructions." The case was afterward appealed and tried upon its merits, the matter of insanity being left out of the question, the defendant being considered guilty of adultery, and the divorce was granted. Woodman and Tidy, in commenting upon this case, say: "It is thus seen that insanity is no bar to a decree of divorce—a principle which seems to us far from being a safe one. In a case of murder the evidence of other persons or circumstantial evidence may be sufficient. In the relations of husband and wife it seems hard to punish the wife while she is unable to defend herself. At all events, if the principle be admitted, it seems unjust that a poor laborer should have to pay toward the support of an insane wife in Colney Hatch or Hanwell, and be liable to a prosecution for bigamy if he marries again, while the wealthy baronet escapes almost scot-free and may marry again if he choose."

Marriages contracted *in extremis* are usually very apt to be dissolved by courts of law. Tidy refers to the case of Rochefort, who was married to his former mistress on her death-bed, he being taken from prison for

the purpose. It appeared that the woman was in her right mind, and consequently the marriage was held to be valid. But where one of the parties is overawed, or there is any evidence of mental perversion, the legality of the contract is properly questioned.

A case showing that the alleged insanity must be that which in itself will interfere with a proper understanding of the marriage contract is the following. In it "kleptomania" was urged as a ground for divorce.

Lewis vs. Lewis, 44 Minn. 124. The parties to this action were married in 1882. At the time the defendant was insane, but this fact was concealed from plaintiff until 1888. The plaintiff brought suit to annul the marriage on the ground of fraud in the concealment of defendant's insanity, and also that defendant was not competent to enter into a marriage contract. The insanity alleged was "a morbid propensity on the part of the wife to steal, commonly denominated 'kleptomania.'" Judgment for defendant, which was affirmed by the Supreme Court, on the ground that the insanity proved did not show that defendant was incapable of understanding the marriage contract, and that the concealment practiced was not sufficient to justify the court in annulling the marriage.

The plea of non-support by reason of insanity as a ground for divorce has not found favor with the courts.* In the case of *Baker vs. Baker*, 82 Indiana Reports, 146, it was shown that plaintiff and defendant were married in 1867. In 1874 defendant became insane, and was committed to an asylum, where he has since remained. Plaintiff instituted this suit for a divorce on the ground that defendant failed to support her. The Supreme Court on appeal held that this did not constitute sufficient ground for divorce; that the statute providing for divorce where the husband fails to support his wife does not apply when such failure is caused by mental or physical disease.

Another issue was raised in the case of *Gerhold vs. Wyss*, 12 Northwestern Reporter, 800. The plaintiff and defendant were married in "September or October, 1867." A few days thereafter plaintiff learned of defendant's insanity, but continued to live with her until September, 1881, when a decree of separation was made. He now sues for her support during the time they lived together. The Supreme Court of Nebraska held that as plaintiff knew of defendant's insanity, but continued to live with her, he was obliged to support her.

The existence of epileptic insanity or epilepsy may form the basis of legal proceedings, and the existence of epilepsy which has been concealed by the subject from the other contracting party may arise in proceedings for divorce. A pertinent case is related by Trousseau of a lady who was aroused at night by the restlessness of her husband, who violently attacked her, and she was obliged to call for assistance. This occurred again, and by means of a light she was enabled to see the patient in the

* *Bell vs. Bennett*, 73 Ga. 784. This was an action by Mrs. Bennett against the administrator of Jesse Bennett for a year's support, Mrs. Bennett claiming to be the wife of Jesse. The defense was that at the time of the pretended marriage Jesse was insane, and that she lived with him but a short time and then eloped with another man, with whom she lived for twelve years; but the Trial Court refused to receive evidence in support of these facts, and ordered judgment for Mrs. Bennett. On appeal the Supreme Court held that Bennett was insane at the time of the marriage, which was, therefore, void, and remained void till his death, and reversed the judgment.

midst of a severe epileptic attack, and he would again have done violence if not restrained. In this case the patient had but an indistinct idea afterward of his condition, but he admitted having had other attacks previous to his marriage, of a vertiginous character. Hence it seems to me there should be no reasonable excuse for denying a divorce, especially if the patient was cognizant of his previous disease and neglected to communicate his knowledge to his wife.

BANKRUPTCY.

A person who in the eyes of the law is *non compos mentis* cannot commit an act of bankruptcy while his disability lasts, but if he has done so previous to his lunacy, he may be made the subject of a commission of bankruptcy.* (Ordronaux.) He cannot be arrested, and during the continuance of his insanity the time cannot be regarded as a part of that limited for certain motions to set aside a judgment.

THE INSANE AS WITNESSES.

The testimony of a lunatic whose incapacity has been determined is of course incompetent, and he will not be permitted to testify until after his restoration to mental health. The time of existence of his "civil death" is to be determined before any testimony shall be received. "Looking at the condition of the mental faculties during the prevalence of insanity, the disturbance of their equipoise, the emotional excitability present, and the underlying *raptus maniacus* touching every faculty at some point; remembering also that every human being is steeped in his own temperament, wears the livery of his ordinary mental states, and exhibits in his unguarded acts the complexion of his predominant moral feelings—we are forced to the conclusion that, even outside of the sphere of delirium and incoherence, the statements of one who is insane or has been profoundly so, but is now recovered, need to be scrutinized from

* Stock. N. C. 38.

In re Murphy, 10 National Bankruptcy Reg. 48. A petition in bankruptcy was filed against Alonzo Murphy by his creditors, and on his failure to answer he was adjudged a bankrupt by default, and his property was turned over to the assignee. Before distribution had been made Murphy appeared with an application alleging that he was *non compos mentis* at the time the debts were created and the bankruptcy proceedings instituted, and the court (United States District Court, Tennessee) opened the default. Subsequently a jury rendered a verdict of insanity, and the assignee was ordered to return the property to Murphy.

In re Weitzel, 7 Bissell, 289. This was an involuntary petition in bankruptcy. Insanity of bankrupt was pleaded as a defense. On demurrer to the answer the United States District Court for the Western District of Wisconsin decided: First, That a lunatic can be adjudged a bankrupt against the consent of his guardian. Second, That an insane person cannot commit an act of bankruptcy.

In re Marvin, 1 Dillon, 178. William L. Marvin, a merchant, suspended payment on January 4, 1871, and did not thereafter resume, and his property was levied on shortly afterward. In February this petition in bankruptcy was filed against Marvin, who, by his guardian, answered that on January 30, 1871, he had been adjudged insane, and that he was insane at the time the acts of bankruptcy were committed. The District Court overruled a demurrer to the answer, and on appeal the Circuit Court affirmed the judgment, holding that a person who is "wholly incapable" cannot commit an act of bankruptcy.

a standpoint not so much of veracity as of intellectual competency." (Ordronaux.) Authentic instances of a lunatic testifying are rare. In the case of *Regina vs. Hill*, 2 Denis, C. C., 254, 1851, a lunatic, Donnelly, was permitted to testify in regard to an assault after having been examined as to his competency. Although exceptions were taken, the verdict was sustained.

As to matters of bare fact there can be no doubt that an insane person is often able to testify intelligently, but it is necessary to ascertain if a delusion or delusions exist, or if the person called entertains insane prejudice. In matters where the slightest question of opinion or the formation of an opinion arises, the testimony of such a person should be accepted with the greatest care, especially in cases where emotional states exist. Some authors hold that a person who has been insane and recovered should be permitted to testify to facts occurring during his insanity, provided the facts are "objectively demonstrable," and he knows the nature of an oath, and the court is satisfied with his degree of understanding; but that "a personal and self-regarding incident occurring during a period of insanity, and testified to by its subject either while still insane or when recovered from that state, should not be treated *per se* as an evidential fact." On the whole his testimony should be corroborated.

THE COMMITMENT OF THE INSANE.

The laws governing the commitment of the insane vary greatly in detail. (See Appendix.) In some States the affidavit of one physician is sufficient, in others two, while in others the alleged lunatic is to be brought before a jury, who pass upon his case.

The appointment of a *commission* is a more elaborate and satisfactory way of determining the incapacity of a person, if he be a lunatic or habitual drunkard; and the duty of such a body is to fix his status so far as his being a free agent is concerned, to inquire whether or not he is able to manage his property, and, if necessary, to appoint a guardian of his estate and person. Upon the presentation of a petition a judge of a court of record usually appoints three persons, one of whom is a physician, and another a lawyer, and these conduct a hearing either in the presence of a sheriff's jury (New York) or a specially impaneled jury. Upon the finding of this body that the person is insane and unable to manage his property or himself, a proper guardian or guardians are appointed; sometimes one for the care of the property, and another for the person. If the patient demurs at the finding he has the right to a traverse, which is granted if the appointing judge deems it wise, in view of his condition—that is, whether his will is not entirely gone or there is a possible doubt—when an appeal is permitted to a court and jury, who decide whether or not his denial of the charge of insanity is well founded.

The fullest inquiry should be made in such cases, although reform is needed in the admission of testimony. In its efforts to protect the individual, justice sometimes topples backward; and in its granting of latitude in the application of legal rules, hearsay and prejudiced testimony are admitted, some of which, even if subsequently discarded, influences the mind of the too sympathetic jurymen. Great care should be taken in giving or preparing testimony, for it often happens that the reasons

assigned for the alleged insanity are of the most flimsy character, and may be trumped up by designing relatives and too readily accepted by careless medical men. It should be ascertained whether the individual has been *insanely* extravagant; or whether he has been swindled repeatedly or drawn into absurd speculations. One old lady whom I examined invested two thirds of her small fortune in bogus mining companies within a few months, and spent considerable sums of money in the most foolish ways, while before this time she was penurious and economical. It is often necessary to decide the question whether a person of weak mind should be detained in an asylum or placed in charge of a guardian and permitted to live outside; and the courts are exceedingly lenient in such matters and justly so, being especially careful in regard to the possible abridgment of personal liberty. The Dickie Case was one of this kind, and though the medical men who examined the patient considered her an insane person, their view of the case was disregarded, and the late Judge Brady ordered Miss Dickie's discharge, but appointed a guardian.

"Miss Dickie was sent to Bloomingdale on the certificates of Dr. White, and of Dr. Alfred C. Post. She was accepted as a lunatic by Dr. Tilden Brown, and retained as such by Drs. Nicholl and McDonald, with the implied consent of her aged and imbecile father's physician and guardian, Dr. Ranney.

"On the afternoon of January 16, 1878, Miss Dickie was visited by a physician, who gave her his name and address, and told her he was a physician who had come to see her. She was found to be diminutive in size, lame, and apparently deformed, hard of hearing, and with speech very indistinct and imperfect, from a very wretched condition of her gums, teeth, and mouth. The latter, it was supposed, could easily have been relieved by careful rinsing and washing of the mouth. There were other signs of carelessness of person and dress which were not visible in the persons of the matron, attendants, and other patients who were casually observed.

"In a little while she was conversing quite freely about bad treatment she had received from her father, who, she said, used to pull her hair and otherwise maltreat her; of deceit on the part of her brother and sisters; of bad treatment on the part of Dr. Brown and others. She also complained of the food she received; that they sometimes had onions for dinner, and that these were served especially to annoy her. She stated that an effort was being made, with her consent and that of her family, to remove her from the asylum, and expressed a preference to live in the city rather than in the country, with some slight hint which suggested that she did not like green things, but desired to visit shops, go to her own church, give money to it, and live by herself. She volunteered to say that she read the *Sun* and the *Observer*, and showed copies of them; that she had a great impulse to improve her mind; quoted some simple little maxims at times, especially about not talking too much, when she was monopolizing almost the whole conversation. As she occasionally quoted Scripture, she was asked if she had a Bible; it was then noticed that she seemed to keep almost all her property under lock and key, but she quickly produced her Bible from a locked drawer, and it was found not only filled with pencil-marks from Genesis to Revelation, but many pages were folded in the most curious and complicated ways, as if to

mark special passages of great import to herself; but her visitor was surprised on unfolding these curiously doubled-up pages to find no pencil-marks whatever upon some of them, and she avoided answering why she thus pointedly singled out particular pages. It is barely possible that those were pages which she did not wish to read, but nothing could be detected strikingly peculiar in the contents of those pages upon a short examination.

"Her first visitor had been alone with her for half an hour or more when another physician came into the room, and was introduced by name and title as a second medical man who had come to see her. She immediately went on conversing with him. His attention was attracted by hearing her tell her second visitor that there was a language of food as well as of flowers, and when asked for an illustration stated that coffee was brown, brown was a Quaker color, a Quaker was a Friend, and that hence coffee meant friendship; that if one person gave another a cup of coffee, it was a sign of friendship, and if milk, which was white, was put into it, it was a sign of pure friendship, and the addition of sugar made it an indication of sweet friendship—in short, that coffee with milk and sugar in it was indicative of pure, sweet friendship. Then she volunteered to say that bread represented a friend; that a big piece of bread was a sign of a large friend; that butter signified refinement, and bread and butter a refined friend. She then quickly said that cabbage was white on the inside, and that signified purity, and green on the outside; but no questioning could make her say what the green meant. She continued to say if one cut up the inside of cabbage and put it on a little plate, it would indicate purity and something else which she would not disclose, possibly because it had reference to the green color.

"Repeatedly, while this conversation was going on, her visitors were warned not to speak loud, as persons were watching all the time, upstairs and downstairs, through the register, pipes, etc., presumably the waste, water, or gas pipes, none of which, however, could be seen on casual inspection. These persons were also said to whisper to her through the tubes. She declared that this food language was not peculiar to herself, but was known to and in constant use by all the attendants and patients; that her conversation and letters were communicated or perhaps telegraphed about the house, as she inferred, by single words, said by different persons, in various places, in the midst of their conversation, and by putting these detached words together she found out by something in her heart or chest—not in her head—that they had become acquainted with the letters she had written and the conversations she had had with others and presumably with herself.

"It was very evident, said the judge, that Miss Dickie was of unsound and imperfect mind and understanding, yet for an hour and a half she had given no positive signs of absolute mental derangement. She knew who and where she was, described the institution as a house of affliction, but she made no allusion or complaint of her fellow-sufferers, or of any noises or annoyances except the imaginary whisperings through the tubes. She was conscious of her own weakness and ignorance of many things; seemed satisfied to have as her guardian a bank president, whom she named, as she was not accustomed to deal with large sums of money. In short, she presented the usual mixture of reason and unreason so common in many simple lunatics. Sometimes she exhibited a good deal

of tact and cunning, at other times of extreme childishness and simplicity, mixed up with delusions, hallucinations, unfounded suspicions, extreme prejudice and hatred, great Christian piety, charity, and benevolence.

"The only question that could arise was whether it was absolutely necessary to retain her in the asylum. There seemed no objection to a trial elsewhere, provided all her property should not pass into the hands of strangers and irresponsible persons; that a proper residence should be selected where her peculiarities should not become the sport of the foolish and indiscreet; and that a competent maid, nurse, assistant, or matron could be found, possessed of unmeasured patience, tact, and resolution."

This action illustrates the conflict that frequently arises in cases where medical men bring to their aid their experience in other cases. This patient was evidently a chronic delusional lunatic, and although her history had been a harmless one she evidently owed her improvement to the care of an asylum, and was not there subjected to the disturbing irritation which she subsequently would have been affected by outside. Every one is familiar with the cases of so-called harmless lunatics who have been liberated. In many such instances the removal of all restriction has resulted in a train of disorderly conduct, extravagance, family quarrels based upon delusive ideas of persecution, foolish marriages, and insane wills. In such cases it undoubtedly happens that sometimes the patients may fall into the hands of designing guardians, so that the legal action may prove rather a curse than a blessing.

The legal duty of commissions is to prove the general existence of insanity, and for that reason the courts are apt to ignore isolated or limited evidences unless they be especially dramatic; on the other hand, the desire to protect the patient is such that minor indications of established degenerative insanity are disregarded. For this reason the law, as will be shown hereafter, looks with suspicion upon evidences of moral weakness, no matter how suggestive they may be of mental disorganization.*

It was held in the case of *Patterson* (4 How. Pr. 34) that the *retrospective* finding of a jury regarding the acts of a lunatic or habitual drunkard is only presumptive and not conclusive evidence of incapacity.† *Ordronaux*,‡ in commenting upon these cases and that of *Wadsworth vs. Sharpsteen* (14 Barb. 169; affirmed in 8 N. Y. 388), where the reverse was held, considers that a possible lucid interval was overlooked in the latter, and concludes: "Legally considered, every form of lunacy implies the possibility of an intercurrent lucid interval; and until that possibility is judicially declared never to have borne fruit, the only proper inference is that it may have done so; and consequently that an inquisition which overlooks the question of lucid intervals is only presumptive and not conclusive evidence of past continuous incapacity." (*Searles vs. Harvey*, 6 Hun, 658.) The finding of a commission that a person is insane is only *prima facie* evidence of business incapacity so far as a third person is concerned, nor are they competent to dissolve a partnership. This

* *Titcomb vs. Vantyle*, 84 Ill. 371; *Jacox vs. Jacox*, 40 Mich. 473; *Fentrus vs. Fentrus*, 7 Heisk (Tenn.), 428; etc.

† *Van Deusen vs. Sweet*, 51 N. Y. 378.

‡ *Medical Jurisprudence of Insanity*, p. 247.

must be determined by a judge, who takes into account all the features of the case, the degree of the unsoundness, and whether it is recoverable.

TRAVERSE.

If it is desired to traverse the finding of a commission, the lunatic, his friends, or any one legally empowered to act may make application. This includes those who may have had contracts with him, or who have been or are likely to suffer by his acts.* The court will protect the interests of the lunatic during the pending of the proceedings.† Application for a traverse should be accompanied by affidavits and the service of papers upon the opposing counsel.

Suits may be brought in behalf of the committee of estate; but should the complainant himself be a lunatic, the defendant may demur when it is the custom to appoint a guardian to appear in his behalf. According to section 375 of the new Code of Civil Procedure, the limit of time in which a lunatic may bring action to recover real property, or enter a defense or counter-claim founded on the title of real property or the income therefrom, "is not a part of the time limited in that title (twenty years—sections 365, 366), except that the time so limited cannot be extended more than ten years after the disability ceases." (Ordonaux.)

In the case of *Baker vs. Baker*,‡ where an action for divorce was brought against the lunatic's wife, it was held that the committee of the estate and not the committee of the person should bring the suit. In the committee of the person or estate is vested the right to defend or bring suit whenever it may be necessary to question or stand by the contracts of his charge before the deprivation of civil rights.§

A lunatic cannot be restrained unless he is dangerous to himself or to the community because of his violent acts, or that he may wander about and get into harm's way. To specify these would be to go over much of the ground we have traversed. It is clearly proper to send such a person to an asylum for treatment when the facilities for it elsewhere are inadequate; and in the light of skilled experience, isolation is deemed an early and important requirement in most forms of insanity. Various authorities insist upon the fact that because a person is a fit subject for an inquisition, it does not follow that he is to be incarcerated.

The apprehension or removal of a patient from one State to another for the purpose of avoiding legal or other consequences may be thwarted by the application for a commission; in fact, persons who have so spirited lunatics away have been obliged to return them. (Wykeham, 1 Turn. & Russ. 537.)

* Christie, 5 Paige, 242; Giles, 11 Paige, 243; Hale, 7 Ves. 261; Roberts, 3 Atk. 308.

† Wendell, 1 Johns. Ch. 600; Russell, 1 Barb. Ch. 42.

‡ L. R. 5 P. D. 145.

§ *Carter vs. Beckwith*, 128 N. Y. 312. In 1855 defendant's intestate was adjudged a lunatic, and a commission issued. In 1871 the plaintiff, an attorney, instituted proceedings in his behalf, which failed, to supersede the commission and have his property restored to him. In 1875 the lunatic died, and plaintiff brought this action for his services against the administrators of said lunatic. Judgment for plaintiff was affirmed, the court holding that while a lunatic in the custody of a committee is incapable of making a contract, and no claim thereunder could be enforced against his estate, at his death the claim must be adjusted and settled in like manner as other claims against the estate.

TORTS.

The responsibility of a lunatic for malicious acts depends upon the extent of his direct participation and capacity, and his liability is thus limited. "A lunatic is liable for his torts so far as to subject his estate to a suit for damages reverted to others by his negligent management. On principle, however, he cannot be held liable for malicious acts in cases where he is not *caput doli*." (Wharton and Stillé.)

The French courts in the case of *Marianis vs. Bénard* (*Journal du Palais*, 1882, vol. xciii., p. 678), held that the torts of lunatics when the insanity has been the result of debauch or the misuse of alcoholic liquors renders the individual civilly responsible.

It has been held that the guardian of a deceased lunatic must recover for torts of the deceased from the administrator. This was held in the case of *Brown vs. Howe*, 9 Gray (Mass.), 84.* An action for trespass may be brought against the administrator of a deceased lunatic when his tort has resulted in the injury of others.† The liability of a lunatic for the carelessness and neglect of his guardian has been fixed in the case of *Morain vs. Devlin*, 132 Mass. 87 (1882).‡

LIBELS AND SLANDERS.

These offenses, when committed by the insane, rarely form the basis of suits for damages, so clear is the disorderly mental condition of the offending party. Delusions of persecution and suspicion are so common as to tincture the speech and be manifested in the conduct of their possessor. Even when the "partial insanity" of the law exists and the defendant's mind is normal in most matters, such a defense has often

* Calvin G. Howe was appointed guardian of Daniel Saunders, an insane person. In the settlement his account contained this item: "For loss sustained by accountant by fire caused by want of care on part of said Daniel Saunders, over and above amount received by insurance," which was allowed. Saunders having died, his administrator, Brown, appealed to the Massachusetts Supreme Court, who reversed the decree, holding that a claim of this character, not arising from the trust, could not be made a part of the guardian's account. The trust being terminated by the death of Saunders, the guardian's only course was to sue the administrator for the damage sustained.

† *McIntyre vs. Sholty*, 121 Ill. 660. In February, 1886, a man was discovered concealed in a barn on Levi Sholty's farm in McLean County, Ill. After some efforts to induce the officers of the law to eject the man, Sholty, with several neighbors, gathered at the barn to drive out the person, who proved to be David Sholty, a brother of Levi Sholty, and who shot at them. Shortly after, the barn was discovered to be on fire, and David appeared at the door with a shot-gun and shot and killed Hannah, the wife of Levi Sholty, whom he had ordered to halt as she was passing by. Levi, as administrator of his wife, brought action of trespass against McIntyre as administrator of David Sholty, who perished in the burning barn, and recovered judgment. On appeal the judgment was affirmed.

The appeal was taken on the refusal of the Trial Court to receive evidence of the insanity of David Sholty, which was the ground of defense. Held, *no error*. The Supreme Court said that while a lunatic is not punishable criminally he is liable civilly for a tort; if otherwise, those interested in his estate might not take care to prevent him from injuring others; and "if parties can escape the consequences of their injurious acts upon the plea of lunacy, there will be a strong temptation to simulate insanity, with a view of masking the malice and revenge of an evil heart."

‡ This was an action for personal injuries caused by a defect in a door-step of a building owned by defendant, who was at the time of the accident confined in an asy-

been potent. (*Horner vs. Marshall*, 5 Munf. 166; *Abrams vs. Smith*, 8 Blackf. 95.)

The retrospective finding of a commission will usually be a good defense or will mitigate the damages after the actual suit has begun. "If the inquisition does not overreach the time of libel, then the subsequent insanity of the party can have no bearing upon the question of the measure of damages, for a lunatic is civilly responsible for his torts wherever they may have been committed." (Ordronaux.)

A case where the issue was the *degree* of insanity, and where it was held that though the defendant was so insane as to need a guardian, the weight of his slander and its consequences depended upon the light degree of his mental unsoundness, was that of *Dickinson vs. Barber*, 9 Mass. 225.*

DISSOLUTION OF PARTNERSHIP BY REASON OF INSANITY.

In the matter of business associations, especially where the interest of one member is moneyed and that of the other is the experience and "brains" he brings, lawsuits may arise and attempts at dissolution, growing out of the insanity of one member of the firm and the consequent danger that mutual interests may be wrecked. The sane party may demand an inquisition upon proof of the insanity of the other, so that the copartnership may be dissolved.

IMPEACHMENT BY REASON OF INSANITY.

In the matter of guardianship, where the trust funds are being squandered, or where the protection of the ward so demands, steps may be taken for the deposition of the guardian. The most painful cases are those where the medical man is required to testify as to the incapacity from old age or mental disease of an officer holding a position of public trust. It cannot be denied that even learned judges whose long and honorable service has resulted in mental decay are able in a routine way to go through with familiar duties of the past, and in fact those mental operations which become automatic are apt to fail long after minor perversions have attracted the attention of his immediate friends and family.

lum, and had been for several years—since 1876, when a guardian had been appointed for her. Verdict for plaintiff affirmed on appeal, the Supreme Court holding that an owner of real estate is liable for defects, even when caused by neglect of persons acting in his behalf, adding, "and there is no precedent and no reason for holding that a lunatic, having the benefits, is exempt from the responsibilities, of ownership of real estate."

* Action for slander. The complaint charged the defendant with having said that plaintiff had been criminally intimate with his (defendant's) wife. Upon the trial the defendant, by his guardian, submitted evidence, as a defense, that before and at the times the words were spoken he was insane, and still was delirious and insane. He also offered the depositions of two physicians to prove that he was still insane, which depositions the court excluded. The jury rendered a verdict for the plaintiff, which was affirmed by the Supreme Court, who held that where the insanity was notorious, so that the words could produce no effect, no damage could be incurred; but where the insanity was slight, the slander might have its effect—these were questions of fact for the jury to determine; also that the rejection of the opinions of the physicians was proper, as they did not appear to be based on facts.

In such cases the office of the medical man is a disagreeable one, and he should act with more than ordinary care and prudence. No blow is so great as that inflicted upon a sensitive and high-minded person when he is made certain of his intellectual failure. The symptoms of ordinary disease or temporary manifestations of overwork should never form the basis for a hastily expressed opinion.

INSANITY AND LIFE-INSURANCE.

The question of insanity in relation to life-insurance occasionally arises, and is made the basis of refusal to pay the amount of the policy upon the part of the companies. (See Dr. Symond's article, vol. i.)

It sometimes happens that an individual insures his life and fails to state that he has suffered from a nervous disease which is the precursor of a form of insanity. A case reported by Taylor and Tardieu* is that of a gentleman who insured his life, afterward becoming insane. The company refused payment, asserting that the insured was aware of his malady when he applied for a policy, and refused to so state. The jury decided for the defendant, and the judge charged the jury that they must decide if the mental disease had a tendency to shorten life, for in this case the dissimulation that had been proved was important; if the alienation had this tendency they must decide in favor of the defendant.

One of the oldest cases of this kind is that reported by Beck, and the high position of the insured party gives the case much interest:

"In 1824 a policy was effected by the Baron von Lindenau on the life of Frederick IV., Duke of Saxe-Gotha and Altenburg, in the Atlas Insurance Company. The duke died on the 11th of February, 1825, and the insurers refused to pay the sum insured for.

"On the trial it appeared that Lindenau had stated in his application that the duke was not gouty, asthmatic, or consumptive, or subject to fits; that he had never had apoplexy, and that he had no disease tending to shorten life. Two physicians of the duke certified that since the year 1809 he had had a dimness of the sight from amaurosis in the left eye, and since 1819 had been 'hindered' in his speech from having had an inflammation of the chest, of which he had been perfectly cured. In a communication from an agent in Germany it was mentioned that the duke had formerly led a dissolute life, by which he had lost the use of his speech, and, according to some, that, also, of his mental faculties, which, however, is contradicted by the medical men. On this the company, instead of asking an ordinary premium of £2 17s. percent. per annum, required £8 percent. It now, however, appeared that the duke had been afflicted with almost a total loss of speech from 1822 to the time of his death, which one of the physicians attributed to local paralysis; and that he had periodical catarrhal affections accompanied with fever. The chamberlain of the duke, in his examination, mentioned that he had never complained of pain in his head. He ate, drank, and slept well, but could not speak. Dr. Dorl, physician to the duke, agreed that his intellectual faculties were impaired, although his bodily health was good. On examination after death, no chronic disease was dis-

* *Annales d'Hygiène Publique*, lxxvi., p. 152.

covered in the viscera or any part of the trunk; but in the head was found a large tumor six inches in length, two in breadth, and one in depth, which not only pressed on the brain, but had depressed the skull at its base. It was inferred that this tumor had commenced in early life. The defense was that there had been a suppression of material facts. Dr. Green, an eminent English surgeon, gave it as his opinion that, from the history of the case merely, there were no symptoms of organic disease. He further thought that the tumor in the skull must, during life, have been in a passive state, and, from its appearance on dissection, that it must have been formed in early life. He was only willing to allow that the symptoms mentioned above would lead to a *suspicion* of disease in the head; and he was disposed to ascribe the difficulty of speech to want of volition, and not to tumor in the brain. In reply, however, to a question of Lord Tenterden, he answered: 'If I, as a medical man, were asked by an insurance company concerning the state of a man's health who was unwilling to move, who was subject to control upon his intellect, and who had lost his speech, I should not consider myself at liberty to forbear mentioning these circumstances.' Lord Tenterden, who tried the cause, said this was sufficient, and that he should charge the jury that if any material facts relative to the duke's health were concealed, then the policy was void. The plaintiff elected to be nonsuited, and subsequently made an effort to obtain a new trial, but it was refused."

A French decision holds that if a person applies for a policy and withholds the fact that he has been insane, or has a disease which may lead to insanity, his policy is null and void, and he cannot expect the return of the premium, even though the person insured may die of some other disease.

Paretic dementia may sometimes enter into the question of life-insurance. A case is related by Legrand du Saulle which shows how one of the French companies was victimized. Two brothers went to the office of a Parisian alienist, and the elder had a private consultation, the result being that he was informed that the other had the incipient signs of paretic dementia, and that death would occur in three or four years. They departed, and the result was that a policy of insurance was procured for 100,000 francs. Three years afterward the elder brother quietly pocketed the results of the robbery.

Another case is reported by Legrand du Saulle. A physician well known in science had for nine years before his death a life-policy for 100,000 francs. He suddenly presented the signs of great cerebral excitement, became boasting, and wrote and spoke in an exaggerated manner. He again went to the companies and insured for 500,000 more. When the contract was prepared and ready for signature, the manner of the doctor was so vehement and excited that the agent believed him to be drunk, and, under the pretext of having forgotten to insert an indispensable clause took back the policy. Upon the following day the medical man was sent to an asylum, and six months afterward died of paretic dementia. The company paid to the widow the 100,000 francs, and considered itself very fortunate in not having to add the half-million francs the husband desired to insure for.

Henry C. Ross had effected an insurance on his life with defendant, and subsequently committed suicide by taking a dose of laudanum while

insane. In his application for a policy he had stated that no member of his family had been afflicted with insanity or other hereditary disease, but admitted that his father had died of a brain disease caused by a hurt. On the trial it was proved that his father had received an injury on his head in childhood, resulting in a weakening of his mental powers, and that at the age of forty-seven he was placed in an insane asylum, and afterward died. On this testimony plaintiff was nonsuited, but on appeal the Court of Appeals reversed the judgment of nonsuit and ordered absolute judgment for plaintiff. (*Newton vs. Mutual Benefit Life Insurance Co.*, 76 N. Y. 426.)

THE LIABILITY OF CUSTODIANS.

The responsibility of the physician who shall receive into his asylum an insane patient extends only so far as the proper care of such a patient is concerned. Under the laws of New York, and so far as this particular matter is concerned, the procedure is almost universal—the patient must be committed upon order of the court, upon proper medical affidavits.

Under these circumstances the asylum physician is a mere custodian and can only discharge the patient upon recovery or upon the assumption of responsibility by the next of kin, provided, in his judgment, he thinks it safe to make others the caretakers of the patient. Under all other circumstances the application of a writ of habeas corpus by the patient or his friends is in order. If he is found to be improperly held he is discharged. Until this time the asylum superintendent is properly the representative of the court, who assumes the responsibility.

The patient's rights to damages, if there be any, are to be determined by a suit against those upon whose recommendations he was committed by the court. Their defense must be that which is applicable in other professional matters, and must consist in evidence showing that they acted in good faith and with an intelligent knowledge of the requirements of the profession.*

Maltreatment, of course, if proved, entitles the patient to damages.

* *Ayers vs. Russell*, 50 Hun, 282. On April 15, 1887, plaintiff was committed to an insane asylum in Albany, where he was kept until the 27th of April, on certificates of Drs. Selwyn A. Russell and Daniel V. O'Leary that he was insane. On April 18th the plaintiff appealed from the commitment, and a jury was called who on the 27th of April declared him to be sane, and he was released. The plaintiff then brought this action against Drs. Russell and O'Leary, and Anthony Gould as Recorder of Albany, for false imprisonment. The defendants demurred, and the demurrer was sustained.

On appeal to the General Term the judgment was affirmed as to Gould, and reversed as to Russell and O'Leary, and the demurrer as to them overruled on the ground that as the complaint charged them with lack of ordinary care and prudence, their demurrer (which was on the ground that facts did not constitute cause of action) admitted the allegations of the complaint. The court held that their certificate was not a privileged communication unless they had discharged their duty properly.

Hurlehy vs. Martine et al., 31 N. Y. State Reporter, 471 (Supreme Court, Third Dept., May 26, 1890). In October, 1889, an inquisition was held as to plaintiff's lunacy, at which defendants, as physicians, made alleged false statements as to plaintiff's pulse, temperature, condition of mind, etc., and commitment was made to the Hudson River State Hospital, where she was confined for two years and five months. The plaintiff brought this action after her release in 1888, for \$20,000 damages, and on the trial a motion for nonsuit was granted on the ground that this was an action for false imprisonment, which, under section 384 of the Code of Civil Procedure, was limited to two years. On appeal to the General Term this decision was affirmed.

MEDICAL WITNESSES.

Attention has been elsewhere directed to the appearance of expert witnesses in courts of law, and the difficulties and abuses which attend the introduction of this kind of testimony have been pointed out. Much of the disrepute into which hired testimony has fallen is undoubtedly due to a kind of partisanship which many men find it difficult to avoid, for the engagement of their services implies a bid for actual help in advancing a side by the building up of theories or reasons for the support of a more or less tenable position. If the expert be careless of his reputation, weak, or corrupt, he will lend himself to the side of the case upon which he has been retained, and in reality he becomes a pleader, prostituting his knowledge, stretching a point, or burying his conscience. If he is not absolutely free his sympathies will be appealed to. It therefore becomes him to avoid espousing the cause of any "side" too ardently, or being actuated by a desire to "get back" at the cross-examiner. In other words, the medical witness who is called to give his opinion regarding the facts submitted to him should emulate the judge upon the bench in his impartiality. One of the unavoidable evils of the present system is the *hypothetical question*, which is supposed to embody the facts of the case, but in reality is often distorted, disingenuous, and is roughly handled and more or less emasculated before the witness is finally allowed to pass judgment upon it. When the answer is given the medical gentleman in the witness-chair is obliged to consider section by section, and an attempt is made to elicit a categorical answer, which is often impossible. What may constitute insanity as a whole may when dissected mean nothing. By this means it is possible to get a truthful negative answer to many of the elements of real insanity. "Do you consider the fact that a man is slovenly in his habits an infallible sign of insanity?" may be asked, and the witness of course answers, "No"—while this very untidiness, taken with other indications, may be a very important element of the mental disease. The medical man should therefore be on his guard and refuse in such a case to give anything but a qualified answer. The witness can always avail himself of the privilege of qualifying his answers, for he cannot be made to demean himself by giving a nonsensical definition which will stultify him as a scientific man. It is wiser and better for a physician to demand a personal examination, but in posthumous cases, of course, the hypothetical question is all that is available. Whether in civil or criminal cases, we are to determine the influences that may destroy the responsibility of an individual, and it should always be borne in mind that the offices of the physician are only those in which he is warranted in forming an opinion relative to the enfeeblement of mind through disease. Questions of law do not concern him, and the courts will not permit him to express more than what he knows regarding the medical aspects of the case. Neither will he be permitted to testify to the legal meaning of the facts submitted to him, or their pertinency to the case. He should always remember the dignity of his calling and never lose his temper, no matter how much galled he may be by the impertinence of the opposing counsel, who is not always a gentleman. He should, however, never be flurried, never give hurried answers, and should demand time for his full answer if "choked off" or

interrupted. He should never show an eagerness to testify, or an argumentative spirit. His testimony should be given in a cool, impartial manner. He should be on the alert and avoid the possibility of being trapped by his ingenious legal opponent. He should avoid being drawn into discussions upon various other subjects which are foreign to the case in hand, and if these be not strictly medical, the witness may refuse to answer—at least so far as he may be made to pose as an expert in some other field. This applies especially to abstract theology, which may be a stumbling-block which it is well to avoid.

An *expert* is received as such on his declaration and upon presentation of qualifications or evidences of his experience. A physician may avoid the obligation of giving special opinion by the avowal of *non-expertism* in the subject which forms the basis of the questions propounded to him. For example, a surgeon can properly disclaim being an expert in mental diseases, or a general physician can properly refuse to pose as a special authority of any kind.

“An expert cannot be examined as to a matter of common knowledge concerning which a juror may form an independent opinion, nor as to a matter of mere mental or moral philosophy, or of domestic jurisprudence.” (Wharton and Stillé, section 262, p. 236.)* The relevancy of the matter which is to become the basis of an expert opinion is, of course, to be determined by the court. The offices of the medical witness are limited to the elucidation of such facts, so far as they constitute insanity, that will incapacitate, and he should be ready to gauge their importance and tell how they affect responsibility.

It is not here necessary to enter into a discussion of true and false experts, and of the value of their testimony. That there is need for reform is undeniable, and that the courts do not exercise sufficient care in fixing the status of medical witnesses is equally true. The strictures of legal writers, courts, and others are just, so far as the existence of demoralization goes. As the law is administered, many persons can be found who are ready to arrogate knowledge and position they do not deserve. The dignified alienist of experience and reputation is confronted by the impostor, whose glib manner and bizarre “popular science” sometimes impresses the susceptible jurymen as does the proprietary-medicine advertisement, and whose experience of medicine and its exponents is confined to the quack or cure-all. The law is largely responsible for all this.

The use of books in court is not allowed where such authorities are introduced as evidence; but they may be read to a witness for the purpose of ascertaining how far they agree with the opinion expressed by him. He may be examined as to the standing of other experts or authorities, but should be careful in expressing his opinion of a personal nature. Under the laws of the State of New York and some other States, a physician is not permitted to disclose information derived in the management of a patient, unless the latter authorizes and requests him so to do.

The *compensation of “expert” witnesses* and allowance are usual when they give expressions of opinion, or when time and labor have been expended in the preparation of the case. There is no impropriety in

* Wharton on *Evidence*, section 434.

declaring the fact that compensation is expected; and though bound to give medical testimony which deals with matters of fact for no other compensation except the fees of ordinary witnesses, it does not appear that any *opinions* implying the exercise of special knowledge which has been gained at the cost of time and money should be given gratuitously. (See vol. i. p. 614.) It has been held that the findings of a post-mortem examination do not constitute expert testimony, and though the witness is entitled to pay for making such an examination, he should be compelled to testify.*

The case of *Dills vs. The State of Indiana*, 59 Ind. 15, is one which altered the statutes of that State so that at present the giving of expert testimony is compulsory. This is the case of Dr. Thomas J. Dills, who was committed for contempt in the Hamilton Case, with Dr. Buchanan. He refused to answer the questions referred to in the Buchanan Case, saying: "I did not offer my services here any more than I do my professional services elsewhere. I was sent for and have come. My time and my skill are my capital, and I cannot surrender them gratuitously to any but the poor, since it is by my professional opinion that I earn my living. There is a distinction between a man who sees a fact, and is called to prove it in a court of justice, and a man who is selected to give his opinion on a matter with which he is peculiarly conversant, from the nature of his employment in life. The former is bound, as a matter of public duty, to speak to a fact which happens to have fallen within his knowledge; without such testimony the course of justice would be stopped. The latter is under no such obligation. For the above-named reasons I respectfully decline to give the opinion of an expert in the case now pending, except upon the payment of my fee in advance." In this case Biddle, C. J., wrote an elaborate opinion for affirmance, which was, however, dissented from by a majority of the judges, and the judgment was therefore reversed.

EXAMINATION OF THE PATIENT.

The duty of the physician is one implying a most serious responsibility, for upon his say largely depend the freedom and peace of mind, the business interests, of a fellow-man, and the happiness, perhaps, of a family. His neglected obligation to society may also be questioned, should he make a mistake and permit a dangerous lunatic to go at large. Finally, his own professional position may be compromised by a blunder, and he may lay himself open to censure of all kinds, as well as a possible lawsuit. It therefore becomes him to use the utmost care and careful exercise of

* *Summers vs. The State*, 5 Tex. App. 365. On the trial of Summers for murder, Dr. Arthur E. Spohn was called as a witness for the State, and testified to finding the deceased injured and having attended him until he died. He also stated the nature of his injuries. After death he made a post-mortem examination, but refused to state the cause of death, claiming that his knowledge was obtained by professional skill; and the court sustained him. Summers was convicted, and on appeal the refusal of Dr. Spohn to testify was noticed, the court saying: "The court may compel a physician to testify as to the result of a post-mortem examination. . . . Dr. Spohn has doubtless been misled, in taking the position he did, by the misconceptions of certain writers on medical jurisprudence. . . . A medical expert could not be compelled to make a post-mortem examination unless paid for it; but an examination having already been made by him, he could be compelled to disclose the result of that examination."

judgment in forming an opinion. He should put into operation a system of investigation by which he can learn the patient's antecedent history, habits, feelings, associations, and conduct generally, and should determine the time and manner of departure from ordinary mental health, and the evidence of weakness. As many sources of information as possible should be made use of, and the statements of interested persons be given their proper weight. Business papers and letters and other productions of the alleged lunatic written, when not under observation or at a time when he did not suspect he was watched, should be inspected, and will often give a clew to the nature of the disease. So far as the actual examination itself is concerned, I would advise as constantly as possible the maintenance of an attitude of perfect frankness. It is only the due of the alleged lunatic, and, unless his conduct is palpably disorderly and his attention unfixed, he should be engaged in conversation as a sound person. Such a conversation, if sufficiently extended, will nearly always result in the discovery of his delusion or other evidence of aberration.

The first part of this article contains information that will serve as a hint to the examiner, but every case has its own peculiarities, and the use of tact and patience will, with a knowledge of the features of mental disease, help the physician more than anything else. Tardieu suggests the following points:

"(a) *Mental State*.—Three orders of facts should be investigated: 1. The intellectual troubles. 2. The perversion of the affective faculties and the instincts. 3. Alteration of the sensorial functions.

"The intellectual disorders consist in a general derangement, marked by delirious conceptions, with or without complete abolition of judgment, memory, and conscience; afterward commonly in a partial derangement of understanding. From a medico-legal point of view the most direct and immediate result of the disorder of the intellectual faculties is a perversion of will and a resulting impairment in action, either in an absence of control or purpose, or in action which bears the impress of incoherent or erroneous ideas.

"Disorders of the affective faculties are constant in insanity. There is more or less alteration of affections and instincts. The more natural sentiments are abolished or perverted, and the instinct is sometimes abolished as well.

"The sensorial troubles are singular and characteristic in insanity, and hallucinations and illusions are the most important. . . .

"(b) *Somatic State*.—The position, attitude, walk, gestures, the dress, malformation of head, physiognomy, expression. . . . The circulation and temperature are diminished in the inaction of melancholia and increased in the agitation of mania. The general sensibility is exalted or perverted in monomania, or diminished to the point of analgesia in lypemania. The spasms, the startings, the muscular twitchings, the partial paralyses of sensation and motion, indicate a grave alteration of the nervous centers. The embarrassment of speech, the unequal dilatation of the pupils, the permanent deviation of the uvula, the ataxia of movement, suggest general paresis. Finally we are to recognize all the symptoms which are connected more or less directly with mental alienation: vertigo, *muscæ volitantes*, cutaneous and neuropathic manifestations, the mobility of the tongue, and scars which may be indicative of epilepsy, or traces of cicatrices which may be the result of attempted suicide."

"HABITUAL DRUNKARDS."

It is an important matter to determine what constitutes "habitual drunkenness," and courts of law take widely differing views. In the case of *Blancy vs. Blancy*, 126 Mass. Reports, 205, a decision was rendered in an action for divorce on the ground of habitual drunkenness. It was proved that defendant for twelve or fifteen years past became grossly intoxicated at least three times a year, and remained in that condition from seven to ten days each time; that when these spells came he was sent to an inebriate asylum, where he remained until they passed; that between the spells he would drink nothing, but that any excitement would make him drink. Held, on appeal to the Supreme Court, that this was sufficient proof of habitual drunkenness.

In the case of *Wheeler vs. Wheeler*, 53 Ia. 511, a divorce was granted the plaintiff, who was the victim of the husband's violence during his drunken excesses, although at other times he was sober and was able to conduct his business. The plaintiff and defendant were married in 1859. Previous to that time defendant was addicted to liquor, and was frequently drunk. After his marriage he became an habitual drunkard, and his wife sued for a divorce on that ground, and also because of inhuman treatment. The divorce was granted. Although he was always sober during business hours, he was habitually drunk at other times, and when in that condition abused his wife, calling her vile names and openly charging her with unchastity. On appeal the Supreme Court affirmed the decree of divorce.*

The English Habitual Drunkards' Act of 1879 defines an "habitual drunkard" as a "person who, not being amenable to any jurisdiction in lunacy, is, notwithstanding, by reason of habitual intemperate drinking of intoxicating liquor, at times dangerous to himself or herself or to others, or is incapable of managing himself or herself, and his or her affairs." (Kerr.) In England such an habitual drunkard may be committed to a retreat, either upon his own application or upon the affidavits of two persons, for a period not exceeding twelve months. He is in all respects treated like an insane person, so far as his loss of liberty is concerned. In the United States the only way in which it is now possible to have an habitual drunkard secluded is through the intervention of the police—the occasion of some disorderly act being chosen for a complaint. If his habitual drunkenness is connected with symptoms of insanity, he may of course be committed to an asylum or institution as any other lunatic, but superintendents of asylums are not disposed to detain

* *Mary Williams* (wife) vs. *J. W. Goss* (husband), 43 La. Ann. 868. This was an action for separation on the ground of habitual intemperance. The defendant owned a small store, of which his wife had been the head for several years. It was shown that he "was addicted to excessive drink"; drunk often two or three times a week; had frequently been undressed and helped to bed; was frequently away from home all night, and often carried home drunk by strangers. He had often taken seven or eight drinks a day in one store, and sometimes bought by the bottle—fifteen cents' worth. He had locked himself in a bedroom on one occasion, and with a loaded gun lay in wait for imaginary assassins. He had been on sprees of three or four days at a time, and was known as "a drinking man." There was no evidence that he had become wholly incapacitated for business. The decree was granted, and the Supreme Court affirmed the judgment.

such subjects unless the departure from mental health be a prolonged and clear one. The use of the word "drunkenness" does not include the intoxication produced by other agents, as was held in the case of *Youngs vs. Youngs*, 130 Ill. 230.*

The commitment of an inebriate may often lead to very disagreeable results—the medical men or the friends being sometimes sued by the person committed. The case of Jason L. Blodgett, reported by Dr. Fisher (*Boston Medical and Surgical Journal*, June 6, 1881), is so interesting that I may be pardoned for referring to it rather extensively, using the reporters' language.

"A suit was brought two years ago in the Massachusetts Supreme Court by Jason L. Blodgett against his divorced wife, Major Jones, now on the Board of Police Commissioners of Boston, and Drs. Fisher and Youngman for a conspiracy to imprison him in the Taunton Lunatic Hospital on the false charge of insanity; also for assault and battery in causing his arrest; and for taking his property, ruining his business, and causing great damage to his reputation and feelings; for all of which damages to the extent of \$15,000 were claimed. His legal adviser at first was William H. Towne, who afterward called to his assistance Edward Avery. The defendants were represented by Edward P. Brown. At the first trial the plaintiff's petition was dismissed for informality and illegal contents. Major Jones was excused, as having had nothing to do with the particular commitment complained of, the plaintiff having been sent to Taunton twice; and Mrs. Blodgett, having been his wife at the time of the alleged offense, could not be proceeded against. This left the two physicians standing alone; and after six months the case was called again, unexpectedly, at the close of the summer vacation, when police officers, who were important witnesses, were absent. The wife, whose testimony was almost absolutely essential to the defense, had hidden herself from her divorced husband in the far West, and could not be compelled to attend or obtained as a witness without great expense. The plaintiff told a story based on his confused recollection of events, and deliberately false in some parts, which was contradicted by the defendants, who offered to put in as the basis of their certificate information received upon 'due inquiry,' as well as the result of personal examination. This hearsay testimony, though required by law as part of the foundation of the certificate, was not admitted in its support at this time, and the wife being absent essential facts were kept out of evidence. The rulings of Judge Endicott were in every other way favorable to the defendants. The jury disagreed, as the foreman afterward stated to Major Jones, by permission of the court—nine for the defendants and three for the plaintiff, on the question of 'lack of due inquiry' only. No suspicion of a conspiracy was entertained by any jurymen.

"The case was again called last spring, the wife still being absent. The plaintiff, with one or two unimportant exceptions, was his own witness, and made the same or similar false statements as before, showing

* Plaintiff filed a bill for divorce, charging habitual drunkenness. There was proof of the excessive use of morphine by hypodermic injection, on which the charge of drunkenness was based. The bill was dismissed, and the Supreme Court affirmed the judgment. After reviewing the various definitions of the word "drunkenness" the court said: "It cannot be held to include intoxication produced by the hypodermic administration of morphine."

clearly on the stand to medical observation the unreliable and irresponsible nature of his mental operations. The case was classified as dipsomania on all the certificates offered, of which there were three. The following is a brief sketch of the plaintiff's history :

"At the time of the trial he was a man about forty years of age, of evidently neurotic constitution, impulsive, excitable, with a loose way of expressing himself, said to have been characteristic of him from youth. One witness testified that he had always been given to telling untruthful and inconsistent stories. He was reported to have had an aunt who was insane. His father was a clergyman, and both his parents died in his early youth of consumption, leaving him in charge of his relatives. He was a bad and irregular scholar, though quick-witted enough for mischief. At the age of puberty he showed a proneness to premature vicious conduct of various kinds. He is said to have begun to drink by sprees at the age of fifteen years. He had some good traits and impulses, but was early the slave of his appetites, and was cursed with a craving for drink. His sister says he was a good brother when sober, but a 'perfect devil' when drunk.

"He was in frequent trouble on account of his scrapes, both in the country and in Boston, until the war broke out, when he enlisted. Having previously lost the sight of one eye, it was still further injured by a thorn, and was enucleated. He was then put on an army freight-train as conductor or brakeman, and continued to serve until the close of the war. After the war he was employed on railroads at the West, leading a life of active dissipation, according to his own admission to a witness. In 1875 he came to Boston, claiming to have reformed, and that he was the possessor of a large sum of money. In this belief a widow of the former proprietor of certain Turkish baths in Boston—herself being the owner at that time—married him. His fortune proved mythical, and his wife was obliged to pay for his wedding-suit and for the wedding-journey; she gave him a gold watch, and supported him ever afterward, except for the small value of his services in the baths. He obtained control of all her property, and in a very short time developed a tendency to drink by sprees, in which he was ugly, violent, and dangerous, threatening his wife in particular. He was seldom seen drunk in the ordinary way, but was exalted and maniacal, acting more or less automatically, and failing to remember his conduct and conversation afterward. It is but charitable to suppose that this accounted for his wholesale denial of numerous facts testified to by a score of witnesses on the stand. In a year or two he had spent all his wife's property and destroyed her business by his drunken conduct.

"My attention was first called to him October 12, 1875, by Dr. A. N. Blodgett, his wife's physician, but not related to either party. Dr. Blodgett, being in attendance on the wife, found the husband in a state of delirium from drink, in which hallucinations of snakes in his bed were prominent. He thought he saw the devil in the looking-glass; threatened to kill his wife; threw furniture violently about the room; and did not recognize Dr. Blodgett, but violently assaulted him several times. Policemen were called, and he was taken to the Tombs. The next morning application was made by Dr. Blodgett to the Board of Directors for Public Institutions for his commitment to Taunton as insane. Having learned his previous history, I agreed that he might be a dipsomaniac,

but, the present attack resembling in some of its features delirium tremens, advised that he should be sent to Deer Island. He did not have a perfect attack of that disease, and was discharged in two or three days, apparently rational.

"He was again arrested January 31, 1876, for violent conduct while drunk, and released on promise of good behavior, but was rearrested the same day, fined three dollars and costs for being drunk, ten dollars and costs for assault on a female employed at the baths, and was bound over for six months to keep the peace. He was sent to jail, and Major Jones, as bail commissioner, signed the bond on which he was released. June 24, 1876, he was arrested again, but let off on promise of good behavior. Again, on November 8, 1876, he was arrested as insane. Complaint having previously been made to the board of directors, I was sent with Dr. Youngman to interview Blodgett. I learned that he had been very violent at the baths, smashing up furniture and frightening bathers and employees. I found him at home, an officer bringing him up from the cellar, where he had retreated, having an ax in his hand. His wife had fled from the house, and the other inmates were locked in their rooms. He was in a very ugly, sullen mood, having been drinking heavily. He denied, as was his custom, ever drinking to excess or using violence to any one. He had recently had a spasm of religious interest; went into a prayer-meeting at the Young Men's Christian Association and offered any brother twenty-five dollars to convert him. A member went home and prayed with him, but was turned out by Blodgett because he 'didn't pray worth a damned cent'! No sign of delirium tremens was present at this time, and it was determined to send him to Taunton as a dipsomaniac, with a view to a sufficiently long detention for his improvement or cure. He made no objection and asked for no hearing, thus acquiescing in his commitment.

"Having remained at Taunton a few weeks, he was discharged on application of his counsel, Mr. Towne, and was sober and well behaved for a considerable period after it. He admitted, in an interview with Major Jones, his irresistible disposition to drink, and that he presumed the allegations of violence were true, but that he did not remember what occurred at certain periods of his drinking-spells. He had also consulted a relative in reference to some cure for his entire loss of self-control in reference to drink. He joined the church of which his wife was a member, and behaved well till August, 1877. From August to December he had three sprees, in which his conduct was erratic and violent. For instance, he would rush down Washington Street in the evening with a roll of bills in his hand, flourishing them about, and followed by a crowd of men and boys. He would buy a pie, order a hack, and send the pie home alone in the hack. On several occasions he used vulgar, profane, and threatening language to ladies at his wife's boarding-house. December 10, 1877, complaint having been made to the board of directors, he was examined at his boarding-house by Dr. Youngman and myself. We found him in bed, nervous and confused, as if from a prolonged debauch. I talked with him half an hour, explained to him my theory of his case, told him I thought nothing but prolonged detention would do him any good—that as he had improved after a few weeks in Taunton, a year would do him still more good. He denied drinking more than was good for him, but said he would stop at once if we would not certify in his

case. I told him if he was arrested again for violent conduct I should certify. This interview, he testified, was only a few minutes long, and he could remember but one thing that was said. Two days after, he was arrested at the baths for furious conduct toward his wife and other ladies, and for trying to kick over a hot stove. He was sent to Taunton December 12, 1877, and asked for no hearing at this time.

"Remaining in Taunton about three months and a half, he was discharged March 26th, and rearrested for throwing a bottle at some one at the baths March 30th, four days after. The next morning he showed very little effect from liquor when seen at the Tombs, the period of indulgence having been brief. He demanded a hearing at once, and a certificate *pro forma* having been signed to bring his case before Judge McKim, he was released on promising good behavior. In April a libel for divorce was filed by his wife, alleging brutal and violent conduct, with gross and frequent intoxication. Blodgett appeared in the anteroom of the Supreme Court in his usual peculiar condition, insulted several ladies there with obscene talk, undertook to conduct his own defense, and harangued the court in such strange and familiar language that the judge told him he must be either drunk or crazy, and granted the divorce. His wife then left him for the West, in a penniless condition, and he soon found a lawyer willing to take his suit against the alleged conspirators. This idea of a conspiracy was, I think, in part a vague delusion growing out of imaginary wrongs, and in part a foolish attempt to rehabilitate his fortunes and revenge himself at the same time by a suit against his assumed enemies. A few weeks before the final trial he was arrested for drunkenness in Waltham, and boasted, in his loose way, of the immense business he was doing, and the money he was going to make out of the doctors.

"At the last trial before Judge Lord the preceding facts and many others of similar import were proved. Twenty policemen testified to Blodgett's habits of drunkenness, eccentricity, and to his violent actions. They all agreed that he was different from ordinary drunkards in his talk and conduct, and was regarded as crazy and dangerous when in liquor. This opinion was sustained by many sober witnesses who knew him well, and by his own confessions to Major Jones, as well as his appearance on the stand. He there denied in a wholesale way all excessive drinking and all acts of violence, only to be contradicted by many reliable witnesses. He might, perhaps, truly have said that he remembered no acts of violence, as I have no doubt his conduct was automatic. Judge Lord allowed the facts obtained by 'due inquiry' to be testified to in full, the other side failing to object.

"A number of experts were called by the defense. Drs. Walker, Brown, Gage, Russell, Denny, Jelly, Folsom, Channing, Day, Blodgett, Fisher, and Youngman gave their definitions of dipsomania and testified to the propriety of treating it in hospitals for the insane, in the absence of other special institutions. These gentlemen substantially agreed in affirming the existence of such a disease, and in the necessity of so treating it.

"The plaintiff called on his behalf Drs. Henry G. Clark, J. P. Treadwell, and Horace Chase. Dr. Clark thought a dipsomaniac must be a person who on drinking a single glass must inevitably go on to complete intoxication. He thought Blodgett did not fall within this definition.

He was obliged to admit, however, that he had recently said that Blodgett was 'crazy drunk' and properly sent to Taunton, but was kept too long; and that he had certified within three months in the case of a dangerous dipsomaniac committed to Danvers. Dr. Treadwell gave his views at length, and thought the part of the testimony he had heard did not warrant calling Blodgett a dipsomaniac. Dr. Chase's testimony I did not hear.

"Judge Lord's charge to the jury was satisfactory in every way to the defense, and was an admirable statement of the rights and liabilities of physicians certifying in cases of insanity. It deserves reproduction as a whole, but I will give only a very brief abstract of it. Judge Endicott had said in substance at the previous trial that it was evident from the testimony that there was such a disease as dipsomania; that the line between it and ordinary vicious drinking was a narrow one, which only qualified medical men could safely draw; and that a lunatic hospital was a proper place for its treatment. Judge Lord, however, told the jury to reject the technicalities of the doctors, and charged that if mental unsoundness of any kind existed it was an end of the case; that if physicians honestly believed the party to be insane, although they may have been misled or mistaken, they were not responsible. They were obliged by law to make 'due inquiry' of the parties most likely to possess the facts relating to insanity, and nearest by ties of relationship or affection to the patient; but they could not take sworn evidence in the case, and must act according to their best judgment upon the facts obtainable. Their certificate was not required by law to be under oath, and was merely the necessary means of bringing the case into the jurisdiction of the proper court, after which they were not responsible for the action of the court, unless it could be shown that they willfully gave false testimony, or grossly and criminally neglected to inquire into the facts of the case. In the words of the court: 'If capable physicians should act recklessly, disregarding the rights of the party, and send him off to a hospital without any evidence at all, then they would be responsible. But if on the other hand they made the inquiry which the circumstances of the particular case called for, then, although subsequent events may show that that inquiry might have been pursued further if they acted in good faith, that is their protection. The jury rendered a verdict for the defendants.'

The same questions here arise regarding the execution of legal papers as do where there is no toxic causation of the unsoundness, and the issues are varied and always interesting.

The case of *O'Conner vs. Rempt*, 29 N. J. Eq. 156, is one of a familiar kind where undue influence was evidently exerted. This was a bill to set aside a deed alleged to have been executed while the plaintiff was intoxicated and in a state of mental aberration. The plaintiff lodged at the house of the defendants on March 2, 1877. He had never met Mrs. Rempt, the grantee, before. He returned on the 4th of March and from that time until the 7th was secluded by them from his friends. He was drunk when he returned on the 4th, had been on a drunken debauch for a month previously, and was delirious when he left his home. The defendants admitted that O'Conner was not sober when he came to them, and they allowed him to stay. The next morning he was sick, and was told to go to a hospital, but he asked to be allowed to remain, saying,

"You let me stay, and I will give you all my property, and you can take care of me as long as I live. I will make it all right." On March 7th the deed was executed, after three previous attempts to obtain his signature to it had failed, owing to the fact that he was in a stupor. The deed was recorded on March 8th, and a few days afterward he was removed from the defendants' house by the police, in a state of mental and physical prostration. On March 19th this bill was filed. The Court of Chancery declared the deed void, on the ground that "when the complainant went to the house of the defendants his mind was disordered; that the day before the deed was executed he was all day in a state of drunken insensibility; and that when he was rescued from the custody of the defendants he was suffering from delirium tremens." The case of *Bliss vs. Conn. & Pas. Rivers R. R. Co.*, 24 Vt. 424, is one in which the question of time-limit arose, and where the action of the Supreme Court was extremely merciful and protecting. The defendants took lands of the plaintiff for their use, and an award was made. Under the Vermont statute then in force (1852) an appeal from an award must be made within ninety days, except where disabilities exist, when the appeal must be made within ninety days from the removal of the disabilities, which are in the cases of "married women, infants, idiots, or insane." The plaintiff for a long time was intemperate to such an extent as to unfit him for business, was out of his mind, required close watching, threatened to injure others, burn his buildings, etc.; and during the time the land was taken and the award was made, his family tried to talk with him about the matter, but were unable to make him understand it until the ninety days had expired. Afterward with his consent the appeal was made, and was dismissed by the County Court on the ground that it had not been made within ninety days.

The plaintiff then applied to the Supreme Court for a writ of certiorari, which was granted, and the judgment of the County Court reversed, the court holding that the plaintiff was not capable of managing his affairs, and should be granted the benefits of the provision of the statute relating to disabilities of "insane," even though his disability was caused by his own excesses and misconduct.

The subsequent ratification of a contract alleged to have been made when the person is intoxicated has been held to make parts of the transaction binding.*

THE CAPACITY OF DEAF-MUTES.

The deaf-mute was at one time considered to be as irresponsible as the idiot, so far as testimony was concerned, in courts of law. However, a much more intelligent view of the question of competency

* *Smith vs. Williamson*, 8 Utah, 219. This was an action concerning a promissory note. It appears that the note was given, together with a Holstein bull, in exchange for a Durham bull. A few days afterward defendant returned the bull, and took in its place a Durham heifer, in pursuance of an agreement made at the time of the transaction. Defendant pleaded that he was intoxicated at the time he signed the note. Judgment was rendered for defendant, but the Supreme Court reversed the judgment on the ground that even though defendant was intoxicated at the time the note was signed, his subsequent action in exchanging the bull for the heifer and still retaining the heifer was a ratification of the transaction, and of his signature to the note.

is now taken, and it is by no means the rule because certain channels of expression which put the individual in communication with the world are cut off, that he is entirely deprived of intelligence. The law is disposed to approve of the actions of persons of this kind, provided they are in no other way mentally incapacitated. The mere deprivation of the senses of hearing, sight, and speech does not imply weak-mindedness, although under the English law a deaf-mute is incompetent to give evidence if he is also blind. Disputed wills (Jarm., *Wills*, 5th Am. ed., chap. iii.) of deaf-mutes have been allowed to stand. Those who offer such a will for probate must prove the intelligence and ability that constitute testamentary capacity. Judge Redfield has decided that educated deaf-mutes who make holographic wills or convey by gestures their intentions and wishes should be allowed to do so, and that such wills should stand. The affliction of coincident blindness need not necessarily change the situation. It is, however, necessary to differentiate the mutism of simple accidental deprivation or uncomplicated origin from that which is a feature of imbecility. This question arises not only in will-making, but where contracts of any kind are entered into.

Dr. Peet, who has had very wide experience with the deaf and dumb, gives the following general principles in regard to their rights and responsibilities :

“A deaf-mute who has no knowledge whatever of written languages may yet, if his dialect of gestures is sufficiently copious and precise, possess the intelligence necessary to manage his own affairs, to make all civil contracts, to execute a deed or a will, or to give evidence in a court of justice. But as the degree of intelligence and of moral development in uneducated mutes is very various, some who have been neglected in infancy being but a step above idiots, they should be carefully examined to ascertain whether they really possess the necessary degree of knowledge and intelligent will. With respect to the formalities used, it may be laid down as a general rule that the deaf-mute who can read and write but imperfectly or not at all should be regarded as in the position of a German or Frenchman whose ignorance of our language necessitates the employment of a sworn interpreter between him and the court. But when the deaf-mute can read and write well the best mode is that prescribed in the French Code. In the case of such, reading supplies hearing and writing supplies speech. Hence it follows that a paper presented to a well-instructed deaf person, calling his attention by pointing with the finger to the writing, should be considered as read to him, it being understood, of course, that there should be sufficient light and sufficient legibility of writing. We think, however, it ought to be specially enacted that a legal service, in the case of such persons, should consist in giving them a copy of the writ or notice to be served, informing them in writing of its nature and contents ; and in the case of deaf-mutes who cannot read, or but imperfectly, the reading may be accomplished by the aid of a competent interpreter. Any legal oath or obligation may be taken or assumed by a well-instructed deaf person by writing out with his own hand the formula before witnesses, with such forms of solemnity as the occasion may demand, or by a conversation in writing with the officiating magistrate.”

There can be no question as to the right of the deaf-mute to the services of a competent interpreter.

The matter of accident cases resulting in traumatic insanity has not been here considered, but the reader is referred to subsequent articles by Dr. Dana and Mr. Godkin which cover the ground both as to the medical and legal points.

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MENTAL RESPONSIBILITY OF THE INSANE IN CIVIL CASES.

BY

CALVIN E. PRATT, Justice of N. Y. Supreme Court.

INSANITY is the generic term which includes lunacy, derangement, mania, frenzy, madness, delirium, alienation, aberration, dementia, and monomania; each of these terms has a well-known definition, and each form of mental disease has its well-marked symptoms and characteristics. No definition of insanity is entirely satisfactory to all lawyers or doctors, or seems to cover all cases that can arise. Cases of what is called emotional insanity, morbid and irresistible impulse, hypnotism, epilepsy, moral insanity, and various abnormal mental manifestations that occur, or are claimed to occur, make it difficult to construct a short and simple definition fit for practical and universal use in courts of justice. Perhaps as satisfactory a definition as can be given in a pathological sense is that of Dr. Hammond: "That person is insane whose mental processes are directly at variance with those of the average human mind." This is a medical definition. In law, however, the question is not whether insanity exists in a medical sense, but whether there exists that *kind* and *degree* of aberration of mind or incapacity which will shield a person from punishment for crime, annul his contracts, or set aside his will.

It would be interesting to trace the changing and complicated history of forensic insanity from its foundation in the Roman law to the present time. Such an effort will involve a critical examination of all the English and American cases where the subject has been judicially considered, and will not aid much in ascertaining the legal relations of insanity at this time. The radical changes that have taken place in the last century in regard to the criteria of capacity and responsibility in mental disease might well be termed a revolution. These are due chiefly to the great progress made by the medical profession in the knowledge of diseases of the mind, and their use as experts in courts where such issues were involved. It is only by a trial and decision by a competent court that a principle of medical jurisprudence can be said to be established, and hence the most recent decisions are to be regarded as the true enunciations of the principles by which we are to be guided in considering the legal tests to be applied in this class of cases. It is not necessary to allude to the common-law definitions of insane persons, lunatics, idiots, *non compos mentis* delusions, illusions, and monomaniacs, as the term unsound mind may, for all practical purposes, be held to include every species of insanity or mental unsoundness in courts of civil jurisdiction.

Cases involving questions of unsoundness of mind or insanity in every form are divided into two classes, civil and criminal: the first is one of capacity to do a particular act in question, such as making a contract or will; the second is one of responsibility for an act or omission, such as an assault or homicide. Perhaps, as a general rule, it may be stated that, in regard to contracts generally and testamentary capacity, no man is regarded as of unsound mind unless he is "incapable of appreciating the nature, and forming a rational judgment upon the results, of the particular act which is the subject of judicial consideration." No such general rule can be stated as applicable to capacity and liability of insane persons in the criminal law, as the rule is not uniform in England or the various States of America, neither do the judges and medical experts fully agree as to a proper rule of responsibility. The rule in the State of New York is in substance as follows: "Was the person whose act is in question laboring under such a disease of the mind as rendered him incapable of knowing the nature and quality of the act and that it was wrong?" There are many distinguished experts who claim, with great force of reason—and the principle has been held by many able judges—that another element should be regarded as a valid exculpatory plea, to wit, loss of self-control from any disease of the mind. The rule would then be stated as follows: "Was the person whose act is in question able to understand the nature of the act and pass a rational judgment on its consequences to himself and others, and was he a free agent so far as that act was concerned?" and such will undoubtedly be the rule in the near future.

We will now examine the legal relations of insanity or unsoundness to certain specific issues relating to the following subjects: wills, contracts, including contract of marriage, torts, and expert testimony.

The medico-legal issue in cases regarding wills is whether at the time of making the will the testator possessed testamentary capacity. The rule upon this question may be tersely stated as follows: "In order to make a valid will a testator must have sufficient capacity to comprehend the nature of the act he is performing; he must understand the extent of the property of which he is disposing; he must comprehend the relation which he holds to those who have claims upon him, and be capable of making a rational selection among them." (*Am. & Eng. Encyclopædia of Law*, vol. xi., p. 151, and cases there cited.)

The rule above cited is explained and illustrated by judges according to the facts and circumstances developed in each case under consideration. For example, Lord Cockburn, in the case of *Banks vs. Goodfellow*, L. R. 5 Q. B. 549, stated in relation to the last clause of the rule: "He must be able to comprehend and appreciate the claims to which he ought to give effect, and, with a view to this effect, that no disorder of the mind shall poison the affection, pervert his sense of right, or prevent the exercise of his natural faculties; that no insane delusion shall influence his will in disposing of his property, and bring about a disposal of it which, if the mind had been sound, would not have been made."

The burden of proof is always upon the party that propounds the will for probate to establish its validity.

1. He must prove that the statutory requirements have been complied with.
2. That, by the subscribing witnesses, the testator appeared to under-

stand the business in which he was engaged; but, in case the subscribing witnesses are dead or cannot be produced, the proponent of the will can rest upon the presumption that every man is presumed to be sane until some evidence to the contrary is offered. (63 N. Y. 409, 7 Pick. 94.) Where, however, a party has been proved to be insane, the presumption is that it continues, and the burden then shifts to the party alleging sanity (*Am. & Eng. Encyclopædia*, vol. xi., p. 160), and he must prove that the will was executed during a lucid interval.

It will at once be perceived in this class of cases that a great many questions arise as to the kind and degree of insanity, and how much influence it had upon the testator in the making of the will. The insanity may be chronic or acute, or it may be the result of disease or accident. It has been held that extreme old age, excessive use of intoxicating liquor, strong beliefs, existence of mental delusions, licentiousness, and unreasonable prejudice against relatives are not necessarily incompatible with mental capacity or intelligence to make a will. (Same volume of *Am. & Eng. Encyclopædia*, supra, p. 154, note, and cases there cited.) All of these matters may be proved in opposition to the probate of a will, and the question will be to what extent, if any, they influenced the testator in the making of his will, or to what extent the testator was disabled by them from complying with the rule heretofore stated. In this connection it may be stated that reasonableness of the provisions of a will is always an element for consideration in determining the question of testamentary capacity; but the mere giving of property to a stranger rather than relatives, without more evidence of want of testamentary capacity, is not sufficient to break a will. It is always to be observed that the highest degree of mental soundness is not required to constitute capacity to make a will. "A person's mind may be impaired by grief, disease, melancholy, old age, strange beliefs, vice, or intemperance; yet, if he has sufficient ability to weigh and consider the act of making the will and its surrounding circumstances, it will be valid." (*Am. & Eng. Encyclopædia*, vol. xi., p. 152 and note.)

It is to be observed that the law regards with great tenderness the right of a person to make a will; one of the strongest considerations is that he is the owner of the property and has the natural right to dispose of it as he sees fit. Again, as was said by Chancellor Kent, "The control which the law gives to a man over the disposal of his property is one of the most efficient means which he has in protracted life to command the attention due to his infirmities." (*Van Alst vs. Hunter*, 5 Johns Ch., N. Y., 160.)

The law also requires less mental capacity to make a will than for making a contract. It is presumed that most persons have meditated upon the subject of the disposition of their property, and are better prepared when making their wills to declare their intentions than to comprehend new business. The capacity required has reference to the business in hand, so that the same degree of capacity to dispose by will of a small and simple property is not required as in case of a large and complicated estate and many objects of bounty. (*Sheldon vs. Dow*, 1 Dem., N. Y., 503.)

INSANITY AS AFFECTING CONTRACT OF MARRIAGE.

The same rule that would apply to contracts in cases of insanity will apply to marriage, so that a party so insane as to be incapable of making

a valid contract concerning property cannot make a valid contract of marriage. It should be proved, to make such a contract invalid, that the party had not a rational idea of the marriage contract and the relations and duties incident to married life. "Mere weakness of understanding will not invalidate a marriage, nor will insanity that does not affect the subject-matter of the contract."

Where it clearly appears that a person has married an insane person in ignorance of the fact, the contract will be declared void, for the contract if void as to one party is as to both (*Am. & Eng. Encyclopædia*, vol. xi., p. 140, notes 1, 2, 3); and any party interested may institute proceedings to procure a decree of nullity.

There is a sharp conflict of authorities in the various States whether the marriage of an insane person is void *ab initio*, so that it may be impeached collaterally. In *Wightman vs. Wightman*, Chancellor Kent held that such a marriage was absolutely void and no decree of nullity was necessary to set it aside.

The cases that arise under this branch of medical jurisprudence require great care and circumspection on the part of the medical expert. A majority of the cases arise from imbecility and epilepsy, and the great question relates to the degree of incapacity. (*Am. & Eng. Encyclopædia*, vol. xi., p. 141, note 1.) The history of the party up to the time of the marriage, the surrounding circumstances, are material considerations.

A judge of the Supreme Court of Massachusetts trying such a case made the remark "that the fact of a party's being able to go through the marriage ceremony with propriety was *prima facie* evidence of sufficient capacity to make the contract." It will be at once recognized by the expert that such a rule is not of universal application. It is not a sufficient test of capacity that either a man or woman who has been well brought up behaved in company well for a short time, as such behavior may have become more or less automatic from habit. A careful personal examination, if practicable, should be had, and the character, disposition, strength of will, should all be taken into consideration.

In cases of weak-minded persons questions of force or undue influence upon the will may also become important. Of course it is well known that any insanity or imbecility that has occurred since the marriage furnishes no ground for a divorce. It was held by the Supreme Court of Vermont that insanity was a good defense to a libel or suit for divorce based upon a charge of adultery, the theory being that there is an absence of a consenting will; this doctrine has been disputed in some States, notably Pennsylvania; but the weight of authority is that insanity furnishes a valid defense in such cases. (See *Bradstreet vs. Bradstreet*, 7 Mass. 471; *Matchin vs. Matchin*, 6 Penn. 332.)

A lunatic is liable civilly to make a compensation in damages to persons injured by his acts. Thus, for assaults, slander, or libel, an action can be maintained; but the fact of insanity can be shown in mitigation of damages in the two latter classes of cases on the ground that the words spoken or written could not have an injurious effect of much consequence, varying according to the degree of insanity and the notoriety of the lunatic's condition. In such cases it is for the jury to determine according to the effect of the acts of the lunatic what is a fair measure of damages. (*Am. & Eng. Encyclopædia*, vol. xi., p. 144, note, and cases there cited.)

A question often arises as to the competency of an insane person to testify in court. It is a matter for the court to determine. The rule by which the court is guided is as follows: "In order to be competent the person must be possessed of such an understanding as enables him to retain in memory the events of which he has been a witness, and gives him a knowledge of right and wrong sufficient to appreciate the sanctity and binding force of an oath. (*Am. & Eng. Encyclopædia*, vol. xi., p. 145, note, and cases cited.)

INSANITY AS AFFECTING CONTRACTS.

As a general rule it requires a higher degree of capacity to make a contract than a will, depending somewhat upon the nature of the transaction, i.e., the complexity of the subject-matter. The most common cases relate to deeds, commercial paper, and partnership. The deed of an insane person is either void or voidable. It is void when given by an insane person for whom a committee has been appointed in whom his estate is vested. In all other cases it is voidable. In order to invalidate a deed of an insane person the suit must be instituted by the grantor after he is restored to reason, or by his committee or guardian, or by his executor, administrator, or heirs. (*Am. & Eng. Encyclopædia*, vol. xi., p. 149.) These rules apply to all persons *non compos mentis* or laboring under delusions. All the authorities upon this subject, and upon ratification and executing contracts for the sale of land, are to be found in the same volume before mentioned, at pages 150 and 151.

It may be stated that the insanity of a maker or indorser of a promissory note may be set up as a defense to an action upon the note by the payee or any persons having notice of such disability, or of such facts as would put a reasonable man upon inquiry as to the competency of the maker or indorser. But where the insane party has received full consideration, and the note inured to his benefit, and it has passed into the hands of a *bona-fide* purchaser without notice, insanity is not a defense to the note. It has been held, however, that an accommodation indorser of a promissory note who receives no benefit therefrom, either to himself or his estate, may defend on the ground that he was *non compos mentis* at the time of the indorsement, and this though the holder had at the time of the transfer to him no knowledge of the indorser's insanity. (*Am. & Eng. Encyclopædia*, vol. xi., p. 144.)

INSANITY AND CRIME.

BY

B. SACHS, M.D.

A FEW years ago the writer of this article was discussing with one of the learned judges of the Superior Court of New York the question of the responsibility of the insane. The writer stated his opinion that up to the present time the legal tests of insanity, as accepted in many of our States and in England, were entirely unsatisfactory. The judge dissented from this view and thought the matter a very simple one. "All we have to do," said he, "is to determine whether the accused at the time he committed the crime was able to distinguish between right and wrong, and if he knew that what he had committed was wrong he was as responsible for that crime as any sane person would be."

Very few legal minds have been able to get beyond this antiquated view of the relation of insanity to crime. In Germany and France the more enlightened judges have been guided by the opinion of medical experts, but even there they are not in anywise bound by such an opinion, and it has happened again and again that the judge, having asked for and received the opinion of medical experts, has promptly set it aside and decided the question to the contrary.

In England and in this country, unfortunately, the question of insanity, and of mental responsibility for crimes committed, is referred to a lay jury. Judges and laymen acquiesce in the belief that a body of twelve, often ignorant men, can decide the question of mental responsibility, which under favorable circumstances may baffle the ingenuity of the most conscientious medical expert. England and America have been under the influence of the decision which the English judges gave in answer to certain questions which were propounded to them by the House of Lords in 1843, after the atrocious murder of Mr. Drummond by McNaughton. Maudsley, whom I follow in this matter, summarizes the answer as follows: "To establish a defense on the grounds of insanity it must be clearly proved that at the time of committing the act the party accused was laboring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong." It will be seen from this quotation that the accused person was not expected to be able to distinguish between right and wrong in general, but that he was at least to know whether the special act which he committed was right or wrong, or that he was to be entirely ignorant of the nature of the crime committed. This "right" or "wrong" test has been the stumbling-block in the advance of

legal psychiatry, and, as a matter of fact, if the test here mentioned were to be applied to the insane, nine out of every ten lunatics would have to be declared sane, for most of them are perfectly aware of the nature of the acts they commit. The majority of them know that they are right or wrong according to the ordinary standards, but they are impelled either by sudden influences or by sudden forcible delusions to the commission of acts which they know to be wrong, and which, if sane, they would never have committed.

We shall have occasion to refer to this question in detail; for the present it suffices to point out the difficulties met with in determining the relation of insanity to crime. These difficulties have been increased by various unfortunate circumstances: first of all, the plea of insanity has been frequently used in cases in which there was not the least excuse for advancing it, and it was put forth simply in the hope of deluding the lay jury. The plea, therefore, has fallen into discredit, and the suspicion is entertained in almost every case in which the plea is advanced, that it is simply a lawyer's trick and nothing more. Yet if one were to take the entire criminal history of this country into account, I feel satisfied that many more insane have been punished for crimes for which they were not responsible than sane persons have escaped the just penalty of their crimes on the plea of insanity.

In this connection it is interesting to note how much more frequent insanity is in the criminal classes than in the normal population. Allowing for the number of cases brought on by imprisonment, the statistics still point to the close relationship between insanity and crime. According to Thomson, twelve percent. of prisoners in Scotland were insane. Of 5432 prisoners, 673 were insane; of these 57 were imbeciles and 57 were epileptics; but of the total number only 53 were declared insane at the time they were sentenced. In England and Wales there is one lunatic to every 432 free inhabitants; but among 664 accused of murder from 1857 to 1867, 108 were insane. (See Baer, *Der Verbrecher*, 1893, p. 258.)

In this country Dr. Robinson, physician to the Eastern State Penitentiary in Pennsylvania, states that in five years he has had to deal with about 3500 convicts for periods of one year to five years; of these 245 were insane upon reception, 40 had insanity develop during their incarceration, and 20 were guilty of simulating insanity.

In a paper read in Washington in 1892, Dr. Allison tabulates the crimes committed by 87 court cases now in the New York State Asylum for Insane Criminals.

Murder	38
Assaults in the first degree and attempts to kill	18
Dangerous assaults	10
Arson and attempt at arson	8
Burglary and larceny	10
Bigamy	1
Horse-stealing	1
Disorderly	1
Total	87

Another difficulty that besets the question is one that should be seriously considered. The layman argues that it is all very well for medical men and for sentimentalists to excuse crime on the plea of insanity, but

what is society to do in order to protect itself against the crimes of the insane? As medical men we are bound to defend the rights of the insane, but as members of society we must acknowledge that the latter has full rights, and that it should enjoy immunity from crimes due to diseased minds. A remedy must be sought for the protection of society, and this remedy is not only the establishment of asylums for the criminal insane, but also the retention of lunatics who have committed crimes in such asylums for years, if not for the remainder of their lives, or at least until the danger of their committing similar crimes has passed. In a recent trial in this city the experts did well who urged that a woman who was declared innocent of the crime of murdering her children should not be allowed to go scot-free, but that she should be sent to an asylum and her mental condition carefully watched. Society must find some means of protecting itself, but it should not be guilty of judicial murder. The national conscience is no longer responsible for the execution of witches, for the torture of those who were supposed to be possessed of the devil, but it has until recent years been responsible for the death of assassins whose deeds, as in the case of Guiteau, for instance, were clearly the result of mental aberration. Let society proceed with all due rigor against those who are the instigators of crime; let it adopt the most strenuous measures against anarchists and other enemies of society whose revolutionary doctrines generally supply the torch that was needed to excite weakened and diseased minds to the commission of outrageous crimes; but let the poor unfortunate lunatic or imbecile who has yielded to anarchistic preachings or to the impulses of his morbid mind not suffer the penalty of a crime for which he is not responsible.

The question arises, When shall the plea of insanity be considered valid in extenuation of crime? The only proper answer to this question, in the light of the present condition of psychiatry, is that *no person shall be considered guilty of a crime if, at the time the crime was committed, he was suffering from any form of mental disease.* The medical expert should be called upon to state whether the person accused is or was sane or insane, and if insane he should not be held responsible for his acts. In several recent trials in this country the question has been put in this broad way, and the answers of the experts have been accepted without any reference to the older legal tests of responsibility. Let the medical man's duties also end with the determination of this purely medical question, and let the law and its exponents accept the responsibility for everything else. But in order that the question of sanity or insanity shall be justly decided, it is necessary that the opinion shall be expressed by those who are truly qualified to give an opinion.

Psychiatry is a very special branch of medicine. It does not constitute part of the regular medical training in this country or in Europe; yet in some of the most important trials of recent years any medical man has been accepted as expert, and his opinions have been held to be fully as valuable as those of a man who has devoted years to the study and practice of this special branch. There is no more reason to accept the opinions of a gynecologist in questions of insanity than there would be in accepting the opinions of an alienist on the feasibility of an operation upon the eye or the removal of an abdominal tumor. But if the expert has been properly chosen another reform in the methods of medico-legal procedure is urgently called for: the expert should

not be made a partisan to one side or the other, but the facts should be submitted to him as impartially as possible, and he should determine the question of sanity or insanity after considering such facts, and, if possible, after an unprejudiced examination of the supposed criminal.*

In spite of all the defects of court procedure in the United States in matters affecting insanity, it is a satisfaction to know that the rulings of the more enlightened judges in this country indicate a decided advance upon the principles laid down by the English courts. In the State of New York the statutes simply state that "No act done by a person in a state of insanity can be punished as an offense." The humane spirit of this statute cannot be denied, and it will be noted that nothing is said in it of the responsibility of the criminal in case he was able to decide between the right and the wrong of the act he committed, whether he knew or did not know that it was contrary to the law of the land, or whether the act was the natural outcome of his insane impulses or his insane delusions. The fact to be determined is simply whether the person accused is sane or insane, and if insane, whatever the form of insanity may be, he is not responsible for the deed committed. The spirit of this statute throws greater responsibility upon the medical expert. The principle of the statute of the State of New York is not yet adopted by all other States of the Union, and is very far from being adopted in England. We must therefore still discuss, though we may do it more briefly, the older tests of responsibility, and determine to what extent a person may be liable for acts he has committed.†

In Germany the law revolves upon the point that the sane individual has free will, and if by reason of disease the free exercise of the will is precluded the person cannot be held responsible for the acts committed. The New York statute is evidently superior to this, for to decide simply upon the free determination of the will involves a great many difficulties, above all that of proving to judge and jury that the person in question could not exercise his own free will, and that such exercise was in any way influenced by the delusions or other symptoms exhibited by the accused. It leaves out of consideration altogether the question of violent acts due to sudden morbid impulses, and it requires the application of sane reasoning with regard to insane delusions and impulses.

The English courts seem to be bound more than all others by ancient precedent, and in spite of vigorous protests by eminent English jurists and many eminent medical men the old order of things still obtains. It is fair to say that more judicial murders are committed in enlightened

* For a fuller discussion of the evils attending the methods of eliciting medical-expert testimony the reader is referred to a short article by the present writer in the *Medical Examiner* for July, 1892.

† The "right and the wrong" in law, the tolerant and the intolerant spirit, are well illustrated by two judges' charges. In the case of *Stevens vs. State* (see Lawson, pp. 88 et seq.). "If the jury believe from the evidence that the defendant knew the difference between right and wrong in respect to the act in question [murder]; if he was conscious that such act was one which he ought not to do; and if that act, at the same time, was contrary to the law of the State, then he is responsible for his act." Contrast with this narrow view the charge of Chief-Justice Perley, who instructed the jury "that the verdict should be not guilty by reason of insanity, if the killing was the offspring or product of mental disease in the defendant; that neither delusion nor knowledge of right and wrong, nor design or cunning in planning and executing the killing and escaping is, as a matter of law, a test of mental disease, but is purely a matter of fact to be determined by the jury."

England than in any other country of the civilized world.* English judges and those who are inclined to follow them in this country—and many do—still fall back upon the simple test of whether the accused at the time of committing the act was able to distinguish between the right and wrong of it, and if he was so able to distinguish he is as responsible for the act as though he were entirely sane. There are relatively few lunatics who commit violent acts who are not aware at the time they commit the act that it is wrong, but their judgment is befogged for the time being, the motives which impel them are different from those which guide the sane, their passions are more uncontrollable, and they often act in obedience to delusions which impel them to commit deeds which they know to be wrong, and which may be as abhorrent to them as they are to others. Many an insane individual has repented an atrocious crime the very next moment after he had committed it. It was clear to the English judges that the “right” or “wrong” test could not be upheld in every instance, and for that reason further rulings were necessarily made with reference to the influence of insane delusions, insane motives and impulses; and in making such rulings they have revealed a deplorable ignorance of the peculiar changes which the mind undergoes in disease. Thus the judges declare, in answer to the question whether a person who, under an insane delusion as to existing facts, commits an offense in consequence thereof, should thereby be excused, that such a person must be considered as responsible as if the facts of the delusion were real; and they state furthermore that if a person under the influence of a delusion supposed another man to be in the act of attempting to take his life, and killed that man in self-defense, such person would be exempt from punishment. But if he was suffering from a delusion that another had inflicted serious injury to his character and fortune, and he killed him in revenge for such supposed injury, he would be liable to punishment. Nothing more absurd than this has ever been written by a sane mind.

A person who has an insane delusion is expected to be able to reason regarding the facts of the delusion as every sane person would; he is expected to be guided by sane motives and to have none but sane impulses with reference to his delusion. As Maudsley puts it, “He is expected to be reasonable in his unreason, sane in his insanity.” This doctrine is the outcome of the older theories of partial insanities, implying that a person could be sane in all other respects while absolutely and hopelessly insane on some one single point of belief. Modern psychiatry has taught us that this older doctrine is wholly untenable, and that the mere continued existence of a single delusion, whatever its character may be, proves that the entire mind is diseased—that the logical faculties, the judgment, and the reason of the person have been seriously impaired. If we consider, furthermore, that any person afflicted with a single delusion is completely dominated by it, the injustice of insisting that he shall be guided by ordinary reasoning will be evident at once. The theory of monomanias has done much mischief in psychiatry, but it has done infinitely more in medical jurisprudence.

The English law insisted that the criminal was responsible for his act if he knew that such act was contrary to the law of the land. This

* According to the *Lancet*, influential sub-committees of the Br. Medical and of the Medico-Psychological Associations have been appointed to investigate and report upon this subject.

was a departure from the strict "right" or "wrong" test, for in many an instance the insane are thoroughly cognizant of the law of the land and yet hold a very different opinion as to right and wrong in obedience to their own delusions. We need not enter into further argument regarding this older test. It is conceded on all sides that the insane may have a perfect knowledge of right and wrong at the time a criminal act is committed and yet not be responsible for the act. The influence of delusions is also liberally conceded, but much more difficulty is encountered in the attempt to represent to judge and jury that the motives of the insane are very different from those of persons with healthy minds, and that sudden morbid impulses are responsible for many acts of violence.

Let us take up the matter of the motives of the insane as a guide to action. Persons in good mental health are expected to be guided by the exercise of their own judgments, by their own and the accumulated experience of others, before proceeding to any rash act; and in addition to this the fear of punishment is supposed to exercise a very powerful, deterring influence. A sane person is excused for an act of violence only on the ground of self-defense, and self-defense only in case he is satisfied that his life is being actually attempted. Feelings of revenge are not allowed as an excuse for criminal acts, and, above all, the sane person in every civilized community is not allowed to take the law into his own hands. The diseased mind loses sight, however, of all these restraining influences; the judgment of the insane individual becomes defective, and his reasoning is warped by the presence of delusions and by the change in his temperament. There is little difficulty, as a rule, in excusing crime that is the direct result of a delusion. Any jury will exempt the accused person from punishment if his acts followed as naturally upon the delusion as they would in sane persons if the facts of the delusion were real. But trouble is certain to arise whenever the motives leading to an insane act are unknown or do not appear to be the direct result of a delusion. There is the famous story of the boy who was extremely fond of windmills. He was sent far away from his home for the improvement of his health; while away he induced a little girl to go with him to the woods, and there committed a brutal murder. He surrendered himself at once to the proper authorities, and when asked why he had committed the crime his reason was one which few would have surmised. He was anxious to see the windmills, and he knew that after committing an act of this sort he would be returned to his own birthplace, where his desire for windmills would be fully gratified. Could any sane mind have suspected such a motive? What an unbalancing of all mental faculties this implies!

Take the case related by Dufour: A paranoiac was anxious to flee to America to escape from supposed enemies. Having no money he decided to murder and rob a rich old couple. He bought a hammer, blackened his face, and bought a linen blouse to cover his clothes and keep them from becoming blood-stained. In this there was premeditation and a desire to conceal his person, also a knowledge of the wrong done; but marked insanity withal.

Among jurists and medical men there has been some hesitation in allowing for the effect of sudden morbid impulses. The plea of insanity has in such instances been taken to be a mere subterfuge. It is claimed that even among the sane sudden impulses are common enough, and that if every sane individual were to act upon the numerous impulses starting

up within him, he too might be guilty of criminal acts. The very suddenness of the impulses in the insane, the fact that the impulses cannot be subdued, that the person must act upon it, constitute the strongest proof that such impulses are the offspring of a diseased mind. It is a mistake to think, furthermore, that the insane yield to their impulses without any attempt at self-restraint. Were this true we should have dozens of suicides and homicides for every one that actually occurs. I have always felt how true Meynert's remark was which he made verbally to his students on one of his rounds: "Considering the delusions, the impulses, and the passions of the insane, there is more self-restraint inside an asylum than there is outside of it." Every one of us has been witness to the struggle which those who are permanently or temporarily deranged have made in order to resist the sudden impulses coming over them. At some time a limit of endurance is reached, and, unfortunately, the insane individual has to yield to the sudden impulses urging him on to commit every possible form of crime. The laity and many medical men may claim that since the person in question and since others have been known at various times to resist morbid impulses, it was his duty on this special occasion again to resist. We may consider it unfortunate that he was not able to do so, but can surely not hold him responsible for yielding to impulses which were so strong as to control his entire being. The criminal act is the natural result of his mental condition, the natural outcome of mental disease, and that must decide the lack of responsibility, while there is room for congratulation that the accused and others so often resist the sudden biddings of an impulse.

I grant that there are great difficulties in the way of accepting this theory of morbid impulses as a defense for criminal acts. It may be urged that every act is the result of a sudden impulse, and that if we allow the defense in one instance we must accept it in all. To avoid this dilemma it is only fair to expect that some other signs of mental derangement shall be discovered in a person who has yielded to a morbid impulse, or that proof shall be forthcoming that the person has had previous impulses of this kind to which he has unfortunately yielded. If such evidence is not easy to procure, further observation of the accused individual should supply the necessary evidence as to his mental condition. It may be urged, on the other hand, that the impulse which led to the commission of the crime was *the first and only impulse of the sort*; that with the exception of this "temporary fit of insanity," as it is popularly called, the person is entirely sane. I am not willing to give my approval to such an argument, for, as a matter of fact, single impulses of this description are very rare indeed, and if the person is kept under proper observation further evidence will surely be found.

It is interesting to note the relation which these morbid impulses hold to conditions occurring during normal life. Every one has turned out the light in his bedroom, and has been suddenly seized by the fear that the light was not properly turned out and that the gas might be escaping. He gets up, finds he is mistaken, goes to bed, and after a few minutes may be startled again by the same fear. What has happened to him is that a sudden morbid conception arises in his mind as to the escape of gas, and he is not able to allay the fear by the methods which ordinarily carry conviction. Returning to one's door again and again in order to make sure that it is properly locked; the fear that the letter which has just been mailed was not properly sealed; or the fear

that one forgot to sign a letter or a check—all such imperative conceptions are of daily occurrence in the life of healthy individuals, are often regarded as annoying occurrences, but that is about all. If we carry this physiological occurrence just one step further the morbid conceptions may become permanently lodged in the mind and may lead to morbid impulses. Who has not felt when standing on a giddy height that he would be suddenly drawn into the abyss below, and for fear that he might yield to this feeling has stepped back a safe distance from the abyss? Others on board a vessel have felt suddenly a peculiar sensation, as though they would be inevitably dragged into the water; they step back unconsciously in order not to give way to this special impulse. At the sight of a knife many a person has felt that he or she might do some harm with such a weapon. A few years ago an unhappy woman came to my clinic, and stated that whenever she sat down to table with her husband and her five-year-old child, whom she dearly loved, she felt as though she would have to seize the knife and kill the child. She stated that she passed through the most intense agony, for she would not willingly harm a hair on the child's head. She came to me begging for advice what to do. I told her that she must, of course, control herself under all circumstances, but that it would be advisable for her to separate for some length of time from her child, to which she readily consented. A few weeks later she appeared again, stating that now that her child was away she had exactly the same feelings with regard to her husband, and that unless she were placed under restraint she would some day kill him. Husband and wife too had to be separated, but whether they were ever reunited, or whether the poor woman has committed some act of violence in obedience to her impulses, I cannot say. Few sane people would control themselves as this woman did had they similar impulses. Who would blame such an unfortunate creature if at such times she had yielded to the promptings of her diseased mind? There is a story, also, of a nurse who was attending a child of Alexander von Humboldt, who begged to be dismissed from service because every time she bathed the child and saw its pure-white skin she felt impelled to do it some harm. How closely akin to this state is the entirely normal condition of people who, in hugging a little child, feel as though they could bite a bit of its cheek! We need not refer, in addition, to the innumerable variations of this sudden play of the morbid impulses, to the sudden feelings or impulses arising in husband or wife as a result of conceptions suggesting the need of the immediate death of the life-partner. The important point to be remembered is that morbid impulses constitute a very grave series of symptoms; that they occur in different forms of insanity, as we shall see later; and that far from being a mere subterfuge as a defense for crime they are too often the actual cause of the worst outrages.

The criminal lunatic does not commit crimes merely as a result of delusions, hallucinations, or morbid impulses. He may have inherited insane tendencies; his nature may be perverse, degenerate; he has been reared in crime, and his wrong-doing is inevitable. This is particularly true of those exhibiting marked moral defects. In these individuals the relation between hereditary mental disease and crime becomes a very close one. The Italian school of criminologists, under the able leadership of Lombroso, has devoted much labor to the elucidation of this



Fig. A.



Fig. B.



Fig. C.



Fig. D.

CRIMINALS WHO HAVE BECOME INSANE ("DEGENERATE TYPE").

Fig. A.—Aged 50 years; "Frenchy;" murder in the second degree; killed "Old Shakespear"; asymmetry of head and face; deep orbital arch; large ears. Became melancholy and emotional.

Fig. B.—Aged 29 years; "instinctive criminal;" several convictions; had strong delusions and hallucinations; assaulted fellow-convicts. Small head; large lower jaw.

Fig. C.—Aged 24 years; murder in the first degree; said to have been insane previously; claims homicide in self-defense. Delusions of persecution. Dolichocephalus.

Fig. D.—Aged 31 years; repeated convictions for larceny and assault. Has auditory and visual hallucinations; lower jaw massive; head small.

*[The illustrations on Plates II, and III, are of inmates of Matteawan State Hospital of Criminal Insane, from photographs kindly furnished by Dr. Allison, Superintendent, and Dr. Robert B. Lamb. The author is also indebted to the courtesy of Dr. Carlos F. MacDonald.]

question, endeavoring to prove, by careful craniometrical measurement, abnormalities of the criminal skull, of the face, and of the entire organism, that the criminal bears the distinct signs of deficient mental and physical endowment. He is a degenerate individual, and if his degeneracy is not the equivalent of insanity it is at least next of kin to it. The new school has not adopted the phrenology of Gall, it has not assigned to various parts of the skull the various peculiarities, vices, and virtues of the individual, but it has endeavored to show that the skull capacity as a whole is deficient, or that the frontal region, which is generally considered to be the chief seat of intelligence, is deficient in the criminal classes. But this same region is deficient in other individuals who may lack intelligence but are not in any sense criminal. It is surely wrong to claim that every criminal is insane, temporarily or permanently, or to claim the existence of insanity in a criminal, unless there be some further evidence of insanity in addition to the crime committed.

Lombroso in Italy and Benedikt in Vienna have been the chief students of cephalometric measurements. I append one table taken from Lombroso's work, showing the varying capacity of criminal skulls and those of insane or epileptic individuals.

<i>Skull Capacity.</i> <i>Cubic centimeters.</i>	<i>Murderers.</i> (%)	<i>Thieves.</i> (%)	<i>Sane.</i> (%)	<i>Insane.</i> (%)	<i>Epileptic.</i> (%)
1101-1150	0	2.9	0	0	0.5
1151-1200	0	11.7	0.9	1	0
1201-1250	0	0	1.7	3	0
1251-1300	11.3	2.9	4.3	3	2.0
1301-1350	9.4	11.7	6.9	10	1.0
1351-1400	16.9	11.7	12.9	8	7.2
1401-1450	11.3	11.7	12.9	22	8.8
1451-1500	15.0	17.6	15.5	12	14.4
1501-1550	5.4	17.6	14.6	12	20.1
1551-1600	11.3	8.6	11.2	11	16.1
1601-1650	13.2	0	9.5	10	11.3
1651-1700	5.4	2.9	5.2	2	11.9
1701-1750	0	0	3.4	4	3.62
1751-1800	0	0	0.9	1	1.52
1801-2000	0	0	0	1	2.59

Lombroso draws the conclusion that the skull capacity of criminals is less than that of normal individuals, and that this diminution is much more marked among thieves than murderers; from which we might infer that murderers are more highly organized individuals than thieves. In skull measurements the criminal (according to Lombroso) is nearer the insane than the healthy individual. But such statistics should not be overstated; the variations may indicate a generally defective organism, and in the individual case variations from the average cannot be depended upon as evidences of an insane temperament in its relation to the crime committed.

Benedikt, who has examined a large number of German criminals, concludes that in central Europe the army of criminals is recruited from the lower anthropological order of the various races.*

* The present writer has been tempted to enter upon the question of the degeneracy of the "instinctive" criminal, but it would have been aside from the main subject. While there is little doubt that the Italian school has exceeded the warrant of its facts in establishing various criminal types and in attaching undue importance to signs of degeneracy in the individual, it has established for all times the intimate relations

Without reference to conflicting theories it will be well to study carefully and soberly the forms of insanity which are known to lead frequently to the commission of crime.

SPECIAL FORMS OF INSANITY IN THEIR RELATION TO CRIME.*

Crime may result from defective development as well as from disease of the mind. From a practical standpoint it matters little whether the symptoms exhibited in a given case, or the actions committed, are due to improper growth of brain (and mind) or to actual disease of a brain that was once normal. Both forms are morbid in the sense that they indicate a departure from the normal. But as the brain and the mental faculties are not fully developed until the age of puberty has been long passed, we must also include the consideration of those crimes which are the result of unripe judgment rather than of disease; but as a matter of fact very few youthful persons are guilty of violent or wrong acts unless they bear the germs of impending insanity or the traces of a tainted family record.



Fig. 25.—Ravachol: asymmetry of face, deviation of nose, slight growth of beard, and firmly set jaws.

Persons cannot be held responsible for criminal acts—

1. If they have not yet attained the age at which they can be expected to realize the full import of their actions, although they may appear to be capable of such development later on.

2. If they give evidence of arrested or defective development of the brain (idiocy and imbecility).

3. If they exhibit evidence of such disease of the mind as affects the fully developed brain, or of conditions of degeneration that become apparent only after body and mind have matured.

4. If at the time of the commission of crime they were in an unconscious condition or in a state of altered consciousness.

THE RESPONSIBILITY OF CHILDREN.

The law of every land concedes that a child cannot be held responsible for criminal actions: its judgment is defective, and it does not

between the habitual criminal and the insane. The annexed faces will suffice to prove the existence of the insane type among criminals; but if any reader will take the trouble to consult Byrnes's *Professional Criminals of America*, he will find that the majority of those habitual criminals exhibit few, if any, signs of degeneracy. For the present there is still a wide gap between criminality and insanity. The entire question is cleverly dealt with in the book by Havelock Ellis entitled *The Criminal*. The conclusions of the Italian school of criminology are also criticised in the work of Baer and in the monograph of Hirsch.

* For a fuller account of each form the reader is referred to Dr. Hamilton's article in this volume.

realize its relations to the other elements of the social organism; it may be able to discriminate between right and wrong in certain concrete instances, but of the abstract principle of right and wrong it has no conception. The early acquisition of such knowledge is, however, the main object of all training.

The limit of childhood is fixed differently in various countries. In this country responsibility begins with the fourteenth year. Lord Hale demanded that a normal individual should have the understanding "as ordinarily a child of fourteen years hath." Austria adheres to the same



Fig. 26.—Forger: receding forehead and prognathism.



Fig. 27.—Bandit: receding forehead and huge lower jaw.

limit, while Germany exacts full responsibility after the completion of the twelfth year; in France there is no well-defined age-limit, and children under ten are not infrequently brought to court and sentenced. In all civilized countries there is a tendency, however, to extend the limit; in France to the age of sixteen years or thereabout, and in other countries even up to the age of eighteen years. This is quite in keeping with the efforts at criminal reform, and special reformatory institutions have been established at different places for the care and reform of youthful delinquents. Among the general average of youthful criminals not a few show signs of a bad inheritance.

The statistics of early crimes are quite appalling, showing the need of special legislation; according to Krafft-Ebing the average number of criminals under sixteen years in Prussia varies between 5085 and 9225. A very few only of these youthful criminals are examined with reference to their mental condition; if such an examination were made it is safe to say that a very large number would give undoubted evidence of defective inheritance, or of deficient mental and moral training in early years. And this deficiency in training is often in direct relation to the mental peculiarities of parents. Several of the worst cases at the Elmira Reformatory have been boys who were supposed to be of normal mental development, even bright; yet their descent from hysterical and epileptic stock, and the poor training which neurotic parents gave them, were



Fig. 28.



Fig. 29.

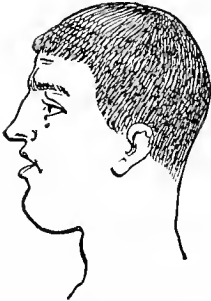


Fig. 30.



Fig. 31.

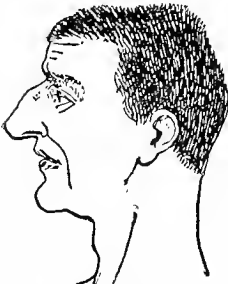


Fig. 32.



Fig. 33.

Figs. 28 to 33.—Selections from sketches made by Dr. Vaus Clarke of Woking Prison, and reproduced in Ellis' book.

Fig. 28.—Dock laborer, aged 18: assault and robbery. Fig. 29.—Farm laborer, aged 38: horse-thief. Fig. 30.—Laborer, aged 21: robbery with violence. Fig. 31.—Puddler, aged 21: wounding. Fig. 32.—Cook and steward: larceny. Fig. 33.—Age 25: robbery with violence. All but one (Fig. 31) had been previously convicted.

PLATE III.



Fig. A.

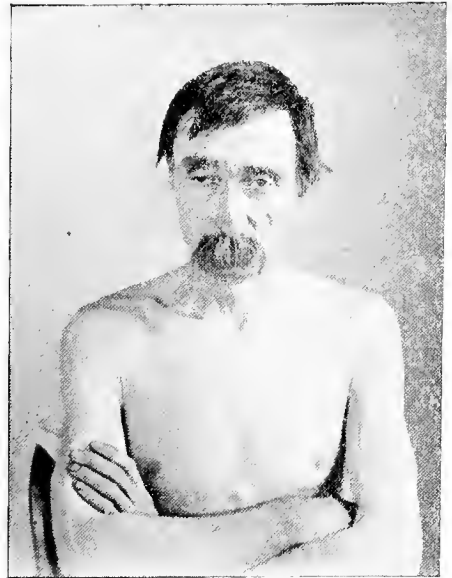


Fig. B.



Fig. C.



Fig. D.

CRIMINALS BY REASON OF INSANITY.

Fig. A.—Aged 37 years; killed Dr. Lloyd, asylum physician; in love with Mary Anderson; declared "insane and responsible" (!); life sentence. Characteristic pose of body.

Fig. B.—Aged 50 years; insane ancestry; impulses to kill his children; murdered a policeman without cause. Hallucinations and delusions; "can talk with mice, birds," etc.; melancholy countenance.

Fig. C.—Aged 26 years; murder in the first degree; sentence commuted to life imprisonment; one term at reformatory; insane ancestry. Is depressed; delusions of persecution; massive jaws; dolichocephalic; exophthalmos; coronal suture depressed.

Fig. D.—Aged (?); shot at a female church-organist. Hallucinations of hearing caused act. Insanity not recognized on trial. Says he is "Duke of Sussex and Earl of Beaulharnais."

directly responsible for the wrongs they committed.* Growing up amid such surroundings they could not be expected to discriminate between right and wrong in the abstract, nor even between mine and thine. Consider in addition that the age of puberty is attended by an awakening of the sexual sphere, with all that it implies regarding the relation to the opposite sex—a period fraught with a certain amount of danger for every normal child; consider, also, that at this same age all the latent inheritance comes into play, that the family ghosts (hysteria, epilepsy, insanity) have their say, and that the habit of masturbation is often engendered to intensify latent defects or create new troubles: consider all this and there will be little wonder that crime is so frequent in early life.

Children have committed many different crimes. Murder, arson, and stealing are the commonest of these, all of them the result of defective judgment or of defective training, or both.

S., a lad of ten years, living in Alsace, had a companion who, as the son of wealthy parents, wore fine clothes. S. was envious of these. One day he induced his little friend to go to the woods, murdered him, and then donned his fine clothes, leaving his own ragged clothes at the place of murder. He was discovered and tried. The jury found that he acted with "discernment," and declared him guilty, but recommended him to the mercy of the court; he was sentenced to ten years in prison. (Mittermaier, *Friedreich's Blätter*, 1865, vol. v., quoted by Krafft-Ebing.) The jury were evidently guided by the old principle that if the person knows the nature of the act he must be guilty. This does not hold good with reference to adults; applied to a child of ten years it is monstrous.

Last year a boy of twelve years was brought to me from Texas, who had been placed at a school away from home and lived with one of his teachers. This was evidently not to his liking. One evening he asked to be allowed to attend a "candy-pull." The teacher refused. Very soon thereafter the boy walked into his bedroom and deliberately set fire to the clothes in a closet. As soon as the smoke was noticed he confessed what he had done and helped to extinguish the flames. The examination of the boy brought out the fact that he was not very bright, and that he was homesick; and that he committed the act first from a slight feeling of spite toward the teacher and then because he was anxious to be sent home. During a prolonged period of observation and for months at home he has not shown any evidence of insanity or of viciousness.

Still another case will illustrate the narrow line of demarkation between sanity and insanity in children, as well as the effects of faulty training. A well-developed girl of fourteen, the child of respectable and well-meaning parents, was referred to me some time ago for an opinion as to her mental status. The child had become willful and unmanageable, had no regard for the truth, and at school had taken things out of other children's pockets. In addition to these unfortunate qualities she exhibited considerable sexual excitement and was anxious to obtain information on sexual matters. By her relatives she was supposed to be precocious, which she was not except as regards vicious habits. In former days physicians would have made a diagnosis of kleptomania, if

* In this respect the medical reports of the Elmira Reformatory are of great interest.

not of moral insanity ; but the child, who was descended from a distinctly neurotic stock, was the victim of faulty training : in view of her supposed precocity she was encouraged in the idea that what she desired should be hers, that she was an unusual child, etc. This young girl was placed in the charge of an intelligent, sober-minded teacher, who has studied her mental peculiarities and has succeeded in changing the child's point of view. In this one instance the coöperation of physician and teacher has averted impending mischief ; but in dozens of other cases the seed that has been sown ripens, and all sorts of crime result in later years from faulty inheritance made worse by faulty training.

The inference to be drawn from these few examples is that even if insanity cannot be proved in a youthful criminal, the antecedent history and the early education of the child should be taken into account, and both these may discover extenuating circumstances.

ARRESTED OR DEFECTIVE DEVELOPMENT OF THE BRAIN.

Under this heading are to be included all cases of insufficient development of the mind varying between idiocy, imbecility, and mere weak-mindedness. This is a difference in degree and not in kind ; a difference in the stage at which cerebral development was arrested, or a difference in the extent to which the development of an imperfectly organized brain has been carried.

Idiocy or imbecility may be truly hereditary, or due to injury during labor, or to influences which have been active during the earlier years of life. Idiocy from hereditary causes is most apt to occur in the descendants of distinctly neurotic stock, in families in which insanity has occurred in succeeding generations, or in those in which epilepsy, chorea, hysteria have been frequent occurrences ; often the parents themselves have been thus affected. But two conditions lead more frequently than all others to idiocy and imbecility in the descendants ; the first is alcoholism of either parent,* and the second is blood-relationship between man and wife : if there be the slightest taint in the family this taint is greatly intensified by such a union. As there are few families entirely free from such taints, the evil of intermarriages can be easily gauged.

A very considerable number of cases of idiocy are due to difficulties during labor. To the study of this class of subjects the present writer has devoted much time and labor. The purely medical questions involved need not be alluded to in this chapter, but from a forensic point of view it is important to know that prolonged labor and the application of the forceps to the skull of the child often cause a hemorrhage over one or both halves of the brain ; that this hemorrhage ultimately results in an atrophy of a considerable portion of the cortex ; and that this atrophy may lead to defective development of the mind. Let me add at once that the lawyer and medical man should not endeavor to prove too much by this, for in the vast majority of cases prolonged labor and instrumental delivery do little harm ; and if harm has been done to the brain, *epilepsy and paralysis* (unilateral or bilateral) are *frequently associated with idiocy* or imbecility.

Idiocy or imbecility may also be due to external injury (falls) to the skull during the early years, or to the acute infectious diseases so common in childhood. Convulsions, whether of reflex origin or the precur-

* Syphilis is also mentioned by many, but I doubt its significance in this respect.

sors of an infectious disease, may be the direct cause of arrest of brain development. I have known children of two years and even older to become complete idiots after the occurrence of such convulsions, although they were entirely normal before such convulsions had occurred.

Furthermore, weak-mindedness developing at about the age of puberty may be the result of inheritance; in these cases the brain has been capable of a certain amount of development, and the symptoms of imbecility have not become manifest until the work of a normal adult brain has been expected.

The jurist and the medico-legal expert need take but little trouble to prove the existence of idiocy: the idiot, as a rule, speaks for himself; but there are grades of imbecility which approximate so closely to the normal that it will require some skill to demonstrate wherein the imbecile is deficient.

The idiot is entirely incapable of utilizing impressions that he has received; there may be perception, but not apperception; he is restless, but restless without a purpose; he is animal-like in his appetites, and the gratification of these is sought, at times, in bestial fashion. It is needless to add that the idiot exhibits no judgment and no memory, except that he is very apt to know whether his appetites have been gratified in the usual way.

The imbecile is distinctly removed from this order of beings, yet related to them clearly enough. He is capable of a few abstract conceptions, may learn to know his relations, can be taught to avoid danger, to keep himself clean, to be quiet when strangers are around, and so on; but as he grows the deficiency of his mental and moral make-up is evidenced in the excessive development of the animal appetites. The gratification of hunger and of the sexual appetite is his most important aim in life. Every one has known imbeciles who could be made happy by tobacco or a few drops of whiskey. The sexual appetite is gratified by self-abuse, which soon increases the imbecility, or by attempts at intercourse with all sorts of persons—with children and old women; Giraud reports (*Ann. Méd.-Psych.*, 1885, vol. i.) the case of an idiot who attempted to rape his own sister. A feeling of modesty or of shame is, as a rule, entirely wanting.

When all symptoms are distinctly marked the task of diagnosing imbecility is relatively easy. It is much more difficult if the person in question exhibits only a moderate degree of imbecility; in such cases we must be guided entirely by an examination with reference to the range of the person's mental horizon, and by the account (always valuable) of his behavior toward his relatives and in his home surroundings. A comparison with other subjects of the same age is important, but individual differences must be allowed for.*

The idiot and the imbecile have defective judgment and cannot, therefore, be held responsible for the acts they commit; they may learn to distinguish between right and wrong, but they are deficient in the appli-

* A few imbeciles have attained considerable skill in some one department, as mechanics and even as artists; through careful education the original imbecility may be covered up. Sander reports the case of a young German who passed his first law examination who was pronounced an imbecile. I knew a young chemist, an evident imbecile, who had succeeded in passing his examination, but it took him years of study to get what others got in a few years; in the struggle for existence he proved an absolute failure.

cation of such knowledge, for their judgment and deficient reasoning are easily overruled by their passions.

Imbeciles have committed crimes not realizing the full consequences of their actions, or from a mere desire to gratify their passions and impulses. Casper reports the case of an idiotic cannibal of forty years, who was in the habit of carrying about a nephew of two years. One day he failed to return home; he was discovered in the woods; he had bit through the child's throat and gullet, had eaten its flesh and drank its blood. His only motive was that he wished to eat the child's flesh in order that he might grow tall—he had no conception of the enormity of his crime.

The annals of crime and of psychiatry are full of such cases—none more horrible than that of Carlino Grandi, who buried four children alive, and was discovered when he attempted to bury a fifth. He was anxious to rid himself of boys who were poking fun at him, and thought it quite a proper way to proceed. He thought that the four boys who were in Paradise were better off than he. He was sentenced to imprisonment for twenty years.

Imbeciles have so frequently been guilty of incendiarism that they constitute a large percentage of pyromaniacs. The incendiarism is sometimes the mere result of a desire to see a grand spectacle, in other cases of a desire to practice revenge upon a supposed rival, and sometimes arises from a mere spirit of restlessness and a desire to do something.

Whatever the nature of the crime may be, it is the duty of the medical expert to prove by the history of the accused, and by the result of his examination, that he presents distinct symptoms of defective mental development.

DEAF-MUTISM.

No one would ordinarily think of classifying deaf-mutes with the insane; but if they have not been trained in special schools they may remain entirely devoid of all moral concepts, and their social status may be not unlike that of the imbecile or idiot. Fortunately, criminal acts by deaf-mutes are very much rarer than they were, owing to the improved methods of instruction. If a deaf-mute commits a crime it will be natural to question his responsibility; but a decision can under no circumstances be given unless it is clearly proved whether he has or has not been properly trained, and whether his mind has been able to grasp the ordinary conception of right and wrong. No one but an experienced deaf-mute instructor can be trusted to secure such evidence, or to determine the exact condition of his mind. Under the influence of strong emotions during a fit of frenzy, deaf-mutes have set fire to houses and have committed murder.

Casper (*Vierteljahrsschr.*, vol. xxii., p. 136) tells of a deaf-mute twenty-four and a half years of age who set fire to a stable after he had been struck by his father, who had been in the habit of abusing him. While the fire was raging he clapped his hands with joy. On examination he was found to be weak-minded, his mental capacity not exceeding that of a boy of fourteen.

It is evident that deaf-mutism alone does not constitute an excuse for crime, but that if the person has not been properly trained his intellect and his moral make-up may be defective. It is therefore of the utmost

importance to determine the exact mental condition independently of the deaf-mutism.

The condition of deaf-mutism may be simulated; if so, the following tests should be remembered: A deaf-mute perceives the vibrations of the air caused by loud clapping of the hands or by stamping the floor; a simulator will claim not to notice this, nor to perceive the vibrations of a tuning-fork placed between the teeth, which a deaf-mute perceives perfectly. Deaf-mutes spell correctly as a rule, as they have been carefully instructed; simulators often spell incorrectly, perhaps intentionally so. Krafft-Ebing refers to a method suggested to him by Professor Kessel. The supposed deaf-mute is to be placed in a room and given his meals at regular intervals. This is to be omitted for once, while in an adjoining room the sound of "forks and knives" is to suggest that it is time for his meal to be brought: he will, in all probability, turn to the source of the noise. This is ingenious, but we doubt whether it will prove successful in all cases.

MELANCHOLIA.

Melancholia is a well-recognized form of insanity which may become the cause of crime. It is not to be confounded with simple melancholy depression, which may accompany almost any form of mental disease. It is as natural for a lunatic who has delusions of persecution to be depressed and melancholy as it would be for a sane person who found that everything and everybody were against him.

In true melancholia the *depression* is the primary condition. Without cause or reason the patient is in a state of intense depression, out of which he cannot be argued. Whatever his experiences may be, even though they might have been a source of pleasure to others, he is swayed by the depressed mood, and will look at the world only through the darkness of his own soul. His feelings are smothered. He takes no pleasure in business or professional work; music has lost its charm; he grows indifferent to every one, cares not for wife or child; he is doomed to perdition, and every one dear to him is to meet the same fate. A mother once devoted to her children feels that all maternal feelings have left her; that she does not care whether her children are ill or well, whether they are living or dead. None but sad thoughts pass through the mind, helping to intensify the original depression. A total lack of energy characterizes such patients; with this lack of energy goes the idea that there is no use in trying to do anything, for it is bound to lead to evil and to do harm in the end. The patient sometimes perceives the sluggishness of mind and body which is so characteristic of this state, and grows more and more morbid over this altered state of feeling, broods all day long, becomes silent and totally indifferent to everything. The physical depression, the loss of appetite and of sleep, chronic constipation, soon affect his general bodily health, and he becomes a pitiable physical and mental wreck; but, fortunately, in many instances the wreck is not complete and recovery may set in.

In melancholy there is a distinct inhibition, a "slowing up" of all mental and physical processes, but the person thus afflicted is able for a time, at least, to examine his reasoning powers, and will naturally try to find some cause for his depressed feelings. As a rule the cause is supposed

to be within himself: he has not done his duty to his next of kin, to his fellow-men; he feels that he is a miserable creature, that he has been guilty of great sin, that he does not deserve to live, bringing misery only upon himself and his family. Mothers suffering from melancholy declare that they have not done their full duty toward their children; that they have been neglectful of their children's early education, or, as a patient of mine insisted, she did not prepare her daughter properly for the duties of married life, and in this committed a grave offense—in short, naught but self-accusation. To make the condition still more painful, delusions and hallucinations in keeping with the depressed emotions add to the anguish of the patient.

For weeks and for months the patient may remain in this condition of depression, showing no signs of physical or mental activity, often not uttering a word for days at a time, except possibly to bemoan the sadness of his or her fate; but this quiet is at times changed, and quite suddenly too, and the violence of the acts committed is often in direct proportion to the degree of former depression. The patient breaks all chains at once, as it were.

The melancholiac is led to deeds of violence in order to put an end to his own sufferings, to avert impending danger for himself and others, or in obedience to delusions and hallucinations. A sudden fear is very apt to seize him, and in this condition he becomes thoroughly irresponsible.

Suicide is the natural effort of the depressed patient to free himself from misery; but on this act we need not dwell at any length, for it is not a crime in the eyes of the law, and the question of responsibility is not to be argued with regard to it. But cases of "indirect suicide" have occurred which are of the very greatest importance. Religious scruples have prevented many an individual who was so inclined from committing suicide, but as his only wish is to die he must merit death in some form, and so commits murder in order that he may be put to death by the State.

A young man twenty years of age, without any known cause, stabbed a young woman sitting next to him in the theater; she died instantly. To her husband he said, "I know neither you nor your wife. I do not know you." When cross-questioned he explained that he was tired of life, but preferred to die on the scaffold, as that would give him time to make his peace with God. He had thought of insulting an officer, of killing a priest, of assassinating the president of the French Republic, but all these he did not wish to kill; as he entered the theater he saw a young girl, but her life, too, he spared; the married woman sitting next to him appeared to him to be the proper victim. (*Gaz. des tribunaux*, 1851.) Was ever murder committed more deliberately? There was no doubt of his knowledge of right and wrong, but the insane motive that led to the deed would not have been suspected by any sane mind.

The "desire to hang" is not always the result of a *tedium vitæ*; it comes at times in the form of an uncontrollable impulse. Such was the case of the young murderer of eighteen years who felt an "impulse" to kill some one: he followed a boy, who was the first person he saw, to a convenient place, and murdered him in cold blood, taking evident pleasure in the deed. He knew the boy had no ill feeling against him, "only I had made up my mind to murder somebody." He did it because he wished to be hanged. (Maudsley, p. 158.) The boy was executed, and

the judge gave the opinion that he was thoroughly responsible, as he was able to understand the nature and consequences of his act, and that he knew the punishment was capital. This the learned judge considered a deeper aggravation of the crime.

But to return to melancholy. In a state of deep depression a mother may suffocate her child, either to end its misery or because the impulse suddenly comes upon her to change her own condition; she feels that she must do something in obedience to an overpowering suggestion. Remorse and horror follow quickly upon the commission of the crime. Every one can recall recent cases in which a mother has poisoned her children to keep them out of misery, or has shot them to put them out of harm's way.

Melancholy patients are often under the influence of intense fear: they feel that something terrible is certain to happen, that they must act to meet the impending danger. The pent-up feelings are finally let loose, and in a state of *raptus melancholicus* a horrible crime may be committed.

From a forensic point of view the question arises whether or not such persons should be permanently condemned to an asylum. That the person is not responsible for deeds committed goes without saying; but this is a curable form of insanity, and for years and years not a sign of insanity need be exhibited. For a period of at least several years after the commission of a crime the patient should be carefully guarded and observed; but after such a reasonable period it would seem just to give such person full liberty, but as a further safeguard the lunatic should be placed under medical surveillance for a period of at least five years, and with the first indication of a relapse should be returned to the asylum for treatment and safe-keeping.

MANIA.

The term "mania" is used to denote a form of mental disease which is the direct opposite of melancholia. The sense of the word was perverted in the days of monomanias; in modern psychiatry it represents the class of cases now to be described.

In contrast to the inhibition and slowing up of all cerebral and physical functions in melancholy, there is in mania a decided acceleration of these functions, associated with a feeling of well-being. Far from being depressed and without energy, the maniac is in an exalted mood, ready and able (so he thinks) to do anything: to win in any struggle, to down all enemies, and to accomplish with ease what the timid (the sane) dare not attempt. This exalted state of feelings leads to excesses and recklessness: he is apt to be on the go, traveling from one place to another; goes about from club to club; indulges himself to excess; drinks frequently; and in the full vigor of manhood worships to excess at the shrine of Venus, and boasts of his sexual performances.

The psychic processes being accelerated, or, rather, all inhibition being removed, he becomes fluent of speech; speaks on every possible occasion, sometimes sense, more often nonsense; the association of ideas is not under restraint; he passes from one topic to another without logical sequence; like a child, mere sound is apt to suggest new lines, not of thought, but of talk, and in many instances he begins to talk in rhyme.

He mistakes his doggerel for true poetry, and recognizes his own superior gifts.

With the removal of that inhibitory restraint which keeps us all within bounds, the maniac yields to every impulse, and will go to any length to satisfy his appetite or his ambitions. He will seek the highest position within the gift of the people, or will endeavor to establish sexual relations with women whom no one else would dare to approach (delusions of grandeur). If crossed in his plans he loses his temper, and often passes into a state of uncontrollable passion. His brain is in a constant turmoil; he loses sleep and appetite, and soon becomes exhausted from physical excesses, from overindulgence in sexual intercourse and in the use of tobacco and alcoholic drinks.

The condition pictured above may last for years in a more or less pronounced fashion; such patients often pass for men of unusual activity and capacity until the difference between intention and actual performance becomes apparent. If such a condition overtakes a man who was formerly slow to arrive at conclusions, cautious and sober in his judgments, the change will be recognized by every one. At times this same patient will be able to give excellent motives for apparently rash acts, motives which the sane could not have advanced, and yet seem reasonable enough. (This special form is termed by the French writers *folie raisonnante*.)

The exalted mood of mania may become intensified and will then lead to the state of frenzy, in which the person's will knows no restraint; he becomes violent, destroys everything, does bodily injury to himself, and will be liable to injure any one else who crosses his path while he is in this state.

The maniac comes into conflict with the law by reason of his exalted mood and the extreme mental and physical restlessness. At first he indulges himself in private; as the disease increases the maniac loses the ordinary regard for public morals, will attack the opposite sex on the street, will try to rape young children or to masturbate in public. If opposed in the execution of his plan he becomes quarrelsome and is only too quick in the use of firearms; in the spirit of restlessness, and in obedience to transitory delusions or hallucinations, he will commit arson or murder.

Mania as well as melancholy often represent the initial stages of more chronic forms of mental disease, and often, too, are entirely curable. The person who has been guilty of a criminal act during the period of exaltation or maniacal frenzy may have fully recovered by the time he is brought to trial. The physician must therefore endeavor to show by a careful history of the case that the patient was actually deranged at the time he committed the act. The plea of transitory mania or temporary insanity is often advanced in cases in which there is insufficient reason for doing so. A distinction should be made between sudden extreme passion and maniacal frenzy. To prove the latter, evidence should be brought forward to prove derangement before the commission of the criminal act, for maniacal frenzy is never developed with great suddenness, and he who knows how to question and examine the accused or his relatives will be able to prove the existence of insanity before the act, if any such existed. Such cases are, on the whole, easily recognized; a single example will suffice to illustrate its relation to crime:

Dr. Koster, in the *Irrenfreund* for 1875, relates the case of a man twenty-nine years of age, who had an insane mother, and who had himself always been distinctly neurotic. Marrying a woman much older than himself, he was gayed by his neighbors, and became sensitive to their remarks. One evening he was accused of not being the father of his child. This excited him intensely; he was unable to work and became confused. Two days later he paced the floor until twelve o'clock at night, and at two o'clock ran to his neighbors dressed in his night-shirt, telling them that he had murdered his wife and child. He had choked his wife and cut the throat of the child. He spoke in a confused manner of electricity, of satirical verses pointed at him, and was evidently subject to deliria and hallucinations of a mild order. This condition lasted for nearly six months, when he slowly regained his mental balance. This case proves how easily a person with a marked hereditary taint can pass into maniacal frenzy, goaded into the condition, as it were, by relatively slight causes.

PARANOIA.

The jurist's and the layman's view of insanity is represented best by paranoia. In this form of mental disease delusions and hallucinations play a very important part, whereas we have had little to say about them in the other forms previously mentioned. In paranoia the delusions and hallucinations are primary symptoms, and not engendered on the soil of exalted or depressed emotions, as in mania and melancholia. These delusions, "fixed ideas," become systematized. They are the pivot about which the entire personality and the person's entire universe turn. They lead to the formation of an *alter ego*, altogether different from the original *ego*. The delusions dominate the mental activity to such an extent that they become the mainspring of all action. The paranoiac is not amenable to ordinary reasoning, and his delusions cannot be dislodged by any power of logic. His mind is not susceptible to argument, for if it were, the delusion would of itself disappear, as the temporary delusions of the sane or of the curable insane do. He may have one set of delusions, he may have many: the persistence of one or of many proves that the entire logical apparatus is out of gear. It is absurd, therefore, to claim that a person is insane on some one point, and one point only; he may show his insanity in one way only, but his mental derangement is as great as though he had dozens of fixed ideas.

Paranoia is also the most typical form of insanity, inasmuch as it shows most distinctly the effect of heredity. The first signs of the insane neurosis can, as a rule, be traced far back into childhood. The children who are exclusive, who never care to play with other children, who are unusually irritable, who prefer to pray when others go to play—these are the very ones who develop paranoia later in life. Moody, irritable, queer, and "cranky," they go along well enough until they have to rub up against others in the struggle for existence, or until they are overcome by some severe grief, by strong emotion, by political or religious excitement (election campaigns, revival-meetings, and the like); and then delusions which may have been latent for a long time come to the foreground. On further inquiry into the antecedent history of the paranoiac, he will be found to come of neurotic stock, in which insanity

hysteria, epilepsy, and chronic alcoholism have been common occurrences; in other cases a fall early in life, a severe infectious disease, such as typhoid fever or pneumonia, or masturbation, may appear to have been the direct exciting cause. While the disease begins in early life, the full-fledged delusions do not, as a rule, appear until the age of puberty, or possibly not until the climacterium.

The systematized delusions of paranoia may be divided into two great groups: first, delusions of persecution; and secondly, delusions of grandeur; the latter may again be subdivided into religious, political, and erotic delusions.

Paranoia with Delusions of Persecution.—The patient thus affected supposes himself to be the victim of circumstances, of an individual, or of a corporate body. The essence of his belief is that he is made to suffer for wrongs which he has committed, or for envy which others feel toward him. He has, as a rule, been morose, exclusive, and perhaps given to masturbation. He feels that he is being observed by others; that they notice a peculiarity in him; that they can read and control his thoughts; that the newspapers direct their flings at him—when they speak of rascals or of thieves they mean him. Before long he hears voices; these are the voices of his enemies, who are trying to ferret out his actions; he stops up the keyholes and draws the blinds of his windows; but his neighbors are just outside and lying in wait for him; if they cannot get rid of him as easily as they wish, they put poison in his food, which he will refuse to take from that time on. He may be the victim of socialists, of the police, of a definite religious sect, who will endeavor to influence him by electricity, through the telephone, through hypnotism, or to kill him by causing him to inhale all sorts of noxious vapors. An endless variety of delusions and of combinations of delusions and hallucinations may be the result; but the one feature of all is that the patient is made the victim, the sufferer.

A patient of mine, twenty-five years of age, who had always been morose, was suddenly seized with the fancy that an intimate friend of his had gained full control over his mind and prevented the free exercise of his will. One day he bought a pistol, which he loaded and started out to find this friend and kill him; but fortunately the friend was out of town. As a measure of safety he was placed in an asylum, and was kept there nearly two years. In the asylum I examined the patient, found him rational in every way, and ordered his release on trial. I insisted on his reporting to me regularly, which he did faithfully enough. After several months he remained away, when, to my chagrin, I discovered that he suspected his mother of being in conspiracy against him, and that he meant to "fix" her for it. He had to be removed to an asylum at once, where he will necessarily remain for a long period of time.

It is easy to see that these patients are a source of great danger to the community at large; there is no telling whom they may suppose to be the cause of all their misery, and against whom they may proceed with murderous intent.

Moved by their delusions, and regarding them as real, they act in self-defense; for that reason they commit deeds of violence on the open highway, in public places, and in private houses; they have no fear of the result, and often glory over their supposed victories. They discrim-

inate between individuals, killing only those persons whom they suspect, while passing others by: the law, in its great wisdom, considers this evidence of guilt, for it proves premeditation and a knowledge of the wrong he committed.

The delusion of "marital infidelity" comes under this heading, particularly if it occurs in a woman, while suspicion of infidelity on the part of the wife is, as a rule, an accompaniment of chronic alcoholism in the husband. In the wife such *unfounded* suspicions are the expressions of a paranoia persecutoria as it occurs during the climacterium. The diminution of sexual concourse, the waning powers of fascination, naturally suggest that the husband or wife seeks gratification elsewhere. He betrays his relations to other women by the fact that he coughs when he passes them on the street. The maid waiting at the table passes the dishes with special deference to the master of the house. An old lady of sixty accused her husband of nearly seventy of such illicit relations with the maid. The husband declared to me emphatically that he desired no further intercourse with any one, and that all *he* cared for was to go to sleep. But the delusion persisted, and for a time quiet was restored by banishing all female help from the house except the cook, and the old lady guarded the kitchen very carefully.

In other cases, again, these changes in the sexual sphere lead to the delusion that the person has been raped in her sleep (whence false accusations), or that she has been led to houses of prostitution and the like; that others are spreading such reports for the purpose of defaming her. Some feel called upon to prosecute the offenders in court as a matter of self-defense.

Physicians play an unenviable rôle in some cases. A vaginal examination is said to have terminated in sexual intercourse, or possibly to have been the cause of a change in sexual feelings. Physicians also play a part in many delusions of persecution; above all are they frequently supposed to have gained complete mastery over the minds of the insane, and to be in a conspiracy against them. A patient of mine imagined that I had been engaged by the family to rid them of him, and that after his death I was to come in for a share of his fortune.

Paranoia with Delusions of Grandeur.—In this form we may classify all those cases in which the subject imagines himself called upon to fulfill some special mission. It includes the class of insane political reformers, of religious fanatics, of emperors, kings, and presidents, and those bent on some special mission of love. In all of these there is an exalted state of feeling such as is characteristic of delusions of grandeur. Those who find special pleasure in minute subdivisions may establish the following forms: paranoia reformatoria seu politica; paranoia religiosa; paranoia erotica.

The political conditions of the present day are such as to arouse the dissatisfaction of many living in monarchical countries as well as in republics. The sane endeavor to right such defects by the ballot and other peaceful measures. The insane, who wish to bring about great reforms, to enforce their own pet (generally foolish) schemes, are anxious to strike at once at what they suppose to be the root of the evil, and therefore aim at kings, presidents, prime ministers, and other high officials. If their own personal greed or desire for advancement has not been gratified, they have an additional incentive to acts of violence. In this connection

the case of Guiteau overshadows all others. If ever there was a pronounced lunatic it was he; yet he was hanged to satisfy the public conscience. The case is too well known to be given in detail; but let us pick out a few of the salient points which prove his insanity.

Guiteau was about forty years of age at the time he shot Garfield; his father was an eccentric individual who believed in free love, in mesmerism, and believed himself to be ordained by God to exercise these functions; an uncle was insane; his mother had a brain trouble at the time of his birth; his sister suffered from epilepsy and puerperal mania. He had no sort of systematic education, but was fond of reading, and particularly on religious subjects; he masturbated at very early age, and entered the Oneida Community at the age of nineteen. At the age of twenty-four he writes to his father, saying that he proposed to edit a journal for the special glory of Christ, and that thereafter churches would not be needed; that he was employed by Jesus Christ & Co. He endeavored to study law, but failed. At the age of twenty-eight he married a worthy woman, whom he abandoned after four years to live with a prostitute. At the age of thirty-four he offered to secure the Presidency for a foreigner, if that person would lend him \$200,000. In this same year (1875) he attempted to kill his sister, without any sufficient reason. He continued to preach at religious meetings, and denounced theaters. During the election campaign he wrote a short article favoring Garfield's election, and imagined it to have been chiefly instrumental in his election. He felt, therefore, that he was entitled to some office; aspired to the consulate at Paris, which he and the rich woman he was to marry would represent worthily. Finding himself thwarted, he conceived the idea of murdering the President, and brooded over this (which he gradually conceived to be a political necessity) for six weeks before proceeding to the act; he borrowed the money to buy the pistol; acted with great deliberation, and on one occasion when the President was with his wife desisted from shooting, and waited his opportunity until he was able to find him alone. After the shooting he issued a letter to General Sherman, in which he tried to justify the murder from a sense of duty toward the American people, and as a punishment for destroying the Republican party. His entire behavior on trial after he was pronounced guilty and as he was led to the scaffold was that of a man who believed himself destined to fulfill a special political mission, who was morbidly conceited, and who revenged himself for the neglect of his rightful (?) claims. It was the cruel revenge of a confirmed lunatic, of a paranoiac with delusions of grandeur. (See Folsom, *Boston Medical and Surgical Journal*, February 16, 1882.)

But the learned judge evidently thought otherwise and charged accordingly: * "If you find . . . that he had *possession of his faculties*, and the power to know that his act was wrong, and of his own free will deliberately conceived, planned, and executed this homicide, then whether his motive was personal vindictiveness or political animosity, or a desire to avenge a supposed political wrong, or a desire for notoriety, or fanciful ideas of patriotism or of the divine will, or you are unable to discover any motive at all, the act is simply *murder*, and it is your duty to find him guilty." The jury obeyed the charge, decided that Guiteau was

* Lawson, p. 188.

in full possession of his faculties, and found him guilty. The judge thanked the jury, and modern psychiatry now records this case as furnishing the best possible evidence of the inability of judge and jury to recognize a diseased mind.

EPILEPTIC INSANITY.

Epilepsy is a well-known convulsive disorder characterized by seizures of violent motor (clonic and tonic) contractions of some or all of the muscles of the body. The attacks are of short duration, but extremely violent while they last; between the attacks there is a free interval of varying duration. The attacks may occur at intervals of months, weeks, days, or of hours only. The disease is a chronic one, beginning, as a rule, either in the earlier years of life or at the time of puberty up to the ages of twenty-five or thirty years. Strictly speaking, epilepsy is not so much a disease *per se* as a group of symptoms resulting from many different causes; among these *inheritance* was formerly considered to play the most important part. While there is some disagreement on this head, epilepsy in the ancestry, chronic alcoholism of the parent, or even severe neuroses such as hysteria and chorea, are apt to lead to epilepsy in the descendants. Frequently enough the disease is acquired in earlier years as a result of traumatism during labor, of early infantile diseases (such as scarlet fever, pneumonia, cerebrospinal meningitis, etc.), or of direct injury to skull and brain.

Unfortunately the epileptic attacks, if long continued, become associated with mental changes, chief among which are impulsive actions of great violence at about the time of an attack, or as an equivalent of a motor convulsion; a psychic explosion may take the place of an ordinary motor discharge. Such actions are often committed in a semi-conscious or wholly unconscious state, and the epileptic who has committed an outrageous murder has been found asleep by the side of his victim, or as the epileptic seizure passes away awakens to a full sense of the atrocious crime he has committed. The act of the epileptic generally bears the imprint of a great sudden impulse. Lombroso has tabulated the records of 297 epileptic prisoners, and of these 76 were imprisoned for murder. The statistics of Baer (p. 306) are much more favorable, but it is quite evident that relatively few epileptics were turned over to his institution.

Epilepsy is uncommonly frequent in criminals, and the reason is not far to seek: in the criminal classes there is a distinct tendency to the severer neuroses, of which epilepsy is one; alcoholism is a powerful etiological factor,* and among these classes alcoholism is the rule; and injuries to the head are also frequent enough as a result of direct blows or of falls in childhood due to carelessness. The epileptic boy is unable to attend school, cannot retain positions, and thus falls an easy victim to bad associates. But the criminal actions of an epileptic are not necessarily the result of his disease, though the disease and the criminal tendencies may both result from faulty inheritance and faulty training. Crimes committed in an epileptic paroxysm are signalized by great sud-

* Dejerine states that in 37.7 percent. of 350 epileptics the father was a drunkard. (*L'Hérédité dans les Maladies du Système Nerveux*, p. 115.)

denness and violence of impulse; their character suggests the equivalent or force of a motor explosion.

It is not an easy matter to prove epilepsy, for in nine cases out of ten the diagnosis rests on hearsay evidence. The attacks are extremely short, and the physician rarely enough (except in public institutions) sees the attacks; he has, therefore, to depend upon the description given him by competent attendants or observant laymen. In a genuine attack there are sudden loss of consciousness; the epileptic cry; convulsive movements of one or all parts of the body; biting of tongue, with bloody froth at mouth; involuntary micturition; relaxation of all muscles, followed by sound sleep; the entire convulsive period is of very short duration. There are but few tangible symptoms of the disease to be made out during the interval—the very time in which it is often desirable to determine whether or not a person has epilepsy. As slight evidence of the existence of this disease we may regard the traces of laceration of the tongue during the attack; but a few days after an attack these may not be visible. The evidences of bromism suggest that the drug may have been given for the disease, but such evidence must be accepted very guardedly. Moreover, the epileptic attack has been simulated so perfectly that the most careful observers have been deceived.*

Sander (*Geistesstörung u. Verbrechen*, p. 236) relates the interesting case of an epileptic aged twenty-nine, who was arrested several times in succession for creating great disturbances on the streets of Berlin, of which he was only partly conscious, and for violence against policemen and others who attempted to subdue him—evidently a condition of epileptic mania. This same epileptic was charged by his mother with criminal violence, breaking everything in the household that he could fasten upon, and assaulting his mother. When charged with this he was ignorant of much that had passed, and did not remember that a policeman was present in his mother's house. At a later period he attempted to choke his mother in a maniacal attack. Epileptic violence and forgetfulness are well illustrated in this man.

It is important to remember that if epilepsy is long continued a condition of mental imbecility or dementia is developed, during which immoral or criminal actions are possible; furthermore, states of double consciousness occur in epileptics, not unlike the case of Dr. Jekyll and Mr. Hyde; and for criminal acts committed during the states of altered consciousness the accused can hardly be held responsible.

MORAL INSANITY.

Alienists have waged a hot battle over the question whether there is or is not such a disease as moral insanity.† That a condition exists in which defect or perversion of the moral sense is the most prominent symptom there is no doubt, but the best authors of the present day are agreed that there is no one disease characterized solely or even chiefly by the deficiency in the moral sphere without impairment of the intel-

* This is the famous case of the "dummy-chucker," who had studied epilepsy in prisons, and was able to imitate the epileptic attack perfectly. He would feign an epileptic attack on the streets, and while the crowd stood around, his boon companions were busy picking pockets.

† For an explicit account of this struggle see Wharton and Stillé, p. 532.

lectual faculties as well. Maudsley (p. 58) not many years ago went out of his way to defend the rights of moral insanity. "It may be witnessed even in young children who, long before they have known what vice meant, have evinced an entire absence of moral feeling, with the active display of all sorts of immoral tendencies—a genuine moral imbecility or insanity." But the author is compelled to add that "associated with this defect there is frequently more or less intellectual deficiency, but not always; it sometimes happens there is a remarkably acute intellect with no trace of moral feeling." The "acute intellects" are rare indeed among moral imbeciles, and such acuteness as there may be is overshadowed by huge defects in other directions.

Those who wish to establish moral insanity as a special form of mental derangement claim that the moral sense is distinctly hereditary. But this is scarcely conceivable. The moral sense is the highest faculty of man; it is not a quality inherent in the brain of man, but is in reality a highly complicated concept resulting from the daily experiences and teachings of parents and teachers: if such teachings have not been given the moral sense will be but poorly or not at all developed; if the teachings fall upon a deficient intellect, upon soil not fit to receive them, they will bear but little fruit, and the moral sense will not be developed. Idiots and imbeciles are naturally afflicted with moral insanity and with much more in addition. Imbeciles of minor degree may conceal their intellectual defects, but the moral defect stands out prominently; such imbeciles lack the power of absorbing those higher concepts which are essential to the development of a high moral sense.

Meynert (*Gehirn u. Gesittung*, Vienna, 1889) was surely correct in his opinion that the seat of the moral sense must be looked for in the entire hemispheres, in the mechanisms of association, the bearer of intelligence in general. The moral sense represents the highest function of the human brain, and for that reason, on well-known principles of evolution and dissolution, it is the last (the most difficult) to be acquired and the first to be lost from disease. The loss of morality may therefore be noticeable before intellectual decadence has set in; it often opens up the scene, but other symptoms will follow before the entire sad drama is enacted. As Lloyd (*J. of Nerv. and Mental Disease*, 1886, p. 681) puts it: "The doctrine of 'moral insanity' proceeds upon an abstraction . . . that there is a moral 'faculty' . . . which may remain undeveloped in a mind otherwise healthy, and may become diseased without at all affecting the health of the other 'faculties.'" Meynert (*Psychiatry*, trans. by Sachs) hits the nail on the head in saying, "It is taking altogether too simple a view of things to regard morality as one of man's talents, and as a definite psychiatric property which is present in some persons and lacking in others;" and he quotes Weissmann, who holds that talents are the combinations of many and widely different faculties.

While the present writer is thoroughly convinced that the defect in morality is to be ascribed primarily to an intellectual defect, it is but fair to say that opposing views are held by many prominent authors: Lombroso, Maudsley, and Hack-Tuke will not sacrifice "moral insanity" to any theories regarding the true nature of such defects; and even Krafft-Ebing recognizes the propriety of adhering to the clinical form.*

* In criminology moral insanity plays a very important part.

The justice of the clinical claim cannot well be denied—for cases do occur in which the moral defect overlaps all else—at least until a careful examination has established other mental deficiencies. It is positive that few medical authorities of the present day will subscribe to the doctrine of moral insanity as first established by Pritchard (*Treatise on Insanity*, 1842), and adopted later on by many French and English authors. But if the term is to be used, it will be well to restrict it at least to those cases in which the defective moral sense is the most striking symptom. Some years ago I saw at a clinic a young man who had been arrested for an assault upon his mother, whom he had failed to kill. He was entirely indifferent to the charge brought against him, and when asked whether he thought it was proper to kill a mother, answered, "You might as well kill your mother as any one else." On further examination it was found that the man had received no intellectual or moral training, had received no religious instruction, had grown up among the most degenerate of mankind, and had never received the most ordinary moral teachings. Naturally the moral sense was deficient. The case would fall easily enough under Mendel's ("Moral Insanity," *Eulen-burg's Real-Encyclop.*, 1888) definition of moral insanity as that form of insanity which is either congenital or acquired in the earlier years of life, and is characterized by imbecility, associated with a morbid tendency to immoral actions. Binswanger's (*Volkman's Sammlung*, No. 299) view is unquestionably the most correct: that a number of mental diseases may lead to "moral idiocy."

A single example will illustrate the condition of moral insanity; the case is reported by Krauss (*Friedreich's Blätter*, vol. xxxviii.):

"A girl twelve years old, daughter of a seamstress, stole the earrings of a child three and a half years old to buy sweetmeats with the proceeds of the sale, and threw the child out of the window. The child died of fractured skull. The murderess seems mentally and physically the equal of children of her age. The face has a distinct canine expression; she was always unemotional, lazy, and would steal sweets; at the age of four she would pierce the eyes of rabbits, and would rip open their bellies. She knows that it is wrong to do certain things, but has no ethical feelings; she felt no remorse over the murder of the child. The prosecuting attorney inferred that she knew the nature of her crime and its penalty. The court sent her to a reformatory for eight years, overruling the testimony of experts as to her defective moral condition." This was moral insanity if you choose, but it included a distinct defect of judgment and of all the intellectual functions.

PARETIC DEMENTIA, DEMENTIA PARALYTICA, OR GENERAL PARESIS OF THE INSANE.

Considering the unusual and increasing frequency of dementia paralytica, it leads less frequently to crimes than many other forms of insanity. This is accounted for by the rapid weakening of all the faculties, which does not permit the lunatic to carry out any well-designed plan of revenge or the like. Such acts as he commits are more apt to result from loss of reasoning, from carelessness, or from the exaggerated notion of his own prowess which the paretic entertains in the earlier stages of

the disease. He is met with more often in civil than in criminal courts. Squandering of money, neglect of wife and children, false promises of marriage, lack of testamentary capacity, cause innumerable suits and complications. Yet the increased sexual appetite, the feeling of inordinate strength, maniacal excitement, leading to deeds of violence, often enough make the parietic a criminal.

Crimes are perpetrated, as a rule, during the earliest period of the disease, at a time when the general symptoms may be so slight that even experts may differ as to the existence of the disease. It is therefore of special importance that the medical man and the lawyer understand the symptoms and course of the disease, and, above all, the signs of the prodromal period.

The disease begins, as a rule, in a very insinuating fashion; it attacks men more frequently than women, setting in, as a rule, between the ages of thirty-five and forty-five years; exceptionally it may begin much earlier. I have seen it begin at the age of twenty-one years, and one author has reported a typical case in a girl of sixteen. In a very large proportion of cases syphilitic infection has preceded, sometimes by many years, in other cases only by a few months or a year. Syphilis is the predisposing cause—not, as a rule, the direct exciting cause. The greater struggle for existence, the cares and responsibilities of business, worryment with overwork—not overwork alone—these are the chief causes that help to develop the disease. As men are more exposed to all these influences, we can understand why general paresis should be more frequent in them, and why it should be more frequent among negroes now than it was while they were in slavery.

A very slight change in the character and morals of a person, in his business methods and habits, may be the first indication of paresis. The father of a family, always most correct in his habits, takes to drink, forms low associations, is found in houses of prostitution, gambles for high stakes. The merchant becomes careless in his accounts, in signing checks, in his treatment of his surroundings; is unusually irascible toward his employees, or treats them with absurd consideration. A patient of mine, who never bothered about the comfort of his factory-girls, ordered ice-cream and lemonade every afternoon for the girls in his employ, and insisted on their working only a very few hours each day. Such signs may appear trivial, but a change in a person's behavior without sufficient reason may be sufficient to justify the physician's fears. Before long the morbid character of the change will become apparent enough, as the disease is rapidly progressive.

With the advance of the disease two distinct sets of symptoms are manifested. These are partly psychic and partly physical in nature. The psychic condition is characterized by a progressive weakening (dementia) of all the faculties; memory and judgment become seriously impaired; the parietic may be in a melancholy, hypochondriacal mood, or in a condition of exaltation with delusions of grandeur: he is the richest man in the world; owns all the shops, every railroad in the country; has innumerable mines, and is going to build houses—as an unfortunate architect, a patient of mine, claimed—covered with gold, and containing diamond, not glass, windows. The delusions are not systematized. He says he is rich, but does not act the rich man. He is king, but does not exact homage from his subordinates. There is a progressive deteri-

oration of all the faculties until a complete dementia is developed, and the man, once intelligent, is nothing more than an animal organism; animal-like in his appetites, and contented if these are satisfied.

The physical signs of general paresis are inequality of the pupils; failure of the pupils to react to light—sometimes both to light and during accommodation; tremor of the tongue and of the facial muscles; tremor of the hands; awkwardness in all movements; great difficulty in buttoning clothes, in writing, in whistling, in playing of instruments. Speech becomes tremulous, hesitating, and defective; words are slurred and run into each other; sentences are begun and not finished; in repeating sentences words are omitted; the legs grow weak, and locomotion may become difficult or altogether impossible. Both the mental and physical symptoms are progressive, and often in course of two or three years, during which time epileptic and apoplectic attacks may occur, death ends the sad career.

The physical symptoms often precede the mental, and for this reason the greatest importance must be attached to them; and during the earlier periods, too, excesses and crimes are apt to be committed in the feeling of exaltation or during a maniacal attack.

The silliness of the criminal act, the failure to conceal the deed, often point to general paresis. Magnan* refers to a paretic who asked two policemen to help him remove a full barrel of wine lying in front of a wine-dealer's shop. If caught in the act and called to account, paretics either deny the theft or give some silly excuse, showing that they do not appreciate the gravity of the situation. They are apt to pick up anything they can lay hands on, and in asylums either take things deliberately from other patients, pick up paper and cigar-stumps, or pocket every sort of rubbish. At times these patients are tricky. A patient of Mendel's gave a "box of cigars" in payment of a debt; instead of cigars the box contained potato-peelings, which he claimed got into the box in some way unknown to him. Exposure of the person is a very frequent occurrence; masturbation in public, particularly in the presence of women and children, is common enough. Westphal (*Arch. f. Psych.*, vol. vii., p. 622) mentions a paretic forty years of age who directed the attention of girls between the ages of eleven and thirteen years to his penis, and used obscene language in doing so. A patient of mine invited the servant-girl into his bedroom at night, and attempted sexual intercourse with her in the presence of his wife. Not a few have invited prostitutes to their own homes and introduced them into their families. Capital crimes are not frequent; if committed, the motives are either wanting altogether or extremely silly. A laborer aged forty-six years murdered his wife because he wished to enlarge his business and his wife was not his equal; he then wished to take his own life. After the murder he tells his neighbors that his wife died. He denied the murder at first, but later on became entirely indifferent.

These cases are sufficient to illustrate the importance of diagnosing the early stages of general paresis.

* Full literature to be found in Mendel's *Monograph*.

TOXIC INSANITIES.

Alcohol, morphine, and cocaine are the three toxic substances which, if taken in excess, produce serious disturbances of the central nervous system. Mental derangement is a common effect of the long-continued use of these poisons, and crime is its unfortunate accompaniment.

Alcoholism.—The evil influence of *alcoholism* is not sufficiently recognized by the laity or the medical fraternity. Social custom has, in most countries, sanctioned the free use of alcohol; the occasional drunkard is despised everywhere, but the man who poisons his system with alcohol day by day, without at any time putting his intoxication in evidence, is not censured for the habit, although he is even more certain than the occasional drunkard to develop the serious form of chronic alcoholism.

In this country whiskey and rum are the deadly poisons, but wine and beer have their victims as well. A reaction, and a healthy one at that, is unquestionably setting in; even in Germany the evil effects of chronic alcoholism are now recognized and publicly discussed. Strümpell has set forth the degenerating influences of alcohol upon the German people, and another physician has asked the medical fraternity in Germany to set the example of absolute abstinence in order that others may take heart and free themselves from this overpowering vice.

This is not the proper place to decide whether total abstinence or moderate use of alcoholic liquors is in order; we must, however, take into account the relation of crime to chronic alcoholism.

In Germany, it is claimed, fully fifty percent. of all crimes are committed under the influence of alcoholic excesses; in England and America the percentage is no doubt equally high. As every person is in a measure responsible for the vice to which he has fallen a victim, the question arises whether he shall be declared responsible for deeds committed as a result of such vice. The vice is so common among the sane criminal classes that to accept alcoholic intoxication as an excuse for crime would be placing a premium upon his misdeeds. Alcoholism can be an excuse for crime only if it has led to the development of an insanity, of a distinct form of mental derangement; and if so the alcoholic is as little responsible for his deeds as the paretic criminal is whose paresis is the result of syphilis. On the whole, the courts in various States of the Union have taken this view of the subject: that intoxication is no excuse for crime, but that insanity resulting from long-continued drunkenness is an excuse for crime. (See Lawson, chap. iii.) The medical expert and the jurist should therefore have a clear understanding of the symptoms of alcoholic insanity.

The first and most prominent result of chronic alcoholic poisoning is a progressively increasing weakness of all the psychic functions, a degeneration of the moral and intellectual faculties. The chronic drunkard becomes neglectful of his family and his business. Society despises him, and he despises all those who interfere with him; he may lead his family to starvation, but he cares little as long as his morbid craving may be satisfied; he becomes irritable and brutal, not only when under the immediate influence of the drink, but particularly during a period (however short) of abstinence. In the early morning hours he is most apt to be irritable, ugly, and dangerous to his surroundings. He endeav-

ors to rid himself of the habit, but does not possess sufficient energy, and gives up the fight in despair. As the disease or the habit takes a firmer hold he becomes stupid, weak-minded, obtuse; his memory forsakes him, and he soon becomes thoroughly helpless. His sleep is restless, and both day and night he is troubled by all sorts of disagreeable visual hallucinations. He becomes suspicious of his surroundings, and develops complete delusions of persecution. The delusion of marital infidelity is so common as to be well-nigh pathognomonic of this condition.

There are *physical* symptoms, also, which are characteristic of the alcoholic state: paræsthesia and formication in the extremities; tremor and weakness of hands and legs. Tremor of the tongue and of the face-muscles appears quite early in the disease; also fibrillary twitchings of the tongue and disturbances of speech. Among the later symptoms are loss of pupillary reflexes, loss of vision, and even epileptic seizures.

The crimes of the chronic drunkard are either the result of his degenerated morals and of his general intellectual weakening, or the result of uncontrollable passions and emotions. In some instances the delusions of infidelity and the delusions of persecution may lead to acts of revenge. Such delusions are occasionally developed after an acute intoxication. A patient of mine—a man of fine intellectual qualities—celebrated the departure of a friend for Europe by an “old-fashioned spree,” as he called it. On his way to this city from Hoboken he claimed he fell in with a woman who had a child with her. This child he had hurled into a stove in order that he might be alone with the woman, and he was certain that the police were after him (as a matter of fact he was brought home safely by an acquaintance). For a long time after this occurrence he was certain of the reality of his belief, for people on the elevated railway pointed at him with scorn and made all sorts of remarks about him: “There he goes—the murderer,” “He is pretending to be a gentleman,” etc. It was very nearly a year before these delusions entirely disappeared. Such delusions as these may lead either to suicide or homicide (revenge for persecution).

Krafft-Ebing (p. 188) records a very typical case, which I summarize as follows: A locksmith thirty-six years of age; married nine years; two children; addicted to drink from early youth; suspected his wife of infidelity; neglected his work; was irritable and brutal toward his wife, maltreated her, and on one occasion almost killed her in a fit of passion; was sent to prison, but was not convicted, as he was declared insane. Three years later threatened his wife again, and was brought before court; accused his wife of being a Xanthippe (particularly on Sundays, when he was drunk), and of infidelity, which he was certain of because she was away too long on errands, flirted with men, etc.; but his wife was a decrepit, exhausted, but respectable woman. His wife removed him from the asylum; in a fit of temper a few weeks later he smashed her skull and endeavored to kill himself by ripping open his own belly; he showed no remorse for his deed, and excused himself on the plea of his wife's (supposed) infidelity and her quarrelsome disposition.

During the period of abstinence crimes may be committed, as illustrated by the following case:

Drew, the captain of the ship, had murdered the second mate. “It appeared that for a considerable time before the fatal act Drew had been in . . . almost continual drunkenness; that about five days before it

took place he ordered all the liquor on board to be thrown overboard, which was accordingly done ; . . . soon afterward became restless ; . . . expressed his fears that the crew intended to murder him, and complained of persons who were unseen . . . urging him to kill Clark. The night before the act he was more restless, seemed to be in great fear, and whenever he lay down there were persons threatening to kill him if he did not kill the mate." (Lawson, p. 601.) Judge Story recognized the insanity in the case, and declared the act *not* to be that of a reasonable being.

Criminal acts are also committed during the condition of delirium tremens, a condition of exhaustion with maniacal excitement in which the person is totally unconscious and irresponsible for his actions. We need not give illustrative cases of this condition, nor of the condition of alcoholic epilepsy, which occurs in almost ten percent. of all chronic alcoholic cases. Like other epileptic states, this one is attended by impulses of the most violent character, in which the alcoholic may kill wife or brother without being aware of the character of the deed. Crothers, of Hartford, has called special attention to the conditions of trance and somnambulism in chronic alcoholists.

Morphine Habit.—Morphine is not as powerful a poison as alcohol, and, fortunately, the use of it is not as widespread as that of alcoholic stimulants. But it has fully as strong a hold upon its victims, and leads even more rapidly than alcohol does to a degeneration of the entire nervous system and to mental imbecility. The habit is engendered in many different ways. Many fall into the habit after an acute illness in which opium or morphine was given for the relief of pain. Having once tasted the sweets of the opium dream, they resort to it on the occasion of the least pain, and the very craving establishes the pain. Druggists, physicians, physicians' wives, and nurses fall victims most easily to this scourge, because they can easily get as much of the drug as they wish. The system becomes accustomed rapidly to the drug, and huge quantities can be taken without immediate danger to life, though many a morphine *habitué* has met his death by an accidental overdose.

The condition produced by excessive use of morphine varies in different individuals. As a rule there is at first great irritability of temper, excessive restlessness (allayed for a time by each fresh dose), lack of energy and application to work, a distinct loss of memory, which may ultimately lead to complete apathy and imbecility. Early in the career of the morphine fiend a general depravity is noticeable: he shows a disregard for truthfulness, and will resort to any subterfuge, even to stealing, to get his drug. No trick is too despicable for the person who craves morphine and cannot get it. Even in hospitals it is a common practice to bribe attendants—to make the most extravagant promises if they will secure the deadly poison for them; but when the physician questions the patient he is absolutely ignorant of any attempt at bribery.

While every person may be held responsible for the beginning of the habit, the continuance of the habit removes such responsibility. The misdeeds of a morphine *habitué* can, however, be attributed to the habit only if he exhibit distinct symptoms of morphine insanity. He must present some such condition as was referred to above, and a few of the physical symptoms; among these the most important are tremor, ataxia, myosis, profuse sweating on the least exertion, nausea, and disgust for

all animal food. Furuncles in the skin and abscesses will give some idea of the frequency of the practice.

The worst crimes are not often the result of the morphine habit, but petty crimes are all the more frequent. Physicians who use morphine on their own persons in large quantities become extremely careless in prescribing this and other drugs for their patients. No one who uses morphine habitually can be considered to be in a normal mental state, for his condition varies with the quantity of morphine he has in his system. As soon as the period of abstinence is reached he is possessed by a spirit of restlessness which makes him thoroughly irresponsible and incapable of sober reasoning.

A common offense among morphine *habitué*s is the forging of prescriptions calling for morphine, or the theft of morphine from the office of physicians or from the shelves of the druggist. Erlenmeyer (p. 214) reports the case of a young woman who forged the prescription of a physician calling for 1.2 morph., which the patient changed to 6.2! adding the exclamation-mark which the German law demands in case of large doses; the patient was sent to prison for ten days.

Like alcohol, morphine leads to neglect of business, to loss of social position, and to poverty. In this condition a person who was once entirely honest will resort to petty thefts, perhaps to help his family, but more often to secure money enough to buy morphine for himself. The general depravity of morals which the morphine habit entails is the saddest symptom of all. Not long ago I treated a once well-to-do merchant who had brought himself and his family to the verge of ruin by the use of morphine. He endeavored to free himself from the habit, but had not the moral courage to do so. In former days too proud to accept a favor of any one, he allowed his relatives now to support him and his family.

The mere use of morphine is not a sufficient excuse for crime unless the distinct symptoms of morphine psychosis are present. Unless this principle is adhered to criminals might find it to their advantage to become addicted to the drug. In the following case this difficulty was recognized, and the prisoner was declared guilty.

The prisoner was twenty-nine years of age, an illegitimate child; father unknown; history of insanity in mother's family. With exception of syphilis the prisoner had no illness; did satisfactory work as hospital nurse during a period of fourteen months; in this time practiced daily hypodermic injections of morphine, began to sleep poorly, was depressed (love-affair in addition), and was not quieted by morphine. September 12, 1887, he was severely rebuked for his relations to a female nurse, and discovered that one A. had told on him. He desired to avenge himself at once, but took morphine injection instead; the very next morning, however, he stabbed A. while in bed and fired four bullets into his own body. Immediately after the act he appeared normal, and exhibited no abstinence symptoms on the absolute withdrawal of the drug—no physical anomalies, and no stigmata of degeneration. The experts declared that morphine *habitué*s must be divided into two categories: in the one class we must place individuals with tainted ancestry and a tendency to neuroses, who are impelled to the use of various poisons, such as morphine, alcohol, or cocaine; the other class is made up of individuals who discover the charms of morphine accidentally during a painful illness and

then become addicted to it. In this special case the experts declared that the prisoner exhibited only slight symptoms of the morphine habit, that there was no trouble on withdrawing the drug, and that the use of morphine in his case did not in anywise affect the question of responsibility. He was found sane, and was condemned to five years at hard labor. (Contagne et Bernard, *Archiv. de l'Anthropol. Criminelles*, vol. v., No. 25.)

The cocaine habit is the most recent affliction of man. It is engendered accidentally in the majority of cases. I have known it to result from the application of the drug to the nostrils, the patient continuing in private what the physician practiced upon him in his office for the purpose of treating the membranes of the nose. The sensation of applying it is distinctly disagreeable, but the habit is easily developed when once begun. Those who have been addicted to morphine or alcohol, and are trying to abstain from either, often resort to cocaine as a lesser evil. And such, on the whole, it is; but if added to the horrors of the morphine or alcohol habit, it makes a sad wreck of the individual.

The general symptoms are very much the same as those of morphine insanity: horrible visual and auditory hallucinations, delirium of persecution, visions of small animals. Intense restlessness and sleeplessness, nausea, and anorexia are the chief symptoms. In one case of mine a patient who had passed with the usual success through a Keeley cure was alternately addicted to alcohol and cocaine; he was unfitted for business, was constantly and naturally at loggerheads with his family, neglected wife and children, and was a burden to his home until he conquered both habits, at least temporarily. It was my sad duty some years ago to treat a brother physician who had rid himself of the morphine habit and fell victim to cocaine, then lapsed into morphine again; he continued both drugs, was utterly unable to attend to his practice, became poverty-stricken, and finally committed suicide.

The drug does not fascinate the individual as morphine does, nor has it, to the writer's knowledge, led to any serious crime as yet, except that of neglecting one's family and of leading to suicide; but let it be continued, and the danger of criminal acts on the part of the cocaine *habitué* becomes probable enough.

HYSTERICAL INSANITY.

In my lectures to physicians on nervous diseases, I am in the habit of saying that hysteria in this country is a rare form of disease. Startling as this statement may seem, it is absolutely true if we restrict the term to the graver form of the disease, and do not make the diagnosis of hysteria for the same conditions to which, if they occur in man, we apply the term "nervous." Hysteria leading to crime is still rarer in this country, but is becoming more and more frequent among the Russian, French, and Italian elements of our mixed population. The aggravated forms of hysteria are most common in France, and have been studied most carefully by French medical writers, above all by Charcot and his followers. They have created the modern conception of hysteria.

Hysteria proper, *la grande hystérie*, the condition with which we are most concerned in this article, is characterized by an unusual development of the emotional faculties. The slightest cause is sufficient to

produce great emotional disturbance; there is a continuous alternation between pleasurable and depressed moods, the latter preponderating. Hypochondriacal tendencies are common. Every sensation, however slight, is turned to account; danger and ill health are always impending. By close observation of their own physical condition, patients become egotistical and selfish to an unusual degree. Every one is made to dance attendance upon them, and from their own selfish point of view they are the pivot about which everything turns. They are ever mindful of themselves and culpably indifferent toward others. If the family grow callous toward their sufferings, they exaggerate these, and will simulate all sorts of conditions; will run any and every risk (turn on the gas, swallow glass, needles), will do anything to attract attention; will deliberately commit suicide for the sake of a moment's notoriety, in which they are often aided by our sensational press. If they fail in such efforts, hysterical individuals (men as well as women) become revengeful, and if the excitement increases (in women at the time of menstruation more particularly), deliria and delusions of persecution may be developed. The sexual sphere is frequently involved, and under the influence of erotic delusions respectable women may prostitute themselves or imagine themselves the victims of man's sexual passion. False accusations and denunciations are the accompaniment of this condition. Mysterious cases of rape that have baffled the police have been explained as the result of erotic delusions on an hysterical basis. In the condition of exhaustion associated with severe hysteria, morbid impulses arise which may lead to offenses against the law. Hysterical women, in their egotism, learn to despise their offspring; one such mother told me that she hated her child, and could kill it for the pain it gave her during labor.

The responsibility of an hysterical individual will have to be determined in each individual case; to say that a person is hysterical is surely no sufficient excuse for crime. In every case the evidence of severe hysteria should be required. This can be accepted only if the person has been subject to severe hysterical manifestations for a long period of time. Chief among these are: unusually violent and sudden changes of moods; hysterical fits and hysterical trance conditions provoked by pressure upon hysterogenic zones. And in addition there are a few physical signs of importance: marked vasomotor disturbances, anæsthesia of one half of the body, with distinct involvement of all the special senses in that half, or patches of anæsthesia irregularly distributed over a large portion of the body. These objective symptoms will prove to be of great value in a given case. They will help us to differentiate between a mere "hysterical" individual and one suffering from hysteria major.

Hysteria of a grave order, hereditary hysteria in particular, is the mark of a general psychic degeneration, and as such is often associated with more serious mental disturbance. The following examples will suffice to illustrate the forensic importance of hysterical insanity:

An unmarried woman thirty-eight years of age accused her father that he allowed another person to enter a room occupied by herself and sister, and that this person raped both of them; "for two years she has been pregnant by this man." She was not allowed to bring suit, so she armed herself and meant to waylay the offender. She was sent to an asylum, where she improved. On her dismissal she met a lawyer, who thought her sane and began suit against the father and the director of

the asylum for illegal detention ; but her insanity was recognized. (See also Morel, p. 687.)

From Hammond I take the following case : " In 1873, says M. Huchard, Mlle. de M., aged eighteen years, accused the vicar of the parish of having committed a rape upon her. She stated that on such a day and at such an hour, while she was saying her prayers in church, the vicar, after having shut all the doors, approached her and requested her to go with him into the sacristy. There he had made, she declared, indecent proposals to her, and, as she repelled him with indignation, he had pointed a dagger at her heart. She had fainted, and when she recovered her senses she discovered that she had been violated. During the trial of the accused priest the medical experts questioned her in regard to the *modus faciendi*, and as she answered by giving childish details, she was submitted to physical examination, with the result of ascertaining that she was a virgin, and that there were no traces of violence."

" Tardieu refers to a recent case, that of a young girl, an inmate of a convent in Gascony, who persuaded her father that she had been made the victim of all kinds of tortures and unheard-of outrages. He, believing what she said, went before the authorities and denounced the alleged perpetrators. Finding, however, that she had deceived him, not a word of her story being true, he took his life from chagrin and mortification."

To the above might be added another case, also cited by Hammond, in which the termination was sad enough :

" The Marquise de Prie, mistress of the Duke de Bourbon, was exiled from court, and, of course, indifference and neglect followed her in her retreat. She, however, resolved to regain, by a *coup de théâtre*, the favor she had lost. She announced that on a certain day of the month, and at a certain hour, she would kill herself. Every one was amazed at the declaration that one so young, beautiful, and attached to life contemplated suicide, and the news was received with derision. During the few days intervening, the marquise gave several *fêtes*, at which she danced, played, and amused herself as in the days of her highest favor. No one had ever seen her gayer, more spirited, more adorable. The hour arrived. She called the new lover she had chosen to her side, and again announced her determination. The communication was received by him with a smile of incredulity. Believing it to be one of those mystifications to which she was accustomed, and that she was acting a part, he humored her so far as to give her, with his own hand, the draft she had prepared. It was in reality poison, and she died before assistance could be given."

NEURASTHENIA.

Neurasthenia is so common a disorder among men and women of our busy world that it has become a well-recognized form of disorder even among the laity, under the terms of nervous exhaustion, nervous prostration, and the like. It would have little forensic importance were it not for the fact that it is frequently the first sign of an inherited taint, and that it represents at times the first stages of more serious mental disturbances, such as hypochondriasis, paranoia, and even dementia. In neurasthenia, moreover, there are periods of excitement in which the individual is not fully responsible, and, above all, morbid conceptions and morbid

impulses are frequent. These have been fully described in the introductory pages of this article. In former days, and in many countries to this day, the law did not recognize such conditions. In the majority of instances the individual is able to resist such impulses, but every now and then criminal acts result directly from such impulses, or the continuance of such morbid fears and impulses leads to a confusional condition in which the sufferer becomes wholly irresponsible. Special cases need not be cited, as the commission of crime is, after all, rather rare, and neurasthenia should be accepted as an excuse for crime only if decided mental changes can be proved to have existed.

HYPNOTISM.

The discussions of hypnotism in the secular press are in inverse proportion to the importance attached to it by medical men the world over. Even in France, where the schools of Charcot in Paris and of Bernheim in Nancy have done so much to popularize the subject, the medical men as a body have not failed to recognize the limitations of the subject. For the present hypnotism is of greater theoretical than practical importance both from a medical and a forensic point of view. Charcot, Richer, and their followers regard hypnotism as a condition similar to grand hysteria, whereas the followers of Bernheim hold that it is a condition produced by mere suggestion, and that this condition can be excited in non-hysterical as well as in hysterical subjects. The present writer believes that all "impressionable" individuals can be hypnotized.

The novelists have made much of these phenomena of hypnotism, both from an intrinsic psychologic interest, and because it makes their task very much easier. It is fascinating, I am certain, to be able to change the characteristics of one's hero at will, to subject him to all sorts of occult influences, without being called upon in the good old-fashioned way to explain minutely how such changes were brought about. "Hypnotic influence" is a convenient subterfuge. In novels this influence is generally exercised for evil, although Du Maurier, in the influence which Svengali exercises over Trilby, makes an exception to this rule.

The lay public has feared that under the influence of suggestion an evil-minded person might suggest to another the commission of a crime, and that the hypnotized subject, deprived of his free will, would forthwith proceed to obey the suggestion. In medical circles sham murders (with wooden daggers) have been committed in obedience to such a suggestion. The possibility of actual murder being committed cannot be denied. The practice should, therefore, be limited by law, and public exhibitions should be entirely prohibited. But, fortunately, no serious crime has as yet been committed, to my knowledge, in obedience to an hypnotic suggestion, and the efforts to prove hypnotic influences in recent French trials have failed utterly. There is every probability, too, that the instigator to such a crime could be easily detected if the subject were rehypnotized by a competent person or commission appointed for this purpose. In the hypnotic state information or hints would be given which would lead to the discovery; in the interval between such states the subject would be ignorant of everything that had occurred. The suggestions made with evil intent during the waking

state are still of far greater importance than those issued to a hypnotized individual.

Before concluding this article, the writer wishes to impress upon the medical man and the jurist the following considerations:

In determining the question of responsibility of an individual, the older tests of knowledge of right and wrong, of free will, of premeditation, should be disregarded altogether. The only duty the medical expert has is to state and to prove whether the accused was or was not insane when the act was committed. To strengthen such evidence he should be able to state the symptoms pointing to a special form of insanity, as he would be expected to state them in a case of pneumonia or any other purely physical disease.

Insanity should be a sufficient excuse for crime, whether or not a sane mind can fathom the relation between the insane condition and the criminal act.

Crime committed by persons addicted to alcohol, morphine, cocaine, or any other poisonous drug can be excused only if such addiction has led to the development of a distinct form of insanity.

EXAMINATION OF INSANE CRIMINALS.

A word only with reference to the proper method of examining insane criminals. The method employed should be very much the same as with other insane patients, bearing in mind that among the criminal classes, or those accused of crime, simulation is very much more frequent. But as simulation is discussed by another author I may disregard it altogether. In examining a patient or criminal, take note first of his surroundings, of his appearance, of his behavior before you enter, and while you are with him. Note whether he behaves under examination as any other insane person would, and, above all, a person with the same form of insanity. If the examiner has had considerable experience in insanity it will be possible for him to speak very definitely on this point.

A few years ago the writer was asked to see a prisoner who had entered the plea of insanity for his misdeeds in the commercial world. He pretended to be suffering from delusions of persecution, and refused to take the prison food. He insisted on cooking his own food, but took very freely some medicine (an hypnotic) prescribed by the prison physician—the very last thing an insane individual would have done. Instead of referring to his persecutions, or of explaining why he should be persecuted, he kept on saying that his head ached; that “if he could get down to Wall Street he would make it all right again.” The man who spoke so freely under examination in private maintained absolute silence and indifference in court. The discrepancy between his behavior and that of the truly insane with such delusions was so different that there was little doubt of simulation.

It is best to enter upon the delusions of the insane, and to converse freely with them, as though the examiner were convinced of the truth of the premises. Avoid leading questions, but try to follow along the line of argument adopted by the insane, and in this way the faulty rea-

soning and faulty judgment will be easily detected. It requires great patience on the part of the examiner, more especially in those cases in which the person examined refuses to talk. As with the non-criminal insane, the conversation has to be begun again and again, or repeated visits made, before a successful result is reached.

In some cases it may be necessary for the physician to disguise his own person, or to appear under some assumed name and in an assumed function, but the dignity of the profession requires that this should be avoided whenever possible. Often, indeed, the very conduct of a person knowing himself under examination gives the best clew to the actual mental condition.

The crime of which the person is accused should form the chief but not the sole topic of conversation, and the examiner must endeavor to get at the motives which inspired the criminal act; also whether the accused feels any remorse, whether he would have the deed undone. And after this topic has been exhausted a general examination should be made with the view of determining the person's mental capacity, his knowledge of other events, his memory, and his moral as well as religious views.

The physical examination is equally important: the formation of the skull, his physiognomy, the action of the pupils, the presence or absence of tremor, his speech, his writing, his gait, his heart, his general physical condition—all these points should be carefully noted, and will help to form a definite opinion of the individual's mental status. But the *sine qua non* of a successful examination is that the examiner should know what to look for, and that he should have had previous experience with the non-criminal insane.

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ON THE RELATIONS OF MENTAL DEFECT AND DISEASE TO CRIMINAL RESPONSIBILITY.

By LOUIS E. BINSSE.

THE THEORY OF CRIMINAL RESPONSIBILITY.

THE criminal law of England recognized at an early day the existence of mental defect and disturbance, and in a rude and unscientific way attempted, according to the methods of the medical science of the time, a classification of its varieties and degrees.

Coke, in the Commentary on Littleton (Co. Lit. 246*b*, 247*a*) and in Beverley's Case (4 Co. Rep. 123*b*), makes the following distinctions: "Here Littleton explaineth a man of no sound memorie to be *non compos mentis*. Many times (as it here appeareth) the Latin word explaineth the true sense, and calleth him not *amens*, *demens*, *furiosus*, *lunaticus*, *fatuus*, *stultus*, or the like, for *non compos mentis* is most sure and legall. *Non compos mentis* is of four sorts: 1. Ideota, which from his nativitie, by a perpetuall infirmitie, is *non compos mentis*. [Idiot or fool natural.] 2. Hee that by sicknesse, griefe, or other accident, wholly loseth his memorie and understanding. [He who was of good and sound memory, and by the visitation of God has lost it.] 3. A lunatic that hath sometime his understanding and sometime not, *aliquando gaudet lucidis intervallis*, and therefore he is called *non compos mentis* so long as he hath not understanding. [*Lunaticus, qui gaudet lucidis intervallis*, and sometimes is of good and sound memory, and sometimes *non compos mentis*.] 4. Lastly, hee that by his owne vitious act for a time depriveth himselfe of his memorie and understanding, as he that is drunken." [By his own act, as a drunkard.]

At a later day, Sir Matthew Hale (Hale, P. C., chap. iv.) made a similar but more detailed classification.

Mental defect and disease he called dementia, the state of being out of one's mind. This he divided into three great classes:

I. Natural dementia, that is, idiocy, or fatuity from birth.

II. Accidental dementia or insanity.

III. Voluntary dementia or drunkeuness.

In the second of these classes, that of insanity, he distinguished total from partial insanity; the latter being partial in respect to its subjects, or partial in respect to its degrees. He further took note that it was, as to its nature, at one time permanent, at another time occasional. The former he called phrenesis or madness, the latter lunaey, from the contemporaneous error that mental disease was influenced by the phases of

the moon. In addition to the mere loss of the use or exercise of reason, he recognized the further condition of a superadded state of violence or fury. This he called furor, rabies, or mania.

However unacceptable these classifications may be to advanced medical science (Prichard *On the Different Forms of Insanity*, London, 1842, p. 9), they form the necessary basis of any consideration of the subject from the legal point of view, for, up to the time of the answers given by the judges of England to the questions put them by the House of Lords in consequence of the acquittal of Daniel McNaghten (10 Cl. & Fin. 200), the writings of Coke and Hale, together with the instructions given by judges in particular cases, constituted the exclusive authorities on this subject.

Although the law, speaking thus through its sages, has attempted to classify according to the methods of medical science mental defect and disturbance in its varieties and degrees, it contemplates them from an altogether differing standpoint. Medical science deals with the causes of mental disease and seeks knowledge on the subject for a purely medical end. With it an inquiry as to the fact of insanity is an absolute and final one. The law, on the other hand, neglects the causes of insanity and deals exclusively with its consequences, which are evidenced by conduct, the outward expression of the inner mental state. From this point of view there are two forms of insanity—the one that causes a man to break the law, the other that does not cause him to do so. The fact of insanity is not therefore in the mind of the law the ultimate end of its investigation, but one relative to the broader inquiry as to the fact of responsibility or punishability. Even in respect to this the two sciences have different starting-points: the one, beginning with the fact of disease, seeks to measure its disturbing influence on the conduct of particular members of the community governed by a code of moral and social obligation; the other, at the opposite end, sets out from the standpoint of moral and social requirements and assumes that all men are sane, and consequently responsible for their acts until in individual cases they are proved not to be so. (Minshall, J., *State vs. Bowsher*, 3 Cin. Law Bul. 187; Curtis, J., *U. S. vs. McGlue*, 1 Curtis, 1; "Responsibility in Criminal Cases," by David Nicholson, M.D., *Jour. of Mental Sci.*, vol. xxiv., p. 1; "On the Relation of Madness to Crime," by J. C. Bucknill, M.D., *Am. Jour. of Insanity*, vol. xl., p. 412.)

In a criminal trial, when mental defect or disease is pleaded as a defense, the question is "whether the accused be guilty or not guilty." (Mr. Justice Maule, McNaghten's Case, *supra*.) In this fact of guilt is involved the fact of the evil mind, for although the criminal law takes cognizance only of the exterior act (Montesquieu, *Esprit des Loix*, chap. xi.)* and not of the mere interior intention, yet it is a fundamental maxim that "the act itself does not make a man guilty, unless his intention were so." (3 Inst. 107.†)

A criminal act is therefore complete only when the evil mind concurs with the outward act; and in the inquiry as to the existence of this evil mind, the fact of mental defect or disturbance is pertinent, as a traverse of the evil mind's essential constituents, of will, intention, or malice.

* "*Les lois ne se chargent de punir que les actions exterieures.*"

† "*Actus non facit reum nisi mens sit rea.*"

(Stephen's *General View of the Criminal Law of England*, chap. iii., p. 86.) In nothing more than this has the law appreciated the futility and peril of definition, the impossibility of defining or describing the disease or of laying down any test of its existence. (Lord Lyndhurst, Hansard's Debates, vol. lxvii., third series, p. 716; Lord Deuman, *Regina vs. Oxford*, 9 C. & P. 525.) It has therefore refrained from making a special issue of the fact of insanity and has limited itself to the establishment of a canon of responsibility, legal insanity being commensurate with legal irresponsibility. "Our law was," says Erle, C. J., "that a man was responsible for his acts unless his mind was in a state which prevented him from being responsible for his acts. If he was conscious that he was doing wrong at the time when he committed the act then he was responsible. . . . The question was whether he was or was not responsible when he committed the act—not whether he was not guilty on the ground of insanity: that was an issue far too vague, indefinite, and undefined. The issue was, whether or not when he did the act he was legally responsible—in other words, whether he knew its nature, and knew that it was wrong." (*Regina vs. Leigh*, 4 F. & F. 915.) The distinction thus made between insanity and responsibility marks the boundaries of the separate and distinct provinces of law and medicine. The difference between mental health and disease is, and must remain, a fact of science entirely within the purview of medicine. On the other hand, the determination of the relation of mental disease to guilt, and to the punishability of such guilt, and of the point of separation between the conditions of responsibility and irresponsibility, must be the exclusive function of the law. "The question," says Sir J. F. J. Stephen, "What are the mental elements of responsibility? is, and must be, a legal question. It cannot be anything else, for the meaning of responsibility is liability to punishment, and if criminal law does not determine who are to be punished under given circumstances it determines nothing." (Stephen's *History of the Criminal Law of England*, chap. xix., p. 183.) From the nature of things, the law must determine for itself, and in the first place, whether or not the fact of insanity should exempt one at all from the ordinary liability of the criminal law, and, having admitted the exemption, it must set and define the limits of such exemption. For instance, as a rule of policy, the law might determine that no degree of madness should exempt, or that any degree of madness should so exempt; or it might place the point of responsibility, as it does, somewhere between these two extremes. The Supreme Court of New Hampshire (*State vs. Jones*, 50 N. H. 369), which has gone to the extreme in its rejection of the legal criterions of responsibility by leaving to the jury, as matters of fact, whether the accused had a mental disease, and whether the overt act was a product of such disease, impliedly laid down the criterion of legal responsibility that no man should be held accountable criminally for an act the offspring or product of mental disease. According to the German jurist Casper the term criminal responsibility is easily defined, since it is based upon unchangeable natural psychological laws, recognized by every man's conscience, and which may be comprehended in the following simple dogmas: 1. Both a good and evil principle reside and act in man. The recognition of this fact is coeval with the origin of man, and is expressed in the most ancient religions. 2. This double principle itself, as well as the power of recognizing it, is born with

every man, and is firmly based in his conscience so long as he remains in his natural condition. 3. Man in his normal condition is at perfect liberty to permit himself to be guided in his actions by either the good or the bad principle; "he has freedom of choice," according to others, "the power of spontaneous action," "moral freedom," or "the freedom of the will." 4. Every man knows, and so long as he continues in his normal condition must be presupposed to know, that, in spite of his freedom of choice, he must allow himself to be guided in his actions by his good principle, and withstand the allurements of his evil one. 5. And that when he acts reversely he exposes himself to the punishment of his internal judge, his conscience, which dwells within him as the natural guardian of the laws of morality. These are eternal, inborn truths, the foundation-stones of the whole doctrine of criminal responsibility, to which the following may be added, if, indeed, they do not actually belong to the same category: every man living in the bonds of society, who has arrived at the normal development of his mental powers, has experienced and knows that society is not and cannot be satisfied by the punishment inflicted by his internal monitor, but, in accordance with the requirements of the inborn laws of morality, has also laid down and put in execution external punishments for any action opposed to morality. In accordance with these laws, therefore, he must be made responsible for every rash deed so long as he is in the unclouded possession of his mental powers, since, in such circumstances, he is in a position to foresee all, even the evil results of his actions; he is possessed of criminal responsibility. (*Handbook of the Practice of Forensic Medicine*, vol. v., part vi., chap. i., sec. 58.)

The law of England, in the same manner, places the foundation-stones of criminal responsibility in the intuitions of conscience and the enactments of positive law, in relation to which it recognizes in the normal man a liberty of will, a capacity to follow the one or obey the other. Inasmuch as there can be no liberty of will where there is no understanding (Hale, P. C., chap. ii.), it has assumed the truth of the correlative proposition that where there is an understanding sufficient to know the thing chosen, good and evil, the freedom of the will exists to the extent of conferring responsibility. It has placed, therefore, the capacity to form the evil intent exclusively in the consciousness or understanding of the individual, making it thus the touchstone of responsibility; a criterion which it applies to the "natural defect" of infancy (Hale, P. C., chap. iii.) as well as to the "accidental defects" of idiocy and insanity—to those who are *non compos mentis*. "On the part of the defense, it is contended," says Lord Denman, "that the prisoner at the bar was *non compos mentis*, that is (as it has been said), unable to distinguish right from wrong," or, in other words, "that from the effect of a diseased mind he did not know at the time that the act he did was wrong." (*Regina vs. Oxford*, 9 C. & P. 525.)

I. NATURAL DEMENTIA OR IDIOCY.

Although Hale elaborately distinguishes idiocy from insanity, there would seem to be no sufficient legal reason for this distinction, as the consequences of the knowledge of the nature of an act do not vary with causes purely physiological in their difference, such as the difference in-

trinsically medical made between mental weakness and disease, and the difference of origin, whether it be congenital or otherwise. (Note 1 to Article 27, *Stephen's Digest of the Criminal Law*.)

An idiot, "which from his nativitie, by a perpetuall infirmitie" (Co. Lit. 247a), "being under a natural disability of distinguishing between good and evil, is not punishable by any criminal prosecution whatsoever." (Hawk., P. C., vol. i., pp. 1, 2.) As congenital mental defect varies infinitely from the condition where, "from an original malorganization, there is the human frame alone without the human capacity" (Erskine, Trial of James Hadfield, 27 How. St. Tr. 1312), through endless degrees of imbecility and mental weakness, this doctrine in its generality must be limited to conditions of mind similar to that set forth by Fitzherbert in his definition of "an idiot as such a person who cannot account or number twenty pence, nor can tell who was his father or mother, nor how old he is." (Fitzh. 6, N. B. 532.) Amid these degrees of imbecility and mental weakness, the point of responsibility is found in the capacity of knowing good from evil. "The law will not measure the sizes of men's capacities, so as they be *compos mentis*," says Sir Joseph Jekyll in the Duchess of Cleveland's Case. (Erskine, Trial of Hadfield, supra; *Patterson vs. The People*, 46 Barb. 625.) "The law does not undertake to measure the intellectual capacities of men," says the Supreme Court of Indiana. (*Wartena vs. The State*, 105 Ind. 445.) "Imbecility of mind may be of such a degree as to constitute insanity in the eyes of the law, but mere mental weakness, the subject being of sound mind, is not insanity, and does not constitute a defense to crime. The law recognizes no standard of exemption from crime less than some degree of insanity or mental unsoundness. Immunity from crime cannot be predicated upon a merely weak or low order of intellect coupled with a sound mind." (*Conway vs. The State*, 118 Ind. 482.)

Sir James F. J. Stephen questions the responsibility in law of one who, knowing in a way the nature and quality of an act, and knowing that it is wrong, yet through mental imbecility is unable to form such an estimate of its nature and consequences as a person of ordinary intelligence would form. (*Digest of the Criminal Law*, Illustration 2, Article 27.) In Connecticut one confessedly neither idiotic nor insane was tried for the burning of a barn. In charging as to his responsibility, the trial judge practically took the measure of his capacity, which he, the judge, likened to that of a very young child. Under these instructions, the accused was promptly acquitted. (*State vs. Richards*, 39 Conn. 591.)

Juries have even gone beyond this point, and in the weighing of responsibility have manifestly taken into account the weakness of the human intellect as contrasted with the force of human impulse or passion.

At York, England, in the year 1859, one James Atkinson, aged twenty-four, was tried for the murder of a young woman, whose throat he had cut, there being eight distinct wounds. There could be no question as to his appreciation of the nature of the act and its consequences. After the commission of the deed he hid the knife in a wall, washed his bloody hands in a pond, and on the following day informed a brother that he had killed his sweetheart. He could read and write, and had done some arithmetic. Despite the instructions as to the criterion of responsibility based upon the knowledge of right and wrong, he was acquitted by the jury on the ground of insanity, evidently on the medical testimony that

being of weak intellect he had not reasonable control over his actions and could not be held responsible as other men. ("Insanity and Crime," by S. W. North, M.R.C.S., vol. xxxii., *Journal of Mental Science*, p. 163.)

As the senses are the avenues whereby ideas are conveyed to the mind, and speech is the ordinary faculty given for their expression, the condition of deaf-mutism reverses the presumption of sanity, and casts upon the prosecution the burden of proving the responsibility of the accused. (*The State vs. Draper*, 1 Houst. Crim. Rep. [Del.] 291.)

II. ACCIDENTAL DEMENTIA OR INSANITY.

(a) **Total Insanity.**—Like idiocy, a condition of total insanity is a complete bar to criminal responsibility. "He that is *non compos mentis* and totally deprived of all compassings and imaginations cannot commit high treason by compassing or imagining the death of the king; for *furius solo furore punitur*; but it must be an absolute madness and a total deprivation of memorie." (3 Inst. 6.) As concerning such conditions there can be but one judgment; they need no extensive consideration from medical jurisprudence. Even when the law, in its extreme rigidity, required that the insanity should extend to "the deprivation of all compassings and imaginations," to the "state of total furiosity," it did not also require it to be continuous in respect of time. "The quality of the deed depends entirely on the man's state of mind at the time he does it, so that whether his malady is constant and unremitting, or only return at intervals, still his defense shall be equally available if he was then utterly furious and void of reason." (Hume's *Commentaries on the Law of Scotland*, chap. i., p. 39; Trial of Sir A. Kinloch, 25 How. St. Tr. 891.)

Lucid Intervals.—The truth of the converse of this doctrine would seem to be manifest. If an interval of total madness should relieve from responsibility, an intermission or an interval of restoration to sanity should impose it. The fact of the occurrence of this intermission or interval of restoration, called a lucid interval, was, owing to defective medical knowledge, so embedded in the jurisprudence of the time that its existence marks, as has been shown, the legal distinction drawn between two classes of *non competes mentis*, and the difference between madness and lunacy. Owing to this view that there was a particular form of insanity, the distinctive and essential characteristic of which was the occurrence of lucid intervals, in the early cases great stress was laid upon the mental state of the accused at the very occurrence of the act. In the case of Edward Arnold (16 How. St. Tr. 695), Sergeant Darnell for the Crown insisted that the insanity of the accused should be reckoned at the time he did the deed: "If he hath intervals and kills a man in those intervals, he is as much subject to the law as any other man." And with this was Justice Tracy agreed: "A man that is an idiot, that is born so, never recovers, but a lunatic may, and hath his intervals; and they admit he was a lunatic. You are to consider what he was at this day when he committed this fact." In Hadfield's Case (*supra*), the attorney-general made the same contention, and the presiding justice, Lord Kenyon, at the conclusion of the trial, after admitting that the accused was insane both before and after the act, and that it was im-

probable that he had recovered his senses in the interim, declared that, were they to run into nicety, proof might be demanded of his insanity at the precise moment when the act was committed. (1 Coll. Lun., p. 488.) Sir James Mansfield charged the jury in Bellingham's Case (1 Coll. Lun., p. 636) that there was another species of madness, in which persons were subject to temporary paroxysms, in which they were guilty of acts of extravagance, which was called lunacy; that if these persons were to commit a crime when they were not afflicted with the malady they would be to all intents and purposes amenable to justice. As to this Hale was no less precise and distinct: "Such persons as have their lucid intervals (which ordinarily happens between the full and change of the moon) in such intervals have usually at least a competent use of reason, and crimes committed by them in these intervals are of the same nature, and subject to the same punishment, as if they had no such deficiency." (Hale, P. C., chap. iv., p. 31.) That the occurrence of the lucid interval constituted in the mind of the law a restoration to reason, or to the competent use of it—in other words, a temporary cure—seems plain from the authorities. Lord Thurlow (*Attorney-General vs. Paruther*, 3 Bro. Ch. 441) defined a perfect interval not to be a cooler moment, an abatement of pain or violence, or of a higher state of torture, a mind relieved from excessive pressure, but an interval in which the mind, having thrown off the disease, has recovered its general habit. And Baron Rolfe, in *Regina vs. Layton* (4 Cox, C. C. 149), instructed the jury "that such was the nature of the mind that it might be one minute sane and the next insane." If such were the real and essential character of a lucid interval, there could be no just criticism of the criterion of responsibility based upon its occurrence; but the current legal view as to its intrinsic nature has been vehemently disputed by mental physicians, some of whom deny altogether its existence, and others regard it as being only a remission, not an intermission, of the disease—an abatement of the severity of the symptoms, not a temporary cure. (Ray's *Jurisprudence of Insanity*, chap. xv.) The question, however, has only a speculative interest in forensic medicine. In the year 1816, at a Court of General Sessions held in the city of New York, one Clark was convicted of petty larceny alleged to have been committed during a lucid interval (1 C. H. Rec. 176). This case, however, cannot be considered a precedent, and it is authoritatively asserted that the books contain no other record of a similar conviction. (Ray's *Jurisprudence of Insanity*, chap. xv., p. 427.) Casper testifies to a like experience on the continent of Europe: "Experience teaches us in regard to the whole question of a lucid interval, what I have never seen stated, that practically speaking it is in so far of little importance that it is but seldom mentioned *in foro*. At least, of hundreds of criminal cases which I have reported on, I have never had to do with one in which the question of a lucid interval came in question at all." (*Handbook of Forensic Medicine*, vol. iv., part vi., chap. ii., sec. 78.)

Epilepsy.—The occurrence of the epileptic paroxysm, which, considered as an interval, is the reverse of the one we have been considering, cannot be inferred from the fact that the accused was suffering from epilepsy, a disease which has a tendency to weaken the mind and to produce insanity. In addition, proof must be given of the occurrence of the paroxysm at the very time of the commission of the deed. (*Commonwealth vs. Buecieri*, 153 Pa. St. 535.)

(b) **Partial Insanity.**—It has been contended, upon the theory of the essential unity and indivisibility of the human mind, that there is in fact no insanity which can with substantial accuracy be described as a partial one. (*Waring vs. Waring*, 6 Moore, P. C. 341.) In the criminal law, however, there can be no doubt as to the authority of the distinction made by Hale between the conditions of total and partial insanity. The latter condition, wherein persons who labor under mental disease with respect to one or more objects, are entirely, or apparently entirely, rational with respect to others (Lord Lyndhurst, Hansard's Debates, vol. lxvii., third series, p. 712), forms the almost exclusive subject of inquiry and the exclusive difficulty when insanity is interposed as a defense in courts of law. Until the acquittal of James Hadfield (*supra*), a condition of partial insanity was, to the accused, no exoneration. "This," says Hale (P. C., vol. i., p. 30), "is the condition of very many, especially melancholy persons, who for the most part discover this defect in excessive fears and griefs, and yet are not wholly destitute of the use of reason; and this partial insanity seems not to excuse them in the committing of any offense for its matter capital; for doubtless most persons that are felons of themselves and others are under a degree of partial insanity when they commit these offenses." In the earliest cases the insanity that might acquit must extend to the total deprivation of "understanding and memory," so that the accused might "not know what he was doing no more than an infant, than a brute or a wild beast." (*Trial of Edward Arnold, supra.*) This, derisively called the "wild-beast theory," had for its basis the fact of the comparative indestructibility of the capacity to know good from evil; which, not being a process of thought, nor taking its origin in the intelligence, but much deeper in the mind, in the consciousness itself, insanity in its highest degree alone can obliterate. (*Casper's Handbook of Forensic Medicine*, vol. iv., part vi., chap. i., sec. 63). "A child," argued the attorney-general in the case of Hadfield (*supra*), "cannot dispose of his property in any manner whatever, and no man would think he had a capacity for that purpose; but he has sufficient capacity to be guilty of a crime. Why? Because there is a natural impression upon the mind of man of the distinction between good and evil, which never entirely loses hold of the mind while the mind has any capacity whatever to exert itself; nothing but total and absolute debility deprives the mind of any man of that." And with this the inductions of mental medicine are agreed: "The sense of duty, the feeling of right and wrong, is an innate principle of the human mind implanted by the Almighty and serving as a sure foundation for the responsibility of man for his actions; which is thus not left to chance development, but is rendered an essential and necessary part of human nature. It seems needful to inquire to what extent this abstract and necessary part of human nature becomes capable of being perverted or destroyed under the influence of cerebro-mental disease. It may be taken as an axiom that *the innate and essential principles of mind are ever present where mind exists.* It may also be asserted, as the result of observation and experience, that in all lunatics, and even in the most degraded idiots, whenever manifestations of any mental action can be adduced, the feeling of right and wrong may be proved to exist." (*Bucknill on Criminal Lunacy*, p. 59.)

The fact of the comparative indestructibility of the capacity of know-

ing good from evil furnishes, as will be shown, the essential reason for the objections advanced against it as the exclusive criterion of legal responsibility. From this standpoint, too, does the law consider mental defect and disease in the comparative relations of "civil competency" and "criminal responsibility." An infant, a man incompetent for civil affairs or the "constant duties of life," may, notwithstanding, be criminally responsible. (Attorney-General, Trial of Hadfield, *supra*.) Thomas Bowler, found guilty in the year 1812 of willfully and maliciously discharging a blunderbuss loaded with bullets at one Burrows, was afterward executed, although previous to the commission of the deed he had been adjudicated incompetent for the management of his affairs under an inquisition in lunacy. (1 Coll. Lun. 673.) A like doctrine, founded upon similar reasons, is set forth by the Continental jurists: "The fact that the conditions of criminal responsibility are inborn in man and are consequently deeply rooted in the whole of his psychical organization, while other psychical processes are the result of education, of mental cultivation, of indoctrination in the ways of life, etc., produces another difference, and a most important one in medico-legal practice, between civil and criminal responsibility. The latter occupies, as it were, a higher position, and in not a few cases must be assumed to exist when the former must be denied. Of this a whole class of criminals affords an example; I refer to those very youthful culprits who are in general as yet incapable of exercising the civil rights of life, and consequently possess no civil responsibility, while their illegal evil deeds are carried out with the most perfect consciousness of their punishable character and with all the unquestionable criteria of freedom of will, and they must therefore be declared to be criminally responsible. Both in the science of law and in the practical administration of justice, so far as I am acquainted with them, this doctrine is assumed as indisputable." (Casper's *Handbook of Forensic Medicine*, vol. iv., part vi., chap. i., sec. 58.)

At the present day, when the law no longer assumes the fact of the survival of the capacity of knowing good from evil, and consequently that of responsibility, unless the mental wreck extend to a condition of total insanity the inquiry becomes more subtle and difficult. An "indivisible line" may separate, as Hale says, the conditions of total and partial insanity, but the line is still more "indivisible" separating the partial insanity that does from the partial insanity that does not obscure this capacity, the obscuration being more complete and consequently more evident, in the night of total than in the clouds of partial insanity. For assuming that one partially insane is capable of a criminal intent, what problem is more perplexing than the question whether the disease did or did not affect the act? (Maudsley's *Responsibility in Mental Disease*, p. 109), and the further question whether "conscious malice and mischief did mix with the insanity"? (Erskine, Trial of Hadfield, *supra*.)

The application of the canon of criminal responsibility finds its most ordinary expression in the question left to the jury, "Whether at the time of the committing of the act the party accused was laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or if he did know it that he did not know that he was doing what was wrong?" (McNaghten's Case, *supra*.) The same canon has found a variety of expressions, as the following: "Did he [the prisoner] know when he committed the act what

the effect of it, if fatal, would be with reference to the crime of murder? Did he know that he was committing an offense against the laws of God and nature?" (*Rex vs. Offord*, 5 C. & P. 168.) "Whether the prisoner was laboring under that species of insanity which satisfies you that he was quite unaware of the nature, character, and consequence of the act he was committing, or, in other words, whether he was under the influence of a diseased mind and was really unconscious at the time he was committing the act that it was a crime?" (*Regina vs. Oxford*, 9 C. & P. 525.) "If, on the other hand, he [the accused] well knew that his act would take away life, that that act was contrary to the law of God and punishable by the law of the land" (*Regina vs. Townley*, 3 F. & F. 839), "the single question was whether, when he [the accused] committed the offense charged upon him, he had sufficient understanding to distinguish good from evil, right from wrong, and that murder was a crime not only against the law of God but against the law of his country." (*Bellingham's Case*, supra.) "Whether the accused at the time of doing the act was conscious that it was an act which he ought not to do." (*Hornblower, C. J., State vs. Spencer*, 1 Zab. 196.) As to the first part of the canon, the knowledge of the nature and quality of the act, there can be little difficulty, as it contemplates a state of mind sufficiently obvious, one of complete overthrow, or of an illusion so complete as to render the mind insensible of the nature of the act. (Mr. Justice Le Blanc, *Bowler's Case*, supra.) "I can remember one case, and one case only," says Dr. Bucknill, "of a lunatic on trial for murder who really did not know the nature and quality of the act which she had committed. It was that of a maniacal woman who had drowned her two children in the Exeter Canal. She was so mad when placed in the dock that Mr. Justice Coleridge, father to Lord Coleridge, saw that she was unfit to plead. He sent for his brother judge from the Nisi Prius Court, and well I remember seeing the two judges standing in their robes of different color, and talking low to each other as they looked at the prisoner and formed their own judgment of her mental state, and Mr. Justice Coleridge ordering her removal to the county asylum." Before the next assize she had completely recovered, and I again received an order to produce her in court, and Mr. Justice Coleridge (for he again was the judge), without taking any evidence, directed the jury to find a verdict of 'not guilty' on the ground of insanity, and upon that verdict having been given he ordered her to be given to the care of her friends." ("On the Relation of Madness to Crime," *American Journal of Insanity*, vol. xl., p. 412.) Lord Brougham refers to this same condition of mental overthrow and complete illusion in the memorable debate on insanity and crime in the House of Lords (March 13, 1843, *Hansard*, vol. lxxvii., third series, p. 730): "First of all, did the unfortunate person know what he was about? Did he actually know he was killing a man? Or did he think, peradventure, he was destroying some evil spirit, or some bird or beast? If he did not know he was killing a human being—if he did not know what he was doing at all—if he was so idiotic as to be utterly and entirely ignorant of what he was about, he was no more subject to punishment, no more accountable to a human tribunal, than an animal." In the same debate (p. 721) Lord Lyndhurst instanced as an example of this complete illusion a case taken from the Scotch reports, of a man tried for the murder of another by shooting him while he was going across a moor.

It had been claimed that the prisoner labored under the delusion that the man he shot was an evil spirit whom the Almighty had commanded him to kill. As to the second part of the canon, that relating to the consciousness of the difference between right and wrong, good and evil, the judges in their instructions would seem to refer the question of responsibility to the consciousness of the individual in respect to abstract right and wrong; the right and wrong of the particular case; the right and wrong of the moral law, the law of God, or the enactments of positive law, the law of the land. By some it has been contended that the canon refers to the moral law alone (*State vs. Spencer*, supra); by others as strenuously, to the enactments of positive law, the fact of punishability. This latter view appeals most strongly to those who seek in the law a precision perhaps unattainable; for in relation to the consciousness, the existence of a fact as that of punishment is, as it were, a fixed point, when compared with the fluctuating conceptions of moral right and wrong that may be entertained by individuals. "He [Lord Brongham] knew the learned judges used the phrase with reference to the commands of the law. They could only know one kind of right and wrong; the right is when you act according to law, and the wrong is when you break it. . . . Distinguishing right from wrong meant a knowledge that the act the person was about to commit was punishable by the law." (Hansard's Debates, vol. lxvii., p. 732.) Baron Bramwell strenuously maintained similar views before the select committee of the House of Commons upon the Homicide Law Amendment Act (Special Report of Select Committee, vol. ix., p. 26, 1874): "A crazy fellow knows it is forbidden by law to knock out my brains, but has a notion it is morally right because I once tried a Fenian. Is it to be no crime? . . . He [Mr. Stephen, the author of the proposed act] says, 'I presume the notion arises from a disease affecting the crazy fellow's mind, whereby he is prevented from knowing that it is morally wrong to kill a judge who tried a Fenian; if not, the section does not apply; but making that assumption, I say distinctly no crime has been committed, because one of the conditions which law assumes in dealing with men is, that their moral feelings are on its side, to the extent, at all events, of understanding that acts of atrocious wickedness are atrociously wicked, and that apart from the law they ought not to do them; and this element is wanting in the case supposed.' He says further, 'I do not believe in the possibility of neglecting this consideration in practice, as the following case will show.' . . . It is the case of a man [James Hadfield] who supposed that if he could be put to death he would save the world, and then he murders somebody, to get hanged in order to save the world. Mr. Stephen says, 'Would Baron Bramwell say that he ought to be hung?' (I beg to say that is not the question. The question is, What rule are you to lay down; are you to lay down a rule which would exclude his being hung?) Hardly, I think; but if not, why not? 'He not only knows what he is doing, and that it is forbidden by law, but the fact that it is so forbidden is the very motive which makes him do it. . . . The man is under a monstrous delusion which prevents him from attending to or judging of the moral character of what he does, and ought no more to be punished than a dreamer is blamed for what he does in his dreams.' I have put in answer to that, 'I would not have a law to except this case, which would necessarily except others that ought not to be excepted.'

The question is, what rule you ought to lay down. In the particular case he cites, probably you would let the man off being hung, but that he ought to be held guilty of murder I have no doubt; whether I would hang him is another matter. And when Mr. Stephen says, 'One of the conditions which law assumes in dealing with men is, that their moral feelings are on its side, to the extent, at all events, of understanding that acts of atrocious wickedness are atrociously wicked, and that apart from the law they ought not to do them,' I deny that to my mind the law has anything to do with it; but it simply tends to terrify the man, to threaten him; it cares not what his views are on the subject, but says, 'That is a thing you should not do.' I do not quite understand that passage, and it would be very odd if it were true of moral and not of religious feelings; which religious feelings have continually driven people into the commission of crime. . . . What you want to do is to frighten people, to terrify them, and the way to try who ought to be punished, to my mind, is to try who ought to be threatened with punishment; . . . if you can find out what man's mind is accessible to the influence of fear, you can find out the man you should punish, because those whom you threaten you ought to punish, that it may not be *brutum fulmen*. You ought to threaten every man sensible to the effect of a threat, and if this crazy fellow knows that what he thinks a virtuous or moral action is one which would cause him to be hung, I shall feel much more safety after having tried Fenians than I could otherwise feel."

Sir James Mansfield instructed the jury in Bellingham's Case (*supra*) that there was a third species of insanity in which the patient fancied the existence of injury and sought an opportunity of gratifying revenge by some hostile act. If such a person were capable *in other respects* of distinguishing right from wrong, there was no excuse for any act of atrocity which he might commit under this description of derangement. This doctrine placed obviously the criterion in the knowledge of right and wrong, good and evil, in the abstract. The fallacy of this view became evident when the case of James Hadfield (*supra*) had shown the necessary consideration of delusion as an element in the criterion of responsibility. "Few men," says Alison, "are mad about others or things in general; many about themselves. Although, therefore, the panel [prisoner or accused] understands perfectly the distinction of right and wrong, yet if he labors, as is generally the case, under an illusion and deception as to his own particular case, and is thereby disabled from applying it correctly to his own conduct, he is in that state of mental alienation which renders him not criminally answerable for his actions." (*Alison's Principles of the Criminal Laws of Scotland*, chap. xxxv., sec. i.; *Hume's Commentaries on the Law of Scotland*, vol. i., chap. i.) Of these questions an authoritative resolution is found in the answers given by the judges of England (with the exception of Mr. Justice Maule) to the questions put them by the House of Lords in consequence of the acquittal of Daniel McNaghten, indicted for the murder of Mr. Drummond, secretary of Sir Robert Peel. (10 Cl. & F. 200.) These judges, speaking through the Lord Chief-Justice Tindal, gave the following answers: "The first question proposed by your lordships is this: 'What is the law respecting alleged crimes committed by persons afflicted with insane delusion in respect of one or more particular subjects or persons; as, for instance, where at the time of the commission of the alleged crime the accused knew he was acting contrary

to law, but did the act complained of, with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury, or of producing some supposed public benefit?' In answer to which question, assuming that your lordships' inquiries are confined to those persons who labor under such partial delusions only and are not in other respects insane, we are of opinion that, notwithstanding the party accused did the act complained of with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury, or of producing some public benefit, he is nevertheless punishable according to the nature of the crime committed, if he knew at the time of committing such crime that he was acting contrary to the law; by which expression we understand your lordships to mean the law of the land. Your lordships are pleased to inquire of us secondly, 'What are the proper questions to be submitted to the jury where a person, alleged to be afflicted with insane delusion respecting one or more particular subjects or persons, is charged with the commission of a crime (murder, for example), and insanity is set up as a defense?' And thirdly, 'In what terms ought the question to be left to the jury as to the prisoner's state of mind at the time when the act was committed?' And as these two questions appear to us to be more conveniently answered together, we have to submit our opinion to be, that the jurors ought to be told in all cases that every man is to be presumed to be sane and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved to their satisfaction; and that to establish a defense on the ground of insanity it must be clearly proved that, at the time of the committing of the act, the party accused was laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know it, that he did not know he was doing what was wrong. The mode of putting the latter part of the question to the jury on these occasions has generally been, whether the accused at the time of doing the act knew the difference between right and wrong; which mode, though rarely, if ever, leading to any mistake on the part of the jury, is not, as we conceive, so accurate when put generally and in the abstract as when put with reference to the party's knowledge of right and wrong in respect to the very act with which he is charged. If the question were to be put as to the knowledge of the accused solely and exclusively with reference to the law of the land, it might tend to confound the jury, by inducing them to believe that an actual knowledge of the law of the land was essential in order to lead to a conviction; whereas the law is administered upon the principle that every one must be taken conclusively to know it, without proof that he does know it. If the accused was conscious that the act was one which he ought not to do, and if that act was at the same time contrary to the law of the land, he is punishable; and the usual course, therefore, has been to leave the question to the jury, whether the party accused had a sufficient degree of reason to know that he was doing an act that was wrong; and this course we think is correct, accompanied with such observations and explanations as the circumstances of each particular case may require. The fourth question which your lordships have proposed to us is this: 'If a person under an insane delusion as to existing facts commits an offense in consequence thereof, is he thereby excused?' To which question the answer must, of course, depend on the nature of the

delusion; but, making the same assumption as we did before, namely, that he labors under such partial delusion only, and is not in other respects insane, we think he must be considered in the same situation as to responsibility as if the facts with respect to which the delusion exists were real. For example, if, under the influence of his delusion, he supposes another man to be in the act of attempting to take away his life, and he kills that man, as he supposes, in self-defense, he would be exempt from punishment. If his delusion was that the deceased had inflicted a serious injury to his character and fortune and he killed him in revenge for such supposed injury, he would be liable to punishment."

The questions put to the judges were general in their terms, having reference to the facts of no particular case, and Mr. Justice Maule expressed a fear (p. 204) that the answers might, from their necessary generality, prove an embarrassment in the administration of justice. There was also a question whether the lords had a constitutional right to put them under existing circumstances. Be this as it may, they are regarded as an authoritative exposition of the law by the courts of

THE UNITED STATES.

U. S. vs. Holmes, 1 Clif. 98; *U. S. vs. Nicholas Schultz*, 6 MacL. 121; *U. S. vs. McGlue*, 1 Curt. 1; as well as by the courts of the following of the United States of America:

ARKANSAS.

Casat vs. State, 40 Ark. 511.

CALIFORNIA.

People vs. Hobson, 17 Cal. 424; *People vs. Coffman*, 24 Cal. 230; *People vs. McDonnell*, 47 Cal. 134; *People vs. Ferris*, 55 Cal. 588; *People vs. Pico*, 62 Cal. 50; *People vs. Hoin*, 62 Cal. 120; *People vs. Blake*, 65 Cal. 275.

DELAWARE.

State vs. Windsor, 5 Harr. (Del.) 512.

GEORGIA.

Roberts vs. State, 3 Geo. 310; *Loyd vs. State*, 45 Geo. 57; *Brinkley vs. State*, 58 Geo. 296.

IDAHO.

People vs. Walter, 1 Ida. 386.

KANSAS.

State vs. Mahn, 25 Kan. 182.

MAINE.

State vs. Lawrence, 57 Mai. 574.

MASSACHUSETTS.

Commonwealth vs. Rogers, Jr., 7 Metc. 500.

MINNESOTA.

State vs. Shippey, 10 Minn. 223; *State vs. Gut*, 13 Minn. 341.

MISSOURI.

State vs. Huting, 21 Mo. 464; *State vs. Redemeier*, 71 Mo. 173; *State vs. Erb*, 74 Mo. 199; *State vs. Kotovsky*, 74 Mo. 247.

NEBRASKA.

Wright vs. People, 4 Neb. 407; *Hawe vs. People*, 11 Neb. 537; *Hart vs. State*, 14 Neb. 573.

NEVADA.

State vs. Lewis, 20 Nev. 333.

NEW JERSEY.

State vs. Spencer, 1 Zab. 196.

NEW YORK.

Freeman vs. People, 4 Den. 9; *Willis vs. People*, 32 N. Y. 715; *Flanagan vs. People*, 52 N. Y. 467; *Moett vs. People of the State of New York*, 85 N. Y. 373; *Walker vs. People of the State of New York*, 88 N. Y. 81.

NORTH CAROLINA.

State vs. Brandon, 8 Jones (L.) 463; *State vs. Hayward*, Phil. N. C. 376.

OHIO.

Clark vs. The State, 12 O. 483.

OREGON.

State of Oregon vs. Murray, 11 Or. 413.

TENNESSEE.

Dove vs. The State, 3 Heisk. 348.

TEXAS.

Thomas vs. State, 40 Tex. 60.

THE DISTRICT OF COLUMBIA.

U. S. vs. Guiteau, 1 Mackey, 498; *U. S. vs. Lee*, 4 Mackey, 489; *U. S. vs. Clarke*, 2 Cranch, D. C. 158.

Of an authority almost equal to these answers is the famous charge of Chief-Justice Shaw in the case of *Commonwealth vs. Rogers* (supra), which has been repeated almost verbatim in the instructions given to juries by the judges in many States of the American Union.

The law, in its inquiry as to the fact of the existence of the capacity to know right from wrong, good from evil, has given, as it were, a legal

recognition to certain facts which, as the indicia of the existence of this capacity, it regards as leading symptoms in the diagnosis of criminal responsibility. As an all-controlling principle may be considered the dogma (which is without exception) that the fact of insanity cannot be inferred intrinsically from the nature of the act itself, but must be proved extrinsically, although its atrocious character may support such extrinsic proof of the fact of insanity. (*Laros vs. Commonwealth*, 84 Pa. St. 200.)

1. *Evidences of Design and of the Adaptation of Means to an End.*

In the early cases great stress is laid upon any fact or facts tending to show that the accused had a steady and resolute design and used all proper means to effect it. (Trial of Edward Arnold, *supra*; Trial of Earl Ferrers, 19 How. St. Tr. 886; Trial of James Hadfield, *supra*.)

At that time, when the possession of any memory and understanding of any of the mind's essential constituents argued the existence of the capacity to know right from wrong, good from evil, and consequently that of responsibility, it was considered an obvious consequence that the capacity to form a design, one of the most ordinary proofs of the possession of reason, should be considered a decisive circumstance. At the present day this same capacity is considered a controlling element in the diagnosis of responsibility. In the case of *The People vs. Henry Carnel*, the defense being insanity, Mr. Justice Edmonds instructed the jury that the capacity to form an intention, and of devising the means of executing it, would warrant a conviction. (2 Edm. Sel. Ca. 200.) The New York Court of Appeals held in the recent case of *The People vs. Barber* (115 N. Y. 475) that "the facts relied upon by the prosecution to show the adaptation of means to ends . . . are factors of importance upon the question of the defendant's legal responsibility."

Although abstract and *à priori* reasoning might lead one naturally to infer that the capacity to form a design, and the use of means suited to its accomplishment, would conclusively prove the existence of a mind undisturbed, or one sufficiently so as to impose responsibility, a closer observation of the characteristics of insanity has had a tendency to discredit the so-called "method in madness." It has been shown that cunning and contrivance are of the qualities least frequently affected by insanity, and it is considered, among the Continental jurists at least, that the test has little diagnostic value. In their opinion the examination of the systematic planning of a deed can only be valuable when it tends to indicate a condition of irresponsibility—"when these plans and preparations themselves evince the stamp of a confused intellect, and betray the hazy consciousness, the mental darkness in which the culprit was involved." (Casper's *Handbook of Forensic Medicine*, vol. iv., part vi., chap. i., sec. 62; "Review of Mittermaier on the Excuse of Insanity," *American Jurist*, vol. xxii., p. 312.)

2. *The Appreciation of the Nature of the Act and its Consequences.*

From the earliest times the fact of responsibility has been inferred from any circumstance that might evidence the possession of the above capacity. Of this the two cases cited by Hale are examples—the one, "an

infant within age that had killed his companion and hid himself was presently hanged, for it appeared by his hiding he could discern between good and evil;" the other, "an infant of the age of nine years killed an infant of the like age; he confessed the felony, and upon examination it was found he hid the blood and the body; the justices held he ought to be hanged." (1 Hale, P. C., 26, 27.) In the trial of Lord Ferrers (supra) the case of the Crown, as set forth by the solicitor-general, was mainly an application of this and the preceding criterion. As evidences of Lord Ferrers's knowledge of the consequences of his act, the solicitor-general emphasized the sending for a surgeon, and his inquiry whether the steward Johnson, whom he had shot, would live or die; his statement to Johnson's daughter that he feared a prosecution, with the addition that if she would not prosecute him he would maintain her and her family; his expression of fears as to being arrested for his act. This same appreciation may be manifested in many ways, such as by the expression of the determination to be hanged (*Regina vs. Burton*, 3 F. & F. 772), to be "electrocuted" (*People vs. Taylor*, 138 N. Y. 399); but the most common are the hiding or flight of the accused and the concealment of the *corpus delicti*. The defendant in the case of *The People vs. Barber* (supra) was indicted for the murder of one Ann Mason, the defense being that the act had been committed during an epileptic paroxysm. The accused, who had been on terms of intimacy with the Masons, an elderly couple, had, while on a visit to them, without any cause or apparent motive, assaulted them both with a billet of wood which he had taken from a woodpile on the premises. He then set fire to the house, in the ruins of which were found the remains of the woman Mason. The looking out of the door by the accused before leaving the house; his occasional answers to questions put him by Mason during the perpetration of the deed; the absence of blood on his clothing, although Mason bled freely; the discovery of the footprints of a No. 7 shoe in the snow, two days after the event, leading in a zigzag direction away from the house, and occasionally turning as if the wearer were looking at the fire—were urged as facts tending to support the theory of a knowledge of the nature of the act, and a desire to escape. (The Barber Case, *American Journal of Insanity*, vol. xlv., p. 360.) The New York Court of Appeals, in their reversal of the judgment of conviction, held that upon a new trial the above facts were factors of importance upon the question of the defendant's responsibility. On the other hand, presumptions favorable to the accused have been drawn from the apparent want of this capacity of appreciation, such as the fact of the deed having been committed under circumstances which rendered detection almost inevitable. (*Regina vs. Layton*, supra.) This criterion cannot, however, be taken as decisive. Inferences as to irresponsibility from the evident want of appreciation of the nature of the act and its consequences can be drawn with greater certainty than the fact of responsibility from the possession of this appreciation, for it seems to have been had by many lunatics of unquestioned irresponsibility. The artist Dadd, who murdered his father at Cobham Park, England, fled to France after the commission of the deed. Of this person's insanity, which had manifested itself some time before the act, there could be no doubt. (*Annual Register* of August 31, 1843.) The books contain many similar instances.

3. *The Existence or Absence of Motive.*

Evidence of the want of motive on the part of the accused for the perpetration of the deed is considered to be a strong corroboration of the fact of irresponsibility. "I do not say," says Chief-Justice Hornblower (*State vs. Spencer*, supra), "that this absence of apparent motive *invariably* exists in cases of homicide and other atrocious acts committed by insane persons, but I say that it is *generally* the case. Hence, if we witness the perpetration of such an act without any apparent motive or object, but against every motive which would appear to be naturally influential with the person committing it, we at once awake to the inquiry whether he was in his sound mind, and if we can lay hold of any sufficient evidence that he was not so, this absence of apparent motive confirms us in the belief that he was insane." (*Regina vs. Layton*, supra; *People vs. Barber*, supra; *Commonwealth vs. Buccieri*, supra.) In the application of this criterion a distinction has been drawn between mere absence of evidence of the existence of motive and affirmative evidence of its non-existence, the latter only being considered to be a factor in the question as to the fact of responsibility. (*Regina vs. Law*, 2 F. & F. 836, note *a*.) Nor can an inference as to the existence of an insane irresistible impulse be made *per viam exclusionis* from the concurrence of the apparent absence of motive and the atrocity of the deed, for according to Baron Rolfe (*Regina vs. Stokes*, 3 C. & K. 185) it is considered dangerous ground to take to say that a man must be *insane* because men fail to discern the motive of his act; and according to Baron Bramwell (*Regina vs. Haynes*, 1 F. & F. 666) motives exist unknown and innumerable which might prompt the act.

Any evidence as to the non-existence of motive has been held immaterial when a knowledge of the nature of the act is coupled with evident intention to do it. (*Regina vs. Dixon*, 11 Cox, C. C. 341.) It has been determined that evidence of the absence of motive is an essential factor in considering the responsibility of epileptics (*People vs. Barber*, supra); but on the part of medical science it has been maintained that evidence of the existence of such motive is not decisive. "These patients," it is said, "are controlled in the midst of their passions by an appreciable motive, which has for them a reality; but we should ask ourselves if in a state of sanity such a motive would arise, and, above all, if it would be predominant enough to control reason. Thus the motive and premeditation, which seem under such circumstances to have dictated the criminal act, are insufficient to establish peremptorily the integrity of free-will, and consequently the existence of guilt." ("Criminal Responsibility of Epileptics as Illustrated by the Case of David Montgomery," by M. G. Echeverria, *American Journal of Insanity*, vol. xxix., p. 341.)

4. *The Acting upon Existing Facts, the Human Passion being Directed to its Proper Object.*

The consideration of this criterion forms part of the subject of.

DELUSIONS.

From the fact of the essential characteristic of partial insanity being its limitation to one or more points, the most ordinary evidence of which

is the existence of one or more delusions, the acquittal of James Hadfield (*supra*) gave a legal recognition to the theory that delusion, when there is no frenzy or raving madness, is of the very essence of insanity. In his memorable defense Erskine maintained that the premises from which such insane persons reason, when within the range of the malady, were uniformly false, not from any defect of knowledge or judgment, but because a delusive image, the inseparable companion of real insanity, was thrust upon the subjugated understanding, incapable of resistance because unconscious of attack. In his opinion, when delusion could not be predicated of a man standing for life or death for a crime, he ought not to be acquitted. These views, which are not consonant with the science of the day ("The Legal Doctrine of Responsibility in Cases of Insanity Connected with Alleged Criminal Acts," by Forbes Winslow, 1 *Juridical Society Papers*, 595), reflected the medical ideas of the time, and above all the metaphysical speculations of Locke, the predominant philosophical authority, who thus distinguished between idiocy and insanity: "In fine, the defect in naturals seems to proceed from want of quickness, activity, and motion in the intellectual faculties, whereby they are deprived of reason; whereas madmen, on the other side, seem to suffer by the other extreme, for they do not appear to me to have lost the faculty of reasoning, but, having joined together some ideas very wrongly, they mistake them for truths, and they err as men do that argue right from wrong principles, for by the violence of their imaginations, having taken their fancies for realities, they make right deductions from them. Thus you shall find a distracted man fancying himself a king, with a right inference requiring suitable attendance, respect, obedience; others, who have thought themselves made of glass, have used the caution necessary to preserve such brittle bodies. Hence it comes to pass that a man who is very sober, and of a right understanding in all other things, may in one particular be as frantic as any in bedlam, if, either by any sudden very strong impression or long fixing his fancy upon one sort of thoughts, incoherent ideas have been cemented together so powerfully as to remain united. But there are degrees of madness, as of folly; the disorderly jumbling of ideas together is in some more, some less. In short, herein seems to lie the difference between idiots and madmen: that madmen put wrong ideas together and so make wrong propositions, but argue and reason right from them; but idiots make very few or no propositions, and reason scarce at all." (*Essay on the Human Understanding*, book ii., chap. xi., sec. 13.) These views have had a predominant influence upon the law in all its branches. In the leading case of *Dew vs. Clark & Clark* (3 Add. Ecc. 79), Sir John Nicholl held that the true criterion, the true test, of the absence or presence of insanity was the absence or presence of delusion. At a recent date, Lord Denman instructed a jury that to say a man was irresponsible without positive proof of any act to show that he was laboring under some delusion seemed to him to be a presumption of knowledge which none but the great Creator himself could possess. (*Regina vs. Smith*, "Plea of Insanity in Criminal Cases," 5 *Journal of Psychological Medicine and Mental Pathology*, p. 103.) And Baron Martin, in *Regina vs. Townley* (*supra*), held that what the law meant by an insane man was a man who acted under delusions and supposed a state of things to exist which did not exist, and acted thereupon. Upon this basis of delusion as the indispensable and essential characteristic of insanity,

Erskine formulated a criterion of responsibility (No. 4, *supra*) which, although it has had a certain weight, cannot be said to have successfully withstood the assaults of adverse criticism. "The principle contended for by this eminent person is that when a maniac commits a crime under the influence of an impression which is entirely visionary, and purely the hallucination of insanity, he is not the object of punishment; but that, though he may have shown insanity in other things, he is liable to punishment if the impression under which he acted was true, and the human passion arising out of it was directed to its proper object. He illustrates this principle by contrasting the case of Hadfield with that of Lord Ferrers. Hadfield had taken a fancy that the end of the world was at hand, and that the death of his Majesty [King George III.] was in some way connected with important events which were about to take place. Lord Ferrers, after showing various indications of insanity, murdered a man against whom he was known to harbor deep-rooted resentment on account of real transactions in which that individual had rendered himself obnoxious to him. The former, therefore, is considered as an example of a pure hallucination of insanity; the latter as one of human passion founded upon real events and directed to its proper object. . . . There can be no doubt of the first of his propositions, that a person acting under the pure hallucination of insanity in regard to impressions which are entirely unfounded is not the object of punishment. But the converse does not seem to follow, namely, that the man becomes an object of punishment merely because the impression was founded on fact and because there was a human passion directed to its proper object. For it is among the characters of insanity not only to call up impressions which are entirely visionary, but also to distort and exaggerate those which are true, and to carry them to consequences which they do not warrant in the estimation of a sound mind. A person, for instance, who has suffered a loss in business which does not affect his circumstances in any important degree may imagine, under an influence of hallucination, that he is a ruined man and that his family is reduced to beggary. Now were a wealthy man under the influence of such hallucination to commit an outrage on a person who had defrauded him of a trifling sum, the case would afford the character mentioned by Erskine, namely, human passion founded upon real events and directed to its proper object; but no one probably would doubt for a moment that the process was as much the result of insanity as if the impression had been entirely visionary." (Abercrombie on *The Intellectual Powers*, part iii., sec. iv., p. 265.) This is confirmed by the affirmation of medical science that it is one of the well-known characteristics of insanity for persons to labor under delusions connected with and originating in actual circumstances. ("The Legal Doctrine of Responsibility in Cases of Insanity Connected with Alleged Criminal Acts," by Forbes Winslow, 1 *Juridical Society Papers*, 605.) It would seem, therefore, that in deciding a doubtful case a jury ought not to be guided by the circumstances of the case exclusively, but by evidence of insanity in other things as well. This seems actually to be the rule, for many verdicts given by juries involve a practical rejection of this criterion. The recent acquittal of John Daley on the ground of insanity, tried in the city of Washington for the murder of a real-estate agent named Kennedy, affords us a striking instance among many. ("A Judicial Advance—the Daley Case," by W. W. Godding, M.D., *Ameri-*

can Journal of Insanity, vol. xlv., p. 191, October, 1888.) This case had a twofold aspect: a delusion of poisoning and surveillance, and a real resentment founded upon existing facts. Daley, an Irishman of about fifty years of age, had been a lay brother in a Catholic college. While an inmate there he applied for medical advice to the clergyman in charge, who procured medicine for him. From certain circumstances he became convinced that the drug given him had been changed by the priest in order to poison him and get thereby the possession of his money. While the amount of the drug taken had not been enough to kill him, it had undermined his health, producing a "gum exudation over his whole body," which continued to the time of the murder, and his life was ruined in consequence. On his leaving the college, it was only to be shadowed by "detectives of the order," an order, apparently, of Catholic priests. He saw them when he visited Washington in 1878, and again in the following year. He made his home in Washington in the year 1882, and about that time comes in his one business transaction with the deceased. Previous to this he had given sums of money to his father, which had been expended in the purchase from Kennedy of a lot in Washington. The facts in regard to this transaction appear to have been: that the lot of land so bought had again passed into the hands of Kennedy, he holding it in trust. Daley, Sr., had arranged in 1882 to purchase it for \$900, making monthly payments for the same, but he died before the completion of such payments. Kennedy paid the funeral expenses, charging them against the account. When John Daley demanded a settlement, Kennedy, after examining his books, told him there was nothing due him. The lawyer whom Daley subsequently consulted advised him to settle his claim for \$100 if he could get it. Kennedy finally paid him \$50 by a check, taking Daley's receipt in full of all demands. The books of the deceased, produced in court, showed a balance due the estate at that time. Kennedy subsequently sold this same lot in 1886 for more than the sum of \$5000, as recorded. This latter fact probably came to the knowledge of Daley. It is certain that he always believed that Kennedy had "beat him" in the transaction, and, though he accepted the check for \$50 in full payment, doubtlessly considered he had been defrauded of money justly due him. Daley, subsequently laboring under this delusion as to his persecution by the "detectives of the order," purchased a pistol for the purpose of shooting one Elliott, an apothecary of Washington, whom he delusively imagined to be one of those detectives. This pistol he sold. At a later day meeting Elliott near the Capitol, he endeavored to strike him on the head with a stone, and failing in his attempt, he assaulted him with his fists. This led to his imprisonment. Upon his release, having met Kennedy in the streets of Washington, he plunged a knife into his abdomen. Some time after his arrest Daley stated that "he and Mr. Kennedy had had a dispute over a real-estate matter and he had got even with him." The case, from the standpoint of the alienist, was interesting but puzzling. The commission of experts reported that the accused was undoubtedly insane, but that they were unable to connect the homicide with the delusion of poisoning and surveillance that had prompted the assault on the apothecary Elliott, nor were they satisfied that his ideas respecting the wrong done him by Kennedy were delusions in the same sense as the above. The State practically conceded the fact of the

insanity, and gave the case to the jury on the failure to connect the homicide with the delusion, its theory being that the killing was founded upon a real resentment, the human passion being directed to its proper object. The jury, in their verdict of acquittal, were undoubtedly led to this conclusion by the evidence of insanity in other things. The leading canon in the matter of delusion is, that the act should be the offspring of the delusion itself. "Where the connection is doubtful," says Erskine (Trial of Hadfield, supra), "the judgment should certainly be most indulgent, from the great difficulty of diving into the secret sources of a disordered mind; but still I think that, as a doctrine of law, the delusion and the act should be connected." This doctrine as an abstract proposition may be beyond criticism, for medical science admits that "if the delusion be limited to one or to a few closely kindred subjects, and if it be of long standing, it perhaps is possible for persons so afflicted to be capable of exercising their judgment upon matters not immediately connected with the delusion." ("An Address on the Present Relation of Insanity to the Criminal Law of England," by W. Orange, M.D., *British Medical Journal* of October 20, 1887.) From this it would follow, as a legal consequence, that the same rule prevailing in questions as to civil competency should be applied to criminal responsibility (*Banks vs. Goodfellow*, L. R. 5 Q. B. 549)—that the mere existence of an insane delusion, which does not in fact influence particular parts of the conduct of the person afflicted by it, should have no effect upon their legal character. (Stephen's *History of the Criminal Law of England*, chap. xix., p. 162.) The connection, however, between the delusion and the act itself is a question of fact, one presenting the greatest difficulty, inasmuch as a connection not apparent to the sane mind, nor even conceivable by it, may exist in the insane one, and "the exact bearing of any delusion can often only be ascertained with certainty through the statements of the accused himself; and when, either on account of increasing dementia, or from any other cause, the accused is disinclined to enter into conversation, the point must necessarily remain in the region of conjecture and probability." (The Address of Dr. Orange, supra.)

As illustrations, Dr. Orange, in his address, referred to above, instanced several cases. "In the case of the American surgeon who shot a man in the streets of London about four years ago the connection between the delusion and the act was very strikingly marked, although this connection was not made out at the trial. The poor man who was the victim was on his way to his work at the Lion Brewery between three and four o'clock in the morning, when he was suddenly shot dead, his assailant firing four times at him. His assailant then gave himself up quietly to the police, saying that they would soon find out he was quite justified in what he had done. After he became an inmate of Broadmoor, he gave me a most vivid account of the matter from his point of view. He was under a delusion that he was a victim of conspiracy, and that his enemies had determined to slowly torture him to death by sending one of their number into his bedroom in the middle of the night to wake him out of his sleep. He provided himself in consequence with a revolver, which he took to bed with him, intending, as he said, to shoot his persecutor while actually in his bedroom. He woke up with a start in the usual manner during the night, and imagined that he saw his persecutor at the foot of his bed; but before he could lay his hands on his revolver and take aim

he thought he saw the man pass out through the bedroom door. He followed as quickly as possible and fancied he saw the man on the staircase; but again before he could aim the man had, as he thought, passed down to the next flight. He still followed, and again he thought he should have been successful in shooting his persecutor at the front door, but again he was too late. Still following the image that his delusion had conjured up, he rapidly opened the front door, and on the opposite side of the street he saw a man whom he immediately shot. In a case which was tried at Maidstone in 1875, and which obtained some notoriety in consequence of the strong summing up of the judge in favor of a conviction, but in which the jury returned a verdict that the man was insane, there was also a very close connection between the man's delusions and his act, although here again the connection was not clearly ascertained until after his trial. The man had killed a fellow-workman at the Chatham Dockyard, by splitting his skull with an adze. After the man became an inmate of Broadmoor, he told me that some years before he had received the Holy Ghost; that it had come to him like a flash; that his own eyes had been taken out and other eyes like balls of fire had been substituted. This, by the way, was doubtless a slight epileptiform seizure. He went on to say that after this he was able to see people when they were not there, and that he could tell whether they wanted to 'make him go down to the grave.' He said he often felt very ill, as if he were losing his senses, and that sometimes he could tell who it was that made him feel so, and sometimes he could not. Upon the day when he killed his fellow-workman, he suddenly felt a severe pain in his head. His eyes told him that it was his mate who caused this, and he struck him dead. There was no doubt whatever that the man was quite mad, and he is now steadily going on toward a state of paralytic dementia. . . . It would appear from the cases just cited, and from numerous other similar cases which might be adduced if time permitted, that the absence of direct proof of the connection between any delusion and any insane act ought by no means to be interpreted as being equivalent to evidence that no such connection exists."

The criterion contained in the fourth answer of the judges is an echo of the ingenious speculations of the jurist Hoffbauer (*Médecine légale relative aux aliénés et aux sourds muets*, sec. 103): "In criminal law the dominant idea of an individual under the influence of a delusion should be considered as true; that is to say, his actions should be judged as if he were actually under the conditions he believed himself to be when he committed the deed. If the circumstances do not change in any respect the nature of the crime, the responsibility and culpability of the accused are established; if, on the other hand, they diminish or obliterate such culpability, the insane person cannot be considered guilty. At Brieg a soldier killed a child because he believed he saw near him the Almighty, who commanded him to do the killing. In his report Dr. Glanwitz was of opinion that the man should be sent to an insane asylum."

This criterion gives to a delusion the value of a mistake of fact, putting thus on the same plane, as far as they relate to the consequences, a delusion, the result of disease, and a mistake of fact, the result of accident or circumstances like those narrated in the case of William Levett (4 Cro. Car. 538), who killed the friend of a servant concealed in a but-

tery, he being of the impression that she was a burglar. (*Commonwealth vs. Winnemore*, 1 Brewst. 357.)

From this relative point of view, that of the circumstances delusively imagined to exist, the law judges the act, applying to it the criterion of the knowledge of right and wrong. "It seems to us," says the Supreme Court of Mississippi, "only another method of stating that there can be no crime when there is a mental incapacity to distinguish between right and wrong, for, though delusions as to particular matters frequently exist in minds which are perfectly rational upon all other subjects, yet if the delusion be so fixed and vivid as to make the imaginary seem the real there must be upon that subject a total incapacity to distinguish between right and wrong, since, the entire relation between the victim of the delusion and its unconscious subject being mentally perverted, there can be no proper standpoint of right and wrong in the diseased mind. That which to the rest of the world seems right is to him the most flagrant wrong, and *vice versa*. If to his deluded imagination his best friend, or the wife of his bosom, seems a relentless foe bent upon his destruction, he necessarily acts upon the hallucination which possesses him; and if his action is such as would be justifiable or proper, if the reality was as he supposes it to be, there can be no accountability, because there has been no conscious crime. If a crazy enthusiast violates the law, impelled by madness which makes him deem it the inspired act of God, he has only done that which his diseased and deluded imagination taught him was right; and if the act would be proper in one so divinely inspired, and was the direct and necessary consequence of the delusion, there can be no punishment, because, however rational on other subjects, he was on that subject incapable of having a criminal intent." (*Cunningham vs. State*, 56 Miss. 270.) The same criterion finds a shorter but similar expression: "A simple and sound rule may be thus expressed—a man is not responsible for an act when, by reason of involuntary insanity or delusion, he is at the time incapable of perceiving that the act was either wrong or unlawful." (*People vs. Pine*, 2 Barb. 566.) An illustration of this doctrine is the case of a man who might fancy himself a king, and those around him his subjects. If such a person were to kill another under the supposition that he was exercising his prerogative as a king, and that he was called upon to execute the other as a criminal, he would not be deemed responsible for his act. (*Regina vs. Townley*, *supra*.) No less irresponsible are the many persons who imagine that they act under the direct command of God, which supersedes all human laws and the laws of nature. (*Commonwealth vs. Rogers, Jr.*, *supra*.) A recent case affords an illustration of the application of the criterion in a contrary sense. (*People vs. Taylor*, 138 N. Y. 399.) The defendant Taylor was convicted of the murder of a fellow-convict, committed in one of the prisons of the State of New York. After an assault upon a keeper of the prison, he had been transferred to the asylum for insane convicts upon the report of the physician that he was suffering from insane melancholia with suicidal and homicidal tendencies. Upon his subsequent return to the prison, he had been put to work in the broom-shop not far from the deceased, with whom he had been previously on very friendly terms. After a time he exhibited without apparent cause a feeling of great hostility to the deceased. The professed occasion for this animosity was, as he claimed, that he had been thwarted in a scheme which he had formed of

making his escape by means of a gate-way, which was in process of construction, between the asylum and the prison grounds, and that the deceased had informed the prison authorities of his design and thus caused its failure. It would seem that his plan of escape was not a rational one if he really entertained it. It did not appear that he had ever confided it to the deceased, or that the latter had informed any one in regard to it, or that any person had told the defendant that the deceased had given any such information. The defendant, having found a convenient opportunity, attacked the deceased with a knife which he had secreted, almost severing his head from his body. After the commission of the deed he informed one of the keepers that he had done it for the purpose of being electrocuted. The Court of Appeals, in its affirmance of the judgment of conviction, referred to the element of delusion (p. 406): "Counsel relies with great confidence upon the proof of an insane delusion as to the part which the deceased had taken in preventing the execution of the defendant's plan of escape; but this delusion, if established, would not of itself be a sufficient answer to the present indictment. It may be that if the question of its existence were separately submitted to a jury, they might find, as we might be compelled to find if submitted to us, that the weight of evidence seemed to indicate its existence. That fact, if conclusively proven, would fall far short of a defense. An insane delusion with reference to the conduct and attitude of another cannot excuse the criminal act of taking his life, unless it is of such a character that if it had been true it would have rendered the homicide excusable or justifiable. If the defendant had actually planned a mode of escape from prison, and had confided this scheme to the deceased, and the latter had betrayed his confidence and informed the authorities of his purpose, and by means of such information it had been frustrated, it would have afforded the defendant no justification for his act, but would have augmented its enormity, because inspired by the unholy motive of revenge. How then can the false belief, standing by itself, that those things had happened, affect the criminal nature of the defendant's wrong?" These canons determining the relations of delusion to criminal responsibility have found an acceptance even ampler than the principal one enunciated by the judges, for they are recognized as authoritative in States where the criterion of responsibility is not limited to the consciousness, to the power to discern between right and wrong, good and evil. (Pennsylvania: *Commonwealth vs. Winnemore*, supra; *Sayres vs. Commonwealth*, 88 Pa. St. 291; *Taylor vs. The Commonwealth*, 109 Pa. St. 262; Iowa: *State vs. Stickley*, 41 Iowa, 232; *State vs. Mewherter*, 46 Iowa, 88.)

It is to be noted that the answers of the judges assume that the limits of the disease are found within the delusion itself, and that the accused "is not in other respects insane." There can be no doubt as to the existence of cases that the answers of the judges would fully cover. If, on the other hand, a delusion considered as a symptom be evidence of mental disease extending beyond the limits of the delusion, of the most extensive mental derangement, a case is presented not contemplated by the judges in their answers. The question, however, as to the limits of the delusion, as to the insanity of the accused in other respects, like that of the connection between the delusion and the act, is a question of fact, not one of law.

THE EMOTIONS AND THE WILL.

The law of England, and of those American States that accept the answers in *McNaghten's Case*, recognizes cerebro-mental disease only in its effect upon the intellect or the consciousness; for, in the consideration of responsibility, its disturbing influence upon the emotions and the will is utterly ignored. "Every man," says Baron Rolfe, "is held responsible for his acts by the law of this country [England] if he can discern right from wrong. . . . It is true that learned speculators in their writings have laid it down that men with a consciousness that they were doing wrong were irresistibly impelled to do some unlawful act. But who enabled them to dive into the human heart and see the real motive that prompted the commission of such deeds?" (*Regina vs. Stokes*, 3 C. & K. 185.) If the intellect or consciousness, although diseased, be to that extent unimpaired that it is able to perceive that the act is unlawful or morally wrong, the insane man is in the eyes of the law a sane one, so far as the question of insanity may affect the question of his responsibility. (*Willis vs. People*, 32 N. Y. 715.) In such a case the law, conclusively presuming the freedom of the will—the existence of a power of choice—considering the impulses of insanity as impulses not uncontrollable, but in fact uncontrolled, exacts from the insane man a resistance to them similar to the resistance to human passion it requires from the sane one. (*People vs. Taylor*, supra.) To this conclusion in a certain measure has the law been led by considerations of policy or convenience; for in its estimate any further inquiry would be vague and uncertain, and a justification and a cover for the commission of crime. (*Flanagan vs. People*, 52 N. Y. 467.) This view is reflected in the report of the Royal Commission on the Criminal Code Bill (1878–79) (vol. lxxiv., p. 17): "The principal substantial difference between Section 22 of the draft code and the corresponding section of the bill is, that the latter recognizes as an excuse the existence of an impulse to commit a crime so violent that the offender would not be prevented from doing the act by knowing that the greatest punishment permitted by the law for the offense would be instantly inflicted—the theory being that it is useless to threaten a person over whom by the supposition threats can exercise no influence. This provision of the bill assumes that the accused . . . was, at the time he did the act, capable of appreciating its nature and quality, and knew that what he was doing was wrong. The test proposed for distinguishing between such a state of mind and a criminal motive, the offspring of revenge, hatred, of ungoverned passion, appears on the whole not to be practicable or safe, and we are unable to suggest one which would satisfy these requisites and obviate the risk of a jury being misled by considerations of so metaphysical a character." Inasmuch as every crime is committed under an impulse more or less irresistible, and the object of the law is to control such impulses, it is considered to be a doctrine the most dangerous to admit as a defense the fact of an impulse being uncontrollable, even though the impulse be the offspring of disease. (*Regina vs. Alhnut*, Baron Rolfe, *London Times*, December 16, 1847; *Regina vs. Brough*, Erle, C. J., *London Times*, August 10, 1854; *Regina vs. Barton*, 3 Cox, Cr. Ca. 275.) "If an influence be so powerful as to be termed irresistible," says Baron Bramwell, "so much the more reason is there why we

should not withdraw any of the safeguards tending to counteract it. There are three powerful restraints existing, all tending to the assistance of the person who is suffering under such an influence—the restraint of religion, the restraint of conscience, and the restraint of law. But if the influence itself be held a legal excuse, rendering the crime punishable, you at once withdraw a most powerful restraint—that forbidding and punishing its perpetration. We must therefore return to the simple question you have to determine—Did the prisoner know the nature of the act he was doing, and did he know that he was doing what was wrong?” (*Regina vs. Haynes*, 1 F. & F. 666.) This same judge emphasized similar views before the select committee on the Homicide Law Amendment Act: “What is the meaning of a man being prevented from controlling his conduct? When he is prevented it is because the preventing motives *are strong enough*. When he is not prevented it is because they *are not strong enough*. The effect of this [the proposed act] would be to lessen the preventing motives. A wishes to commit a rape. Disease of mind weakens his power of acting on motives of chastity, religion, morality, goodness, etc., but fear of the law added to these motives makes him able to resist. The proposal is to take away one of his good motives. . . . I tried a man named Dove many years ago for murdering his wife. He called a number of witnesses for the purpose of proving that he could not control his actions. There was one of them who, to prove the state of this man’s mind, proved that he shot a cat in the presence of his wife, or something of that sort, and this man gravely said he believed it was an uncontrollable impulse. I put this question to him (I did not let him see the difficulty it would lead him in; I got his mind away from the particular answer he had given): ‘Now, suppose a policeman had been present when he shot that cat, do you think he would have been restrained?’ And he said, ‘Yes!’ ‘Well, then,’ I said, ‘according to your view an uncontrollable impulse is an impulse acting upon a man when a policeman is not present.’ It is obvious that what is called an uncontrollable impulse is one as to which the deterring or controlling motives are not strong enough. And this is a proposition in all cases to take away from a man, in a state of mind in which he is more likely to do mischief than anything else, a deterring motive.” (Report of Select Committee, Minutes of Evidence, 1874, vol. ix., p. 26.) “The prisoner was proved to have been perfectly well aware,” says Baron Alderson, “what he had done immediately afterward, and in the interview which he had since with one of the medical gentlemen he admitted that he knew perfectly well what he had done, and ascribed his conduct to some momentary uncontrollable impulse. The law did not acknowledge such an impulse if the person was aware that it was a wrong act he was about to commit, and he was answerable for the consequences. A man might say that he picked a pocket from some uncontrollable impulse, and in that case the law would have an uncontrollable impulse to punish him.” (*Regina vs. Pate*, *London Times*, July 12, 1850.)

This contemplation of insanity, as limited in its effects to the intellect and consciousness, is as marked in the subordinate criteria as in the principal canon itself. In the distinction drawn between an act the consequence of a delusion, and an act founded upon a real event, the law, weighing the act in the scales of responsibility, takes no note of the insane emotion that may have distorted or exaggerated the event or fact

giving rise to the passion or emotion. To it delusions are essentially of an objective nature, mere errors as to existing facts (*Regina vs. Burton*, 3 F. & F. 772), and in the consideration of them the law utterly excludes the emotions as factors of responsibility. For assuming a delusion to be that the accused had suffered a wrong at the hands of another, by arbitrarily ascribing the inspiration of the act to the "unholy passion of revenge" (*People vs. Taylor*, supra), and by exacting from the insane man a sane resistance to such supposed passion, the law totally excludes from its consideration any disorder of the emotional nature produced by the insanity of which the delusion may only be a symptom. This legal view of insanity, which interprets the answers of the judges in their natural and restricted sense, prevails, as has been said, in England and in the following of the United States of America:

CALIFORNIA.

People vs. Hoin, 62 Cal. 120.

GEORGIA.

Anderson vs. State, 42 Geo. 10.

MINNESOTA.

State vs. Scott, 41 Minn. 365.

NEW JERSEY.

State vs. Graves, 5 N. J. L. J. 54.

NEW YORK.

Walker vs. People, 88 N. Y. 82; *People vs. Carpenter*, 102 N. Y. 238.

DISTRICT OF COLUMBIA.

U. S. vs. Guiteau, 1 Mackey, 498.

Having its foundation on metaphysical *à priori* reasoning this theory of insanity has met with the most relentless opposition from medical science, which claims for its conclusions a weight due to extended observation and experiment. Inasmuch as the consciousness of right and wrong can be proved to exist in any condition of mind above that of "an infant, a brute, or a wild beast"; in any degree of insanity which does not extend to the total deprivation of memory and understanding; and as this consciousness, as a criterion, could consequently only apply to the furious maniac, the confirmed idiot, or the actively delirious, and would consequently include the greater number of the ordinary inmates of insane asylums, the majority of general intellectual maniacs, and a still larger proportion of partial intellectual maniacs, medical science rejects it as a true criterion of moral responsibility. In addition, the contemplation of insanity as a disease exclusively affecting the intellect or the consciousness, thus ignoring the disordered emotions and the will as factors of responsibility, is said to be opposed to the essential pathology of the disease, which is primarily a disorder of man's emotional nature.

"Responsibility depends upon power, not upon knowledge, still less upon feeling. A man is responsible to do that which he can do, not that which he feels or knows it right to do" (Bucknill on *Criminal Lunacy*, p. 59); a criminal being properly punishable, not because he knows good from evil, but because he voluntarily did the evil, having the power to choose the good. (Ogston's *Lectures on Medical Jurisprudence*, Lecture XXI.; Bucknill and Tuke's *Psychological Medicine*, p. 269; Review of Dr. Jamieson on "Criminal Responsibility of Insane," 4 *Psychological Journal*, p. 187.)

Many of the jurists of England have borne testimony as to the difficulty of making the legal criterion a rule of universal application—a criterion embodying such a definition of legal madness "that nobody is hardly ever really mad enough to be within it," which is the frank admission of Baron Bramwell, who certainly cannot be charged with sentimental tenderness toward the insane. (Reports of Committees, Minutes of Evidence, 1874, vol. ix., p. 27.) Before the select committee on the Homicide Law Amendment Act, which, drafted by Sir J. F. J. Stephen, would have introduced into the criterion of responsibility the additional element, the prevention by any disease affecting the mind of the power of controlling the conduct (Homicide Law Amendment Act, part ii., sec. 24*d*), Mr. Justice Blackburn gave the following testimony: "We cannot fail to see that there are cases where the person is clearly not responsible and yet knew right from wrong. I can give you an instance which shows what I held deliberately; it was in the case of that woman whom I was speaking of, who was tried for wounding a girl with intent to murder. The facts were these: the woman had more than once been insane, insanity being principally brought on by suckling her child too long; that was the cause that had produced it before. She was living with her husband, and had charge of this girl, a girl of about fifteen, an impotent girl who lay in bed all day. She was very kind to her, and treated her very well. They were miserably poor, and very much owing to that she continued to nurse her boy till he was nearly two years old, and suddenly, when in this state, she one morning, about eleven o'clock, went to the child lying there in bed, aged fifteen, and deliberately cut her throat. Then she went toward her own child, a girl of five or six years of age, of whom she was exceedingly fond, and the girl hearing a noise looked up and said, 'What are you doing?' 'I have killed Olivia, and I am going to kill you,' was the answer. The child, fortunately, instead of screaming, threw her arms around her mother's neck and said, 'No, I know you would not hurt your darling little Mopsy.' The woman dropped the child, went downstairs and went into a neighbor's house, told her what she had done, that she had killed Olivia and was going to kill Mary, but 'when the darling threw her arms around my neck I had not the heart to do it.' She clearly knew right from wrong, and knew the character of her act, for some little time after that she talked rationally enough; but before night she was sent to a lunatic asylum, raving mad, and having recovered she was brought to be tried before me at a subsequent assize. On the definition in McNaghten's Case, she did 'know right from wrong'; she did not [*sic*] know the quality of her act, and was quite aware of what she had done, but I felt it impossible to say that she should be punished. If I had read the definition in McNaghten's Case and said, 'Do you bring her within that?' the jury would have taken the bit in their own teeth and said, 'Not guilty on the ground of

insanity.' I did not do that. I told them that there were exceptional cases, and on that the jury found her not guilty on the ground of insanity, and I think rightly. On this definition I think you would be obliged to say that woman was guilty." (Reports of Committees, Minutes of Evidence, 1874, vol. ix., p. 11.) Of similar tenor were the views expressed by the Lord Chief-Justice Cockburn in a memorandum submitted to this same committee: "As the law, as expounded by the judges in the House of Lords, now stands, it is only when mental disease produces incapacity to distinguish between right and wrong that immunity from the penal consequences of crime is admitted. The present bill introduces a new element, the absence of the power of self-control. I concur most cordially in the proposed alteration of the law, having always been strongly of opinion that, as the pathology of insanity abundantly establishes, there are forms of mental disease in which, though the patient is quite aware that he is about to do wrong, the will becomes overpowered by the force of irresistible impulse. The power of self-control, when destroyed or suspended by mental disease, becomes, I think, an essential element of responsibility." (Reports of Committees, Special Report Select Committee, No. 1, 1874, vol. ix., App. No. 1.)

In a recent charge to the grand jury at the Shropshire winter assizes Mr. Justice Hawkins referred to the case of one Anthony Ware, charged with the murder of one Smith at the Salop and Montgomery County Asylum, Bicton, near Shrewsbury. After the homicidal act was committed, the patient was removed to Broadmoor. Under these circumstances, the finding of a true bill did not come under the consideration of a jury. The judge, however, regarded the case as so very interesting that he went out of his way to comment upon it to the grand jury. It appears that Ware had been for a considerable time a dangerous lunatic. Dr. Strange, the medical superintendent of the Bicton asylum, stated that while he had been a patient at the County Asylum he had committed several murderous assaults upon patients, and in one instance upon an attendant. On the fatal day this homicidal patient had been out for an airing with another dangerous lunatic named Smith. Indeed there seemed to be some fifteen or sixteen patients of the class together. On returning to the asylum, Ware provided himself with an iron bar from a bedstead, and was seen by the attendant in charge to strike the deceased (Smith) upon the head with it. From the wounds thus received the latter quickly died. As Ware threatened to murder every one who approached him, prompt assistance could not be rendered to save Smith's life. Having called attention to the answers of the judges, his lordship requested the jury to apply them to the case in question, in which no one, lawyer or layman, would venture to say that the wretched man is responsible for the act he committed; yet, although he was a confirmed lunatic, he was perfectly aware, according to the depositions, of the nature of the act. It was quite clear, from what he himself had said, that he had killed some one, and that he was also aware that what he had done was wrong; for he extracted a promise that he should not be punished if he gave up the iron bar that he had in his possession. "This being so, it would be impossible to say that Ware did not know that he had killed a man, because he said himself that he had; and it would be impossible for anybody to urge that he did not know it was wrong, for he wanted a promise that he should not be punished; but unless one put

a totally different construction on the law, that would have to be proved; although no man in his senses would suppose that any jury would find Ware responsible for what he had done." Mr. Justice Hawkins stated in addition that he had not only spoken his own views upon the matter, for more than one of the judges had expressed the desire that the law upon the subject should be revised and a little more definite understanding arrived at. (Mr. Justice Hawkins on "The Plea of Insanity in Criminal Cases," *Journal of Mental Science*, vol. xxxi., p. 64.) Expressions of opinion as to the incompleteness or inadequacy of the criterion are not confined to the judges of England. The trial of Andrew Kleim was had before Mr. Justice Edmonds of the Supreme Court of the State of New York. The prisoner had been indicted for the willful murder of one Catharine Hanlon. The deceased, with her husband and children, resided in a wooden shanty or dwelling, the only door of which was in the front, about five yards from the prisoner's residence. One morning, between six and seven o'clock, the prisoner came out of his house and piled wood-shavings and straw at the door of the deceased's residence, to which he then set fire. The deceased attempted to escape through the door, but was forcibly thrust back by the prisoner, who stabbed her in the thigh with a sharp instrument attached to a stick. She went to a window with her son, a boy of about thirteen years of age, when the prisoner threatened to cut her throat; she then swooned away and became senseless. The defense was insanity, and upon a preliminary inquiry the jury found that the prisoner was not then insane. Upon the subsequent trial upon the main issue, the jury returned a verdict of "not guilty" upon the ground of insanity. "The first case of insanity that came before me as judge," says Mr. Justice Edmonds, "was this case of Kleim. In the preliminary inquiry into present insanity, I followed this rule (McNaghten's Case), and the verdict of the jury at once satisfied me that it had misled them, for he was not totally but only 'partially insane,' and he did know that it was wrong to shut that woman and her children in their hut and burn them to death; yet there was no doubt of his insanity, and in less than a year he became a mere driveling idiot, and so died. He knew the act was wrong, yet he was insane. The act of piling up shavings, fastening the woman in her hut, and forcing her back into the flames, was not an 'involuntary act of the body without the concurrence of a mind directing it,'* yet he was insane. He knew the 'act was contrary to the plain dictates of justice and right, injurious to others, and a violation of the dictates of duty,'† yet he was insane. He knew 'he was acting contrary to law,' yet he was insane. He knew the act was 'one he ought not to do,' yet he was insane." (Note to *People vs. Andrew Kleim*, 1 Edm. Sel. Ca. 28.)

A recent case tried at the Taunton assizes, England, affords a striking proof of the possible coexistence of extraordinary insanity and all the conditions that might bring an accused within the letter of McNaghten's Case. ("*Regina vs. Hitchens*," by Charles Mercier, *Lancet*, March 3, 1888.) The prisoner, a lad of twenty-one, had suffered for many years from epilepsy, which had been getting more severe. His mother had been on two occasions insane, the second occasion being shortly before the birth of the prisoner. One morning, before he was fully dressed, the prisoner

* *Shaw, C. J., Commonwealth vs. Rogers, Jr., supra.*

† *Ibid.*

went into the bedroom of his eldest sister, who was in bed, and blew her brains out with one discharge from a double-barreled gun. He then fired two shots from the same gun at his own head, but only slightly wounded himself. He then rushed out of the room and plunged head-foremost down a flight of stairs. He did not slip or fall down, but threw himself down with his hands up, as if diving into water. After this he got up and threw himself in the same way down a second flight of stairs. He again got up and threw himself in the same way into a fireplace. Being taken and put to bed, he told his father to look into the pockets of a coat that was hanging in his room. There the father found the following letter: "I leave everything that belongs to me to my dear mother. I have been treated so badly by that beast, my sister Constance, that I must put an end to her life by shooting; and knowing that I should have to die for it, I also shoot myself. Good-by to all! Hoping you will have a happy time of it, good-by, dear father and mother!" The prisoner subsequently said several times to different people that his sister had been very unkind to him, and had been a bad one to him. It did not appear at the trial, however, that he had previously shown animosity toward her beyond that usually displayed in mere children's squabbles, and the only complaints he had ever made against her were that she had not given him a newspaper when he asked for it, and that she had passed him in the street without speaking. The prisoner, at the instance of the Crown, had been examined previously to the trial by medical experts, who at the trial itself gave testimony for the defense under circumstances of great difficulty, owing to the rulings of the trial judge. It appeared in evidence that the epilepsy to which the accused was subject included both forms of epileptic paroxysm, namely, *le haut* and *le petit mal*, and, in addition, physical symptoms proved to the medical mind at least the fact of the prisoner's extreme insanity. The summing up of the judge (Mr. Justice Field) was very strong against the prisoner. He declared that all the conversations narrated and all the acts of the prisoner were perfectly rational. He took the letter written by the prisoner, and reading it sentence by sentence, asked if each sentence was not a rational one. He told the jury that the question for them was, "Did the prisoner know the nature and quality of the act he had committed; that it was condemned by the laws of God and man, and if he committed it that he would have to suffer death for it?" The judge further charged the jury that, even if they were satisfied that the prisoner was insane at the time of the crime, they could not return a verdict of "guilty," but "insane," unless they found that he was suffering from such a delusion that, if the facts really had been as he deludedly believed them to be, he could have legally committed the act for which he was tried. After a short absence the jury returned a verdict, according to the recent statute, of "guilty, but insane at the time the act was committed." The repeated occurrence of these "exceptional cases" referred to by Mr. Justice Blackburn—cases where palpable irresponsibility coexists with an evident knowledge of the difference between right and wrong—has compelled the judges, to avoid the commission of the most manifest injustice, to depart from the criterion. These facts furnish a very strong practical argument against the criterion as being a rule complete in itself.

At the trial of Joseph Gill, at the Leeds assizes, in April, 1883, Mr. Justice Kay charged the jury that "the most important question was,

Were they dealing with a sane man? Judges had said over and over again that a man could not be considered insane merely because he did a criminal act, and the importance of that view could not be overestimated. Nevertheless, he did not agree with the learned counsel who put it that 'it was necessary to prove that a man did not know the difference between right and wrong in order to show that he was insane.' If a man's mind was in such a diseased condition that he was subject to uncontrollable impulse, they would be justified in finding him irresponsible for his actions. What the jury had to ask themselves was, Was the prisoner's mind subject to an uncontrollable impulse over which his will had no power? If so, they must acquit him on the ground of insanity." (Review of "History of the Criminal Law of England," by Stephen, *Journal of Mental Science*, vol. xxix., p. 258.) So also in a recent case, Mr. Justice Lawrence put thus the question to the jury: "Was the prisoner unable to control his actions in consequence of disordered mind?" (The Duncan Case, *Journal of Mental Science*, vol. xxxvii., p. 562.) As the leading canon, so have the subordinate criteria in relation to delusions met with adverse and destructive criticism. As has been said, these answers of the judges have for their basis the assumption that the accused is "not in other respects insane"; that the effect of the delusion is to produce an intellectual error as to an existing fact, the limits of which are found within the delusion itself. It is held by the most distinguished authority that the fact of an illegal act being committed from the point of view of a fixed delusion is in itself a proof that the reason of the accused has lost control of the fixed idea, and that the delusion itself has ceased to be a limited one. (Casper's *Handbook of Forensic Medicine*, part vi., vol. iv., chap. ii., sec. 80.) Be this as it may, the answers, even upon their assumption of a partial or limited delusion, have not met with acquiescence; and adverse criticism in support of its position as to their intrinsic unreasonableness urges as objections: the arbitrary imposition of limits upon a disease so subtle and mysterious as that of insanity; the attributing to madness the delusive imaginary fact, and to sanity the emotion or passion arising out of that fact; the judgment of these emotions or passions from a standpoint of sanity, by the exaction from the accused of a sane conduct in reference to them, thus eliminating any influence of the disease upon the emotions and the will. (*State vs. Jones*, 60 N. H. 369; *Parsons vs. State*, 81 Ala. 577.) This elimination, it is claimed, essentially contradicts the pathology of delusions as symptoms of mental derangement. Medical science assures us that "a delusion . . . never, or hardly ever, stands alone, but is in all cases the result of a disease of the brain, which interferes more or less with every function of the mind, which falsifies all the emotions, alters in an unaccountable way the natural weight of motives of conduct, weakens the will, and sometimes, without giving the patient false impressions of external facts, so enfeebles every part of his mind that he sees and feels and acts with regard to real things as a sane man does with regard to what he supposes himself to see in a dream. . . . Suppose, for instance, that by reason of the disease of the brain a man's mind is filled with delusions which, if true, would not justify or excuse his proposed act, but which in themselves are so wild and astonishing as to make it impossible for him to reason about them calmly, or to reason calmly upon matters connected with them. Suppose, too, that the succession of insane thoughts of one

kind and another is so rapid as to confuse him; and finally suppose that his will is weakened by his disease, that he is unequal to the effort of calm sustained thought upon any subject, and especially upon subjects connected with his delusion—can he be said to know or have a capacity of knowing that the act which he proposes to do is wrong?" (Stephen's *History of the Criminal Law of England*, vol. ii., chap. xix., pp. 157, 164.) As a solution, Sir J. F. J. Stephen would construe the answers of the judges in a broader and, as it were, a "non-natural" sense: the word "know" including, in his opinion, not knowledge only, but the power of controlling the conduct as well: "Knowledge and power are the constituent elements of all voluntary action, and if either is seriously impaired the other is disabled. It is as true that a man who cannot control himself does not know the nature of his acts as that a man who does not know the nature of his acts is incapable of self-control." His proposition is, "that, if it is not, it ought to be the law of England that no act is a crime if the person who does it is at the time when it is done prevented either by defective mental power or by any disease affecting his mind from controlling his own conduct, unless the absence of the power of self-control has been produced by his own default." (Stephen's *History of the Criminal Law of England*, vol. ii., chap. xix., p. 168.) In the opinion of the Lord Chief-Justice Cockburn, the doubts and difficulties suggested by the answers of the judges have been due to a construction too wide and general, and to their not having been applied strictly with reference to the questions put: "Among the functions of the human mind liable to be perverted by disease is, as all scientific writers on insanity are agreed, the human will; which sometimes becomes the slave of maniacal impulses, which it is unable to resist. Among the different forms of madness by which the will is liable to be thus affected is that which is known by the name of homicidal mania, or when it compels a person to self-destruction, suicidal mania. That the will is liable to be thus maniacally affected, and so to be swayed by impulses which it is unable to resist, is a point on which writers on mental pathology are agreed. Instances have been known in which lunatic patients have been periodically thus affected, and, conscious of the approach of the maniacal condition, have requested to be placed under restraint. Murders for which no motive could be suggested, sometimes of children by their own mother, self-murder, equally without adequate motive, by men of religious character, can often only be thus accounted for. Ought persons, who, thus afflicted, commit crimes, to be punished as though they were of sound mind and capable of the self-restraint which the sense of moral right and wrong or the fear of the law imposes upon others more happily constituted? The point cannot as yet be said to have been authoritatively determined. The language of the judges in the House of Lords has, no doubt, been repeated as of general application, but erroneously. Their answers had reference to the specific questions put them by the House, the language of which was in these terms: 'What is the law respecting alleged crimes committed by persons afflicted with insane delusions in respect of one or more particular subjects or persons?' The answer is restricted to the specific question so put. 'Assuming,' it begins, 'that your inquiries are confined to those persons who labor under such partial delusion only and are not in other respects insane, we are of opinion,' etc.—the answer thus excluding any other form of insanity save that of partial delusion,

and consequently not touching the case of mania, to which I am at present directing attention. Further questions are put as to the questions to be put to the jury when a person having insane delusions is charged with crime, and insanity is set up as a defense, and the answers, as before, have reference only to the questions put, that is to say, as to the effect of insane delusions as a defense. The point has not come under judicial discussion in a case which really raised the question. The nearest approach to it was in the case of *Regina vs. Burton*, reported in 3 F. & F. 772, where the prisoner, a lad of eighteen, had murdered a boy, confessing the fact afterward, and accounting for it by saying 'he had made up his mind to murder some one, as he was tired of life.' There was insanity in the boy's family, his mother having been twice confined in a lunatic asylum, but the defense set up being homicidal mania and the want of self-control, there was no evidence of the latter in anything but the fact itself. The summing up of the learned judge, Mr. Justice Wightman, cannot, I think, be considered as satisfactory. While depreciating the doctrine of homicidal mania as a highly dangerous doctrine, he went the length of saying, founding himself upon the supposed doctrine of the judges, which he mistook, that to entitle a man to be acquitted on the ground of insanity there must be 'delusion' and 'inability to distinguish right from wrong,' whereas the question whether mania accompanied by insane impulses might afford a defense was not submitted to the judges or involved in their answers. The question whether under the influence of mental disease the human will may become subject to impulses which it is unable to resist, and upon which even the fear of death will not operate as a restraint, is not one for lawyers to dispose of dogmatically, as they often do, but one which, as a question of pathological science, it is for men conversant with that science to decide. If the fact is established, as I believe it to be, it is for the enlightened and philosophic lawgiver, in the interest of justice and humanity on the one hand and of society on the other, to determine whether an act done in such a condition of the mind shall subject a man to punishment." (Letter relating to the Criminal Code, Indictable Offenses Bill, *Papers*, vol. liv., p. 232.) With these latter views are the Continental jurists agreed. With them the "faculty of choosing between good and evil," or "the power to act with freedom," is not necessarily included in the capacity to know right from wrong; Mittermaier holding that two conditions are required to constitute the freedom of the will, which is essential to responsibility, namely, a knowledge of good and evil and the faculty of choosing between them. (Review of Mittermaier on "The Excuse of Insanity," *American Jurist*, vol. xxii., pp. 312, 313; Casper's *Handbook of Forensic Medicine*, vol. iv., part vi., chap. ii., sec. 80.)

The effect of mental disease upon the emotions and the will, and the consequent power of controlling the conduct, are recognized as essential elements of responsibility in

ALABAMA.

By the loss of the power of choosing between right and wrong through the duress of mental disease. *Parsons vs. State*, 81 Ala. 577.

CONNECTICUT.

By the irresistible impulse arising from disease. *State vs. Johnson*, 40 Conn. 136.

ILLINOIS.

By an uncontrollable impulse to do the act charged, which deprives the accused of the power to choose between the right and the wrong. *Hopps vs. People*, 31 Ill. 385.

INDIANA.

By the loss of the power of self-control through mental disease. *Stevens vs. State*, 31 Ind. 485; *Bradley vs. State*, 31 Ind. 492; *Conway vs. State*, 118 Ind. 482.

IOWA.

By an uncontrollable and irresistible impulse arising from mental disease. *State vs. Felter*, 25 Iowa, 67; *State vs. Mewherter*, 46 Iowa, 88.

MICHIGAN.

By the loss from insanity of the power to resist temptation to violate the law. *People vs. Finley*, 38 Mich. 482.

PENNSYLVANIA.

By the loss through disease of the power of self-control and the freedom of moral action, "the morbid propensity existing to such an extent as to subjugate the intellect, control the will, and render it impossible to do otherwise than yield thereto." *Taylor vs. Commonwealth*, 109 Pa. St. 262; *Commonwealth vs. Winnemore*, 1 Brewst. 356; *Ortwein vs. Commonwealth*, 76 Pa. St. 414; *Brown vs. Commonwealth*, 78 Pa. St. 122.

MORAL INSANITY.

The impulses hitherto referred to have been of two kinds. The one, overwhelming the reason, conscience, and judgment, obliterates or obscures the capacity to distinguish between right and wrong. (*Commonwealth vs. Rogers, Jr.*, 7 Mete. 500; *Cunningham vs. State*, 56 Miss. 269; *People vs. Sprague*, 2 Park, C. R. Cases, 43; *Regina vs. Barton*, 3 C. C. 277.) The other, irrespective of its influence upon this same capacity, so subjugates the will as to deprive the subject of the power of self-control—the freedom of moral action. This latter impulse being the undoubted offspring and product of mental derangement—of intellectual insanity—a recognition of it as an element of responsibility does not involve as a necessary consequence an acquiescence in the theory of the so-called "moral or emotional insanity." This theory, having its origin in a supposed lesion of the will, apart from that of the understanding, in the presumed existence of an instinctive and abstract rage or mania without delirium, "*un emportement maniaque sans delire*," was extended by other theorists to the discovery and description of a disorder called "moral insanity," of which the symptoms were only displayed in the state of the feelings, affections, temper, and in the habits and conduct of the individual, or in the exercise of those mental faculties which are termed the active and moral powers of the mind. In this alleged disorder it was assumed that there was no discoverable illusion or hallucination, or

any symptom characteristic of monomania or intellectual insanity—in a word, that “an insanity in conduct” existed separately and distinct from the insanity in ideas. (Prichard’s *Forms of Insanity*, sec. v.) Dr. Maudsley, recognizing this alleged form under the general name of “affective insanity”—that is, insanity without delusion, or insanity of feeling and action—subdivides it into the two classes of impulsive and moral insanity; the former being mental disease whereby the sufferer, without passion, delusion, or motive, is driven independently of the will by blind instinctive impulses; the latter a disorder of the mind without illusion, delusion, or hallucination, the symptoms of which being mainly exhibited in a perversion of those mental faculties which are usually called the active and moral powers. (*Responsibility in Mental Disease*, chap. v.) Dr. Ray and others, insisting upon the existence of a moral mania as contradistinguished from the intellectual form, distinguished between general moral mania and partial moral manias, the latter being evidenced by specific morbid impulses which are in these cases presumably the exclusive and essential symptoms of the existing insanity: such as kleptomania, an irresistible impulse to steal; pyromania, an irresistible impulse to burn and destroy; erotomania and nymphomania, irresistible impulses to sexual excess; homicidal mania, an irresistible impulse to kill; suicidal mania, an irresistible impulse to self-destruction. (Ray’s *Medical Jurisprudence of Insanity*, chap. vii.) As in the opinion of the medical experts there were evidences of mental derangement in the case of Charles P. Huntington, who was tried for forgery at the General Sessions of the county of New York in the year 1856, the diseased tendency to “make paper;” that is, forge commercial paper, may not perhaps be considered an addition to the above classifications. (Trial of Charles P. Huntington, Testimony of Willard Parker, M.D., p. 253.)

It is obvious that these theories, the “excuse of an irresistible impulse coexisting with the full possession of reasoning powers” (Baron Parke, *Regina vs. Barton*, supra), can find no countenance in the law of England, which does not admit into its criterion of responsibility the element of impulse, even though that impulse be the undoubted offspring of intellectual derangement. A recognition no more ample is given by the courts of those American States that admit an impairment by disease of the freedom of the will, the disease being presumably a form of intellectual insanity. (*Parsons vs. State*, supra.) Some few cases which cannot be considered as authorities have gone a step beyond. At an early day in Pennsylvania Chief-Justice Gibson affirmed (*Commonwealth vs. Mosler*, 4 Pa. St. 264) that insanity was either mental or moral, the latter consisting of an irresistible impulse to kill or commit some other offense. The Supreme Court of Connecticut, speaking through Mr. Justice Carpenter, held that a derangement of the moral faculties is in itself a particular form of insanity, which is divided into two kinds, general and partial; the former consisting in a general exaltation, perversion, or derangement of function of all the affective or moral powers; the latter of particular morbid impulses, such as kleptomania, or propensity to steal; pyromania, or propensity to destroy by fire; and homicidal mania. (*Andersen vs. State*, 43 Conn. 514.) So also the Supreme Court of Kentucky: “The common law progresses with all other science with which it is affiliated as a growing and consistent whole. And, consequently, as the science of man’s moral nature has developed the phenomena of insane affections,

emotions, and passions, which either neutralize or subjugate the will, medical jurisprudence recognizes this morbid and overwhelming influence as moral insanity, and pronounces it as exculpatory as the other form called intellectual insanity. No enlightened jurist now doubts the existence of such a type of moral, contradistinguished from intellectual, insanity, as homicidal mania, or morbid and uncontrollable appetite for man-killing, and pyromania, or the like passion for house-burning, and kleptomania, or an irresistible inclination to steal. In each of these cases and others of a kindred character, whether the unnatural passion be congenital or only the offspring of some supereminent cause, moral unhingement and a subjugated and subsidized will are the invariable characteristics. This is disease, and the man thus doomed to the anarchy of morbid and ungovernable passions is, in law as well as in fact, insane; and to the extent of the operation of that blind and brutal influence he may be no more responsible than a tiger or other brute." (*Smith vs. Commonwealth*, 1 Duv. [Ky.] 224.)

The reproach of Lord Chief-Justice Cockburn can with sufficient reason be addressed to courts which would affirm, as matter of law, that which it is not the province of law either to affirm or deny, especially when doctrines most dangerous have been laid down dogmatically in the name of advanced science. The fact of the existence of moral and emotional mania, of the diseased impulses as types of insanity distinct and apart from any accompanying intellectual derangement, are questions of mental pathology, and as such do not come within a consideration of insanity from the legal point of view. In this connection it suffices to affirm that their existence is not an admitted fact of science, but a theory, the subject even at the present day of dispute and controversy. ("Moral Insanity—What is It?" by J. Workman, M.D., *American Journal of Insanity*, vol. xxxix., p. 334; "Intemperance and Insanity," by Dr. Chipley, *American Journal of Insanity*, vol. xxiii., p. 1; "Report of the Annual Meeting of the Association of Medical Superintendents of American Institutions for the Insane, held on the 16th of May, 1863," *American Journal of Insanity*, vol. xx., p. 60; Translation by Dr. J. Workman of "Ulteriori Considerazioni sull'Argomento della Così detta Pazzia Morale," by Dr. C. Bonfigli, *American Journal of Insanity*, vol. xxxvi., pp. 224, 476; "Kleptomania," by Dr. J. C. Bucknill, *Journal of Mental Science*, vol. viii., July, 1862; Casper's *Handbook of Forensic Medicine*, vol. iv., part vi., chap. ii., sec. 75, 76, 88, 89, 91, 93.)

The problem and difficulty presented to medical jurisprudence by the theory of affective or moral insanity would not lie in the abstract question as to its existence, which is one of fact and one for mental science alone to decide, but in the proof of its actual existence when pleaded as a justification in any particular instance. (Stephen's *General View of the Criminal Law of England*, chap. ii., p. 95.) This was elaborately set forth by Mr. Justice Allen in his charge to the jury in the case of William Speirs, who was tried at Rome, N. Y., in the year 1858, for having willfully set fire to the State Lunatic Asylum at Utica, the defense being insanity in the special form of a morbid propensity for "fire-raising." "The defense was made to rest mainly upon the ground of moral insanity, so called, which under that name had but recently found a place in any of the classifications or divisions of insanity. That the moral affections might be, and frequently were, perverted or impaired by the same

diseases, or other causes, which affected or impaired the reasoning faculties and the memory, was not doubted. But 'moral insanity,' as a distinct manifestation apart from any derangement of the intellectual faculties or any disease affecting the mind, had not been and could not be with safety recognized by the law as exempting its subjects from punishment for their unlawful acts. Certainly this could not be done until science should be able to do what it has not yet done—describe its characteristics and manifestations, and define its evidences and the rules by which its existence could be ascertained and known. It should be capable of being distinguished from moral depravity. Men of science, for the convenience of investigation and discussion, might subdivide and classify these subjects as they pleased, and distinguish their divisions by any nomenclature which might be convenient, and no harm could ensue; but when courts and juries were called upon to apply the principles and deductions of science in the process of judicial investigation, it was indispensable that their tests should be such as were capable of being appreciated and judged with some approximation to certainty; that is, the deductions and conclusions of science which are to control judicial action and be influential in the administration of justice should be the ascertained results and consequences of facts proved, judged, and applied, according to the well-established principles of the particular science involved. Some of the witnesses had spoken of a moral mania, of which an individual might be the subject, and by which he might be impelled to the commission of crime; but juries could not, with any safety, regard a maniacal impulse of this description as absolving from the consequences of crime, in the absence of any evidence of a lesion of the intellect and reasoning powers, or of some derangement or disease affecting the mind and judgment—and for the best of all reasons, that there could not, in the nature of things, be any satisfactory evidence of any disease or derangement of the functions of the individual which could convince a jury that the act was not the deliberate and voluntary act of the party, his mind assenting to it. The existence of the impulsive mania could only be proved by the commission of the acts which it was sought to excuse, which would be no evidence at all; and the jury could never know, even should it be conceded that such a 'moral mania' might and did exist, whether in a particular case the acts were the results of this impulse or the fruits of a wicked and depraved mind. Courts and juries, in the attempt to determine the existence of 'moral mania' or irresistible impulse, apart from mental disturbance and derangement, as evidenced by the well-known symptoms of mental disease, as an excuse for crime, would become bewildered and lost in the labyrinth of scientific niceties and fanciful theories. But when called upon to consider the subject of insanity, regarded as a derangement of the intellect, a mental disease, or the manifestations of disease affecting the mind, whether the moral powers were or were not impaired or perverted, they were not entirely without the means of arriving at a satisfactory conclusion with the aid of intelligent and experienced men and the exercise of their good judgment." ("The Case of William Speirs," *American Journal of Insanity*, vol. xv., p. 200.)

It is insisted, however, that the difficulty presented to forensic medicine does not end with the disproof or refutation of the theory of a purely emotional or moral insanity; that cases occur where the disorders

in the emotional or moral nature are the predominant symptoms, the intellectual lesion being masked or obscure, these symptoms marking the early stage of what will eventually prove to be an undoubted case of intellectual insanity. It is insisted, further, that under these conditions a crime may be committed, the product of cerebro-mental disease. ("The Moral Phenomena of Insanity and Eccentricity," by Thomas Mayo, M.D., *The Medical and Psychological Critic*, vol. i., p. 173; Bucknill and Tuke, *Psychological Medicine*, p. 258.) Of this, the case of the boy William Newton Allnut, tried at the Central Criminal Court for the murder of his grandfather by poisoning, furnishes us, according to the medical witnesses in that case, a practical example; the accused being, in their opinion, in an early stage of insanity, which affected his moral sentiments and interfered with his notions of right and wrong, but which did not then affect his intellect in any marked degree. (Trial of William Newton Allnut, Testimony of Dr. Densbury and Dr. Conolly, London *Times*, December 16, 1847.)

The difficulty thus presented is obvious even to those who have suggested it, and some have attempted its solution. "The vicious act or crime is," says Dr. Maudsley, "not in itself proof of insanity; it must, in order to establish moral insanity, be traced from disease through a proper train of symptoms, just as the acts of a sane man are deduced from his motives, and the evidence of disease will be found in the entire history of the case. What we shall often observe is this, that after some great moral shock, or some severe physical disturbance, in a person who has a distinct hereditary predisposition to insanity, there has been a marked change of character; he becomes 'much different from the man he was' in feelings, temper, habits, and conduct. We observe, in fact, that after a sufficient and well-recognized cause of mental derangement—a combination of predisposing and exciting causes which are daily producing it—a person exhibits symptoms which are strangely inconsistent with his previous character, but which are consistent with moral insanity. Or it may appear that there has been an attack of paralysis or epilepsy, or a severe fever, and that the change of character and the symptoms of moral alienation have followed one of these physical causes. In all cases, as Dr. Prichard, who was the first to describe the disease, has remarked, there has been an alteration in the temper and habits, in consequence of disease or of a sufficient cause of disease. Perhaps the strongest evidence of the nature of moral insanity as a disease of the brain is furnished by the fact that its symptoms sometimes precede for a time the symptoms of intellectual derangement in a severe case of undoubted insanity, as, for example, a case of acute mania, or of general paralysis, or of senile dementia. It is interesting, indeed, to notice that at least one of Dr. Prichard's cases, on which he founded his description of the disease, was really a case of general paralysis—a disease not specially recognized in his day, but the best known now of all the forms of mental derangement. Surely, then, when a person is subject to a sufficient cause of insanity, exhibits thereupon a great change of character, and finally passes into acute mania or general paralysis, we cannot fairly be asked to recognize the adequate cause of the disease and the intellectual disorder as disease, and at the same time to deny the character of disease to the intermediate symptoms." (*Responsibility in Mental Disease*, pp. 173, 174.)

According to Dr. Ray, if moral insanity be pleaded in defense, proof of the fact must be found in the antecedents of the prisoner, the manner of committing the crime, his mental or bodily condition, all the circumstances, in fact, connected with the act. ("An Examination of the Objections to the Doctrine of 'Moral Insanity,'" by Isaac Ray, M.D., *American Journal of Insanity*, vol. xviii., p. 112.)

Dr. Tuke, admitting that no absolute rule can be laid down to differentiate moral insanity from moral depravity, insists that each case must be decided in relation to the individual himself, his antecedents, his education, surroundings, and social status, the nature of certain acts, and the mode in which they are performed, along with other circumstances fairly raising the suspicion that they are not under his control. In no other form of insanity is it so necessary to study the individual, his natural character, his organization, and his previous diseases. ("Moral or Emotional Insanity," D. Hack Tuke, *Journal of Mental Science*, vol. xxxi., p. 174.)

Emotional insanity as a defense has generally been presented under the form of the so-called "mania transitoria," an instantaneous temporary madness which begins "in the eve of the criminal act and ends when it is consummated." (Depue, J., *State vs. Grave*, 5 N. J. L. J. 54.) The acceptance of this theory by juries as an exculpation of the accused may be regarded in certain cases at least as a proof of their sympathy with him, and of their consequent determination to acquit. ("The Case of *People vs. Eratus F. Pierce*," *American Journal of Insanity*, vol. xxviii., p. 399; Cole's Trial, 7 Abb. Pr., N. S., 321.)

The utterances of the law on this subject, so replete with difficulty, cannot receive a complete acquiescence on the part of the jurist. An unwillingness to admit that the facts of insanity were to be learned from science and learned opinion, rather than from ordinary evidence, like an ordinary fact (Lord Chancellor Westbury, Debate of March 11, 1862, Hansard's Debates, third series, vol. clxv., p. 1297), has, as an error, its parallel in the intrusion made by the law into the domain of mental pathology itself. The writings of the earliest authorities and some of the judicial utterances of later days, by their attempted classifications of mental disease, and dogmatism as to its essential nature and characteristics, have, under the name of the law, perpetuated or given longer life to scientific errors or the imperfect science of the time, as witness the description drawn between madness and lunacy, the imputing to insanity delusion as its essential and necessary characteristic, and the drawing of fixed legal consequences from the fact of delusion itself. It is submitted that with the particular forms of insanity and its essential characteristics as a disease the law has nothing whatever to do. The effects of the various manias, of epilepsy, the probable limit and effect of delusions, the relation of the insane impulses to the human will, the question as to the existence and nature of an insanity purely emotional and moral, are, and must remain, facts of mental pathology to be proved or disproved as facts, and not to be dogmatically affirmed or denied, and to be viewed only in relation to the legal question of responsibility. As to this it may fairly be asked whether the action of the House of Lords in relation to McNaghten's Case has not justified the apprehensions of Mr. Justice Maule, in unsettling rather than settling, the law by the suggestion of

doubts rather than the solution of them, thus affording matter for bitterest controversy between the professions of law and medicine, a controversy that extends even to the present time. A complete and unsailable canon of responsibility is perhaps yet to be formulated, but its establishment cannot lead beyond the threshold of the difficulties of fact that must always confront the human tribunal.

APHASIA AND OTHER AFFECTIONS OF SPEECH.

BY

CHARLES K. MILLS, M.D.

HISTORY AND LITERATURE.

THE medico-legal aspects of aphasia and other affections of speech have not escaped investigation and discussion, but they have received little attention from English and American writers, and, compared with the immense literature of the general subject of aphasia, but little from writers of other nations. Much of the work published has been in the nature of records, with comments on particular cases which have come before a court or other tribunal; and in few, if any, of these contributions has any systematic effort been made to classify for medical purposes the now well-recognized forms of aphasia. In papers dealing with the general phenomena and mechanism of speech, important medico-legal points are developed in a casual and incidental manner, as in the writings of J. Hughlings Jackson,* Charcot,† Lichtheim,‡ and Ross;§ and to some of these references will be made in the course of this article. In the second edition of Bateman's treatise on aphasia,|| a new chapter on the jurisprudence of aphasia is introduced, in which some original observations are given, and references are made to the work of French and German authors.

Bateman¶ cites some cases of interest. In 1743, for example, a resident of Münden, Hanover, applied to the government for permission to make a will by signs in favor of his wife, and the court acknowledged the validity of the act. Another aphasic for five years discharged the functions of mayor and municipal councilor, by writing his name to necessary documents with his left hand. In the same way he also wrote a holographic will, which was sustained. These and other cases are referred to by Legrand du Saule. Bateman refers to several cases in which the wills of deaf-mutes were recognized as valid by the court because it was proved that they understood the contents of the will, either through gesture and pantomime alone, or by these and written language combined. He also records the case of a man, sixty-three years old, who was engaged

* Hughlings Jackson, *Brain*, October, 1878, and July and October, 1879.

† Charcot, *Le Prog. Méd.*, 1884, and *Medical Press and Circular*, London, 1884.

‡ Lichtheim, *Brain*, January, 1885.

§ Ross, *Aphasia*, etc., London, 1887; New York, 1890.

|| Bateman, *Aphasia*, etc., London, 1890.

¶ *Ibid.*

to be married and was suddenly seized with right hemiplegia and aphasia, and wished to make a will in favor of the lady whom he intended to make his wife. The document was written by one of his medical attendants. The testator's mark was made and the will attested by witnesses. He communicated his wishes by making signs for writing materials. His wishes were then interpreted by means of signs and written down on a card. He held up his hand, extended his five fingers, and he was asked if he meant "thousand"; he bowed assent. He then closed his hand and opened it the same way, implying ten; this operation was repeated until it amounted to thirty, then he dropped his arm down. Testator was then asked whether he wished Miss R. to have £30,000, and he nodded his head. When asked if Miss R. was to have this sum absolutely, he signified dissent; but on being asked if it was to be hers for life and afterward to revert to his family, he bowed his head. Unfortunately the testator's mark was made in the middle of the card instead of at the bottom or foot, and so did not satisfy the provisions of the statutes relating to wills, and the testament was therefore refused probate.

In Dumas's *Count of Monte-Christo* is an interview with a motor aphasic which might have answered as testimony in court in a case in which the question was that of testamentary capacity. The old Bonapartist, Noirtier, paralyzed and profoundly aphasic, angered at his son and daughter-in-law, determines to change his will. His son, his granddaughter, and his old servant could understand and communicate with him through an arranged system of signs—by his closing his eyes for "yes," by winking them when he meant "no," and when he had some desire or feeling to express, by looking upward. He signifies his desire for a notary by indicating to his granddaughter, who recites to him all the letters of the alphabet, that he wishes "n" and "o" in succession; then with a dictionary he picks out the word "notary." Two notaries are brought and read the formal copy of the will, and then test Noirtier by much the same method as Bateman relates was employed in the case above cited. Several sums are named before the aphasic, who signs "no" until the question is asked, "Do you possess 900,000 francs?" In answer to this he closes his eyes in assent. He finally succeeds in making a will, of the validity of which the notaries are thoroughly satisfied, although other characters in the story are not equally satisfied with its contents.

At the meeting of the British Medical Association, 1889,* Dr. Drysdale, of London, cited the case of a celebrated civil engineer who had right motor paralysis and aphasia, but who wrote his own checks, copying them from a former signature of his own, and who for many years was a senior partner of the firm. His partners, however, did all the work. In this case the gentleman retained enough intelligence to play whist with the cards spread out before him, and left a will which was not contested. Professor Gairdner, at a former meeting of the British Medical Association, had mentioned the case of a Scottish judge affected with aphasia who had continued in office for some years, and sat on the bench while suffering from a form of this malady.

Legrand du Saulle† has extensively discussed the subject of aphasia

* *New York Medical Record*, September 28, 1889, p. 360.

† Legrand du Saulle, *Gazette des Hôpitaux*, June and July, 1868; and *ibid.*, vol. IV., 1882. In this series of lectures other references are as follows: Ch. Sazie, *Troubles Intellectuels dans l'Aphasie*, Paris, 1879; Finance, *État Mentale des Aphasiques: Con-*

and aphasics considered from the medico-legal and other points of view. He holds that when the lesion of aphasia is confined exclusively to the third left frontal convolution, intellectual disturbance is slight; but according as it has extended to the motor zone, or to the prefrontal region, will paralysis or disorders of the intelligence appear; also that most aphasics have a certain measure of dementia as well as of paralysis, but that the intellectual disorder observed in aphasics is most variable, sometimes not interfering with the important events of life, at others so wrecking the intellectual faculties as to cause mental incapacity and irresponsibility. Among aphasics impatience and anger are common; their moods are very changeable; want of attention is one of their most marked traits; memory and recollection are less alert, some aphasics exhibiting decided loss of memory. He insists that aphasia is compatible with intelligence, but that this is always more or less weakened by the loss of language. If the brain lesions are extended and multiple, pronounced weakening and even abolition of memory may be observed. Incoherence of ideas when present is not by any means on a par with incoherence of language. To lesions of the prefrontal regions he relates the loss of memory and attention, the incoherence, hallucinations, and delirium—probably only a partial truth. He speaks of hallucinations as frequent among aphasics, the most common being those of hearing and sight; sometimes these hallucinations are of a character that may lead to crime, or may make the aphasic suspicious of others. He admits three categories of aphasics—those in whom intelligence is intact, but slightly touched; those in whom it is manifestly changed; and those in whom it is entirely abolished. A physician called to give an opinion on an aphasic should give attention to the smallest particulars. He has need also to use all his care and knowledge in scrupulously reviewing every one of the different forms of language employed by an aphasic. It is always well to make the patient count, to ask his age, to test him with money, etc.

Gallard,* in a volume of clinical lectures delivered at La Pitié, has one chapter on aphasia and aphasics discussed from the medico-legal point of view. His conclusions with reference to the interdiction of aphasics are: (1) If the intelligence of the aphasic is completely obliterated, or if in preserving his lucidity he cannot manifest it by written language, pantomime, or speech, he should be interdicted; (2) if the intelligence of the aphasic, not being completely alienated, has not all its brightness, and can only be incompletely manifested, he should be provided with a judicial counsel; (3) if the aphasic possesses his intelligence, and if he can manifest it sufficiently, whether by word, by writing, or by signs, he has no need of judicial protection, and should be free to manage himself and his affairs.

The Parish will case is perhaps the most famous American medico-legal case in which the mental power of an aphasic was the main point at issue. Henry Parish made his first will when fifty-four years of age,

sidérations Médico-Légales, Paris, 1878; Legrand du Saulle, *Étude Médico-Légale sur l'Interdiction des Aliénés et sur le Conseil Judiciaire*, Paris, 1881, p. 212; J. Lefort, "Rémarques sur l'Interdiction des Aphasiques," *Bulletin de la Société de Médecine de France*.

* Gallard, *Clinique Médicale de La Pitié*; analyzed in *Le Journal de Médecine et de Chirurgie Pratiques*, vol. xlviii., pp. 377-380.

and the next year had a slight apoplectic attack, from which he soon recovered. Seven years after making his will he had another severe apoplexy, which left him for the rest of his life, about seven years in all, paralyzed in his right limbs and with the power of articulation lost. After this second seizure he also had at intervals epileptic fits. The codicils to his will were contested. The first was made about six weeks and executed about five months after the severe apoplectic attack; about four years later a second codicil, and about five years after this a third, were made. The surrogate admitted the first codicil and excluded the others. The Supreme Court and the Court of Appeals decided against all three. The trial of this case was a notable one and eminent physicians were employed on both sides. Dr. Isaac Ray, who was one of the medical experts, testified in opposition to Mr. Parish's testamentary capacity, and has contributed a valuable paper on the case.*

The Beven case is another of interest, reported by Dr. C. H. Hughes.† Mr. Beven had been stricken with right hemiplegia and aphasia, probably due to embolism, as he had a cardiac-valvular lesion. He became defendant in a suit for the recovery of money on a deed of trust signed by himself with his left hand when he was aphasic, four months after his first apoplectic seizure, in 1873. Dr. Hughes, three years after the attack, found that he was suffering from incomplete paralysis of motion on the right side and general anæsthesia; that he fully understood oral signs, and written ones tardily and imperfectly; that he recognized the doctor's name and wrote down his own name and that of his attorney and of the doctor; that he either had or feigned defective vision, and also impaired hearing in the left ear. He had had three paralytic strokes altogether, but had grown steadily better. Dr. Hughes analyzed the various facts which were brought forward as evidences of his insanity, and decided in favor of his competency. Dr. Hughes‡ has also written a paper on the medico-legal aspect of cerebral localization and aphasia. This article reviews the varieties of aphasia, with some consideration of the lesions causing them, and also considers to some extent the effect of simple and complicated aphasia on the judging, comparing, expressing, and other faculties of the mind, citing various authorities in support of his positions.

The Fillmore will case, reported by Dr. Landon C. Gray,§ has attained considerable celebrity in this country, both because of its intrinsic interest and of the distinguished position of the parties concerned. Mrs. Caroline S. Fillmore, widow of the ex-President of the United States, in 1877, three years after the latter's death, began to show changes in her character, soon becoming coarse, profane, suspicious, and delusional. She was stricken with hemiplegia. She made two wills, the first eighteen months after the changes in her character were first noted, and nine months before the paralysis; the second will or codicil was made five months before the stroke. She developed a form of aphasia and showed not only this speech disturbance, but a combination of symptoms of general mental impairment. Dr. Gray and others testified that she was insane and incompetent.

* Ray, *Contributions to Mental Pathology*.

† Hughes, *American Journal of Insanity*, vol. xxxv., January, 1879, p. 410.

‡ Hughes, *Alienist and Neurologist*, vol. i., April and July, 1880.

§ Gray, *American Journal of Neurology and Psychiatry*, vol. iii., p. 549.

Ray,* in his text-book, as well as in the monograph on the Parish case, has given some attention to the medical jurisprudence of aphasia, relating several interesting cases.

Diller † has also discussed the medico-legal aspects of aphasia, and gives notes of two cases. One was a retired physician, sixty years old, who had a hemiplegic and aphasic attack, after which he conducted a large business. An effort was made to break his will on the grounds that he had progressively deteriorated mentally and physically, and that his will was made a few months before his death, when he was technically insane and incompetent. A will which had been made some years before his attack of aphasia, and which almost tallied with the contested will, was sprung in court and caused a hasty termination of the proceedings. The second was a case of right hemiplegia and almost complete motor aphasia in a lady of sixty-five years. She comprehended and expressed clearly enough certain ideas, and just as clearly failed to express certain others. He finally concluded that she was incompetent to enter into civil contracts and in a technical sense insane, but was able to delegate to her children power of attorney. He believed that she would be able to give intelligent assent to any single business proposition, but that she was incompetent to receive and pay out money constantly, as her business required. My own experience with other cases accords with this conclusion. Diller holds in considering the medico-legal problems that may arise in any given case of aphasia that it is only necessary to determine, first, whether the person is sane; second, whether ideas may be conveyed to him; and third, whether he can convey his ideas to others.

Clark ‡ has recorded a case in which the question was whether a hemiplegic who also suffered with aphasia was competent to execute a will. After his attack he had recovered largely and had gone on with his business. He holds that it would not do to declare a man incompetent simply because of his aphasia.

MEDICO-LEGAL QUESTIONS WHICH MAY ARISE IN CONNECTION WITH APHASICS.

It will be seen from this hasty glance at the meager literature of the subject that the medico-legal questions which may arise in connection with the study of aphasics are somewhat numerous, although all are by no means embraced in this review. They include many of those which the insane present for solution, but also others especially belonging to aphasia. At the outset it should be borne in mind that we are not dealing with some clearly defined entity called "aphasia." It is not possible to fix upon any general standard of capacity or responsibility for one suffering from an affection simply labeled "aphasia." Even correctly labeling an individual as insane does not decide as to his right to have certain privileges, or his capacity to do or not to do certain acts, as, for example, to have his personal liberty or the control of his estate, to get married, or to make a will. In a practical as well as a philosophical sense, questions of sanity and insanity are relative, and so likewise are

* Ray, *Medical Jurisprudence of Insanity*.

† Diller, *Journal of Nervous and Mental Disease*, May, 1894, p. 292.

‡ Clark, *American Journal of Insanity*, vol. xlix., 1892-93, p. 291.

those presented by aphasics. They will depend not only on the form of the disorder, but also upon its degree and special characteristics in a particular case.

"The affections of speech met with are very different in degree and kind," says Hughlings Jackson,* "for the simple reason that the exact position of disease of the brain and its gravity differ in different cases; different amounts of nervous arrangements in different portions are destroyed with different rapidity in different persons. There is, then, no single, well-defined 'entity'—loss of speech or aphasia—and thus to state the matter for a practical purpose, such a question as, 'Can an aphasic make a will?' cannot be answered any more than the question, 'Will a piece of string reach across this room?' can be answered. The question should be, 'Can this or that aphasic person make a will?'"

These medico-legal questions may be either criminal or civil, although they are much more frequently the latter. Legrand du Saulle says truly that it is rare for aphasics to be implicated in major crimes, being to a certain extent saved from them by their habitual infirmity; but aphasics are much given to impatience and anger, and their moods are uncertain and changeable and occasionally dangerous. They have been charged with thefts, and have been implicated in other crimes. One remarkable case is referred to by Legrand du Saulle. An aphasic and hemiplegic was charged with killing his wife, and the case had not only this criminal aspect, but later a civil question, that of the disposal of his and of his wife's property, arose. The parties had been married without a contract, and had no children, and each had left to the survivor the whole of his or her property. Attempts were made to nullify the donation of the wife on account of ingratitude, as shown by the assassination, but against this it was urged that as the man had been pronounced irresponsible he could not be an ingrate. In the end, however, the donation was annulled and went to the wife's heirs.

Evidently whether or not an aphasic should be exonerated from the consequences of a crime is a vital matter, and in some cases the question should be decided on the same principles that would govern the decision in a case of alleged insanity; but these might not always suffice, and the presence of the aphasia, and its form, might need to be particularly considered in arriving at a correct conclusion. Many aphasics suffer to a greater or less extent from various special forms of mental diseases, the degree of which may be dependent somewhat on the location of the lesion causing the speech disturbance, or on the extent to which the aphasic lesion has extended beyond the speech centers, or, again, it may be entirely independent of the aphasia. The lesion which causes aphasia, as is well known, in addition usually produces a certain and it may be a large degree of paralysis, and less frequently also various sensory disorders. The greater the accompanying disease, even though it be of a physical type, the more likely it is that the mentality of the patient will suffer, although this statement must be qualified somewhat by the direction which the lesion has taken. M. Sazie tells of an aphasic who had anæsthesia of his limbs, and who believed that his legs had been amputated; and Legrand du Saulle speaks of monomania, melancholia, hypochondria, and of impulses to drunkenness, suicide, or even homicide,

* Hughlings Jackson, *Brain*, October, 1878, p. 314.

among aphasics. Every one who has had much experience with aphasics can recall such cases, but we must remember that these are disorders occurring among aphasics, not a part of the aphasia. Recognizing the importance of such facts as these, and remembering also that aphasics who are not in any just sense insane are often greatly misunderstood, it follows that the committal of an aphasic to an insane asylum may sometimes be a serious question for decision, and might eventually lead to a criminal or civil suit.

Kussmaul* refers to the fact that the word-deaf, possessing at the same time ability to express themselves in words, but misplacing and often distorting them, leave the impression that they are crazed; and he warns the observer to avoid this error, and also the greater one of regarding the patient as both deaf and demented. He cites several interesting cases—one reported by Baillarger, who demonstrated that a woman who had been regarded as both deaf and demented was really neither one nor the other; and another of a paraphasic patient of Wernicke's, at first supposed to be deaf and crazy. An interesting case of aphasia complicated with insanity has been reported by Baneroff. †

Among the civil questions which arise in connection with aphasics, perhaps the first in importance is that of testamentary capacity, and such allied questions as their competency to make deeds of trust or conveyance, to sign powers of attorney, promissory notes, due bills or checks, to make contracts, or to manage any business ordinarily involving speaking or writing. The marriage of aphasics may have to be considered. According to French law—and the laws of other nations are much the same—dementia is the only thing that interdicts marriage. Aphasia is not sufficient to prevent it. Signs are recognized as available to signify consent; but it may be necessary to decide as to the true signification of the pantomime and gestures employed by the aphasic. The question is, whether the husband or wife at the time of the marriage had a sufficient degree of intelligence to realize the act, and whether it was of his or her own will. An interesting case is given by Legrand du Saulle of an aged aphasic and hemiplegic widow who, having fallen out with her daughter, contracted a second marriage against the wishes of her family. I once testified before a register of wills regarding a man whom I had seen in consultation several weeks before his death. This man had lived for many years with a woman who was not his wife, but by whom he had several children. By many he was supposed to be legally married to the woman. He was stricken with right-sided paralysis and partial aphasia; but I found him capable of answering questions and of reading a little consecutively. I saw him twice before his death, and between my two visits he was married to the woman with whom he had been living. The granting letters of administration to his wife was resisted by some of his relatives, who claimed that undue influence had been used, and also that he was not in a state of mind to know what he was doing when he was married. After hearing the testimony the register gave letters of administration to the wife and the case was dropped.

The question of interdiction may come up for decision when an

* Kussmaul, *Ziemssen's Cyclopaedia of Practical Medicine* (American edition), vol. xiv., p. 773.

† Baneroff, *Boston Medical and Surgical Journal*, vol. civ., No. 21, May 26, 1881, p. 483.

aphasic is alleged to be insane; and the decision, as in the case of the insane not aphasic, may result in the patient going to an insane hospital, or simply being put under the control of a committee or of a guardian. Another question may be of the alleged malingering of deafness or of deaf-mutism by a criminal, a soldier, or an employee wishing to shirk duty; and still another whether an apparent aphasia is one of the phases of alleged hysteria. Occasionally aphasia, the result of traumatism, may have a decided medico-legal importance, as in litigation, because of injuries resulting in aphasias; or when the ability of an aphasic, who has been injured with criminal intent, to recognize an alleged assailant is questioned. In various well-known forms of insanity, as paretic dementia, monomania, katatonia, confusional insanity, mania, or melancholia, the peculiarities of the speech disorders belonging to the affections may assist in the early or late diagnosis of such cases, and may thus have a bearing upon such legal matters as necessity of restraint, relief from responsibility, or discharge after recovery.

It is not possible to establish rules by which the capacity, competency, or responsibility of aphasics can be measured. This, in given cases, is largely a matter for judicial decision and technical interpretation of the law. In all civilized countries, and in different States of a country like our own, the administration of the law with reference to such matters as wills, deeds of trust, civil contracts, restraint in asylums, and particular crimes, whether relating to aphasics or others, is based upon precedents, and upon legislative and other enactments. These may sometimes be at variance with what is just and equitable from a medical point of view. The object of a paper like the present is chiefly to show the methods of gauging the mental status of those affected with disorders of speech, which mental status, from the medical point of view, would be the criterion of competency and responsibility; but such studies might lead to a conclusion that a testator in a certain case was competent to make a valid will, although his testament might not be sustained by a court because of a technical violation of a provision of the law.

The French law recognizes three kinds of wills: that by public act before notaries and witnesses; the holographic will, or that written by the testator's own hand unguided by another; and the secret will (*testament mystique*). The secret will may be written entirely by the hand of the testator, like the holographic will, or be written by another person and only signed by him. It is then given in charge of a notary in presence of a stated number of witnesses, who countersign the envelope, and by whom it is closed and sealed; and upon this the testator writes, or causes to be written, that this is his will duly signed by him. Thus, if the writing and signing of the will are illegible or difficult to read, this act acquires the value even of a holographic will. (Gallard.)

Under even these or similar laws, an aphasic who, medically speaking, might be entirely competent to do certain acts, as could be determined by careful medical examination, would not be able to carry out his own recognizable wishes. Even expressive and correct pantomime would not suffice in such a case. Cases of this kind are mentioned by Legrand du Saulle and others.

DEFINITIONS AND TERMINOLOGY—VARIETIES OF APHASIA.

It will be necessary to define certain terms and to give a few of the most important facts with reference to the nature and mechanism of speech and its disorders, and also regarding the sites of lesions producing aphasias. While it is impossible to make explicit statements with reference to the mental status—or legal status, which is sometimes a very different matter—of aphasics, basing such statements upon the location of a lesion in a certain center, zone, or commissure, something can be done in this direction, and at least one object is to show how far capacity and competency may be influenced by the site of a lesion which causes an aphasia.

Before the term *aphasia*, which means "loss of speech," was fully grafted upon medical nomenclature, and to some extent since, numerous other terms have been used to describe disorders of speech from cerebral disease. *Alalia* was employed by Lordat in the same general sense afterward accorded to aphasia, but it is not now used or it is restricted to the meaning given it by Kussmaul, that is, an entire inability to utter articulate sounds, ranking it under the heads of losses and defects of enunciation. *Aphemia* has also been used by Broca and others for cerebral speech disturbances in general. Ross used it to describe the commonest forms of motor aphasia, the loss of the power of communicating thought by articulate words; but Bastian has suggested that aphemia be confined in its definition to defects of speech from lesions of those fibers which connect the motor, or, as he would say, "kinesthetic" centers of the cerebrum with the nuclei of the bulb. McLane Hamilton has suggested *asemasia*, which means an inability to communicate by signs or language; but it is too late to displace the word "aphasia," which will be used in this paper in its commonly accepted and general sense to indicate cerebral loss or defect in both language and signs.

Formerly the terms *ataxic aphasia* and *amnesic aphasia* were employed almost universally, and these expressions are retained by high authorities. *Ataxic aphasia* has been used to describe the aphasia of common type resulting from lesions of Broca's convolution and the immediately adjacent region, on the supposition that the affection of speech is an inability or incapacity for the motor coördination of words; but as it is a matter of dispute whether or not the affection should be regarded as paralytic, or even sensory, rather than ataxic, it is best not to continue the use of this expression. Amnesia is loss of memory, and *amnesic aphasia* is the term which has been applied to those affections of speech which are the result of lesions on the sensory or receptive side of the brain. Kussmaul defines amnesic aphasia as the incapacity for the recollection of words as acoustic aggregates of sound; but objections, based upon theoretical considerations, have also been urged to this term.

Disregarding for the present differences of opinion of almost equally high authorities, the best practical subdivision of the aphasias is into *sensory* or *receptive*, and *motor* or *emissive*. Following such authorities as Kussmaul, Charcot, Broadbent, and Ross, under the general term *sensory aphasia* I include those affections of speech which are dependent upon disease located in the receiving part of the brain. Sensory aphasia has, therefore, necessarily several varieties, as *word-deafness* and *word-*

blindness, terms which define themselves; and *apraxia*, sometimes called soul-blindness, mind-blindness, or object-blindness, which is defined by Kussmaul as an affection in which the memory for the uses of things is lost, as well as the understanding for the signs for which the things are expressed. To test for apraxia, as suggested by Starr,* it is only necessary to present various objects to a person in various ways and notice whether he gives evidences of recognition; to have him watched by his friends, who will be able to tell whether he still chooses his articles of food at the table intelligently; whether he still knows how to put on his clothes; to use various toilet articles; to sew, knit, or embroider if the patient is a lady; or to admire pictures or flowers or perfumes, as before the illness began.

Motor aphasia includes the common form of disorder of speech sometimes known as Broca's aphasia, and in addition *agraphia*, or loss of the power of writing, when this is due to disease of the graphic centers of tracts in the motor cortex.

Other affections may result from the breaking through of the commissures or lines of connection between the various centers. These give us what are known in general terms as *paraphasias* or *conduction aphasias*, which may be of as many types as there are commissures. Sensory and motor centers and commissures may all be affected at the same time, and this gives the *total aphasia* of some writers, or what is perhaps better called by Ross *combined sensory and motor aphasia*, or by others *mixed aphasia*. Other terms in use are those descriptive of the peculiarities of symptomatology exhibited by the different varieties of aphasia to which reference has been made, as *alexia*, *dyslexia*, and *paralexia*. Some of the symptoms thus designated may be produced by either sensory, motor, or conduction disease, or by combinations of these. *Alexia* is abolition of the power of reading, as *agraphia* is that of writing; *dyslexia* refers to difficulty or fatigue in reading; *paralexia* to misuse by transposition or substitution of either syllables or words.

An important variety of aphasia from the medico-legal point of view is that known as *verbal amnesia* or the *aphasia of recollection*. Those suffering from this disorder may be neither word-deaf nor word-blind, nor be directly disturbed in motor speech, although the affection may be and often is combined with other forms of aphasia. Pure verbal amnesia is inability to recall the name of an object, quality, or event, although the conception or idea of it is present in consciousness. This loss of word memory may be almost or absolutely total, or it may be so slight as to be little more than a species of absent-mindedness. The proper word is not revived in the memory, although the person or thing is absolutely heard or seen, and is recognized. Nouns, and especially proper or general names, are the parts of speech most commonly lost, because they are the last and the least organized in the brain. Many instances of this disorder have been reported by writers.

Besides word-deafness and word-blindness, disorders known as *psychical deafness* and *psychical blindness* occur from cerebral disease; the word disturbances are perhaps best regarded as degrees or varieties of the more comprehensive psychical affections. A case of psychical deafness, however, may in addition to word-deafness, or perhaps inde-

* Starr, *New York Medical Record*, October 27, 1888.

pendently of it, have lost general auditory memory for objects and for sounds of definite import. In psychical blindness the visual memory of forms and colors, and of things in general, may be lost, or the power of recognizing by sight the special properties of objects may be impaired or destroyed; although even such patients may preserve sight of a lower kind, that, for instance, which would enable them to avoid obstacles placed in their path, as the psychically deaf may also by lower centers appreciate vibration or noise.

Apraxia, already defined as the inability to recognize the use or meaning of objects, it will be seen might be the result either of psychical blindness or psychical deafness, or of both. Apraxia and verbal amnesia are not necessarily present in the same case. It is conceivable that an individual might be able to name an object the use of which he did not recognize; and in a common form of verbal amnesia the patient is conscious of the uses and properties of things the names of which it is impossible for him to revive in memory.

CEREBRAL CENTERS AND TRACTS CONCERNED IN THE MECHANISM OF SPEECH.

Various schemes and diagrams of the centers and tracts of speech, and of their possible lesions, have been suggested, and almost any one of these might answer for the separation of aphasias in a study of them for medico-legal or other practical purposes. Lichtheim * indicates at least seven localities for diagnostically separable lesions, without including the visual or concept centers, or some of the hypothetical inner commissures; and these might be readily increased to ten or more locations.

The principal brain centers or areas concerned with the phenomena and mechanism of speech are: (1) auditory (center of auditory images); (2) visual (center of visual images); (3) concept; (4) propositionizing (center of motor images); (5) utterance; (6) graphic or writing; (7) inhibitory (higher prefrontal centers).

Of receptive centers I have mentioned only the auditory and visual for the sake of simplicity, although, of course, impressions received by the cerebral centers for touch, taste, and smell, and particularly by those for touch, may sometimes enter into the mechanism of speech.

The chief cerebral tracts and commissures concerned with speech are: (1) the entering auditory tract, which conveys impressions to the auditory center; (2) the entering visual tract; (3) the commissures between the auditory and concept centers; (4) the commissures between the visual and concept centers; (5) the commissures between the auditory and visual centers; (6) the commissures between the concept and propositionizing motor center; (7) the direct tract, sometimes used, between the auditory and propositionizing centers, instead of the innervation passing by way of the concept centers; (8) the short commissure between the propositionizing and utterance centers; (9) the similarly short commissure between the propositionizing and graphic or writing centers; (10) the direct tract, sometimes used, from the visual sensory center to the motor graphic or writing center; (11) the tract or tracts connecting the motor cortical centers concerned with speech and writing with the centers in the bulb and spinal cord.

* Lichtheim, *Brain*, vol. vii., January, 1885.

PARTICULAR FORMS OF SPEECH DISORDER PRODUCED BY LOCALIZED LESIONS.

Restricting ourselves to this number and arrangement of cerebral speech centers and pathways, the first cerebral tract involved in spoken and written language would be the entering auditory tract—the path between the primary auditory centers in the bulb and the cortical center for words, which is situated in the posterior thirds of the first and second temporal convolutions. Lichtheim has placed this path in the left temporal lobe, and believes that the radiations from both acoustic nerves and nuclei come together in this side of the brain. Word-deafness would be the chief characteristic of a lesion of this entering pathway, as it would be also of a lesion of the auditory center itself, but in the latter case paraphasia and paralexia would be also present, as the patient would be unable to verify the correctness of his spoken words by hearing.

The entering tract for vision passes by way of the optic radiations of Gratiolet, which are chiefly in the occipital lobe, from the primary optic centers in the quadrigeminal body and thalamus to the cortical centers for words in the angulo-occipital region. Word-blindness would be caused either by lesion of this entering tract or of the visual center for words. Experience shows that other symptoms, such as mind-blindness and hemianopsia, are often associated with word-blindness, because the tracts and centers concerned with the functions of sight impaired in the latter disorders are closely associated with those which take part in word vision. It is clear that one form of alexia or abolition of the power of reading, and also, of course, one form of impairment or abolition of the ability to write, would be present in cases of word-blindness produced by lesions thus situated; but it must be remembered that the word-blind can sometimes write from dictation or spontaneously, largely by the aid of tactile or muscular sense, and that they can also sometimes copy printed or written text which they may not be able to read or understand, probably as they would copy a geometrical or other figure.

Recent authorities are generally agreed as to the necessity of some area and mechanism on the sensory or receptive side of the brain, or intermediate between it and the motor cerebrum, for a higher intellectual process than the mere registration of auditory and visual impressions—for the formation of concepts in contradistinction to percepts which are represented in the true cerebral centers of hearing and sight, for the organization in consciousness of definite ideas and the identifying of these with names. As to the existence of topographically separated centers or regions for this higher process, considerable difference exists. Some advocate a special naming, idea, or concept center. Others do not consider that a center for the elaboration of concepts is localized in any particular spot or area of the brain, but that this process is rather the result of the combined action of the whole sensorial sphere, and that the commissures between the sensory and motor speech centers and this conceptual sphere consist of converging radiations from various parts of the cortex to the receptive and emissive centers. Ross, for instance, holds that on passing from thinking by percepts to thinking by concepts, and from that to thinking by abstracts, there are no new centers introduced, but only

complication upon complication of one perceptive center. Broadbent,* on the other hand, believes that a certain convolutional area, which might be called the "idea center" or "naming center," exists on the sensory or upward side of the nervous system, and conjectures that it is situated on the under-surface of the temporosphenoidal lobe near its junction with the occipital lobe, as it seems to him that fibers from all the convolutions in which perceptive centers have been placed converge to and end in the gray cortex of this region.

Rosenthal, who is cited by Ross, has recorded a case of verbal amnesia without word-deafness in a patient suffering from general paralysis, which defect of speech was ushered in by an apoplectiform attack, and persisted unchanged for upward of two years. At the autopsy, besides evidence of a chronic leptomeningitis, an old focus of softening was found in the second and third temporosphenoidal convolutions, the first temporosphenoidal convolution being quite free from disease.

After all, the existence of a special development or organization of the cortex for thinking by concepts and for the clothing of ideas in names is recognized by authorities like Ross, Bastian, and others, who differ from Broadbent, Charcot, and Kussmaul, and the school of believers in separate concept centers, only in not restricting this organization to an area absolutely set apart. It is neither improbable nor unphilosophical that a region conveniently intermediate between all receptive and emissive centers concerned in the mechanism of speech may constitute a special, but not narrowly limited, area of the cortex, which is the anatomical substratum for concepts and the names which they awaken. The chief affections of speech and of thought due to lesion of this naming or concept cortex, whether it is regarded as an isolated area or as a complication of centers and paths spread over the whole sensorial sphere, are varieties of verbal amnesia or the aphasia of recollection, with usually additional symptoms, such as loss of understanding of spoken or written language, or of volitional speech or writing, because of the almost necessary involvement of commissures to other sensory and motor centers.

Various affections of hearing and speech, or of vision and speech, may be due to lesions of the inner commissures between the auditory and visual centers, or between these and the concept centers, and likewise various degrees of disturbance of thought and speech from lesions of the paths between these concept centers and the motor regions for speech; and these disorders will partake of the receptive or sensor character on the one hand, or of the emissive or motor character on the other, according as the lesion is respectively toward the sensory or the motor side of the brain. Isolated word-blindness, according to Lichtheim and other observers, is the result of a break between the visual and auditory centers of word representation. Paraphasia and paraphagia, or disturbances in speaking and writing shown in the misuse and jumbling of sounds and words, result from interruption in the commissure between the auditory and motor speech centers, or in the arc which unites visual, auditory, and motor centers.

If we acknowledge the existence of concept areas as practically distinct centers or regions, or even if we take the view that they exist as

* Broadbent, *Brain*, vol. i., January, 1887.

complications or elaborations of the true auditory and visual and other receptive centers, then lesions of these higher cell clusters, particularly if extensive, might of course give rise to conceptual disorders of speech and thought. Severance of association tracts between the concept and the perceptive centers may, however, often be the cause of different varieties of these psychical disorders, according to the tracts dissevered. To give a simple illustration, one of my patients, who was both object-blind and word-blind, could not recognize a purse by sight, but on handling it, examining its clasp, etc., she at once named it correctly; probably the tracts between the visual perceptive and higher visual areas were destroyed, as well as the word centers, while the tactual centers and lines of communication from them to the concept region were unaffected.

Dyslexia is probably most frequently due to a partial break or lesion in the commissures between the visual and the motor aphasic centers, although imperfect destruction of the commissure between the visual and auditory centers, or between those for word hearing and Broca's convolution, might cause some degree of this disorder. Paralexia, like paraphasia, may be due to severance of the communications between either the auditory or visual centers and the motor speech regions.

The purest forms of motor speech defect will, of course, be due to an isolated lesion either of Broca's convolution, which is the propositionizing center of Broadbent, or of the utterance centers at the foot of the central convolutions, or of both together. Such cases, although not very numerous, have been reported; some which are well known in the literature of aphasia seem to clearly prove that the loss of propositionizing power is present only when the lesion is absolutely limited to Broca's convolution.

While it is true that the power of building and rehearsing in the mind a phrase or sentence and the power of uttering it are commonly lost together, still such a combination does not always exist in aphasic cases. Doubtless two processes of this kind, which are so intimately connected and so often jointly lost, have their anatomical substrata in closely adjoining localities, and one so-called center might be considered, after the manner of Ross, simply as a complication or extension of the other; but still the more elaborated area is separated, even if it be only the shortest distance, from the other.

Aphasia from the destruction of Broca's convolution should give loss of volitional speech and volitional writing, and if the utterance center or utterance portion of the compound center is destroyed also, the power of repeating and of reading aloud should also be lost. Spoken and written words, however, could be understood, and the faculty of copying retained.

The destruction of the short commissures between propositionizing and graphic centers must nearly always take place in lesion of Broca's convolution and its subcortex, and hence give motor aphasia and agraphia. In a case recorded by the writer of orolingual monoplegia in which a focus of strictly yellowish softening was found involving the lower extremities of the central convolutions both on their external and Sylvian surfaces, and a spot one-half inch in diameter about the middle of the internal portion of the island of Reil, utterance was largely abolished, while propositionizing power remained intact.

Clearly, in most cases of destruction of the motor speech centers, as the subcortex usually to some extent takes part in such lesions, commis-

tures of some kind must be involved, and hence varieties of commissural or conduction aphasia are nearly always blended with motor disorders, but these are often recovered from in part or whole.

Agraphia, or the loss of power of writing, which may, of course, be of the highest importance in medico-legal directions, may be due to lesions variously situated. I have already spoken of what might be termed the sensory forms of agraphia due to lesions of the visual centers or of the entering visual tracts, but even motor agraphia is of several kinds. The patient, for example, may be unable to write spontaneously, although he can from dictation, and he may at the same time be able to copy either written or printed text; or, again, he may not have the ability to write either from dictation or by copying. Lesions situated in several places may give rise to motor agraphia; for instance, in the first place, in the special motor centers concerned with writing. Agraphia may again be dependent upon lesions of the tract uniting the concept with the speech and writing centers, and if a direct separate tract exists between the visual and the graphic centers, the power of copying may in such case be retained. As propositionizing is as necessary to volitional writing as to volitional speech, destruction of the third left frontal will cause more or less agraphia as well as aphasia. "The same result," says Gowers, "follows an isolating lesion just beneath the cortical center, and hence the path to the arm center must be by the 'associating fibers' of the subjacent white substance, and not the gray matter of the cortex. But it is conceivable that a subcortical lesion may be so placed as to interrupt the paths to the internal capsule and to the opposite hemisphere, and not that to the arm center. In such a case there would be permanent loss of uttered speech without loss of power of writing. Such a condition has actually been observed."

THE MENTAL STATUS OF SENSORY APHASICS.

In general terms it is doubtless true that mental capacity and its manifestations are impaired most in those forms of amnesia or aphasia which are the result of lesions on the sensory side of the brain, that is, in word-deafness, word-blindness, in the various forms of apraxia or mind-blindness, and in those combined forms of speech and pantomimic disturbance which are due to lesions of the receptive or impressive mechanism of speech. Words seen or heard fail to revive the ordinarily appropriate ideas in memory. Mind-blindness is not always associated with word-blindness, nor psychical deafness with word-deafness, but when such an association is present it would require the closest scrutiny of the particulars of a case of alleged capacity or incapacity to determine the true status of the individual, and the presumption would be rather against than in favor of the preservation of mental power for definite purposes. More commonly than otherwise, word-blindness and word-deafness are present in the same case, and quite often the more serious psychical disorders are also associated. While, however, all this is true, it is not correct that word-deafness or word-blindness, or even mind-blindness or psychical deafness, necessarily destroys mental integrity to such an extent as to shut out testamentary capacity, the ability to make contracts, to testify as a witness, or to take care of one's person or property.

MENTAL STATUS IN WORD-DEAFNESS.

What is the mental status of a case of word-deafness? With what voluntary acts would such an affection interfere? First in importance comes the question of testamentary capacity and similar exercises of mental power in assenting or dissenting to legal papers. Gowers says that word-deafness is incompatible with will-making, because it is impossible to know whether the testator really understands what is said to him; but this is putting the matter too strongly. If he is only word-deaf from lesion of either the entering auditory tracts or of the auditory center, but still preserves full cerebral visual power, and intact lines of communication between the visual center and the motor areas for speech and writing, a will might be made, or other legal papers might express his real intentions. It ought not to be necessary, in other words, for competency that the person should be responsive by every channel of communication. This, as in so many other cases of the kind we are discussing, should be studied on its own merits, and testimony as to how the disputed act was done should be clear and unmistakable. Evidently a completely word-deaf patient could not express either assent or dissent by hearing, and peculiar statutes might have some bearing on the capacity of a case of word-deafness; for instance, if it were required by statute that the testator should be addressed by spoken words. If he was capable of assenting or dissenting with certainty by any of the legitimate or legal means of communication, he might be competent. Some word-deaf patients are or become able to communicate in spoken or written language, but if the lesion is complete the interference with all methods of communication will also be nearly complete until new centers are educated and new lines of communication opened, or compensation takes place through the other hemisphere. Complete word-deafness is therefore a serious affection in its direct effects on thought and its expression, and also because of the conditions with which it is likely to be complicated. Bastian says that a totally word-deaf patient might perhaps not understand written language, but acknowledges that this ability might persist to some extent through the action of the opposite hemisphere. In spite of the seriousness of word-deafness, it is a mistake to conclude too hastily that the individual is either incompetent or in any technical sense insane.

Word-deafness is one of the forms of hearing and speech disturbance from which partial recoveries are often made and total recoveries sometimes occur. In a number of the cases of combined sensory and motor aphasia observed at the Philadelphia Hospital, word-deafness, at an early period almost complete, rapidly or gradually disappeared, but not always fully. Many of the patients responded to the last with difficulty or slowness to spoken words. In the consideration of the medico-legal aspects of word-deafness the fact that patients improve or recover should be constantly borne in mind. The most conflicting testimony might be truthfully given about the condition and the competency and responsibility of an individual, if such testimony were based upon observations made over a period of a few years or even months.

The case of the French Professor Lordat, which has become classic in works on aphasia, is interesting in this as in other particulars. After a fever he suddenly lost his powers of speech, and was word-deaf—words

fell unrecognized upon his ear; but after many weeks he recovered, resumed his professional work, and wrote a valuable analysis of his own case. Schmidt's case, quoted by Kussmaul, is interesting as showing the characteristic symptoms in a word-deaf case, and also illustrates the fact that word-deafness and high grades of verbal amnesia may in large part disappear. Recovery took place slowly. She did not understand short sentences until after a lapse of half a year, and then only when they were pronounced slowly and distinctly. Even to the last there remained some difficulty in speaking.

A word-deaf patient might be able to write a will understandingly; he might retain or soon acquire sufficient powers in speaking to give assent or dissent, or even to express an opinion; he might retain certain powers of pantomime, visual centers and connecting tracts remaining undiseased and pervious, and the motor areas for pantomimic speech not being destroyed. It must not be supposed that his condition would be as high mentally as that of a patient deaf and dumb from peripheral disease, as scarlet fever, who had with the aid of vision trained himself in the use and comprehension of sign language. Although secondary atrophy of hearing or speech centers occurs in cases of peripheral deafness, a disturbance of mental equilibrium occurs, and to some extent persists, in cases of cerebral deafness which is not present in the ordinary deaf and dumb. Cerebral centers and lines of communication are at first untouched in the latter cases, and the visual and manual training which is pursued takes possession of and utilizes everything possible.

Lichtheim records a valuable case of word-deafness from lesion of the cerebral auditory tract, a rare form of recorded lesion. This patient, although word-deaf, differed in striking particulars from a case of word-deafness or speech-deafness from lesion of the center for auditory images. While, for example, he could not understand spoken language, had lost the faculty of repeating, and that of writing from dictation, he preserved intact volitional speech and writing, the understanding of writing, the ability to copy words, and finally the faculty of reading aloud properly, these last being lost in cases of auditory-center deafness. He had neither paraphasia nor paraphasia, because the arc uniting auditory, concept, and motor centers was unbroken. This man's available mental power was greater than that of an ordinary case of word-deafness. He was, in fact, a teacher and a journalist, and continued with success the business of writing articles for the newspapers. He could understand noises and other sounds of definite import, but not speech. He spoke with absolute accuracy, but with a slight drawl; he could find substantives, even complex ones, and proper names. He copied an I O U written by Lichtheim, and gave it to his wife, remarking, "You see, you have money."

MENTAL STATUS IN WORD-BLINDNESS.

A variety of curious problems may be presented by patients suffering from pure word-blindness, or from this and some of its usual complications, as word-deafness, psychical blindness or deafness, verbal amnesia, or paralexia. I have already stated, for instance, that the word-blind can sometimes write spontaneously or from dictation, or even copy writing which they do not understand. Such matters as the simple

signing of a name to a check, to a will, or other document, are often points in dispute, and yet the ability to do this is retained in many cases where the patient is not only word-blind, but so completely so as to be able to write nothing but his autograph. Letters may be understood when words are not. The understanding for figures may be lost or retained. A patient reported by Broadbent—a case which, after a time, fell into my own hands—could not at first tell how many two and two made, but in two weeks learned to add together two low figures, and rapidly thereafter gained in his understanding of figures. Trousseau has recorded the case of an accountant who could read off the sum 766 figure for figure, but did not know what the figure 7 meant before the two 6's. Proust, cited by Kussmaul, records another aphasic who, although he could no longer count in words, could add and subtract on paper, and even multiply pretty well.

That an individual is not able either to read or to write because of word-blindness should not absolutely invalidate the writing or signing of a will or other document, although such patient is not exactly in the same condition as one who has never been educated to read or write, or has lost sight through extra-cerebral disease. The general mental impairment, the possibility of the existence of hallucinations or delusions, and the disturbance of the equilibrium of thought processes, must all be taken into consideration.

Cases of interest in connection with the discussion of word-blindness and of agraphia are mentioned by Legrand du Saulle and Bateman. An aphasic, fifty years old, wished to make a will, and desired to leave an old domestic a remembrance of some importance. He made the most strenuous efforts to get together words and express on paper his will in the matter, but the words would not form an intelligible sentence, and the writing was incorrect and in some places undecipherable. This defect of coördination of the will and of movement could not be overcome, and he died before he could make the will he so much desired, to the grief of the testatrix.

Boucher tells of a hemiplegic affected with word-amnesia, who wished to make a will and give a certain sum of money to a relative who had taken great care of him. In spite of the most expressive gestures and pantomime he had great difficulty in making himself understood. He succeeded, however, and, the clew found, he was able to carry out his wishes.

The proof of testamentary capacity of a word-blind patient, or the validity of a written instrument alleged to have been prepared by or for him and having his signature, would have to depend largely upon collateral evidence. If it could be shown that such a patient had written a short contract, will, or other document, and then had had it read to him, and had signified his assent to its contents, and if the evidence was in favor of his general mental stability, his testamentary and general mental capacity should be sustained. If it should be attempted to prove that such a patient had read a document in question, and thereby assented to it before signature, the evidence would be against its validity and his capacity. A word-blind patient recognizing his defect, but not being word-deaf, and in possession of his general mental faculties, might have a will or other legal paper written for him, and then read to him, and signify his assent to its contents by gesture, by his autograph, or

by his mark. The possibility of deception having been practiced upon the writer or testator in such a case should, of course, be taken into consideration and eliminated. Word-blindness, like word-deafness, often improves so as to change the visual receptive powers, and possibly the capacity and competency of the patient.

The following case will serve to illustrate some of the points likely to arise in the settlement of problems associated with conditions of word-blindness and verbal amnesia. The patient was a married woman sixty-six years old, who had had an attack of hemiparesis. Examination showed that she had right lateral hemianopsia without Wernicke's pupillary inaction. Testing her in a variety of ways it was found that she could recognize objects seen, heard, felt, smelled, or tasted. Until a short time before examination she had been able to recognize persons on the street, although she could not name them; but this power of recognition of persons was leaving her. She understood what was said to her. She had four sons, and evidently could tell one from the other, but could not correctly name them, just as likely as not calling one by another's name. She understood what was read to her, but could not read, as she did not understand printed or written words. She could sign her name and write a few short words at dictation, although the writing, except her name, was so imperfect as to be almost illegible, except in the case of a small word like "cat." She could recognize an object by sight, hearing, or touch; she could not name it correctly from seeing it, but could do so from touch; or after it was told to her she would indicate that she knew the name but could not recall it. She called a stamp held before her a "ticket" or a "letter," and said she knew what it was but could not name it. She called pills "pencils," but knew what they were used for although she named them wrongly. When a paste-bottle was held up before her she named it correctly, but called a postal card a "stamp," although she knew what it was. She called a watch a "key," and said it looked like a key. When some keys were held up before her she said they were "locks," and evidently knew their uses. On holding a pocket-book before her she could not name it, but did this quickly when she took it in her hand.

MENTAL STATUS IN VERBAL AMNESIA.

The medico-legal bearings, civil and criminal, of verbal amnesia, or the aphasia of recollection, open an interesting field, and one not altogether unexplored by writers on disorders and disturbances of speech. It is rarely an isolated symptom. It is frequently associated with apraxia in some of its forms, or with word-blindness or word-deafness, or both; it may, indeed, be combined in the same case with almost all other aphasic affections. Most commonly, as would be expected, it is combined with sensorial aphasias and apraxias. I have already discussed the question of special naming or concept centers, leaning to the views of those who hold to the aggregation of these concept centers into a more or less isolated field or zone, but that this concept field is probably not limited to one spot in the sensorial sphere. When more perfect knowledge of localization is attained, it will probably be found that the concept region of the brain is a comparatively large but connected area,

interlacing among various centers for percepts in such a way as to make certain portions of it conveniently intermediate anatomically between particular percept centers and the special motor or emissive centers with which they are most intimately correlated. Lesions somewhat variously distributed and extended will, therefore, give rise to forms of amnesia and apraxia; and strange symptom-pictures, difficult to analyze and to refer to these lesions, will sometimes be presented to the clinician and medical jurist.

The loss of the faculty of recalling words must interfere to some extent with the acts of thinking as well as with expression. Kussmaul holds, and doubtless correctly, that amnesic aphasia in its most severe forms must render thought mixed and confused, and, unless the affection be merely a light form of the aphasia of recollection, it is almost always accompanied by a pronounced diminution of intelligence. We should not be satisfied with a generality like this, important as it may be, but should, in studying individual cases, separate the varieties of verbal amnesia and apraxia into classes, based upon a study of the relations of the symptoms presented to the sites and extensions of the lesions on which these symptoms are dependent. Those deep disturbances of speech and thought which are dependent upon large lesions destroying and disrupting various percept and concept centers, and the lines of communication between them, must so weaken and confuse the mental powers as to make sanity and responsibility in criminal, and competency in civil, cases often a matter of gravest doubt.

Many illustrations of forms of verbal amnesia and its most frequent associations have been recorded in the classical treatises on aphasia, and here and there in journals and text-books, but I will only refer to two or three. Kussmaul cites Bergmann's case, in which nouns had disappeared from the patient's vocabulary, but he still had command of the verbs. A pair of scissors he called that with which one cuts; the window, that through which one sees, through which the room is illumined, etc. The same author also gives the well-known case reported by Hun of Albany of a farrier who understood what was said to him, but although his tongue was freely movable he could not find words and had to make himself understood by signs. If the word was written out for him he was able to spell it, and could pronounce it after a few attempts. When he was able to pronounce a word he was also able to write it. Bateman* records the case of a merchant who seemed to understand everything that was said, but had to a certain extent lost the memory of words, and would call things by their wrong names; for instance, when the fire was burning particularly brightly he said, "How bright the poker looks!" Some one said, "You mean the fire?" "Yes," he said, "I mean the fire."

Lichtheim reports a case of lesion of the paths between both the auditory and the visual centers and the concept sphere, with an interesting medico-legal experiment. Such a break should give us, according to his analysis, loss of understanding of spoken and written language, with the preservation of volitional speech, which would, however, be paraphasic, and of volitional writing, which would be similarly paraphagic; also with retention of the faculty of repeating words, of reading aloud, of

* Bateman, *Aphasia*, etc., p. 169.

writing from dictation, and of copying words, with, however, a loss of intelligence for what is repeated, read aloud, or written from dictation. The case bears out fully this analysis. Verbal deafness was present, but with little or no deficiency in the man's vocabulary, although he was in great difficulty when he had to name objects shown to him; he could repeat what was said to him without understanding; he understood nothing printed or hand-written; he could make up letters into words and could read aloud by spelling, but the sense of the words remained closed to him. His other losses and preservations were in accordance with the analysis just given. Word-deafness, paraphasia, paraphasia, and intelligent comprehension changed markedly for the better; but even after much improvement writing to dictation remained obscure. Lichtheim dictated to him an I O U for 20,000 francs, which the patient allowed the doctor to put into his pocket; but in less than a month the experiment with the due bill no longer succeeded. This case and that reported by Hun illustrate a point which must always be borne in mind when giving testimony, and one to which I have already referred, namely, that improvement in various ways both on the impressive and expressive sides often takes place in aphasic cases.

Starr* has reported several interesting cases—one of paraphasia progressing to total aphasia, in which the patient was anxious to give directions about financial affairs and about his will, and although he knew what he wished it was impossible for others to learn his desires either by speech or writing. Another patient, a physician, would sometimes write the name of one drug in a prescription for another, and was also likely to write the quantities wrong; so that he never failed to read his prescriptions several times: this shows another peculiar medico-legal phase which such a subject may have.

MENTAL INTEGRITY AND COMPETENCY OF MOTOR APHASICS.

Commonly and correctly, mental integrity and competency, whether considered with reference to the deprivation of liberty, the care of an estate, the making of a contract, the preservation of testamentary capacity, or other questions that may arise in connection with aphasics, are not regarded as affected by the existence of motor aphasia—not even when associated with considerable paralysis and perhaps even with other forms of aphasia not part of a case of insanity; but each such case should be studied on its own merits, and the evidence *pro* and *con* should be carefully sifted. Ray, Bastian, Ferrier, Hamilton, Hughes, Bateman, Kussmaul, and many others have expressed the opinion that aphasia from destruction of the motor speech centers does not of necessity mentally incapacitate the individual, and many cases have been recorded by these and other authors to illustrate the retention of mental power by such patients. Even for motor aphasics, however, general conclusions are not sufficient, as such cases separate themselves into several classes according to the site and extent of the brain disease producing them. A sharp distinction must be made with reference to all aphasics, but particularly those in which the motor type predominates, between having

* Starr, *New York Medical Record*, October 27, 1888.

mental power and being able to make known this possession to others; between the capacity to wish and will certain things and the ability by speech, writing, or pantomime to show the desire and intention. In pure motor aphasia, due either to lesion of Broca's convolution or the utterance centers at the base of the central convolutions, or of both, the patient is usually able to make his wishes and purposes known. Usually such aphasia is associated with agraphia, but expressive pantomime is likely to remain in some degree, so that the patient can often communicate intelligibly with others. The impressive and concept spheres of language are not interfered with, and if any clear means of expression and communication remain, the capacity and competency of such a patient will be scarcely questioned. Cases which illustrate this standpoint are to be found in all articles and treatises on aphasia, and need not be quoted. Even cases of pure motor aphasia may be sometimes misunderstood, if care is not taken in communicating with them. Bastian* says that in pure agraphia thought is least of all interfered with, while in pure aphasia it is more or less hampered, because the non-revival of glossokinesthetic impressions seems to interfere somewhat with the free and thorough revival of words in other functionally related word centers, even during the process of silent thought. Motor agraphia is usually associated with aphasia of the motor type, and, like the latter, is also variously combined with conduction or even conceptual and sensorial affections, and its importance will of course depend largely upon its combinations and complications.

Cases of either motor aphasia or agraphia of pure type and unassociated with paralysis are rare. By far the most common association is motor aphasia and agraphia combined with types of conduction aphasia and well-marked hemiplegia. These hemiplegic aphasics easily separate into three classes with reference to the presence and persistence of the aphasia: (1) those in which aphasia, complete or nearly complete at first, in the course of days, weeks, or months totally or almost totally disappears; (2) those in which aphasia is nearly or quite absolute and remains permanently; (3) those which improve slowly, and largely through a tedious process of training and reëducation. The nervous wards of the Philadelphia Hospital almost always contain some cases of these different types.

When the hemiplegia persists although the aphasia passes away, the lesions are most probably of the internal capsule, compressing or only partially destroying the fibers for the facial centers. The patients recover their speech because of the escape in large measure both of projection and commissural fibers. The mental integrity of patients of this class after the apoplectic period is always retained, and is, as a rule, soon easy of determination. The ability to write and to express thought by pantomime is fully preserved on the non-paralyzed side, and to some extent, when the paralysis is not absolute, the paralyzed limbs may be made to do service in expression.

In hemiplegic aphasics, in which the aphasia remains nearly or quite absolute and permanent, the determination of the mental status of the crippled individual is often a matter of great difficulty. Generally the lesion is one of large size, involving and destroying both internal and

* Bastian, *British Medical Journal*, vol. ii., 1887, p. 934.

external capsules, and to a greater or less extent both striate bodies and the insula; in other words, one which, according to our best lights, disrupts entirely the internuncial tract for speech and also largely the commissures, both direct and indirect, between the sensorial and motor centers or between the latter and the center for concepts. The lesion, moreover, is often so close to the cortex for speech as to destroy the commissures which would otherwise connect the left hemisphere with the right through the callosum. Although motor aphasia and motor paralysis of face and limbs are prominent, the case is in reality one of badly mixed type, and presents phenomena at first sight as confusing to the investigator as the disturbances of thought and speech are to the suffering patient. It is in such a case particularly that a vast difference exists between the possession of thinking power and the ability to communicate with others. As a rule writing and pantomime are lost in equal degrees with speech; but every means should be exhausted and every channel of communication tested.

Some knowledge of the most frequent methods of combination in the mixed aphasias will be of service in attempts at the solution of the medico-legal problems of speech. Brain lesions, usually vascular, are likely to extend over areas and tracts which are associated in functioning, and have, in accordance with a general law, a more or less common source of blood-supply. Different varieties of psychical blindness and deafness, partial or complete, may occur together; motor aphasia, agraphia, and amimia, partial or complete, are usually associated with paraphasias; and frequently partial word-deafness is found in conjunction with one or several of the varieties of motor defect in expression. Total sensory and motor aphasia is sometimes observed, and is of course accompanied by the completest form of speech, graphic, and pantomimic disorder—complete aphasia, agraphia, and amimia.

Close studies of these compound cases will doubtless better enable us after a time to separate them into different classes, guided by localization facts and theories; to distinguish cases in which either the direct sensorimotor or the concept-motor commissures, or both, or the hemispheric commissures, are damaged at the same time that the lesion attacks cortical centers and cortico-bulbar tracts. The path from concept to motor, or from auditory to motor, centers is certainly frequently broken, and probably most frequently near the motor end of the line. Pure or almost pure cases of concept-motor aphasia have been reported in considerable number.

PSEUDOBULBAR AND BULBAR AFFECTIONS OF SPEECH.

The form of infracortical affection of speech which results from lesion of the tract or tracts connecting the cortical centers with the nuclei of the bulb and spinal cord is of considerable importance because of the frequent disturbance either by pressure or destruction of this portion of the cerebrum. In many cases of hemiplegia, aphasia, at first very prominent and positive, after a time disappears in large part or even almost entirely, the paralysis of the leg and arm remaining very pronounced. Some of these cases are to be explained by the fact that the intracerebral facial tracts are only affected by pressure, and in others, even when they

are more or less destroyed, the opposite hemisphere assumes the work of both. The common view is that the bilateral movements which occur during speech may be innervated from each hemisphere. More or less complete destruction of the fibers which connect the orolingual and other facial areas of the cortex with the nuclei of the various nerves concerned with articulation and phonation does sometimes give a disorder of speech, which has been variously described as pseudobulbar paralysis, labio-glossopharyngeal paralysis of cerebral origin, aphemia, etc., and cases have been reported by Kirchoff, Ross, Hobson, Bastian, the writer, and others. Two such cases will be given in the section on pantomime. These patients articulate with difficulty; paresis or paralysis of the tongue is present; labials and gutturals and linguals may all be troublesome to pronounce; drawing of the face will usually be present; swallowing may be difficult; the movements of the jaw may be impaired; and drooling is a frequent symptom. In such cases interference with speech is sometimes extreme, amounting almost to complete speechlessness. While such a train of symptoms usually accompanies a generalized hemiplegia, it is occasionally observed unconnected with paralysis in parts other than the face.

This pseudobulbar paralysis is a more decided and permanent affection when the result of bilateral disease, but a form of it can occur from a deep-seated lesion confined to the left hemisphere. Strictly speaking, Broca's convolution is not directly connected with the basal nuclei, but indirectly it is through the utterance or glosso-labio-pharyngolaryngeal cortical centers, and the larger portion of the fibers which go down from these centers to the bulb pass by way of the left hemisphere, although a partial decussation probably takes place. If a commissure connects the speech or utterance regions of the two hemispheres, it must be comparatively close to the cortex, and its destruction, as well as of the fasciculus to the bulb, would account for some of the infracortical speech or articulatory disturbances.

According to Lichtheim* we are compelled to assume that only a short extent of the efferent tract from Broca's centers is so constructed as to give rise, on being injured, to real aphasic disturbances; and we shall therefore have to look also for the lesion of aphasia without agraphia in the white matter of the hemispheres.

Anarthria, or disturbance in articulation, rather than a genuine aphasia, accompanies pseudobulbar or labio-glossopharyngeal paralysis of cerebral origin. The most marked examples are due to bilateral lesions or degenerations. Whether unilateral or bilateral, all cerebral centers and commissural channels are undisturbed; volitional speech, word repetition, and reading aloud are lost or greatly impaired simply because of interruption to speech impulses in the outgoing roadways below the cortex. Mental capacity and competency need not be in the least diminished, as the patient preserves his receptive and conceptive faculties and large powers of communication by means of pantomime and writing unless paralysis of face and limbs accompany the aphasia.

In true bulbar paralysis, in which the changes in articulation are sometimes slight and at others so complete as to almost abolish articulate speech, mental soundness, if the cases are uncomplicated, is not in any degree impaired, and various methods of expression and communi-

* Lichtheim, *Brain*, January, 1885, pp. 481, 482.

cation remain. "As in the course of these degenerative changes one ganglion-cell after another is slowly destroyed in the bulbar nuclei," says Kussmaul,* "we perceive consonants and vowels successively crumbling away, as it were, from the patient's speech, while his intellectual powers may be perfectly retained."

The various but allied forms of speech disturbance which result from insular sclerosis and focal lesions of other sort in the intracerebral tracts are not necessarily accompanied with any loss of mental strength or clearness, although, as is well known, mental changes are somewhat common in this affection because of its diffuse and destructive character. It is scarcely necessary to refer to the peculiar varieties of speech defect found in this well-known disease, which have been well described under a variety of names such as drawing, syllabic, scanning, staccato, and hesitating.

SPEECH DISTURBANCES ASSOCIATED WITH INSANITY.

The study of speech disturbances which are associated with various forms of insanity would need an article of considerable length for their full discussion. I can scarcely more than refer to them. As has been said by Dr. Hughes, aphasia dissociated from marked mental impairment is of more frequent occurrence than in association with evident insanity; so that in a case of suspected mental disease the burden of proof will fall on those who might maintain the coexistence of mental aberration, and the legal presumption would be in such a case in favor of sanity. While this is true it must not be lost sight of that aphasia is found among those who are clearly insane. Broca's first two cases were observed in an institution devoted to the treatment of mental disease, and not a few of the recorded cases have been observed in hospitals for the insane. Every physician in charge of an institution of this character should carefully inquire into the history and symptomatology of cases showing special forms of speech disturbance. The two cases referred to by Kussmaul will be remembered—patients suffering from aphasia, but not insane, and yet confined in an asylum.

Probably in parietic dementia and senile dementia the study of speech defects has more diagnostic and medico-legal value than in any other of the well-recognized types of insanity. In the early stages of the former disease it may serve to make clear the true nature of the case; in the latter affection it may be of decisive importance in the determination of questions of competency. In mania, melancholia, paraneia, katatonia, idiocy, and imbecility the peculiarities of speech might have some bearings upon medico-legal problems in connection with the diagnosis of the nature, depth, or stage of the affection.

About the hallucinations and delusions of aphasics much of interest might be written. The hallucinations are usually of hearing and sight, and may in not a few cases be dependent upon irritation of sensory centers; while various delusional states may have their origin in disease of both sensory and concept centers, or in the disruption of various lines of communication between the different areas of the brain concerned with speech.

A consideration might be here in place of the inhibitory speech cen-

* Kussmaul, *op. cit.*, p. 654.

ters, or centers for abstract thinking, which I have included in the list of centers taking part in the phenomena of speech, but which are not usually so included. They are probably located in the prefrontal region. Hughlings Jackson,* Mercier, and others hold that anterior to the Rolandic motor region are the highest motor centers, and that these with corresponding sensory centers make up the highest level of the central nervous system. Jackson contends that these higher centers represent all parts of the body; and Mercier that the highest nerve processes which form the substrata of the most elaborate mental operations represent at the same time not only the most elaborate forms of conduct and muscular movements, but also every part of the organism to some degree. Accepting such doctrines, speech, like every other function of the body, must, of course, be influenced by anything which affects these highest centers. Affections of speech due to lesions of these prefrontal areas are a part of the general mental impairment which goes with the destruction of this region; and the mental status of the individual will be recognized as much by other phenomena as by those of speech.

APHASIA AND EPILEPSY.

The association of aphasia with epilepsy, and the occurrence of what might be termed an epileptic or epileptiform aphasia without spasm—or at least without the usual type of convulsion with unconsciousness—may have important medico-legal bearings. Disturbances of speech in connection with epileptic attacks are, of course, very common, and may occur before or after or even during a fit, when loss of consciousness is not profound. Sometimes a seizure is preceded by muttering or confusion of speech, by “thickness of tongue,” by utterance of certain expressions, by an unusual talkativeness, or by an absolute inability to talk. The aura of the attack may be a speech disorder. It is not worth while to go into details as to the numerous perversions of speech and thought which so evidently follow epileptic attacks; they are simply the evidences of exhaustion of the cerebral mechanism which has resulted from a terrible explosion of nervous energy which had occurred during the fit. In addition to these affections of speech, however, are others of rarer occurrence and of special interest. In some of these the aphasia itself is the fit, just as we may have instead of a motor paroxysm, which is the usual epileptic manifestation, a substitutional attack of mania, of vertigo, of pain, of running, or other automatism.

The presence or absence of speech disturbances with conscious epileptic automatism—which is perhaps a somewhat contradictory expression—may have some medico-legal importance. Stevens and Hughes† have reported such a case, and many more as similar are to be found in books and journals. This patient, a physician, on several occasions got up in the night, dressed himself, and went out-of-doors to look at his stock, or perhaps simply without any purpose. During part of the time at least he realized that he was doing something which he should not. He had had many real epileptic seizures preceding these attacks. He was put

* Hughlings Jackson, *New York Medical Record*, vol. xxxvi., August 31, 1889, pp. 227, 228.

† Stevens and Hughes, *Alienist and Neurologist*, April, 1880.

under treatment and greatly improved, but on another occasion in a similar seizure he was asked a question which he understood perfectly but could not answer, although he continued to talk for about twenty minutes attempting to explain what he was trying to say. The night following this incident he had a severe epileptic attack. He afterward could recall much of what he had said and done when in this confused automatic state. The reporters of the case ask what would have been the result had some acts been done by this patient during his apparently conscious somnambulism, something, for instance, involving him in pecuniary obligation, as the signing of a deed, or the doing of any act making him liable to the law. Every neurologist of experience has seen similar cases.

SIMULATED, MIMETIC, AND MISCELLANEOUS AFFECTIONS OF SPEECH.

The nature of some cases of sudden loss or abrupt disturbance of speech is sometimes obscure and needs careful investigation. The affection might be absolutely assumed or malingered, as, for instance, where it is part of a scheme for dissimulation of insanity, or where it is shammed to present a more serious picture in a litigation case; or such loss or disturbance of speech might be neuromimetic or hysterical but not absolutely simulated.

Many years ago I was sent for in haste to see a young woman who had suddenly become perfectly speechless, causing great consternation to her lover and the other residents of the house. No facial or limb paralysis could be made out, and she had none of the usually associated phenomena of either an apoplectic or an epileptic attack. This abrupt loss of speech had come on after a quarrel with her lover, in which both he and she had exhibited violent rage, although no physical force had been used. This case was probably one of hysterical aphasia, the result of nervous excitement attendant upon the quarrel. The patient recovered as abruptly as she had been attacked. A form of mutism is, as is well known, quite common as a phase of hysteria, but the cases here referred to are those in which the loss of speech comes on as a sudden attack.

The *simulation of dumbness* by criminals or others should not be overlooked, as it is in fact a simulation of aphasia or in some cases of both aphonia and aphasia. It may be resorted to by criminals feigning to be insane in order to escape the consequences of their crimes, or by prisoners to avoid duties and punishments. Ray* mentions the case of a man who had cut off his wife's head and had or assumed the demeanor of an imbecile. Among other manifestations he carried a piece of wood about with him, which he represented by signs to be a sword. He would not speak or answer any questions except by now and then repeating the word "cabbage" without any meaning. Another French homicide, who was adjudicated insane, would not answer questions, although he heard and understood them. Jean Gerard murdered a woman at Lyons in 1829, and immediately after his arrest ceased to speak altogether and appeared to be in a state of fatuity. The use of the actual cautery for several days brought him to terms, and after some urging he spoke,

* Ray, *Medical Jurisprudence of Insanity*.

declaring his innocence of the crime with which he was charged. An Italian criminal became insane soon after he had been betrayed by his accomplices, and to any question whatever he merely uttered the words "priest, book, crown, crucifix." Many details are connected with this case, but it was finally decided that he was insane. It is not impossible that he may have been insane and also simulated some of his symptoms.

In suspected shamming of dumbness or of aphasia the genuineness of the phenomena should be patiently tested from the standpoint that the defect of speech might be due to the mental state, that is, an aphasia or dysphasia, and also from the standpoint that it might be primary, that is, a true aphasia or dysphasia. The tests for the determination of the presence of insanity or its simulation should be applied as far as possible, resorting to surprises, strategy, and perhaps even in some cases to anæsthesia or to stern methods. The apparent aphasia or apraxia should also be tested and studied as is any ordinary case of this affection in the sane. Word-deafness, word-blindness, alexia, dyslexia, motor aphasia, and agraphia should, if possible, be investigated and included or excluded; and the existence or non-existence of accompanying paralysis, anæsthesia, hemianopsia, etc., should be given full weight.

The disease known as *echolalia* or *coprolalia*, and by various other names, might have some medico-legal importance. This is an affection in which convulsive or choreic movements are associated with a sudden explosion of speech. The patient, with a grimace, contortion, or violent movement of some kind, suddenly bursts into an obscene, profane, or absurd expression. This expression may be the echo of something overheard—hence the name *echolalia*—or it may be a spontaneous outcry. It is conceivable that such a patient might be arrested for the use of obscene or insulting language in the presence of others, and physicians and jurists should therefore bear in mind that such a disease exists, and that the impulse to burst forth in this way is sometimes irresistible. It is not simply an hysterical affection, controllable and curable, but is a true monomania, the affection of speech being beyond the patient's volition. One patient of mine, a boy about twelve years of age, would at times without warning, in a street-car or other public places, as well as in private, suddenly give utterance to a filthy expression two or three times, accompanying it with a violent movement of the head and shoulders and one arm. Another patient, a lady of good education and fine personal appearance, would in the midst of a conversation, or on introduction to another, or at any most inopportune time, suddenly with violent gesticulation shout, "Damn it! Damn it!" Gilles de la Tourette, Dana, Seguin, and others have reported numerous cases of this kind, and the affection certainly has a possible medico-legal aspect.

The following quotation from Hughes* may serve to cover some points with reference to the medico-legal aspects of affection of speech not otherwise included in the present paper:

"The hysterical, the choreic, the cataleptic, the emotional, the hyperemic, and reflex forms of speech failure have neither distinct clinical significance, nor are they likely often to have medico-legal importance separate from the diseases with which they may be associated. They need not, therefore, be considered here, and we mention them mainly to ex-

* Hughes, *Alienist and Neurologist*, vol. i., No. 3, July, 1880, pp. 315, 316.

clude them, as we likewise do the speechlessness of nightmare. Marc and others, however, have noted the temporary impairment of the mental faculties in chorea, and the defect in the speech power in this disorder is probably as much dependent on cerebral disorder implicating the speech center along with other portions of the cortex as on disturbances of the motor area for the organs of articulation. There are circumstances, too, under which aphasia occurring in the course of cerebral hyperemia might have corroborative significance in a question of doubtful sanity.

"The occasional aphasia of drunkenness has never been pathologically defined with sufficient distinctness. It is often, no doubt, a sort of incomplete and transient glossolabial paralysis, like the other forms of incoördination seen in inebriates, or the peculiar and more permanent defects of speech displayed by general paralytics. This latter form of speech defect, also, need not be considered apart from the graver disease with which it is associated, and which has other characteristic signs. Nor need we note any of the glossoplegias causing speech defect.

"The momentary speechlessness sometimes occurring in persons overcome with fright or profound surprise at being the unwilling or unexpected witnesses of some horrible tragedy might possibly be considered where an innocent person is indicted as *particeps criminis* from the fact of his being present and uttering no protest or cry of alarm; but in such cases the proper explanation, I believe, has always been and is still likely to be made and received, so well understood is the fact by the common mind that intense fear may for a time paralyze the power of speech as well as motion."

DISORDERS OF PANTOMIME OCCURRING AMONG APHASICS.

In several places in this chapter the subject of pantomime has been referred to incidentally, but it is of such great importance medico-legally and it has received so little attention from writers that it has seemed best to consider it in a separate section.

Pantomime is the representation of ideas by action and movement; it is an intellectual act; according to Hughlings Jackson it differs from gesticulation as a proposition does from an oath, although the terms gesture and pantomime are frequently used almost interchangeably. Amimia and paramimia are terms which have a corresponding import, as regards pantomime, to aphasia, paraphasia, paralexia, etc., with reference to speech. We may have a jargon of signs and motions as well as of words and of sounds; we may have a sensory or receptive and a motor or emissive amimia; sensory amimia is in fact a form of apraxia. Pantomimic disorders may be mixed, combined, or associated; we may have all blendings of them just as we have the ordinary speech disturbances. A study of the losses and disorders of pantomime will often be of great assistance to the physician in diagnosis, and in some medico-legal cases decision will largely hinge upon the consideration of the presence, absence, or disturbance of intelligent pantomime. Different and conflicting interpretations are too often given to pantomime observed among aphasics; every case of aphasia should be studied for itself as to pantomime. Loss or impairment of pantomime is in many cases proportionate to the disturbance in speech, but the two do not always go hand in hand, and some patients recover pantomimic power more speedily than ordinary

speech. If the visual centers or entering visual tracts are destroyed, the patient will not be able to use sight in the execution of manual or other forms of pantomime in so far as they may be dependent upon vision. Even impairment or destruction of the entering auditory tracts, or of the centers for auditory images, might impair pantomime which would otherwise be called out in response to sounds and words heard. The most distinctive interference with pantomime will, however, be from destruction of the center for propositionizing and of the tracts connecting it with the concept centers on the one side or the centers for movements of the limbs or face on the other, or from the destruction of the concept areas and their commissures. Some of the most interesting cases of aphasia associated with impairment or destruction of pantomimic or gesticulatory speech indicate differences both in the form of the disorder and in the site and extension of the lesion causing them. In an aphasic who nodded affirmatively with the head when she wished to answer in the negative, and used two fingers to express four, and made similar mistakes of pantomime, a cyst was found destroying a great part of the third left frontal convolution, the entire left island, and the neighboring medullary substance and anterior third of the corpus striatum.* This patient knew that she expressed herself wrongly, and the disorder was therefore not amnesic; but many amnesic cases have been reported.

In nine cases of aphasia or pseudo-aphasia which were investigated by me, notable differences and peculiarities in pantomime were presented by the patients.

In one case of brachio-cranial monoplegia almost complete motor aphasia with marked preservation of pantomime was present; in a hemiplegic with convulsions, word-blindness, verbal amnesia, and motor aphasia, there were marked sensorimotor disturbances of pantomime; in a third case, one of right hemiplegia and nearly complete aphasia chiefly of the motor type, the pantomime was varied and uncertain; a fourth case was one of right hemiplegia with marked contractures, complete aphasia of the mixed type with a single recurring utterance, and almost complete amimia; a fifth was a case of rigid hemiplegia, paralysis of the face, almost total sensorimotor aphasia, and obstinacy and energetic emotional gesticulation. In a sixth case of marked hemiplegia of gradual development, with motor aphasia and anarthria, only a slight degree of loss of pantomime was shown; while case seven, one of right-sided pseudobulbar paralysis, with anarthria and preservation of writing ability with the left hand, exhibited also full preservation of pantomime. Case eight was an example of right-sided pseudobulbar paralysis and ophthalmoplegia, with anarthria, marked orolingual paresis, and full preservation of pantomime, but with considerable mental apathy. The ninth and last case recorded was one of double hemiplegia from successive lesions on the right and the left side of the brain, with absolute abolition of speech and pantomime.

The study of pantomime may become an important diagnostic aid in fixing subcortical lesions, and particularly the position of a subcortical lesion with reference to its distance from the cortex. Some of the cases detailed showed that when the lesion was entirely in the straits between the ganglia, pantomime was either not lost or soon entirely regained.

* Perroud, cited by Kussmaul in *Ziemssen's Cyclopædia*.

The speech defect, as has been stated, is of the nature of an anarthria or pseudobulbar affection, and a diagnostic point is the ability of such patients to throw even into the paralyzed members some volition, as in the two following cases:

Right-sided Pseudobulbar Paralysis—Anarthria—Preservation of Writing Ability with the Left Hand—Preservation of Pantomime.

F. G., aged thirty-five years, a salesman, after an attack of the grippe in 1889, on awaking one morning found that he was paralyzed in the right leg, arm, and face, and was nearly speechless. He continued in this condition for four months, during which time he was only able to say "yes." Speech steadily improved after this. He was admitted to the Philadelphia Hospital in September, 1891. His paralysis had remained about the same, but his speech had gradually improved, and when he was admitted to the hospital he could speak as well as usual; but about three weeks after admission his speech again suddenly became impaired, and at the same time he complained that his jaw felt stiff. He talked in a slow, calculating, hesitating manner, as though it was difficult to articulate and enunciate the words he knew. A few days later this disorder of speech cleared up somewhat, but shortly afterward became pronounced, and has remained. His condition as to speech, when examined by me October 28th, was as follows: He understood words spoken or read to him, also printed or written text, and could read aloud, but read as he spoke—in a peculiarly slow, hesitating manner. He had voluntary speech, but it was impaired in the same manner as his ability to read; he repeated from dictation more faintly than he read and talked.

He had no paresis in the upper distribution of the facial nerve. He could not draw up the right side of the mouth, and could not elevate or depress the right lip as well as the left; the platysma movements of the right side were also impaired. The tongue showed inefficiency and want of rapidity and strength in its movements. When thrust out it went a little to the left, arching slightly, the convexity of the curve being upward and a little to the left; the inner half of the right side of the tongue was arched, while the outer was depressed. The right side of the tongue seemed to be somewhat atrophied, and in consequence of this the contractions of the lingual muscles were imperfect and changed the usual contours of this organ. His voice had a nasal twang. He had a difficulty in swallowing liquids, sometimes regurgitating.

The tendon and muscle reflexes were exaggerated, and front tap was present. Marked ankle-clonus was elicited when obtained with the leg extended. The tendon and muscle jerks were well marked in the left leg, but no clonus was present. He had no sensory losses or disturbances anywhere. Before he was paralyzed he wrote with his right hand; since his attack he had taught himself to write very well with his left hand.

His right arm was almost totally paralyzed, but he had some elbow and metacarpal and phalangeal flexion. Paralysis of the lower extremity was very decided, but not as complete as in the upper, and, like that in the upper, it was of the distal rather than of the proximal type. The movements below the knee were totally paralyzed, as was also the sartorius movement, or if any power was retained in the sartorius it was

very slight. Above the knee power was retained in the reverse order from the proximal to the distal portion of the thigh, the hip and pelvis movements being much better preserved than those at the knee.

A study was made of the power of pantomime, both with the paralyzed and unparalyzed limbs. With the latter pantomime was entirely preserved for all practical purposes, such as beckoning, signing away, pointing to attract attention, emphasizing his meaning, etc. He could also use his badly paralyzed arm to a considerable extent for expressive purposes. On asking him to indicate his age with this arm, he did so by striking with the paralyzed hand on his knee seven times, lifting the limb chiefly with trunk muscles, showing thereby that he meant his fingers multiplied by seven, namely, thirty-five years. He was capable of transferring an idea into his paralyzed limb and making use of it, although very imperfectly, to communicate with others. He could use the paralyzed member just as far as its loss of motor power would permit.

Right-sided Pseudobulbar Paralysis and Ophthalmoplegia—Anarthria—Marked Orolingual Paresis—Full Preservation of Pantomime, but Considerable Mental Apathy.

J. K., aged thirty-five, white, clerk, was admitted to the Philadelphia Hospital in October, 1887. He had a history of syphilis. Right-sided paralysis with speech disturbances came on suddenly just before admission; December, 1888, he had a second slight apoplectic attack.

He wrinkled his forehead and closed both eyes firmly, but drew up the angle of his mouth better to the left than to the right. In attempting to whistle, the left halves of the lips contracted and puckered, but the right half of the upper lip remained perfectly flat. The right upper extremity was strongly contractured at the shoulder and elbow, so that the arm was drawn with great force to the side, and carried with the hand spread out across the chest. Loss of power and contractures were the greatest from above downward—from shoulder to finger-tips. He had more power over the distal than over the proximal movements. Strong contracture was present at the knee and some at the hip, but he had slight use of the quadriceps and some ability to flex with the muscles of the thigh. Ankle and foot showed no contracture. He had diminished control over the movements of the foot and toes, probably the less power over abduction and extension. The general conclusion as to the lower extremity was that paralysis was comparatively complete, and nearly equal for proximal and distal portions, but probably greater in the proximal. Knee-jerk was increased on the right, but no ankle-clonus was present. Sensation was unaffected.

G. E. de Schweinitz, ophthalmologist to the hospital, reported as follows: vision about one fifth of normal; pupils unequal—right, non-responsive to light; left responds to light and shade. Oculomotor palsy of the right side, with limitations of the movements of all the muscles except those supplied by the fourth and sixth pairs; also slight ptosis; in the left eye divergent squint and inward limitations; the excursion of the eye in the other directions was about normal. Oval disks distinctly atrophic. Marked eccentric narrowing of the fields of vision, the temporal fields being correspondingly narrower, but no true hemianopsia.

This man's speech trouble was distinctly an anarthria. He understood everything that was said to him; he was neither mind-blind nor word-blind. He could speak voluntarily; evidently rehearsed phrases and sentences properly in his mind; and, indeed, he formed and uttered words correctly, although he sometimes mispronounced them. His defect of speech was clearly due to deficiency in phonating, articulating, and enunciating. He spoke with closed mouth and feeble movements of the tongue and lips; his speech was low and muffled—it was wanting in force, tone, and emphasis. Pantomime was practically unaffected so far as his left limbs and his head, face, and trunk were concerned.

Marked differences in the disorders of pantomime will be found in cases of paralysis and of motor and mixed aphasia which are apparently identical, or at least very similar, in character, which identity or close similarity, however, will often be found to be apparent rather than real; for investigations will show in many cases differences in degree and character of the motor paralysis, sensory symptoms, and aphasia, which are sufficient to separate the pantomimic disorders into classes.

The medico-legal investigator, even without any appreciation of the nature, extent, and location of the lesions, would recognize important differences between these patients—differences both in speech and pantomime, which make it essential for just decisions to carefully study both.

The "yes" and "no" of an aphasic are well known to have very diverse degrees of value. One of these two words may be used to express both assent and dissent, or with its proper meaning; or to express assent when dissent is meant, or simply as an emotional, interjectional, or accidental expression. In like manner, the usual pantomimic method of expressing assent by the forward nod or bowing of the head, and of indicating dissent by shakes or half-rotations of the head, or any other movements apparently meaning "yes" or "no," will be found in aphasics to have as many interpretations as the articulated "yes" or "no."

The certainty and uniformity with which an aphasic expresses even simple assent and dissent by word or gesture, when questioned with reference to his wishes or with reference to facts, must be taken into full consideration. Some cases of aphasia, which were certainly not word-deaf, or only partially so, were carefully tested at the Philadelphia Hospital with reference to their ability to certainly and consistently exhibit assent or dissent to questions relating to matters easy of comprehension. The results were variable, and sometimes contradictory, puzzling, or amusing. One patient, whose only vocabulary was the word "no," evidently used this word to express both assent and dissent, but accompanied its use with such an appearance of countenance and such gesticulation as to make it impossible to decide as to her real intention. Sometimes she seemed to instantly and clearly comprehend what was asked, and showed this by her countenance, but oftener her look was one of annoyance, confusion, or impatience, rather than of either assent or dissent. Another patient seemed to understand most of what was said to her, particularly at first, but after a few queries she became emotional, excited, confused, and decidedly impatient of investigation. A third, whose accompanying paralysis was less complete than that of the other two, but whose vocabulary was chiefly confined to the word "no," assented or dissented by means of facial expression, nodding her head, and

pantomime of fair correctness, and yet on continuing the examination frequently made foolish and absurd assents and dissents. A fourth patient possessed expressive gesture and pantomime in a much higher degree. She not only understood all that was said to her, but, within the limits of her original capacity, education, and experience, could, so far as her unparalyzed members would permit, express her meaning clearly and distinctly by the most significant pantomime. With the instruments which nature had left unimpaired she could promptly indicate what she wished to convey, and yet she was tremendously crippled so far as ordinary speech was concerned, and had as a most common method of vocal reply a routine, recurring utterance, "come-on-to-nong." Her pantomime had high propositional value. In studying her pantomimic powers, for instance, I asked her age, and with her unparalyzed left hand she opened and shut it fourteen times, the movement becoming a little slower and more emphatic as she approached the end. She told us in this that she was seventy years old; and when I said to her, "You mean you are seventy years old?" she nodded her head "yes" in a most emphatic manner. I asked her how long she had been sick, and with her hand she promptly told me fifteen years. I said to her, "You mean twenty." She shook her head "no," and again opened and shut her hand three times to indicate fifteen.

Great care should be taken not to misinterpret the emotional manifestations of an aphasic. The gestures and appearances of the face indicative of displeasure, anger, obstinacy, irritability, etc., are often strongly suggestive of dissent; while, on the other hand, those which merely indicate pleasure, amusement, or playfulness may sometimes be mistaken for assent or accord—facts which the last two cases particularly illustrate.

True amimia is an intellectual disorder just as is true speechlessness. It may be correct to say that emotional language is apparently unaffected in aphasics, but it would not be correct to say that it is entirely unaffected. The expression of the emotions, while frequently correct, sometimes energetic, and often violent, is in serious cases of disturbance of intellectual pantomime not uniform and under control. In many normal individuals emotional manifestations may be instantly controlled at any stage; and, in accordance with varying inhibitory powers in different individuals, weeping can be turned to laughing, a smile to a frown, the sounds of lamentation to those of rejoicing, by the trained and skillful actor, and in varying degree this power of control is preserved in all normal individuals. In aphasics with serious disturbances of pantomime, the losses, when in the emotional side, are seen in meaningless continuations or repetitions, slow transitions, and in undue excitement.

The following are the notes in detail of two of the nine cases summarized above (p. 30):

*Right Hemiplegia—Nearly Complete Aphasia Chiefly of Motor Type—
Varying Conditions of Pantomime.*

R. E., aged fifty-four, white, has been in the wards and out-wards of the Philadelphia Hospital most of the time for twenty years, having first entered the institution because of an attack of apoplexy which occurred during labor and left her aphasic and paralyzed on the left side. She

soon, however, became able to walk. Nine or ten years after the first attack she had a fit, and about three years ago she probably had a second apoplectic attack or seizure, falling in the out-wards of the hospital. Since this fall she had complained of much pain in the right thigh and had not been able to walk.

This patient showed a curious confusion both of speech and pantomime. She apparently understood all or almost all that was said to her, but seemed to take in what was said with great slowness. She conveyed the impression of one who required a sharp and strong mental stimulus to whip her cerebral centers into activity. She assented by "yes" and dissented by "no," and oftener than not correctly; nevertheless her "yes" and "no" could not by any means be relied on—she evidently used sometimes one for the other, and presented a difference from the last patient in never correcting herself. While apparently answering properly to some easily understood query, in other cases her assent or dissent by speech was foolish or absurd. When asked, for example, if her name was Smith she answered "yes;" Brown? "Yes;" Jones? "Yes," etc. She could not or would not repeat anything from dictation.

Her pantomime was much affected, and, like her speech, of a confusing variety. Frequently, for instance, she used the forward nod for assent appropriately, and similarly the sidewise shake or rotation of the head for "no." Now and then, however, she evidently nodded "yes" when she meant "no"; and this pantomime, like her speech, was never correct spontaneously. She never used or could be induced to use her unparalyzed hand and arm to enforce anything she said. In attempting conversations with her she usually made good use of her face for emotional expression; smiling when pleased, frowning when angered or displeased, etc.

To the little speech and pantomime this patient had, the word "unreliability" was particularly applicable.

Right Hemiplegia With Marked Contractures—Complete Aphasia of the Mixed Type—A Single Recurring Utterance—Almost Complete Amimia.

J. R., aged forty, had had two paralytic attacks. The first had caused moderate loss of power in the arm, leg, and face, greatest in the arm, and so far as could be learned had not left her with any aphasia. A few months later, three years before the examination here detailed was made, she had a second and more severe apoplectic seizure, which caused profound right-sided paralysis and aphasia. The right lower extremity was entirely helpless and showed some permanent flexure at the knee, the toes extended and the foot slightly flexed; the right upper extremity was also totally paralyzed, the wrist and elbow in a permanent position of slight flexure; the fingers were extended and somewhat approximated to and looped around the middle finger.

The lines of the face were not so well marked on the right as on the left. The tongue could be protruded and deviated to the right. In volitional movements of the mouth and lips—as in an attempt to display the teeth—the face, or more correctly the angle of the mouth, was drawn to the left.

Sensation was apparently unimpaired, but the examination could not be thoroughly made. The right knee-jerk was quite spastic, but no ankle-clonus was elicited. A tap on the right patellar tendon was followed by

visible and palpable contraction of the quadriceps muscle and tendon, but, probably owing to the partial fixation of the knee-joint, the leg was not propelled. At rest the toes of the left foot could be seen in regular, rather fine movement. The hyperirritability of nerve, perhaps also of muscle, was also illustrated in the right upper extremities. When the dorsum of the wrist was tapped, a feeble but distinct clonus became apparent, and gentle taps on the other tendons or muscles—triceps, deltoid, biceps, etc.—caused contractions.

Whether or not this woman was word-blind I could not determine without a knowledge of her previous history. She was not word-deaf, at least not completely so. She impressed me as one of those aphasic patients who having first been word-deaf, or largely thus affected, had gradually regained some power of understanding spoken words. She was certainly not psychically blind. She could close the eyes, protrude the tongue, etc., when these or similar performances were gone through before her; she could also protrude the tongue on command, close the eyes, and lift up the left hand, but scarcely more than this.

Her speech and pantomime might be said to be summed up in her “la-la” and laugh, and a much less frequent expression of anger or displeasure, which was usually accompanied by a movement of covering her mouth with her hand. The appearance of her face could not be said to be without expression, but like her recurring utterance, it was an appearance nearly always the same. It might mean that she was pleased, it might signify assent or dissent, it might mean nothing at all. Sometimes the “la-la” and the laugh became louder and more emphatic, but that was all. She never nodded the head in the usual manner for “yes” or for “no.” Only two differences could be made out in the study of her case: one, that her usual utterance and grimace were at times more demonstrative or even more violent than at others; the other was, as above stated, that she had a look of displeasure accompanied by putting the hand to the mouth.

A case of this kind would rank in general terms as one of mixed concept-motor aphasia. Using the ordinary terms, her loss of pantomime and her loss of speech were both amnesic and aphasic, the former largely predominating. She seemed to be totally unable to conceive or recall either proper words or movements. The lesion was of such a character as to have prohibited any education of her right hemisphere for these purposes. It probably destroyed not only both capsules, but also the internal commissures for speech.

The following quotation from Kussmaul is of interest in connection with the report of this and the preceding case:

“A woman was paralyzed on the left half of her body and aphasic from apoplexy. She still had at her disposition only the following little phrases, which she uttered with interjectional sprightliness: ‘Oui, parbleu!’ ‘Tiens!’ and ‘Vous comprenez!’ When asked if she wished to eat, she answered, ‘Oui, parbleu!’ What was her name? ‘Oui, parbleu!’ or also ‘Tiens!’ in a mocking, snappish tone. She seemed persuaded that her answers were to the point. She often added, ‘Vous comprenez!’ in a tone in which a person would use it who thinks he has convinced the person speaking with him. She often made use of gestures, which were as useless and limited as her discourse petered out. Here were amnesic or combined amnesic and ataxic derangements.”

I append notes of an interesting case kindly furnished me by the late Dr. J. A. Jeffries, of Boston :

Motor Aphasia—Only Affirmative and Negative Pantomime—Sometimes Confused Contraction of Visual Fields.

The patient, a woman fifty-five years old, married, first came under observation July 7, 1891, with a report that she had been struck dumb. Her history, as gathered from her sister, and later from herself, was as follows: On the afternoon of the 4th of July, while celebrating with some friends, she tripped on a rocking-chair and fell to the ground. She was not stunned, got up by herself, and continued about the room for fifteen minutes; then feeling sleepy, she lay down on a bed and went to sleep for two hours. On waking she rejoined the company and began to speak, but stopped short in the middle of a sentence, unable to say a word. She had no pain, vertigo, or other symptoms. She had never been pregnant.

She was a strong, straight, healthy-looking woman with an intelligent cast of countenance. Examination of heart, lungs, and abdominal organs was negative. Urine 1017, acid, free from albumin, sugar, bile, and abnormal sediment. No atheroma. A large black-and-blue spot was present about the left eye, extending into the temple. Her eyes moved freely in all directions, either open or with one covered; no diplopia; pupils of normal size, responded promptly to the light, to near vision, and on irritation of the skin. No ptosis of the right eye; the left lid drooped, but was much swollen. No difference between the two sides of the face in mimetic movements or in expression of emotion. Tongue extended straight; could be moved freely and rapidly in every direction, and rested symmetrically in the mouth. Fauces symmetrical; no difficulty in swallowing. Vocal cords moved well in respiration and in laughing; sneezed with explosion. No paresis of neck or of body or legs.

Right arm not so strong as the left, but both were fairly strong and freely moved. Tendon reflexes normal, the same on both sides. There was possibly some blunting of the sense of contact in the right arm and face, but the faintest touch was perceived the same as on the left side.

Speech was absent. On effort to speak there were a few slight motions of the tongue and lips, and at times a slight inarticulate sound. The vowel sounds were more pronounced, *a* and *e* being recognizable. Could not repeat or read aloud; could not write alone from dictation or copy—in all efforts to do so the hand was very clumsy. She could, however, draw at request a dog, house, man, or the like, much after the style of the old Indian inscriptions. She could not read. She apparently understood perfectly, doing as she was directed, laughing at a pun. Her only method of conveying ideas seemed to be by nodding or shaking the head. She used no other form of pantomime. When asked a question she assented or dissented with the head, but frequently after a nod would contradict or correct herself by a violent shake, so that after each question I was obliged to wait for what might come after. Objects were recognized properly, and her observation was good. There was no deafness. The patient was formerly an habitual reader of the papers, and occasionally wrote a letter.

There were no signs of alopecia, no scabs in the mouth or on the skin, no enlarged lymphatics, and the tibial and other long bones were smooth.

In the course of the next two weeks there was considerable improvement in the power of speech. The power of repeating first returned little by little, and by the time she could repeat sight-words, "yes" and "no" returned. She could sign her name, write a few letters from copy, but could not complete "Boston" or write offhand. At this time I found her visual field reduced to about thirteen degrees all the way round in both eyes, and that she had lost all arithmetical power. As the power of speech came back the paresis of the lips became apparent. These in speaking moved slowly and clumsily, as if cold, while in other motions they were steady and offered nothing peculiar.

By the end of August the patient had made material progress and was if anything better than when last seen in December. The grip of the right hand was one hundred, of the left eighty-four; there was but the barest trace of the former immobility of the lips during speech. This was quite free and spontaneous, the vocabulary good, and the use of the words good. At times she would hesitate for a word, but would not use a wrong one. There was, however, a period, when speech was first returning, when wrong words were used frequently, but corrected. The power of reading was very limited; at times she could get through a few lines correctly, but as a rule she "forgot what the first part of the word was before she got to the end."

Writing was confined to her name. All forms of testing gave negative results. Hearing was normal, also the power to understand words. The power to count and do simple sums was very imperfect. She could count out loud correctly, but if given a few piles of matches, she would make some wrong counts, seven for eight, or the like. She could not make change, but could name the coins. The visual field was ample, and the recognition of objects normal. Lastly, as speech returned there was a time when she filled out her imperfect language by pantomime, which often enabled me to give her the right word.

THE TRAUMATIC NEUROSES: BEING A DESCRIPTION OF THE CHRONIC NERVOUS DISORDERS THAT FOLLOW SHOCK AND INJURY.

BY

CHARLES L. DANA, A.M., M.D.

Synonyms.—Concussion of the spine, railway spine, railway brain, traumatic neurasthenia, traumatic hysteria, hysterio-traumatic disorders, traumatic hysterio-neurasthenia.

This article will include a description of concussion and shock, but not of traumatic insanity, or of the gross lesions of the nervous system caused by injury.

Definitions.—As my article may be sometimes referred to by persons not familiar with all the technical words used in neurological medicine, I propose to give here brief definitions and descriptions of some of the terms employed.

A *neurosis* is a morbid nervous state, and the word is practically synonymous with a nervous disease. When the neurosis occurs without any change in the structure of the nervous tissues it is called a functional or non-organic neurosis. When it is due to some structural change, such as inflammation or softening of the nervous tissues, then it is called an organic neurosis.

A *psychosis* is a morbid mental state. The different forms of insanity are called psychoses. There may, however, be morbid mental states which are not true insanities, such, for example, as decided mental depression, a tendency to fixed ideas, and hypochondriacal states. Hysteria is sometimes classed under the head of the psychoses.

Shock is a sudden depression of the vital functions, especially of the circulation, due to the nervous exhaustion following an injury or a sudden violent emotion, and resulting either in immediate death or in prolonged prostration. (Foster.) Shock is spoken of as being either corporeal or psychic. Corporeal shock is that form in which the depression of the vital powers is produced by a violent injury or a sudden loss of blood. Psychic shock is that form in which the depression is produced by an emotion. Often shock involves both these elements. So far as I can learn there is no way by which the two conditions can be distinguished, apart from the history of the case; in other words, a severe bodily injury and a violent depressing emotion may produce exactly the same nervous results.

Concussion is a word which has been much twisted out of its original

meaning. Properly speaking, the term should be applied only to the act itself in which the body receives a severe jar. Practically, concussion means almost always concussion of the brain.

Concussion of the brain is a jarring of the brain substance without laceration of its tissue, or with only microscopic laceration. (Foster.) It is characterized by partial or complete loss of consciousness, with feebleness of pulse, coldness of the extremities, pallor, and dilatation of the pupils, followed by vomiting, moaning, restlessness, jactitation, and somnolence, with warmth of the skin, a full, relaxed pulse, and sometimes irregular contraction of the pupils. The state which follows directly upon concussion, and which has just been described, is spoken of as *collapse*. The after-effects of concussion of the brain have been described by earlier writers under the name of railway spine, or spinal concussion. This, however, as we shall show, is a misuse of the term, and the word should only be applied to the condition I have described.

Concussion of the spinal cord is a condition which, in my opinion, practically never occurs. As the term was formerly used, however, it meant a condition of the spinal cord produced by a violent shock, such as that which would result by falling from a height, by a severe blow on the back, or by a railway collision or similar accident. A condition of more or less collapse with partial suspension or perversion of the function of the spinal cord was believed to follow such accidents. It is the present opinion, however, that these conditions are due to concussion of the brain and nervous shock, together with, in some cases, lacerations of ligaments and perhaps structural injury of the spinal cord.

Neurasthenia is the term used to indicate a condition of nervous exhaustion or nervous weakness with irritability.

Trauma means, strictly speaking, a wound. The term is used generally as synonymous with an injury.

Neuralgia means pain in the course of nerves.

Paralysis is the term used to indicate a loss of power of muscular movement. When the paralysis is incomplete it is called *paresis*; paralysis affecting one half of the body is called *hemiplegia*; when it affects the two lower extremities it is called *paraplegia*; and when it affects only one limb it is called *monoplegia*.

Anæsthesia means a loss of the sense of feeling. When there is a loss of the feeling of touch it is called tactile anæsthesia, and when there is a loss of sensation of pain it is called pain anæsthesia, or analgesia.

Tremor is the name given to the condition in which there is a vibratory motion of the extremities or of the muscles of the body. It is due to an alternate contraction and relaxation of muscular fibers. These contractions are rhythmical, and occur at a rate of from three to twelve per second.

History.—It has been known since the beginnings of medicine that injuries would cause different forms of insanity, and would give rise to epilepsy and St. Vitus's dance, and would excite hysterical attacks. The facts with regard to what is known as concussion of the brain have also been long familiar to surgical writers. In the early part of this century the French and English surgeons reported and studied cases of what they termed "concussion of the spine." Their views at this time were that as the result of blows upon the body, and particularly upon the back, or as the result of falls or other forms of injury, the functions of

the spinal cord might be temporarily perverted or suspended, causing pains, paralysis, and other symptoms. The theory was that the action of a severe injury or concussion upon the spine was analogous to that of a blow upon the head: just as the latter injury would produce concussion and a suspension of cerebral function, so it was thought a blow upon the spine would cause a functional disorder of the spinal cord. These views were based largely upon histories of cases in which after a severe injury paraplegia ensued, which paraplegia in the course of a few weeks or months entirely disappeared. Cases illustrating this view were reported by Boyer (2),* Bell (3), Sir Astley Cooper (6), Abercrombie (8), Mayo (9), Ollivier (10), and Lidell (11). The earlier writers also studied the effects of injuries in the production of chronic nervous disorders due to actual injury to the cord or brain, particularly the former, and cases of traumatic myelitis and traumatic meningitis were put in evidence. Maty (1), Girard (4), and Lidell (11) were among those who contributed to this phase of the subject.

In 1818 and 1837 Sir Benjamin Brodie (5) called attention to certain hysterical affections, particularly those of the joints, following injury. We find in the writings of Girard (4), Peronne (12), Weir Mitchell (14), and Lockhart Clarke (15) contributions to the subject of injuries of the nerves and to the development of organic disease of the central nervous system after injury. We find much also in these earlier writers upon the general subjects of concussion and shock. It was not, however, until the appearance of Erichsen's book (13) in 1866 that the study of the functional nervous affections following injury was really begun, and all credit must be paid to this observant surgeon for the epoch-making work which he did at this time. Erichsen's teaching was that injuries would produce at times an actual concussion of the spine, in the sense that it temporarily suspended the functions of that organ and perhaps for some time disturbed its normal workings. He also taught that injuries which did not actually fracture the spine or produce gross lesions of the cord and membranes would lead to various grades of chronic spinal meningitis, and finally he taught that following these injuries there sometimes developed peculiar chronic nervous disorders, to which he gave the name "concussion of the spine," or railway spine. These disorders he considered to be due sometimes to spinal anæmia, sometimes to spinal hyperæmia, and at other times to meningitis. The authority of Erichsen's teachings remained but little questioned for a good many years. Various further contributions to this subject were made by Buzzard (16), Fletcher (17), Webber (21), and others. In systematic treatises such as those of Erb (29) and Leyden (26, 31) "spinal concussion" was discussed as though it were a recognized clinical entity.

In 1878 Charcot, reviving the observations of Brodie, called attention to the fact that traumatisms sometimes develop local hysterical phenomena. Esmarch (1872), Shaffer (1880), Ketch (1887), Mitchell (1885) have also contributed to this same subject. A good many German and a few French writers meanwhile reported various cases of concussion of the spine, and most of them accepted more or less fully the views enunciated by Erichsen.

* The special articles by these writers will be found arranged chronologically under the bibliography at the end of this article.

In 1882 a new stimulus was given by Mr. Herbert W. Page, who published a work entitled *Injuries of the Spine and Spinal Cord* (51), in which he sharply criticised the views taken by Erichsen. He denied the existence of spinal concussion, and showed that many of the cases of supposed railway spine were nothing but cases of a temporary nervous disturbance, or of hysteria or simulation. Shortly before this, Dr. R. M. Hodges (47) had published a series of cases in which he also disputed the serious character of the so-called concussion symptoms. From this time on, the critical study of the traumatic neuroses may be said to have begun. Contributions bearing upon it poured in with great rapidity from German, French, and American observers. In this country Drs. G. L. Walton (55), J. J. Putnam (60), Hamilton (57), Dana (64), Johnson (66), Knapp (117), and Dercum wrote special articles upon the subject. To Drs. Walton and Putnam in particular, credit is due for showing that some of the cases that have been known as railway spine were cases of major hysteria. In France, Charcot (1887) (89) and his pupils, Berbez (124), Terrillon (68), and Guinon (125), studied the phenomena of traumatic hysteria, and showed that, in that country at least, trauma was especially apt to lead to hysterical disorders. In Germany active interest in the subject of the traumatic neuroses may be said to have begun in 1884, when a series of articles was published by Thomsen and Oppenheim, and later by Oppenheim (74) alone. The teaching of Oppenheim was that as a result of injuries there developed a series of chronic nervous symptoms which had a rather definite character, so much so that the special name of "traumatic neurosis" might be applied to it. Oppenheim's work called out a great many articles of a controversial character, in which it was asserted that the element of malingering had been very much overlooked by the writer referred to. It was not until about 1888 that, through the influence of French, American, and English writers, the striking part played by major hysteria was acknowledged to exist in the traumatic nervous disturbances. Dr. William Thorburn (105), in his work entitled *A Contribution to the Surgery of the Spinal Cord*, presented the question systematically and clearly to English readers.

This brings the question down to the present time. It will be seen that at first the whole matter was in the surgeon's hands, and was studied from a surgeon's standpoint. Erichsen, who first suggested the nervous side of the case, was a surgeon. So also was the first German writer, Rigler. It was not until after the appearance of Page's book that neurologists took up the matter seriously. Then clinical and pathological views experienced a rapid change. The conception of a traumatic hysteria was soon worked out by Charcot, and that of a traumatic neurasthenia still earlier by others. The specific neurosis theory advanced by Oppenheim never secured much of a foothold. The advances being made now are largely in the direction of closer clinical observation and more exact methods of diagnosis, and in pathology and pathological anatomy.

Mooted Points.—The points about which present interest most centers are: first, the question of the existence or not of true concussion of the spinal cord; second, the importance of the part played by malingering in the traumatic neuroses; third, the existence of a major hysteria with anæsthesias and paralyses; fourth, the question of the existence of a special class of nervous symptoms following an injury and due entirely

to it; fifth, the question of the existence of objective signs in these disorders by which one can test the reality of the alleged nervous phenomena; sixth, the existence and significance of local nervous phenomena, such as hysterical joints and local hysterical symptoms of a spasmodic or paralytic character.

Upon these various points the amount of literature that has accumulated is simply enormous. I have ventured to collect this and present it in connection with my article, the matters being arranged first chronologically and next in accordance with the different subjects discussed. In the second arrangement I have not included all the articles placed on the first list, because many of them could not be classified and many were simply reports of cases. A study of this bibliographical list shows that the total number of articles and works published is two hundred and seventy-eight. They have appeared from writers in all parts of the civilized world. Germany has been most prolific; after this America, then France and Great Britain.

English, 27; French, 51; German, 118; American, 64; Italian, 6; Scandinavian, 2; Swiss, 3; Belgian, 2; Dutch, 2; Russian, 4: total, 278.

It is obviously impossible that any one man should familiarize himself with all these articles; but I have studied the more important ones, and I am led to the conclusion, from their perusal and from my own personal experience, that many of the mooted questions above referred to are rapidly reaching a satisfactory solution. Among American neurologists of to-day I do not think that there is any great difference of opinion regarding them.

As to the *first* of the points, that of the existence or not of such a thing as concussion of the spine, I believe that the answer is practically a negative one. It is perhaps not impossible that a severe blow, properly directed, may cause a temporary paralysis of the spinal cord due to simply the molecular vibration or concussion; but such cases are so extremely rare that for practical purposes they need hardly be considered, and personally, despite the cases that have been brought in evidence by Drs. Hunt and Gowers, I do not think that there is any instance which can be said beyond any doubt to illustrate a spinal concussion. Most of the cases that have been called such have been undoubtedly cases of hemorrhage either external to the dura or internal to it, generally the former. The reader must bear in mind, however, that the term "concussion of the spine" is here used in its strictly technical sense. Through the writings of Erichsen and others immediately following him the term was so transposed as to mean not strictly concussion, but the chronic nervous symptoms following it, and often in ordinary medical usage this meaning still obtains. Few careful writers, however, now use the term "concussion of the spine," but in its place employ the words "traumatic neurosis," "traumatic hysteria," "hystero-traumatism," or some word indicating the actual gross lesion if there is any, such as "traumatic myelitis." Sometimes, after an injury, the symptoms of a chronic myelitis slowly develop. This is considered by Knapp a proof that the spinal cord has been "conceused." It rather indicates that some slight laceration of vessels or nerve tissues occurs, from which reactive inflammatory changes, gliosis, or most often syphilitic exudates develop. One sees exact copies of this kind of traumatic myelitis occur without trauma.

With regard to the *second* point, that of the importance of the element

of malingering, there is perhaps not quite so much harmony of opinion. This is particularly the case among the German writers, where a great number of articles upon the subject of simulation have been written. There has been, however, in my opinion, a large personal element in this discussion, and a perusal of it leads me to think that most of the Germans who have written regarding simulation have not been practically familiar with functional neuroses, such as neurasthenia, to anywhere near the extent that American neurologists are. It would certainly have been impossible for any such lengthy acrimonious and sterile debates as have occurred in Germany to have taken place in America, and in this country there is, I feel assured, no great difference of opinion as to the actual existence and the at times serious nature of the traumatic neuroses. We recognize, of course, the importance, and I might add the relative frequency, of deceit, exaggeration, and imposture; also the fact that the process of litigation often aggravates and adds to the nervous condition. But we do, I believe, with great uniformity agree upon the fact that functional nervous conditions of a chronic and sometimes intractable character are produced by trauma.

With regard to the *third* point, that of the existence of a traumatic hysteria, there has been, I believe, no great amount of controversy. It is acknowledged that the major forms of hysteria as well as the minor forms may follow trauma. The investigations of late years have been more in the line of studying the frequency, the clinical characteristics, and ultimate course of these disorders. In France, if we may judge from the medical literature of that country, trauma, when it is followed by any functional nervous disturbance, is followed oftenest by hysteria. In this country traumatic hysteria is relatively rarer, yet it is by no means very infrequent.

With regard to the *fourth* point, that of the existence of a special form of functional neurosis due to injury, viz., the traumatic neurosis, agreement has also been reached. In the vast majority of cases the nervous symptoms following injury, when not due to organic lesion, take the form of a neurasthenic condition, and this neurasthenic condition differs but little from that which is brought about by other causes. Traumatic neurasthenia symptomatologically resembles ordinary neurasthenia plus symptoms due to local injury, such as sprains, and with the addition of a rather larger amount than usual of pain in the back and tendency to exaggeration. In very rare cases, however, there does develop after a time a chronic nervous disorder, of whose special character I will speak later, which has symptoms that are to a certain extent peculiar to itself, though resembling multiple sclerosis. To this rare type of disorder the name of "the grave traumatic neurosis" might perhaps be given; for the evidence at the present time goes to show that a certain amount of incurable organic disease exists here.

As to the *fifth* point, the question of the existence of objective signs in the traumatic neuroses, a great deal has been written and a great deal claimed. Many peculiar symptoms have been elicited and a special symptomatological value attributed to them. My own views upon their value will be stated in greater detail later. It will be sufficient to say now that we have a sufficient number of objective tests to render it impossible in almost all cases for a patient to deceive a skilled observer.

As to the *sixth* point, the existence of local hysterical disorders, there

has not yet been very much written, and the subject is in a somewhat unsatisfactory state. It has been shown, however, that arthralgias, local spasms, paralyses, and tremors may result from injury, and that these may exist and be of a purely functional character. The question of the amount and importance of associated hysterical or neurasthenic stigmata has, however, yet to be worked out.

Such, in brief, is the history of the rise and development of our knowledge of the functional nervous disorders following injuries.

Classification.—It is hardly to be expected that perfect agreement can yet be reached upon the subject of classifying the functional nervous disorders that follow injury and shock. A classification suggested by Dr. E. C. Seguin in 1889 (*Annual of the Universal Medical Sciences*, vol. iii., No. 3), modified somewhat in accordance with the advances made since that time, will be used as a guide here.

CLASSIFICATION OF NERVOUS DISORDERS FOLLOWING INJURY.

IMMEDIATE SYMPTOMS:	{	Shock, Transitory paralysis, Delirium, somnolence, amnesia, Diabetes.
LATE SYMPTOMS, <i>plus (in many cases) physical injuries:</i>	{	<p style="text-align: center;">1. THE TRAUMATIC NEUROSES.</p> <p>(a) Traumatic neurasthenia. (b) Traumatic hysteria. (c) Mixed and grave types. (d) Local neuroses.</p> <p style="text-align: center;">2. ORGANIC AFFECTIONS.</p> <p>(a) Myelitis, meningitis, etc. (b) Degenerative diseases of brain and cord: viz., locomotor ataxia, progressive muscular atrophy, multiple sclerosis, epilepsy, paralysis agitans, ties, exophthalmic goiter. (c) Infective neuroses: chorea, syphilis, tuberculosis. (d) Tumors.</p> <p style="text-align: center;">3. PSYCHOSES.</p>

Out of the above long list I have to discuss only the subjects of shock and the traumatic neuroses. It is these which are most common aside from physical injury, and it is these which give rise to the most important kinds of litigation. It is extremely rare for other forms of nervous troubles than the neuroses referred to to come into court. Chorea, for example, though often excited by fright, rarely occurs in adults, and is almost never developed in connection with litigation cases. Epilepsy, too, though sometimes the result of injury, occurs chiefly before maturity, and it is not often that the disease can be shown to be due to an injury alone.

SHOCK AND CONCUSSION.

The nature of shock and concussion has already been defined. Concussion is the physical jar; shock is the effect. Shock resulting from concussion is called corporeal; but almost the same class of symp-

toms can be produced by great emotion, and this form of shock is called psychical.

When a person receives a severe blow upon the head he falls to the ground partly or wholly unconscious. His voluntary muscles are relaxed, and often there is at the same time a paralysis of the sphincters, so that fæces and urine are voided. The pulse is slow, irregular, weak, and compressible. The reflexes are abolished. The respiration is shallow and slow in rhythm. The extremities are cold, the face is pale, the skin often covered with moisture. If the patient dies in this state of collapse, post-mortem examination may reveal a localized blood-clot or a slight amount of laceration of the brain substance under the point of injury or at the opposite pole of the brain. In some cases minute hemorrhages are found throughout the substance of the brain, in other cases no change whatever is found except perhaps a congestion of the vessels of the pia mater.

A number of theories have been put forth to explain the profound effects produced by blows which are not associated with any gross lesions of the brain, but which yet produce most serious effects upon the nervous centers. The prevalent theory is that of Duret, that the effects are produced mainly through the sudden driving of the cerebro-spinal fluid from the subarachnoid space through the foramen Magendie into the fourth ventricle and thence into the central canal of the spinal cord, and through the aqueduct of Sylvius into the ventricular cavities. The fatal objection to this theory is that, as shown by Kocher and Ferrari, pressure in the intracranial cavity is transmitted in all directions, as in a fluid, so that the pressure in the ventricles can never be any less than that outside the ventricles. The theory which appears most to satisfy the requirements is that which has been recently worked out by Mr. Victor Horsley, and which has been described with great clearness by Dr. S. B. Kramer, of Cincinnati.* It is based on a number of experiments in which the blood-pressure curve, the respiratory curve, and the intracranial tension were simultaneously registered. It was found that when a sudden severe blow was given upon the skull there was an immediate and sudden rise of intracranial tension; in other words, the sudden blow compressed the elastic skull and squeezed the contents of the brain, producing an instantaneous and severe compression of the brain. The brain substance, it is true, is only very slightly compressible (Adamkiewicz), but, as these experiments show, a slight amount of compression can be made, and the force of the blow produces this effect. The compression exerts its force mainly upon the soft-walled blood-vessels, that is, the capillaries. The blood is driven out into the veins and thence into the extracranial circulation. As a result, therefore, of this sudden compression and rise of intracranial tension there is an extreme though very brief anæmia of the brain produced. This anæmia affects the parts supplied by the capillaries, which are essentially the cortex and ganglia of the brain. There is, therefore, produced in concussion of the brain a sudden intense asphyxiation of the important nerve centers, and as a result of this their functions are suspended. In the process of restoration of their functions there is necessarily some disturbance due to the sudden and violent disarrangement of the vascular equilibrium, and this

* *Cincinnati Lancet Clinic*, January 27, 1894.

disturbance is accompanied perhaps with dilatation and rupture of small vessels. After concussion there arise sometimes a long train of nervous symptoms, which I shall describe later.

SPECIAL DESCRIPTION OF THE TRAUMATIC NEUROSES, INCLUDING TRAUMATIC NEURASTHENIA, MIXED TYPES, TRAUMATIC NEUROSIS OF GRAVE TYPE, AND TRAUMATIC HYSTERIA.

The effects of concussion and shock having in a measure passed away, the patient sometimes develops some form of chronic functional nervous disorder, to which the general term "traumatic neurosis" is applied; or without concussion, and with only some slight psychic shock and physical injury, similar symptoms may arise. It is this class of disorders which I shall now specifically describe.

Ætiology.—While the exciting cause of the traumatic neuroses is always trauma, there are many conditions which prepare and ripen the system for a nervous disease, and these causes will be considered first.

Age.—The period of life most susceptible to the traumatic neuroses is that between the twentieth and fortieth year; that is to say, the most active years of our existence. The cases occur oftenest in the decade twenty-one to thirty, next, thirty-one to forty. Practically no cases occur after the sixtieth and very few before the twentieth year. This is shown in the following table of cases of traumatic neurasthenia, hysteria, and hystero-neurasthenia, compiled from cases reported by Erichsen, Page, Berbez, Oppenheim, Weill, Knapp, Dercum, Bremer, Clevenger, and myself.

<i>Ages.</i>	<i>All Cases.</i>	<i>American Cases.</i>
10 to 20	7	4
21 to 30	52	25
31 to 40	50	19
41 to 50	40	11
51 to 60	16	4
61	1	1
	<hr/>	<hr/>
	166	64

The youngest cases were boys aged ten and a half and twelve, who had hystero-neurasthenic troubles from a fall on the head. (Weill.) The average age of the French hysterical cases (Berbez) is twenty-five years, the male cases being the older. The ordinary neurasthenic cases are more frequent between the ages of thirty and forty. The fact that people between the ages of twenty and forty travel more and are more exposed to injuries has something to do with the prevalence at this period. Still, the first two decades of life enjoy a great though not absolute immunity. In this country the neurasthenic cases occur more frequently in the earlier decades. This is a peculiarity which I have noticed of other neuroses, such as megrim, chorea, and epilepsy.

Sex.—Traumatic neuroses occur in men oftener than in women, in the proportion of 3 to 1 (144 to 52). Traumatic neurasthenia occurs relatively oftener in men (2 to 1). This relative excess of the male is due partly perhaps to the greater frequency with which men travel and are exposed

to accidents; perhaps also to some extent to the great readiness of men to resent injury and to attempt litigation. Still the same excess exists in neurasthenia due to other causes. The German statistics give a much larger percentage of males. Among 33 cases of Oppenheim's only 2 were women.

Previous Condition of Health.—There is a very firm conviction among most neurologists that a neurotic constitution or some condition of ill-health exists in a large proportion of the genuine cases of traumatic neuroses. This is certainly true for some types of hysteria, and to a less extent, in my experience, in neurasthenia. Those cases which develop degenerative diseases of the central nervous system have in some cases been infected with syphilis, or have been accustomed to excesses in alcohol and venery, or have been subject to strain and privation. Sexual excess stands in especially important relation with hysteria. I have known slight trauma to bring out an attack of nervous syphilis, and to cause its exacerbation in quiescent cases. I have known also trauma to excite chorea and afterward hysteria in a patient who had Bright's disease. This factor of previous condition of health and personal predisposition to nervous disease ought to be very carefully considered in estimating the responsibility of a person or corporation for injury.

Rigler thinks that railway officials are predisposed to traumatic neuroses, on account of the irritation of the nervous centers from the continual vibration. This may be true of locomotive engineers, who especially suffer from concussion, and who are also subject to much mental strain. Statistics show that it is not true of other employees, and there are not enough facts at hand to enable me to speak positively about the engineers. They sometimes develop neurasthenic conditions simply from the nature of their work, just as other people do.

Concentration of Population.—Dr. W. B. Outen, chief surgeon of the Missouri Pacific Railroad Company, finds that traumatic neuroses develop much more frequently in the neighborhood of populous cities. Thus, among 814 injuries to passengers occurring at points remote from cities, only 6 cases of traumatic neurosis developed, while among 30 passengers injured on suburban trains there were 5 cases of traumatic neurosis. Furthermore, among 18,275 injured employees only 8 were credited with traumatic neuroses, 4 of whom recovered. There were, however, 767 injuries to the back of various kinds. Among injured passengers there was 1 neurosis to 76 $\frac{2}{11}$; among employees, 1 in 2248 $\frac{3}{8}$. The employees were all taken, however, and promptly treated in the company's hospitals. Dr. Outen's view that many of the cases of neurosis were the result of suggestion and litigation is no doubt in a measure true. It may be said, however, that people living in remote districts are not so able to fight for their just rights, and are, as a whole, more ignorant of a corporation's responsibility. Mr. Frank Loomis, attorney for the New York Central and Hudson River Railroad Company, tells me that very few cases of traumatic neuroses occur, in his experience, on that company's lines.

Condition at Time of Injury.—There is no doubt that persons who are injured while asleep or intoxicated are less liable to severe neuroses. This is partly due to the fact that the element of fright and psychical shock is, in a measure, eliminated in these cases, and partly to the relaxed condition of the body, which renders the physical shock less violent.

Persons who are accustomed to travel, and, like old soldiers, are somewhat inured to the possibilities of accidents, are less likely to be injured than inexperienced travelers, who are full of apprehensions at every suggestion of danger.

Condition Subsequent to Injury.—Persons who are promptly and properly cared for after accidents are less liable to become nervous. The immediate resumption of severe work and the careless use of stimulants and narcotics no doubt favor the development of nervous symptoms, if such were destined to appear. More than all this, however, is the effect upon the patient of the attentions of lawyers and unwise physicians who are trying to make out a case. The worryment of litigation naturally brings out and intensifies many symptoms. On the other hand, many typical cases of traumatic neurosis occur when no litigation exists; and the attempt to put down even the majority of cases of traumatic neuroses to suggestion and litigation is quite unjustifiable.*

The foregoing description of the causes of the traumatic neuroses applies to all forms of the functional nervous troubles. In undertaking to describe the symptoms, however, it is necessary to make certain clinical types, and describe these separately. As I have studied these neuroses they can be mostly grouped under the head of:

1. TRAUMATIC NEURASTHENIA.
 - (a) MIXED TYPES.
2. TRAUMATIC NEUROSI OF GRAVE TYPE.
3. TRAUMATIC HYSTERIA.

Symptoms of Traumatic Neurasthenia (Railway Spine).—The nervous symptoms which follow shock and injury, and which take the neurasthenic type, are not always alike, though they bear a general resemblance to each other and to neurasthenic states from other causes. The most common series of phenomena is that which may be grouped under the head of a simple traumatic neurasthenia. The history of a patient is something like the following:

After receiving an injury which is often but slight, but which is usually accompanied with a great deal of fright and emotional disturbance, the patient goes to his home feeling perhaps a little nervous and shaken, but not suffering to any great extent. He goes to bed and sleeps; wakes up

* There are 175,233 miles of railroads in the United States, and in the year 1892, 575,769,678 passengers were carried. One person is killed yearly out of every 3,800,000 passenger trips taken, and there is one death to every 4,600,000 miles traveled in the United States. The frequency of fatal accidents in this country is $4\frac{1}{2}$ times greater than that in the United Kingdom. This is due to the fact that our railroads are more cheaply built and more numerous, and that there is proportionately a greater amount of travel upon them. Collisions are the cause of nearly one half of the train accidents, and these accidents are due in ten percent. of cases to road defects and in about fifty percent. of cases to negligence. (H. G. Prout, *North American Review* and *Poor's Manual*.) As showing the frequency of accidents in a large city, I have obtained, through the courtesy of the New York City Board of Health, the statistics as to the mortality rate from accidents due to injuries received on the elevated, street railroads, and other vehicles in this city.

Deaths caused by street accidents in New York City in the year 1892: elevated railroads, 8; other steam railroads, 56; street railroads, 49; other vehicles, 73: total, 186.

the next morning, feeling not quite as well as usual, but congratulating himself, perhaps, on having gotten off so easily. He resumes his work and finds that he can do it, though with not quite so much ease as usual, and he very likely suffers from some pain due to a strain or bruise that he has received. In a few days, almost always within a week, he begins to notice that he is more nervous than usual, that little things irritate him which did not do so before, that his head seems somewhat confused, and that the effort to work is wearying. His sleep is disturbed, and he wakes up in the morning unrefreshed by his night's repose. He becomes somewhat despondent over his condition, and thoughts of paralysis or some other serious ailment annoy him. His head aches, the pain being more or less constant and diffused, and located usually over the forehead or at the back of the neck. He has unpleasant sensations in the head, such as that of constriction or pressure or scalding feelings. His back also is continually painful, and walking increases it. His nervousness becomes more marked, and close examination shows a little fine tremor in the hands. He has also sometimes creeping sensations over the body or numb feelings in the extremities. He tires very easily. He is emotional, and becomes more despondent as the days go on. Sometimes he has spots before his eyes, noises in his head, or ringing in the ears. Reading is laborious and increases his headache; so also does attention to work. His appetite becomes capricious and his bowels are constipated. He suffers somewhat from flatulency and dyspepsia. His heart palpitates easily, and the pulse is a little accelerated. Sometimes for a few days there is a little weakness about the bladder or irritability of that viscus. His sexual power is diminished; his circulation seems rather poorer than usual. Very slight excitement produces sweating of the hands or coldness of the extremities. He loses a little flesh.

These symptoms may be several weeks in developing, and during this time he may perhaps consult a lawyer about his case. If so, the anxieties of litigation begin to add to and intensify his troubles. He consults a physician, and the physician finds the subjective symptoms that I have mentioned. Objectively, when examined, the physician will discover that the muscular power is somewhat weakened, that there is a certain amount of fine tremor, perhaps in his hands. The knee-jerks and elbow-jerks are exaggerated; there are tender points along the spine and upon the head. On making him stand with his eyes closed there is a certain amount of static ataxia discovered. The pupils are often dilated and mobile, and examination of the visual field shows sometimes a slight contraction, at other times the "shifting type," to be described later. In many cases a degree of peripheral retinal anæsthesia will be discovered. The pulse will be found accelerated, and pressure on a tender point will send it up very rapidly; a slight exertion will also accelerate it. There will be something apparent in the physiognomy of the case which shows the man to be in a nervous and asthenic condition. Sometimes the pains from which the patient suffers in the back and the weariness in the limbs are so great that he remains a good deal of the time in bed. In all cases he will assert most positively that he is unable to work or to take that interest in his affairs that he has previously done. In a good many cases there will be added to the foregoing picture a number of symptoms due to some local injury: for example, the arm may have been wrenched or bruised, and the result may be a certain amount of neuritis

and weakness or pain in that member; in other cases the back may have been so severely sprained that the typical symptoms of spinal irritation ensue, and this is particularly apt to be the case when women are injured. In other cases, again, the legs may have been hurt to such an extent that a sciatica or some other form of neuralgia develops.

The foregoing symptoms, varying in amount and degree, will last, with little change, for a very long period of time. If the case goes into litigation, there is added the worryment occasioned by having to go through the disturbing experiences of trial by jury. In many cases, after the trial has been settled and damages awarded or otherwise, the patient begins to mend, and in a certain proportion of cases he gets completely well. This is not by any means invariably the rule; it may be said, on the contrary, that as a general thing a person who receives a serious shock to his nervous centers, resulting in a genuine and grave neurasthenia, is rarely entirely the same afterward. However, after a variable period of months or years most cases get into a state of at least comparative health. Their nervousness gradually diminishes, their sleep improves, the pains successively lessen, the appetite is restored, the flesh is regained, the power of work and enjoyment in life come back.

MIXED TYPES.

Traumatic Spinal Irritation.—Besides the foregoing general and common symptoms of traumatic neurasthenia, it sometimes affects persons in other and special modes. For example, the symptoms of spinal irritation may predominate. These form the cases which were described by Erichsen under the head of spinal anæmia and hyperæmia. Their symptoms differ little from those described in systematic works upon spinal irritation. These patients are usually women. After receiving an injury which may have been slight and which may not necessarily have directly injured the spine, they very soon complain of pains in the back and particularly the lower end of the spine and in the back of the neck. These pains are so severe that they soon give up attempting to walk about, and finding that they get some relief and comfort in bed they go there and there remain. While keeping perfectly quiet the back gives them comparatively little discomfort, but attempts to sit up for a long time, to ride, or to walk, cause such distress that they are speedily abandoned. The pains are of a heavy, aching character, increased until they become very sharp when attempts at movement of the trunk are made. There is a great deal of tenderness to pressure along the spinal processes, some of these processes being much more sensitive than others. The most sensitive points are usually the back of the neck and the upper dorsal vertebræ, and down in the lumbar region. There is some pain also upon pressure alongside of the spinal processes. Painful points often vary, and even in a single examination the patient may complain, and complain honestly, of different sensitive vertebræ. They suffer much from headaches. The arms are often weak, so that attempting to sew or write or hold a book causes pain in the neck and shoulders. The legs are also weak and the circulation poor. There is sometimes palpitation of the heart and precordial distress. A certain amount of dyspepsia is always present, and constipation is the rule. The patients often have attacks of vomiting, and attempts to feed them require much care. The menstrual functions become irregular, and if it

be a male the genital functions are weak. The knee-jerks are exaggerated, but there is never any true ankle-clonus. There is no anæsthesia of the skin, and we rarely detect any anæsthesias of the special senses. I have never been able to find contraction of the visual field or of the aural field, nor do, in this country, the anæsthetic stigmata of hysteria present themselves. The patients are mentally very emotional and depressed. They complain much about their pains; they are irritable and exacting; their sleep is very poor and often requires hypnotics. They have frequent intense headaches, which are usually of a congestive character—that is to say, are associated with feelings of fullness in the head and throbbing, spots before the eyes, and ringing in the ears. If such patients have become thoroughly bedridden, their symptoms are extremely apt to become chronic, and they form a very difficult class to deal with. After a time the legs waste considerably, and there may be even a certain amount of actual paralysis—that is to say, the limbs are too weak to support them and too weak to respond to any severe test of muscular strength. Electrical examinations, however, never show any of the evidences of degenerative reaction. Cases of this kind may continue for two or three years, their symptoms then gradually ameliorate, and, as a rule, they get better, if not entirely well. A few cases continue with more or less painful spines and weak extremities for a great many years.*

Hypochondriacal Neuroses.—There is another form of traumatic neurosis, which is, strictly speaking, a psychical disorder or form of hysteria. It is characterized by the existence of certain fixed ideas or a fixed idea regarding some morbid condition of the body. The special direction or point toward which the mind is fixed varies somewhat, being often determined in a measure by the original injury. Sometimes it is simply a painful spot in certain parts of the body, such as the back or the head; or it may be a painful joint, and develop into a so-called “hysterical joint”; sometimes it is a morbid condition of the stomach or of the sexual functions which alarms and depresses the patient. The special symptom about which the patient’s mind is centered is the only prominent trouble that he has, but it is generally associated with a certain amount of dyspepsia

* *Traumatic Functional Paralysis.*—There seems to be no doubt that occasionally patients suffer from functional paraplegia, which is essentially of spinal origin rather than cerebral. The cases resemble in many respects those just described. The patients who suffer from this condition are generally women at the adolescent period of life, and their paralysis occurs in connection with symptoms of pains in the back and a general neurasthenic state. These cases have often been described under the heads of *spinal anemia* and of *hysterical paraplegia*. Bastian, in his work on *Hysterical or Functional Paralysis*, believes them to be due to a functional disorder of the anterior cornual cells or of the pyramidal tracts in connection with the anterior horns. The paralyzes of this kind are not by any means as a rule caused by trauma, but more often they develop gradually through the influence of overwork or some exhausting disease. Occasionally, however, they do develop after an injury. In some there is a history of tuberculosis. The onset of the trouble is usually gradual. The patients suffer from a progressive enfeeblement of the lower limbs, associated with pains in the back and a sense of heaviness and weariness in the affected extremities. The circulation of the lower limbs is somewhat feeble, and the skin looks white and feels cool and clammy. There is no decided muscular atrophy, and there are no qualitative changes in the electrical reactions. The knee-jerks and skin reflexes are usually exaggerated. No special group of muscles is affected more than others. There may be a little bladder weakness, but it is not serious or permanent. There is rarely any anæsthesia, and if present it is only very slight in grade. There is pain in the back

and constipation, with a condition of impaired nutrition, general weakness, a good deal of mental irritability, and always with mental depression. The most searching examination of the bodily functions fails to discover any sign of organic disease or any evidence of serious disturbance of the nervous function; yet despite this the patient incessantly complains and talks continually about his sufferings. This immense disproportion between the subjective suffering of the patient and the objective symptoms constitutes the characteristic feature of the disorder. It is not accompanied, I should add, with those stigmata which are associated with decided forms of neurasthenia.

This neurosis, which is also called *hypochondriasis*, usually occurs in persons who have a psychopathic history—i.e., in persons who have always been self-centered and of a neurotic temperament. Cases of traumatic arthralgia and so-called topoalgia belong to this class. In connection with trauma true hypochondriases and arthralgias are in my experience rare; though these conditions not infrequently complicate genuine neurasthenic states. A somewhat typical case of this form of disorder is the following:

J. K., aged twenty-eight; nativity, United States; single; occupation, bartender. The patient gives a family history which is comparatively free from neurotic incidents. His father suffered from chronic headache, but was otherwise healthy. There is no tuberculosis in the family. He himself had always been a fairly healthy man, though of a nervous and somewhat irritable temperament. He had megrainous headaches, beginning at about the age of twenty-two. Three and a half years before I saw him he had a fall through a trap-door. He got no severe injury and was not stunned. He got up and went about his work as usual. In the course of six or eight weeks he began to notice a pain developing in the back between the shoulder-blades, which he put into relation with the strain experienced during the fall. This pain was of a dull, aching character; it did not pass around the chest, but was confined to an area about the level of the fourth dorsal vertebra on the left side, between the vertebra and the scapula. The pain was constant, never disappearing during the day-time, not improved by posture, not

sometimes, but not in the legs. The paralysis may be incomplete, the patient being able to stand and take a few steps; sometimes, however, it is so severe that the patient is bedridden, although she never loses entirely the power of moving the lower limbs while lying in bed. After a time contractures take place in some cases and the legs are drawn up. Along with this a considerable amount of wasting occurs, but there are still no electrical changes characteristic of degeneration. The spine is tender to pressure, and the patient often suffers great distress in the back, particularly in the lower part and in the cervical region. The arms are usually unaffected. The patient presents absolutely none of the characteristic hysterical stigmata, such as anæsthesias of glove and stocking type, contracted visual field, pharyngeal anæsthesia, disturbance of smell and taste, and hysterical crises. In fact, the picture of the case is very much like that which I have described under the head of spinal irritation; the difference being only that the dominant symptom in this class of cases is the paraplegia, while the spinal and other pains are simply associated with it. The patients often take a fair amount of food, though they are subject to digestive disturbances and attacks of vomiting. They have severe headaches at times. The heart action is not strong, and the arterial tension is low. Such forms of paralysis are often very obstinate, lasting usually from one to four or five years. As a rule the patients get well, and an active, vigorous treatment is an extremely important factor in securing this end. In fact, the prognosis is vastly changed in accordance with the character of the therapeutic measures which the patient receives.

increased by movement or work, and not relieved by rest. At times there were exacerbations of it, so severe as to render him utterly miserable, though they never incapacitated him for his work. His general health continued good. He was able to eat and digest his food, to sleep, and to perform his daily work. His habits were good; he neither drank nor smoked, except in great moderation. No form of treatment produced the slightest effect upon the suffering, and at the end of three and a half years he was brought to me for examination.

He was a man of strong and muscular build, somewhat thin in figure, but not emaciated in any degree. He presented some symptoms of a catarrhal dyspepsia, but other than that there were absolutely no objective symptoms, nor were there any of the marks of hysteria. On examining the painful area I discovered it to be located about as stated, between the third and fourth dorsal spines, covering an area of about two inches in diameter between these spines and the inner border of the scapula. Here there was some hyperæsthesia to touch and some tenderness on pressure. The pressure and manipulation of the spine produced no pain, nor could pain be elicited by any movements of the trunk or shoulders. The pain was relieved only temporarily by injections of cocaine. It was not helped by cauterization, blisters, or counter-irritants of any kind. In fact, no local application or any internal medication did the slightest good.

UNUSUAL TYPES.

There are certain peculiar forms of traumatic neurosis which cannot be classed strictly under any of the foregoing heads. These atypical forms of traumatic neurosis have not been observed in sufficient number as yet to enable us to make of them a type. I shall therefore not attempt a systematic description of them, but shall place on record a case which illustrates very well the class of injury to which I refer, adding that in atypical forms the probability of simulation or exaggeration is always very great.

A. D., aged forty-five, married, had always been a strong, hard-working, vigorous man of temperate habits, and without any history of alcoholism or syphilis or previous nervous disorder. In April, 1892, while standing in a car, he was thrown down in the aisle by the force of a collision. He was temporarily stunned, but got up, sat in his seat very much frightened, but unconscious of much injury. He got to his depot in fifteen or twenty minutes, then found he could not walk, and had to be lifted to a carriage which conveyed him to his home. His physician, who was then called, found that he had a contusion of the right parietal boss, severe pain in the lower part of the back, numbness in the left leg below the knee and in the right arm, in the course of the distribution of the ulnar nerve. There was no anæsthesia and no distinct paralysis, but rather a weakness of the legs and of the right arm. Tremor was also observed in the two upper extremities. The temperature was ninety-seven degrees. No bladder or rectal troubles. He suffered considerable pain in the back and in the leg. He was placed in bed, and continued in about the same condition for a week or two, then gradually improved so that he could sit up and walk a little. During this time he had choking sensations at times. He slept and ate pretty well, but was nervous,

depressed, emotional, and irritable. He had during this time a slight attack of herpes zoster over the course of the right twelfth dorsal nerve.

He was seen by me about six months after the injury. The physical examination at that time showed him to be a man of good color, not anæmic, well nourished. He walked slowly, using a cane, and spreading his feet apart. He was unable to stand with eyes closed. There was no atrophy of any muscular groups in any of the extremities. He had a fine tremor of considerable amplitude, continuous in character, increased on extension of the arm, and slightly on volitional movement. There was some tremor in the legs and a very little in the face and tongue. On making him shut his eyes and show his teeth a peculiar sharp contraction of the platysma myoides was produced (perhaps natural to him). The tactile, temperature, and pain sensations were all normal. There was a slight degree of ataxia in the legs, but none in the arms. There was a slight amount of tenderness about the region of the third and fourth lumbar vertebræ. Pressure and the application of heat produced some wincing and reflex contraction of muscles near the spinous processes. He could move the back and trunk in all directions. Pushing on his legs caused pain in the back. This lumbar pain never radiated around the waist or darted down the legs. There appeared to be considerable weakness in both legs, more in the right, and there was some weakness in the right arm as compared with the left. No fibrillary contractions. The knee-jerks were exaggerated slightly, but there was no clonus. There was also exaggeration of the elbow-jerks. Electrical reactions of the leg and arm muscles were normal or slightly increased. There was no hyperæsthesia or tenderness except in the back. The special senses of smell and taste were normal. The hearing was normal except in the left ear, where he was deaf to high notes, bone and aerial conduction being good. The pupils were small, equal, reacted to light and accommodation. Vision was good, and there was no contraction of the visual fields. The pulse was seventy-two and the heart action normal. The pharyngeal reflex was normal, and the choking-attacks which he had once suffered from had ceased. The urine was normal. He suffered from cold feet and some evidences of vasomotor weakness.

The diagnosis at the time was a traumatic neurasthenic condition, plus some local injury to the spinal ligaments and to some of the nerves issuing between the twelfth dorsal and first lumbar, and between the third and fourth lumbar on the left side.

This case, while to a large extent functional, was perhaps complicated with a certain amount of injury to spinal nerves, and certainly with much exaggeration. The patient got practically well.

Special Symptoms.—Having gone over the symptoms of the various types of traumatic neuroses and given some illustrative cases, I propose now to discuss some of the special symptoms which we find in these cases, and which are more or less characteristic.

First of all, I shall take up those symptoms which belong to the *psychical sphere*, and which include mental irritability and depression, lack of attention, lack of power of concentrating the attention, feebleness of memory, and weakness of volitional power. Associated with these may be classed the headaches, vertigo, paræsthesia of the head, including such symptoms as insomnia, head-pressure, feelings of constriction and fullness. Of these symptoms the insomnia is one which is perhaps most characteris-

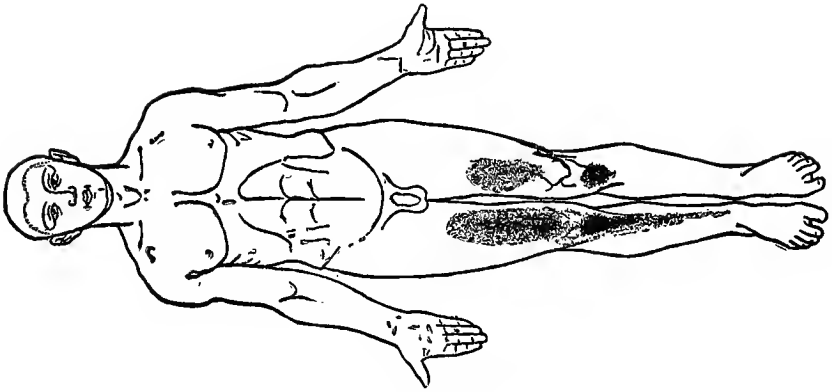


Fig. 36.

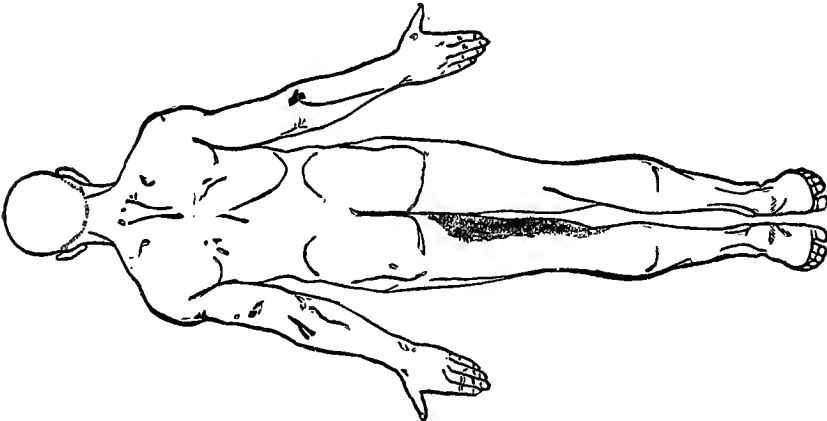


Fig. 35.

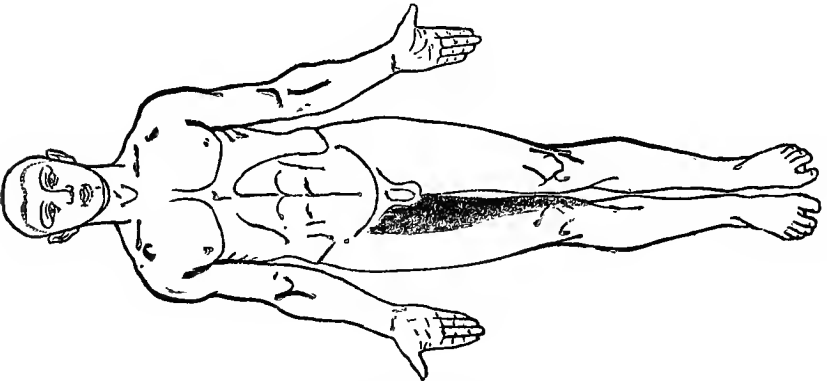


Fig. 34.

Diagrams showing in Figs. 34 and 35 the area over which a cutaneous irritation causes a reflex contraction of cremaster; showing in Fig. 36 the areas over which a slight blow produces a knee-jerk. From a patient with a traumatic neurosis.

tic, and which may be looked upon to a certain extent as a symptom of an objective character. Sleep is usually very much disturbed by bad dreams, and it is characterized especially by the fact that when the patients wake in the morning they have none of the sensation of restfulness that comes from healthful slumber. The emotionality and irritability of patients are also things which are usually noticed by others, and are in a measure objective. Little things, which never before annoyed the patient, now are become a source of constant annoyance; they get angry at slight provocation, and become very disagreeable persons to live with. They often cry over trivial circumstances, and also develop certain fixed and morbid ideas with regard to their condition and the future. The patient reacts very sensitively to stimulants and narcotics.

The Muscular and Motor Symptoms.—Tremor is a symptom which is very frequently present. It is fine in character and vibratory, and brought out best by making the patient extend the hands and fingers. It is increased readily by a slight amount of excitement and by narcotics and stimulants, such as tea, coffee, alcohol, and tobacco. The muscular strength is somewhat reduced, as shown by dynamometer tests and by the attempts of the patient to do physical work. There is usu-

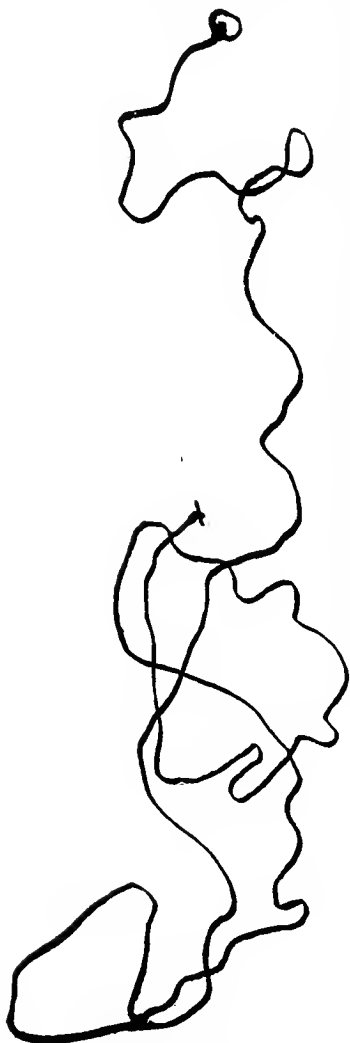


Fig. 37. Eyes closed.



Fig. 38. Eyes open.

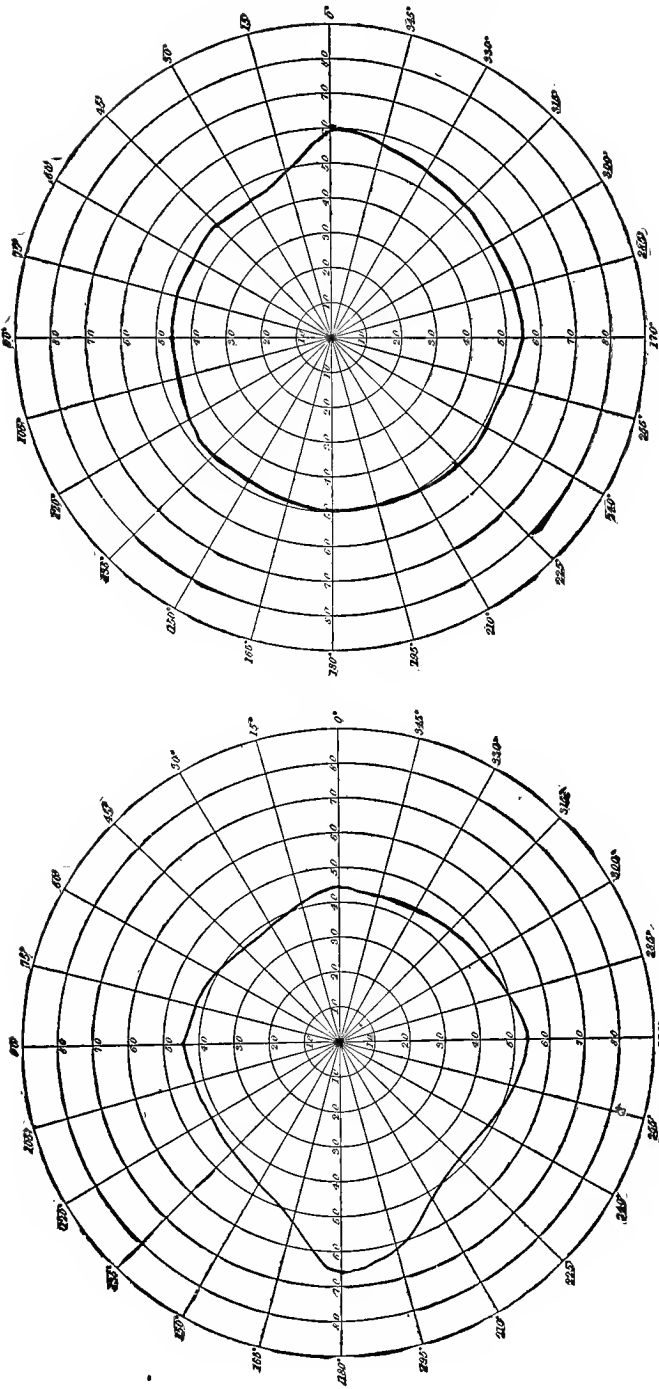
Ataxiagram showing swaying of body.

ally a certain amount of wasting of muscles, but this wasting is general, and does not affect special groups. Questions as to the normal difference in the size of the extremities often arise. It has been found by measurements of normal adults that the size of the calves of the legs is equal in about one third of the cases, and that the right is larger than the left in about

one third, while the left is larger than the right in somewhat less than one fourth of the cases. The differences never exceed five eighths of an inch, and rarely reach that extent. (Walton.) The differences in the size of the arms are more considerable relatively, depending upon the occupation and habits of the individual, so that the exact figures cannot be given.

Twitching motions of the face and a slight amount of fibrillary contraction take place. In these cases there is no locomotor or motor ataxia, but there is always in my experience a considerable degree of static ataxia, varying with the nervous depression and irritability of the patient. This test for static ataxia I consider an objective one of considerable value. It must be made, however, by means of instruments of precision, which record accurately the amount of swaying of the patient with the eyes closed and with the eyes open. (See Figs. 37 and 38.) Something further will be said upon this point in connection with the diagnosis. The tendon-reflexes are, as a rule, considerably exaggerated. This exaggeration is shown by the quick and extensive movement of the feet on striking the patellar tendon, and by the fact that it can be brought out by striking the leg on or below the knee-cap and on the quadriceps muscle above for a considerable extent. This extensive area over which a blow will bring out a reflex contraction is an objective indication of nervous irritability of value in diagnosis. There is also an increase in the activity and extent over which the skin-reflexes can be brought out. This is particularly well studied in connection with the cremasteric reflex. (See Figs. 34, 35, and 36, on page 314.)

In the sensory sphere there are a number of symptoms which call for special study. In traumatic neurasthenia there is no anæsthesia of the skin unless some complicating organic injury or some hysterical process be present. In this statement I know that I am at variance with the teachings of some of the German neurologists. Oppenheim in particular lays stress upon the fact that in traumatic neuroses there are conditions of slightly diminished cutaneous sensibility as well as genuine anæsthesia. This diminished sensibility or hypæsthesia is, however, one I have never been able to satisfactorily demonstrate in any except patients who presented distinct hysterical marks of other kinds or in cases of organic neurosis, and the difficulties in the way of establishing a diminished sensibility which may be considered pathological are so great that the symptom is, in my opinion, even if present, one of little importance. There is a good deal of tenderness along the spine (in sixty to seventy-five per cent. of cases) at various points; also upon the scalp, particularly at the sutures of the bones; and sometimes in other portions of the body. This tenderness on pressure is looked upon as an objective symptom, and is, I believe, admitted as such in courts of law. When the test is properly applied it has a certain amount of value, because the patient will not always wince properly if he is pressed unexpectedly on points that are not really tender, and because, on the other hand, the skillful application of sudden pressure will bring out certain genuine manifestations of pain. In addition to that, there is in some cases a rather sudden acceleration of the pulse when a tender point is pressed. This symptom was first described by Mannkopf in 1835 and is called after his name. Its presence indicates an undue irritability of nerve centers and has objective importance, though it does not show the existence necessarily of a traumatic or other neurosis.



Left Eye. Right Eye.
Fig. 89, showing limitation of visual field in a patient with a traumatic neurosis.

Visual Troubles.—In traumatic neuroses without hysterical complications there is, as a rule, no concentric limitation of the visual field. Still, slight limitation occurs in a minority of cases, and in nearly all instances in which the symptoms are of a severe type there is evidence of a certain amount of fatigability of the visual field. I mean by this that there are evidences of a very easy tiring of the periphery of retina. The existence of this condition has been pretty well established by the labors of Förster, König, and others. My own experience is that in attempts to map out the visual field in these cases there is great conflict of statement on the part of the patients with regard to the position of the object that is moved before them, showing that their power of attention

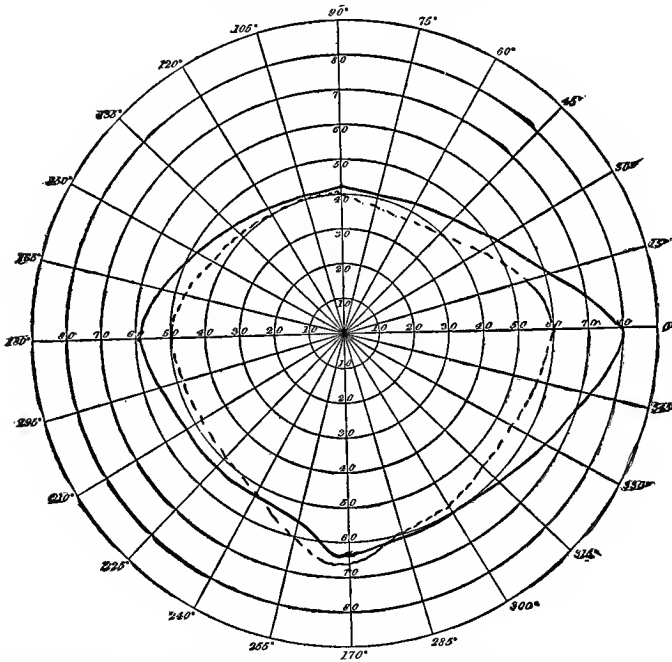


Fig. 40, showing Förster's "shifting-type" in a case of traumatic neurosis. The continuous line represents the field of vision as the test-object is moved from periphery to center; the dotted, as the object is moved in the reverse direction.

is easily exhausted, and that their power of perception weakens along with it. In some cases one finds a general limitation of the visual field of a moderate degree, as seen in the diagram, Fig. 39. In other instances one finds a condition which has been described by Förster and König, and is known as the Förster shifting-type (*Schiebungstypus*). The characteristic of this type is that the field of vision which is mapped out by bringing an object from outside toward the center is greater than the field of vision mapped out by bringing an object from the center of vision toward the periphery. If, for example, an object is placed to the temporal side of the right eye and gradually brought forward until it comes into the field of vision, it will be seen, we will say, at eighty-five degrees. The object is then brought gradually forward until it reaches the center

of the visual field; it is held there an instant and then moved gradually back. As it is moved back it will be lost to view, we will say, at eighty degrees. The object is then moved in the same way on the nasal side, and above and below, with the same result. An example of this is shown in the diagram appended here. (See Fig. 40.) There is sometimes a disturbance in the color sense in these conditions, and we often find evidence of muscular asthenopia, especially loss of power of convergence. (Huebscher.) Other symptoms are a visual weakness, with at times spots before the eyes, and pain and tenderness in the eyeballs and about the brow. Patients often complain of total inability to read for any but a very short time. Attempts to read produce headache, mental confusion, and a sense of prostration.*

The sense of smell is sometimes found to be impaired or abolished after injuries of the head. It is, however, in most cases, if not all, an evidence of local disorder or of some actual organic disease. Thus, among twenty-two cases of head injury which were followed by anosmia, Von Bergmann found evidence of fracture of the base of the skull in ten. It is to be remembered, also, that anosmia is sometimes a symptom in *tuberculosis dorsalis*, and is sometimes produced by syphilis.

Disturbances in the sense of taste are very common in hysteria, but not in traumatic neurasthenic conditions. In this latter class of cases there may be an undue irritability of this sense or some perversion due to local conditions or digestive troubles, but that is all.

The disturbances of the special sense of hearing consist of noises in the ear, hyperacusis, and sometimes slight deafness. Baginsky has described a deafness occurring in traumatic neurasthenia, and due to concussion of the labyrinth. It is associated with noises in the head and sometimes with vertigo. It occurs especially after a physical injury. Sometimes vertigo occurs and becomes extremely annoying, and cases have been described in which the dizziness was so severe as to produce a condition resembling Ménière's disease. In my own experience I have found ringing in the ear to be the most distressing and common symptom. This ringing is generally continuous, not much modified by posture, and not of the pulsating character, but rather continuous and persistent. There is no limitation of the field of hearing—that is to say, patients can hear very high notes and very low notes—but in a considerable number of neurasthenics one finds a slight amount of deafness of bone conduction, generally, however, in only one ear.

Laryngeal Symptoms.—Benno Holz reports two cases of aphonia nervosa due to trauma and associated with paresis of the abductors. Paresis of this kind is rare, but does occur. Paralysis of the dilators of the larynx, however, has never been described and probably never occurs. (H. Burger.)

Vasomotor Disturbances.—In a large proportion of traumatic neuroses one finds evidences of vasomotor weakness. This is shown in the cold hands and feet, the tendency to perspire easily, and sensations of heat and flushing. There is also in many cases a considerable degree of dermatography. On drawing a dull-pointed instrument over the skin of the back or chest a broad red line will soon develop, which lasts some-

* Wilbrand finds often some CLV Field in neurasthenia, but most others disagree (König, Hochwardt, Topolanski). There is, however, not rarely a limitation of color field, especially for blue. (*Neur. Centralbl.*, 1893, p. 584.)

times for half an hour, and is much more marked than in normal persons. This vasomotor disturbance, however, is often found in healthy people, and may depend upon other things than a neurasthenic state.*

There sometimes develops a local cyanosis of the extremities, so that the fingers or the toes become cold and white, and resemble the condition known as Raynaud's disease. A few cases have been reported in which a local edematous swelling developed in different parts of the body after trauma. These local swellings are known as angioneurotic edema. They do not occur necessarily near the part injured. They develop rather suddenly in the form of circumscribed swellings, which are usually somewhat pale, though they may have a reddish tinge, and they do not pit on pressure. They may last for a few hours or days and then disappear.†

Traumatic neurasthenics are often liable to perspire excessively. This tendency to sweat is, however, not a uniform symptom, and at times there may be only a local sweating. Thus the patient complains of an area of profuse perspiration in the small of the back, or on the legs, or perhaps only on one side of the body. Urticaria and eruptions of a similar character sometimes develop. (Kriege.) A case of bloody sweating has been reported by Ehrig. It occurred in a trapeze performer, who fell and struck his head. The local bloody sweat took place on the head, and was accompanied by no other sign of sweating.

The bodily temperature has been found at times subnormal, while others have described attacks of feverish character. In my own experience I have found no marked or important changes in bodily temperature unless there was an hysterical factor in the case. It is well to bear in mind, however, the experiments of Lehmann (*Centralblatt f. Nervenheilk.*, May, 1890), who found that, by directing attention to the subject of bodily temperature, individuals who were not previously hypnotized could raise the temperature as much as half a degree Fahrenheit.

The pulse is often abnormally frequent in the traumatic neuroses, ranging from 90 to 100, and if not frequent it is apt to be irritable, so that slight physical exertion and slight mental excitement accelerate the beat of the heart greatly. This increased pulse-frequency and abnormal irritability of the heart constitute objective symptoms which may be considered to have much positive value in diagnosis. The average pulse in fifty-nine cases, as determined by Walton, was for males 90.5, and for females 95.75. This rapidity of pulse is a symptom on which German writers lay much stress, and Oppenheim has noted some cases in which as a result of persistent rapid heart-beat some dilatation and compensatory hypertrophy of the heart took place. The increased pulse-rate when pressure is made on a tender point has already been referred to.

The condition of the urine in traumatic neurasthenics is also somewhat characteristic. It is apt to vary much in quantity, sometimes the patients suffering from polyuria and again from a rather condensed urine. There is at times an irritable bladder and tendency to frequent

* Ludwig Man (*Berlin Klin. Wochenschr.*, July, 1893) finds a lessened electrical resistance of the head in traumatic neuroses. He uses small electrodes and weak currents (3 elements). He puts one electrode on the neck, the other on the forehead. He finds the normal resistance 4000 to 6000 ohms; in neuroses, 1500 to 2500. Eulenberg, using larger electrodes, 6x12 cm. and 10 elements, finds the normal only 1200 to 1600.

† Guignon reports a case of blue edema with anæsthesia after a fall. (*Op. cit.*)

micturition. The urine in most cases presents a relative excess of phosphates, and the earthy phosphates in particular are increased disproportionately.

Methods of Examination and Diagnosis.—I have not space to go over in detail all the methods which are required in a thorough examination of a case of traumatic neurosis or traumatic neurasthenia. The details of these methods are given in text-books on nervous diseases. It will be sufficient for my purpose now to give simply an outline of the general plan to be pursued, and then to call attention to certain special methods which are of importance in the determination of objective symptoms and in the detection of simulation. The physician who is examining a patient should proceed in a certain regular and systematic way. An outline of the plan to be followed is given in the accompanying scheme :

1. Preliminary facts: name, age, sex, condition, nationality, occupation.
2. Family history.
3. Personal history.
4. History and causes of present disease.
5. Physiognomy of case.
General appearance, nutrition, abnormalities, gait, etc.
6. Disorders, if any, outside of nervous sphere.
Digestion, heart, lungs.
Temperature, respiration, pulse, urine.
7. Psychological sphere: mental condition; sleep, etc.
8. Motor sphere: paralysis; tremor; abnormal movements; atrophy; electrical and mechanical reactions of muscle and nerve; speech.
9. Sensory sphere. General sensations: vertigo; pain; paræsthesia. Special sensations: tactile, temperature, pain, muscular (ataxia); vision; hearing, taste, smell.
10. Reflexes superficial, deep, organic.
11. Trophic, vasomotor, and secretory disturbances.

The examiner should bear in mind the importance of weighing all the evidence as impartially as possible; of allowing only the proper weight to the statements of the patient; of securing evidences of organic disease, evidences of conditions which the patient cannot simulate; and he should bear in mind also that while the patient may be perfectly sincere he has so much at stake that he will often exaggerate. It is well to secure a careful history of all the details of the accident, and to have the history corroborated from several sources. The facts with regard to the condition of the patient subsequent to the injury should also be gathered with the greatest care. The physician must in all cases assume an attitude which is not sympathetic but critical; he must, even, perhaps, at the expense of a certain apparent unkindness, investigate every statement and every phenomenon that is presented in connection with the case. He should also take especial pains to inquire into the previous health of the patient. It has been found by Walton that in seventeen out of a hundred cases there was some nervous or organic disease before the injury occurred, and investigations by other authorities have led to similar results. Having secured a full and complete history of the case, the physician proceeds to the direct physical examination of his patient. For the purpose of carrying out such an examination in all

its details a considerable number of appliances are necessary in many cases. The following list may be perhaps of some use to those who desire to equip themselves for this kind of work: a stethoscope; appliances for examining the urine; a galvanic and faradic battery with milliamperemeter, sponge electrodes, and a wire brush with interrupting-handle; a dynamometer, esthesiometer, and ophthalmoscope; a perimeter; a Galton's whistle; a tuning-fork; a percussion-hammer; and materials for testing the senses of smell and taste. In addition to these one may sometimes have use for a sphygmograph, and in my own work I am accustomed also to use special dynamometers for the legs and extensor muscles of the arms; a concealed needle for testing the sense of pain; metal tubes one centimeter in diameter, which are used in testing the cold and heat sense according to Goldscheider's method; weights for testing the muscular sense; a bass-viol string for testing low notes; an instrument for testing ataxia and measuring its degree; also an instrument for testing slight degrees of tremor.

Anatomical.—Preliminary to a detailed description of methods of examination, I have thought that it would be helpful to the reader to insert some anatomical diagrams which could be referred to in the course of an examination or in preparation for it. Fig. 41 illustrates the comparative size and relations of the brain and spinal cord as they appear when removed together from the body. Fig. 42 shows the relations of the brain and cord in their normal position in the body. Fig. 43 shows the points of exit of the cutaneous branches of the spinal nerves. Fig. 44 shows the positions of the spinous processes of the vertebræ (indicated by the squares), the point of exit of the spinal nerves (indicated by the horizontal lines), and the relation of the points of origin of the spinal nerve roots (indicated by the dotted lines) to the spinous processes. Thus the third lumbar nerve is seen to originate at a point between the tenth and eleventh dorsal spines. Figs. 45 to 52 show the normal distribution of the sensory nerves, and are of help in mapping out the distribution of anæsthesia, and in determining whether this corresponds to the area of any given nerve or nerves. Such facts are of importance both in localizing lesions and in questions of diagnosis between organic and hysterical troubles. (See Traumatic Hysteria.)

It is customary, before proceeding to test the condition of the nervous system, to examine the other organs, and some points may be given here with regard to this matter.

Tests of Heart Action.—I have already referred to the fact that the heart-beat is sometimes abnormally rapid, and to the fact that pressure upon a tender point, particularly one near the spine, will produce an acceleration of the pulse-rate. According to Mannkopf such pressure will raise the pulse from 84 to 92 or from 100 to 120, and this acceleration lasts for two or more minutes; the pulse also gets smaller. This test is known as the *neuralgic cardiac reaction*. In examining the pulse it is important to feel the two radial arteries or the two carotids or the two femorals at the same time, the physician placing a finger of each hand upon the two arteries. In this way he can determine whether the pulse on the two sides is synchronous, and may possibly detect the presence of an aneurism. The sphygmograph will in my experience usually give a curve of low tension and one that is somewhat characteristic of the neurasthenic heart. I have taken the tracings of twelve typical cases of

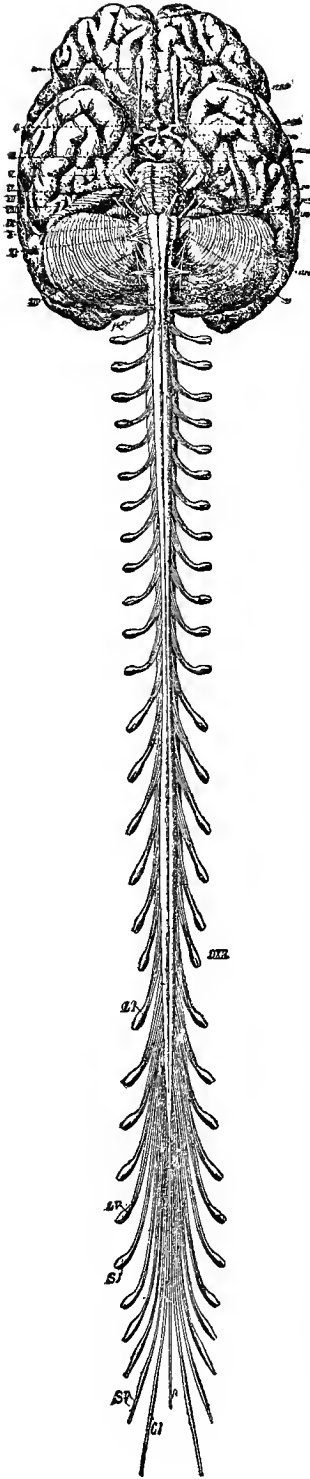


Fig. 41, illustrating the comparative size and relations of the brain and spinal cord as they appear when removed together from the body.

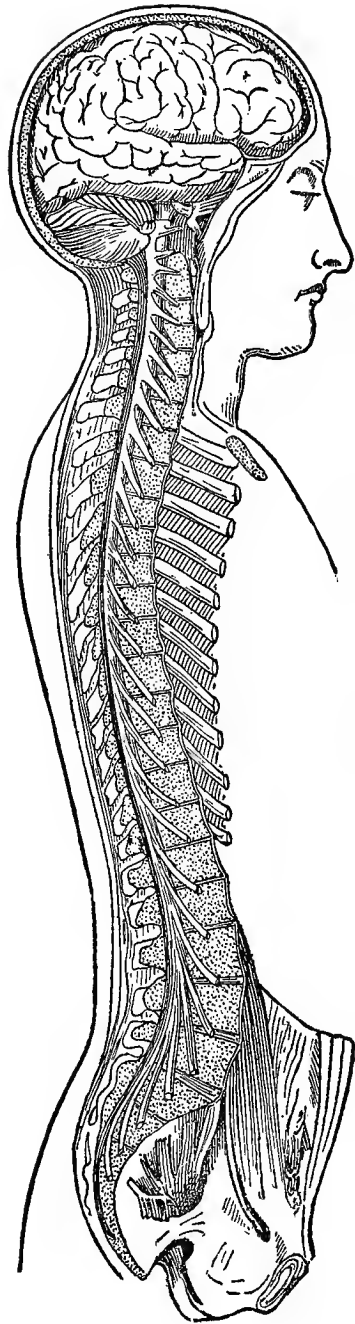


Fig. 42, showing the relations of the brain and cord in their normal position in the body.

neurasthenia and superimposed them, producing as a result a sphygmogram, which may be considered to represent the neurasthenic type.

The characters of the urine in traumatic neurasthenia I have referred to already under the head of Symptoms.

Tests for phosphates, both earthy and alkaline, for albumin, casts, sugar, uric acid, and indican should be made.

Tests for Motor Nerves and the Muscles.—The existence of tremor or spasm is of course easily determined. It is very important, however, to study carefully the character of these disturbances. The tremor is usually of a fine and vibratory character, the rate of vibration being about ten per second. It is best produced by making the patient extend the hand and spread out the fingers. It does not increase on voluntary motion, and is very slight when the patient's extremities are relaxed and quiet. The head is not affected, and when there do occur some oscillatory or nodding motions of the head it is significant of some hysterical condition or some serious neurosis. Slight muscular twitchings of the face and extremities are not at all rare symptoms, and are of some importance as indicating motor irritability. When a paralysis exists it is of extreme importance to determine whether it be of a functional or organic character. The points for determining this are given in detail also in standard works on neurology, and they cannot be entered upon fully here. It is important, however, to bear

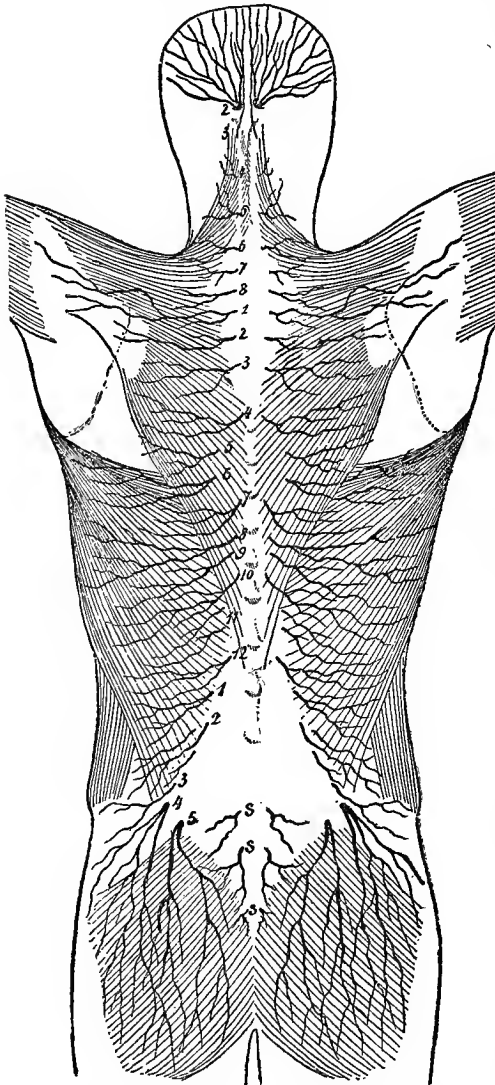


Fig. 43. showing the points of exit of the cutaneous branches of the spinal nerves. (Van Gehuchten.)

in mind that in functional palsies there is little or no atrophy, and that the same fact applies to palsies due to brain disease, except in children. A certain amount of wasting occurs in the limbs from disuse, but in my own experience this

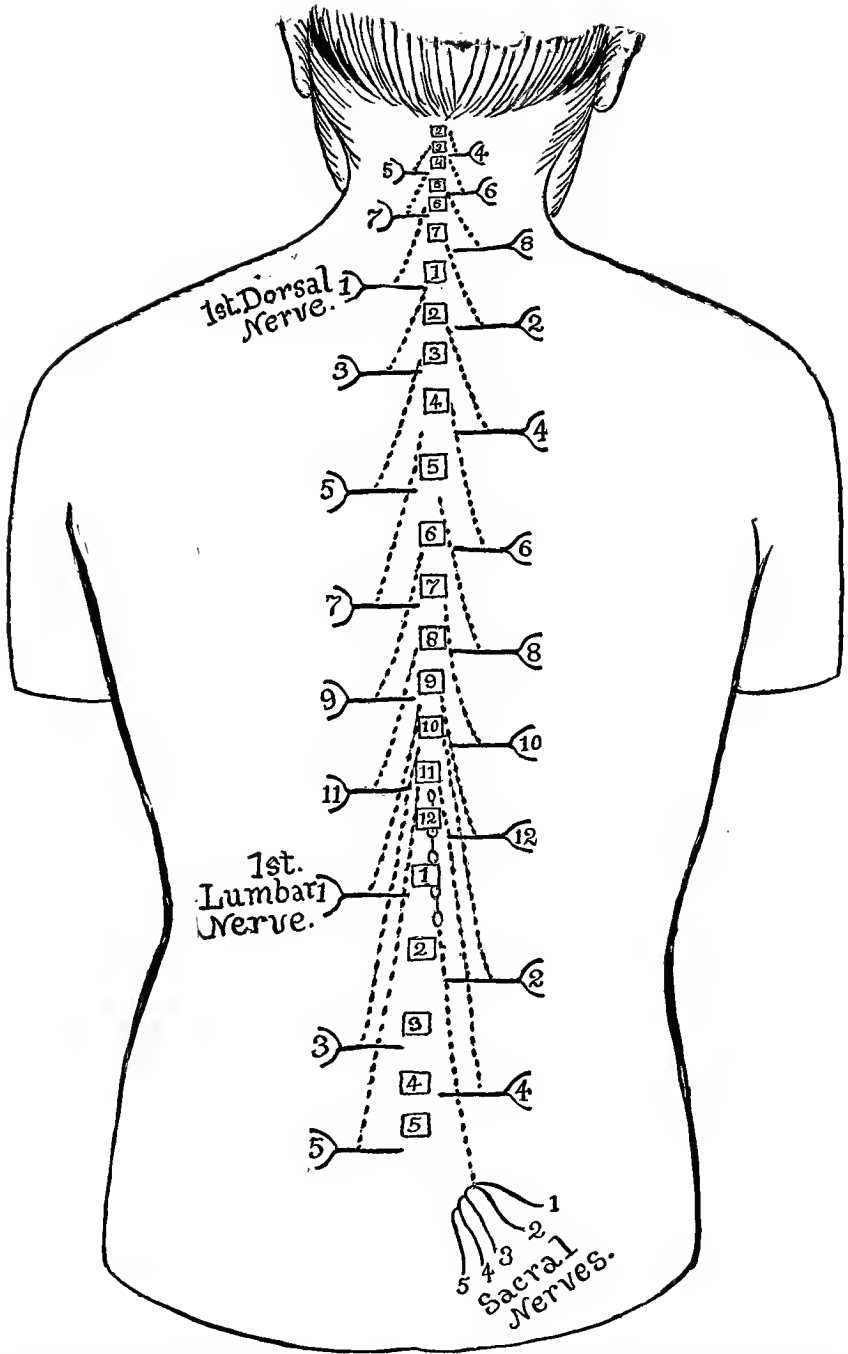


Fig. 44. showing the position of the spinous processes (indicated by the squares), the points of exit of the spinal nerves (indicated by the continuous lines), and the points of origin of each nerve (indicated by the dotted lines). Thus the fifth lumbar nerve originates at a point between the eleventh and twelfth dorsal spines. Drawn from a photograph of a man on whom these points had been mapped out.

rarely exceeds half an inch for the leg, and hardly as much for the arm. (See p. 316.) The most important means of determining the organic character of a paralysis is by the use of electricity. I feel very confident that I am correct in stating that degeneration reactions are never found when the paralysis is of a functional type, and that they do not occur in hysteria uncomplicated with organic disease. By a "degeneration reaction" I mean a diminution in the contractility of the muscle to the faradic current, with a peculiar sluggishness of reaction when the current is passed through the muscle. Sometimes there are changes in the relative excitability to the two poles, so that the positive pole on closing the current gives a stronger reaction than the negative; and sometimes the contraction is not only sluggish but diffuses over the whole body of the muscle. There are, I believe, some electrical changes which to a certain extent are characteristic of a neurasthenic state—that is, of a state of irritability and weakness of the nervous centers. I think, however, we cannot yet positively formulate what these are. Rumpf has laid down three tests for the traumatic neuroses: first, pressure on painful points, giving rise to acceleration of the pulse (Mannkopf's symptom); second, a quantitative reduction in galvanic irritability of motor nerves; third, a fibrillary contraction of the muscles, which lasts sometimes after the current has passed through them, and which extends into adjoining muscular groups. This he calls the *traumatic reaction*. The second symptom occurs only late in the disease, that is to say, one or two years after its inception. He finds, for example, that in the normal ulnar and peroneal nerve the Ka C C (negative pole closure-contraction) is produced by $\frac{1}{2}$ to 2 milliamperes, in a traumatic neurosis by 4 to 10 milliamperes; the normal Ka C Te (negative pole closure-tetanus) is produced by 4 to 11 milliamperes, that in the traumatic neurosis by 20 to 25 milliamperes.

There is in the traumatic neuroses an abnormal degree of muscular weakness; the patients tire easily and are incapable of their ordinary amount of physical work. This symptom, of course, is easily simulated, and is one that is almost always complained of by malingerers. A test for the genuineness of this symptom has been described by Wichmann; it consists in sending the patient to an institute where appliances exist for measuring the muscular strength of the different groups, and obliging him to go through various exercises. He is watched while this is done, and the records that he is able to make are compared with the normal. The observation of the patient at this time is also often helpful; for a genuine neurasthenic who wants to get well will do his best at the work laid down for him, while the simulator is constantly groaning and complaining at the distress that every effort causes him.

Tests for Sensory Symptoms.—The subjective complaints of pain and of tenderness are always very great and prominent symptoms. The method of testing it by the "traumatic cardiac reaction," or Mannkopf's symptom, has already been described. Pain along the back occurs in about two thirds of the cases, and is always a matter of especial concern to the patient. The physician in examining the patient finds tender spots along the spine, and these spots will sometimes vary even during the single examination. This variability of tenderness used to be considered a sign of malingering, but I do not believe it always is, since it will be noted in neurasthenics who have no object for deceit. However, very gross and persistent changes in the location of pain may be considered

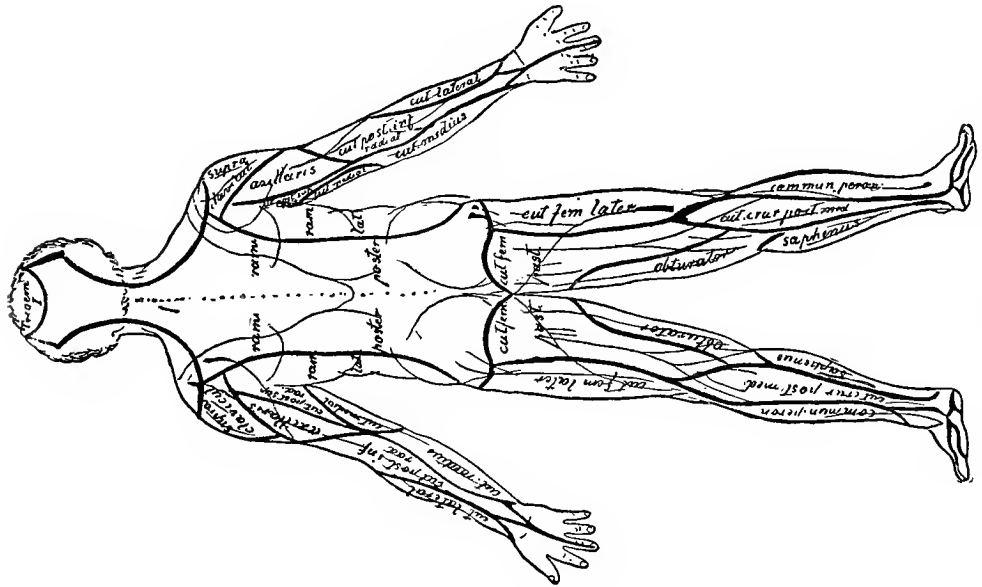
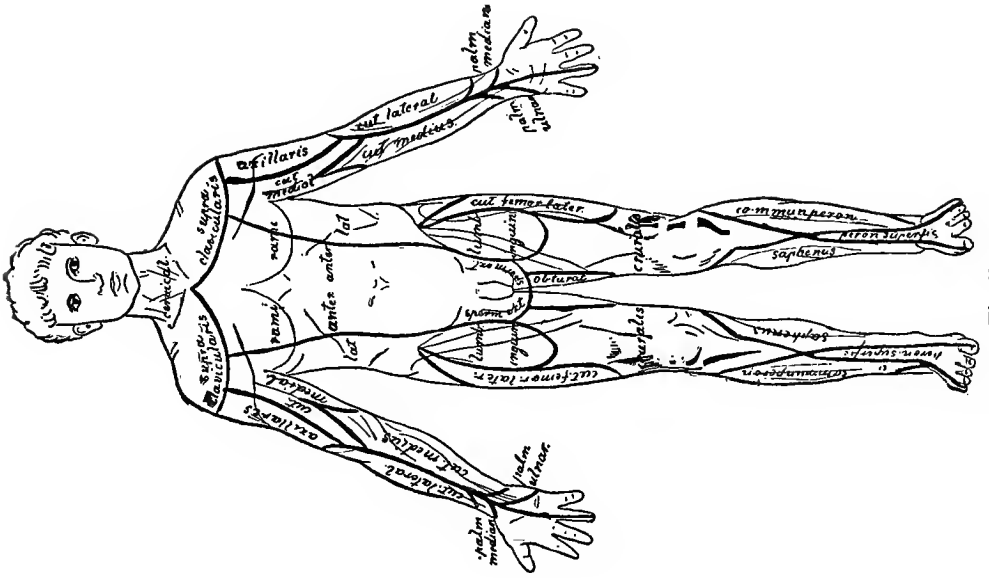


Fig. 45. Diagrams showing the distribution of the sensory nerves. (Freund.) Also see Figs. 47 to 52. Fig. 46.

suspicious; so also is the absolute and uniform localization of painful spots on the same vertebra at different examinations. In testing for painful spots the physician should, however, always make it a point to distract the patient's attention, for if he finds that a place which was asserted to be extremely sensitive on pressure can be vigorously punched when the patient's attention is distracted, it is usually an evidence of either malingering or some very hysterical state. The tenderness of the skin and of the parts beneath should be separately examined. Anæsthesia of the skin in its different degrees should be tested by means of the æsthesiometer, by which tactile and pain senses are determined, and with hot and cold tubes, by which the temperature sense is determined. In

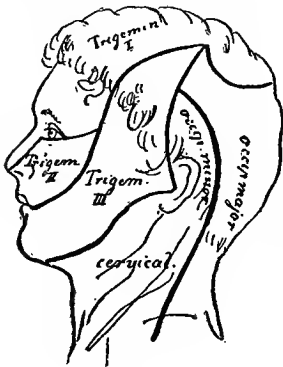


Fig. 47.

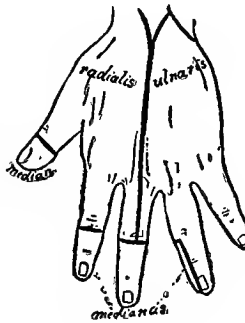


Fig. 48.

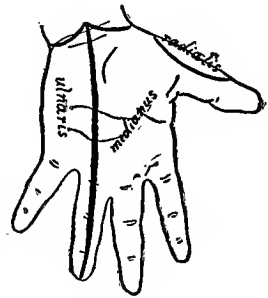


Fig. 49.

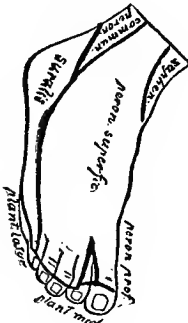


Fig. 50.

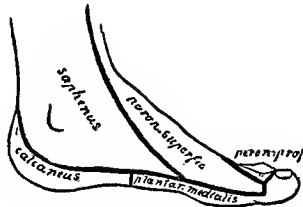


Fig. 51.



Fig. 52.

testing for anæsthesia to pain (analgesia) it is not sufficient to use simple pricking-instruments, but the strong faradic brush should be employed. It is sometimes a good plan also to use a large wire brush, one part of which is laid over an alleged anæsthetic area, the other extending over the non-anæsthetic area. The current being turned on, the brush can be tilted so that at one time it touches the anæsthetic part and at another time not, and in this way malingering can sometimes be detected. In testing the sense of cold and heat Goldscheider's method may be at times employed to advantage, and objective symptoms can in this way be determined. The test of the cold sense is made with metal cylinders at

from 59° to 63° F., that of the hot sense with cylinders at from 113° to 120° F., the patient's eyes being closed. Tiring and cooling of the skin affect the results. The latter will correspond most closely with Goldscheider's normal tables when the cutaneous temperature in the first interosseous space of the hand or foot is from 85° to 86° F. The examination begins with the test of the cold sense, a maximal point being tested. If the patient feels no temperature, but merely a sensation of pressure, then there is anaesthesia of the cold sense, whose limit and intensity must be determined. The intensity is tested by maximal temperature irritations. For the cold sense a temperature of the metal cylinders of 50° F. suffices. But when the cylinder placed on the maximal point produces a sensation of temperature, the question is whether it is normal or weaker. Therefore the minimal point is next tested, and if this is likewise given correctly the sense of temperature is normal. But if disturbance is found—diminution (hypæsthesia), hyperæsthesia being very rare according to Goldscheider—its degree must be ascertained by comparison with symmetrical points or with equivalent other points of the table.*

Visual Tests.—It is of course best in many cases to have the eye carefully examined by a competent ophthalmologist; the neurologist, however, in particular determines the condition of the muscles and of the visual field and also the visual acuity. As already stated, there is often a considerable degree of weakness of the adductor muscles. This is tested with prisms and colored glasses, and by means of them often the efforts of the patient to deceive may be detected, particularly if this patient feigns serious disturbances of vision, such as diplopia or amblyopia. The determination of the visual field is made by means of the perimeter according to the methods ordinarily described in the text-books. In my experience there is no contraction of the visual field in ordinary cases of traumatic neurasthenia; but there is, as I have already stated, some degree of retinal hypæsthesia in the peripheral portion, so that objects are not seen as distinctly or as long in the outer limits of the visual field. I can confirm the statements of König and Wilbrand and Förster with regard to the existence of the shifting-type in traumatic neuroses, as described above. (See Fig. 40.) It is not present, however, in all cases. In testing for the field of vision the examiner should use a perimeter for near objects, and then should confirm his findings by testing with objects at a considerable distance. In this way attempts at simulation may be detected.

With regard to the other special senses I have already said sufficient under the head of Symptoms.

The testing of the reflexes and of the muscular irritability is a matter of much importance. As a rule, the deep reflexes are exaggerated; when they are not, I have generally found that there was either a history of alcoholism or some infectious disease. The skin-reflexes also are apt to be exaggerated, and the peculiar enlarged area over which the cremasteric reflex can be elicited has been already described. (See Figs. 34, 35, and 36.) In intercostal neuralgia it is stated by Seeligmüller that the abdominal reflex on the affected side is exaggerated.

In testing for ataxia one should try to determine the power of the

* Goldscheider's table and figures are published in the *Archiv. für Psychiatrie*, vol. xviii., 1887.

patient to stand steadily with the eyes open and then with the eyes closed, the heels and toes being placed together. The patient should also be tested as to his power to place the extremities in different positions, touching different parts of the body with the eyes closed, and as to his knowledge of the position of his limbs when the eyes are closed, and also as to his ability to determine different weights.

The question now comes finally as to whether there are any single objective symptoms by means of which we can say that the patient has a traumatic neurasthenia. My own belief is that there are objective symptoms whose existence shows that the patient is not simulating, but has some real morbid condition. There is, however, no single objective symptom upon which we can alone rely.* The aggregation of all the objective symptoms does not prove that the patient has a traumatic neurasthenia, but does prove that he has some morbid condition whose exact nature must be determined by the history of the case. Practically the object of the examinations in most cases is to determine, first, whether the patient is simulating, and next whether he has organic or functional disease, and finally, if he has only functional disease, what the exact nature of that trouble is. Now, as to the last point, we can say that it is traumatic neurasthenia. We find that the patient suffers from the peculiar psychical anomalies referred to, the subjective sensory disturbances, the insomnia and cerebral paræsthesia, and such objective symptoms as muscular weakness and irritability, tremor, static ataxia, exaggerated reflexes, accelerated pulse and cardiac irritability, vasomotor disturbances, disturbances of the visual field and aural field. I do not mean to say that it is necessary that the patient have all of these symptoms, and it must be left to the experience and judgment of the physician to determine the weight to be placed upon them.

Pathology and Pathological Anatomy.—There is not very much use, in my opinion, of speculating as to the pathology of the morbid state known as traumatic neurasthenia. It appears to be a condition in which there is an excessive weakness and irritability of the cells of the central nervous system; those groups of cells controlling and regulating the circulation of blood—that is to say, the vasomotor system—being particularly affected. There have been up to the present time but few cases of post-mortem examinations made in traumatic neuroses. In 1875 Willigk reported the case of a boy of nine who had a fall and received a severe injury upon the head. He developed some symptoms of a neurasthenic and hysterical character. He died, and the post-mortem showed some softening in the pons. The case is evidently not one in point, though often quoted under the head of the pathology of traumatic neuroses. Oppenheim (23) in 1888 reported an autopsy upon one case. He found no lesion, but there was no microscopical examination made. In 1889 Sperling and Kronthal reported a case of a man who at the age of forty-two received a slight injury in a railroad collision, followed at once by symptoms of traumatic neurasthenia. The man gave no history of syphilis or alcoholism. The history, however, of his symptoms was imperfect, and on post-mortem they found a high degree of arterial sclerosis, especially of the brain and cord, and a peculiar degeneration of the sym-

* The contraction of visual field, rapid pulse, anæsthesia or hypæsthesia, and psychic anomalies are characteristic and objective symptoms according to Oppenheim.

pathetic system. Small insular patches of sclerosis of slight degree were found in all parts of the white matter of the cord, with degeneration of ganglion cells in a small area in the lower dorsal region, including Clarke's columns. There was a small hemorrhage in the middle of the dorsal cord. Bernhardt and Krontal report a case of a man aged thirty-three who was struck in the epigastrium by a horse's hoof. He suffered from a severe degree of hysteroneurasthenia for three years, and finally hung himself. The cord only was examined. Some slight arterial thickening and numerous patches of sclerosis were discovered in the white matter of the spinal cord. The patient had passed blood and vomited it, but there was no lesion found in the stomach or intestines. Schmauss has reported the case of a man aged twenty-nine who fell from a ladder and gradually developed the symptoms of a combined systemic degeneration of the spinal cord. There was, however, an imperfect history of the case. Schmauss also reports the results of some experiments upon animals, which do not throw very much light on the pathology of the traumatic neurosis. Friedmann in 1890 reported two cases of head injury, occurring in a man of twenty-seven and a woman of thirty. The injuries were occasioned by falls, and were followed by symptoms of meningeal irritation, with paroxysms of excitability. In the first case there was a paralysis of one of the cranial nerves. After death no gross lesion was discovered in either case, although it had been supposed there was some pachymeningitis. The microscopical examination was made in one case only. The blood-vessels were found to be distended and sacculated in places, and filled with blood. The perivascular spaces were dilated, and there were blood pigment and round cells in them. There was also found a hyaline degeneration of the walls of the blood-vessels—in fact, the record is suggestive of a syphilitic process.

THE GRAVE TRAUMATIC NEUROSIIS.

In some rare cases severe traumatism may be followed by the production of a series of symptoms which partake partly of the nature of neurasthenic or hysterical disorder and partly of the nature of organic disease. The neurasthenic and hysterical symptoms are much like those observed in the traumatic neuroses of other types. The additional symptoms, which suggest the existence of actual organic lesions, are such as have been observed in the condition known as disseminated sclerosis of the brain and cord. The exact nature of these cases has yet to be definitely settled. There is a steady and even gradation between cases of severe traumatic neurasthenia, traumatic hysteria, and the grave traumatic neurosis sclerosis; just as it is often exceedingly difficult to draw a sharp line between the very exaggerated type of traumatic hysteria and a case of what seems to be a disseminated sclerosis. These cases, however, are extremely rare, at least in this country. In my own experience I have seen but a few. The causes of the development of this form of trouble are traumatisms which are particularly severe and in which the head has been also injured. I do not believe that such a disorder can be produced by psychical shock alone. The trouble seems to affect men oftener than women, just as is the case with major hysteria, and it occurs usually in persons who have reached the third or fourth

decades of life. The symptoms develop in some cases very rapidly after the injury is received. The patient suffers from headache and vertigo; mentally he is depressed, irritable, hypochondriacal, although this mental state I do not find always to exist. Sometimes the patient is rather hopeful, but is at the same time emotional and perhaps a little childish. The mental power in each case is lessened. Either soon after the attack or some months later he develops tremors of the extremities and tongue, speech becoming somewhat thick or syllabic. Nystagmus may be present. The tremor is coarse and jerky in character, large in range, and increases on voluntary effort; in other words, it resembles that observed in multiple sclerosis and also in some forms of hysteria major. There is exaggeration of reflexes, as a rule; no paralyses, however, occur. There may be some incoördination and some cutaneous anæsthesia, which is usually not limited to one side of the body.

The visual fields are limited, and occasionally there is optic atrophy. There is also at times limitation of the auditory field and disturbance of the sense of taste. Sometimes there is lack of control over the bladder, and the patient may suffer from pain and stiffness in the back. These symptoms progress until they reach the stage which practically incapacitates the patient from work, although he is not always bedridden, and finally he presents the picture very much of a case of disseminated sclerosis. The organic changes underlying the trouble are those of minute spots of sclerosis in the brain and cord. My own opinion is that at present we must consider these cases as belonging to the type of multiple sclerosis described in systematic works. It will be found that very few cases of this disorder occur which are not preceded either by an infective fever or by some severe trauma. A good illustration of a traumatic neurosis of this type is the following. The history of the case has been kindly prepared for me by Dr. Joseph Collins, under whose care the patient is.

F. M., aged fifty-seven; born in Ireland; laborer.

Family History.—No phthisis, rheumatism, insanity, epilepsy, nor hereditary predisposition.

Previous Illness.—With exception of a fever when a young man, has never been ill; has always been as sound as a "paving-stone."

Hygiene and Habits.—Has been twice married, children healthy. Has never had venereal disease. Alcoholic in a moderate way all his life.

Present Illness.—Two years ago, while riding on a load of hay, fell, struck on head, was carried to St. Vincent's Hospital, remained unconscious for two days, and when he recovered consciousness was in a dazed condition for a day or two longer. He remained in the hospital for two weeks. When he left there he was weak and "shaky." He was unable to go to his ordinary occupation, but got light work about a stable. In less than a month after leaving the hospital he noticed that his hands were very unsteady and that it was necessary to use both of them to carry a cup or glass to the mouth. The shaking and weakness were more in the left hand and arm than in the right. At this time he noticed also that his hearing was gradually becoming impaired, and this impairment steadily became worse. He remarked also (one month after the injury) that there was some impediment in speech; the words did not come regularly, as before. These symptoms, particularly the shaking of the hands and the trembling of the voice, he noticed were considerably increased by

excitement, and less so by fatigue. At this time very little continuous effort caused fatigue. Always in cold weather he felt worse. Although the appetite remained good, and bowels and bladder regular, he could not gain strength. He did not suffer headache, dizziness, or pains. He has noticed that it is very difficult to make him perspire. When he takes alcohol (which he does but rarely, on account of being in hospital) he feels better, and the tremor is not so marked.

Examination—Appearance.—Poorly nourished. Face always the seat of a passive, dark, sluggish flush. Countenance not expressive.

Station and Gait.—Both good. Does not have tendency to fall.

Tremor.—Slow, rate 24 to 27 in ten seconds, increased by fatigue, such as from holding his hands out for a minute. Amplitude extensive, and becoming more so on fatigue and on voluntary effort. Both upper extremities are affected, left side considerably more than right. In lower extremities mostly in left. Moderate tremor of head, which does not reach nodding.

Reflexes—Knee-jerks.—Both lively. Left very moderately increased. Slight ankle-clonus of left ankle.

Eyes.—No nystagmus, either on movement or rest. Slight arcus senilis. Flecks of degenerative arcus irregularly distributed throughout cornea. Mobility of eyeballs not impaired. Pupils small, area of mobility small. React to light and accommodation. Pupils remain regular on accommodation. Considerable contraction of visual field of both eyes.

Sensation.—Blunting of cutaneous tactile sensibility; a sharp pencil feels like the finger, and he says he cannot distinguish the contact of cotton from contact of piece of soft rubber. Pain conduction not delayed nor diminished. Discrimination of various tactile irritations very poor. No hyperæsthesia. Subjectively has paræsthesia in extremities at times.

Hearing.—Can just hear tick of watch when brought in contact with left ear, but not in right ear. Bone conduction apparently diminished.

Pulse.—Regular, 78; moderate capacity, slight increased tension.

Temperature.—Slightly subnormal, 98° F.

Speech.—Markedly scanning, and biting of syllables. Tongue not particularly jerky. Has trouble in starting speech.

Mental.—Hopeful, never complains; satisfied and complacent; memory defective.

Physical.—Extremities rather weak, poor grip, and weak resistance of extensors and flexors.

Diagnosis.—The physician who is called upon to examine cases of this kind must determine whether they are cases of hysteria major, paralysis agitans, disseminated sclerosis, or are simulators. The existence of hysteria major must be tested by the rules which will be laid down later. Paralysis agitans is in some instances caused by shock or injury; its characters, however, are sufficiently definite to enable us always to distinguish it. The tremor is segmental, and is most marked during rest. It involves one side of the body more than the other, and rarely the face. There is no speech-disturbance and no nystagmus. There is a gradual development of muscular rigidity with the tremor. The patients also suffer much from sensory disturbances, such as pains along the course of the nerves, sensations of heat, and numbness or prickling. The voice of the patient becomes feeble, high-pitched, or senile in character. There is a peculiar flush of the face due to vasomotor paralysis.

The detection of simulation must be made out by the methods described later. It would be very difficult for a patient successfully to simulate the coarse intentional tremor, the syllabic speech, and contracted visual fields of this disorder.

Prognosis.—The prognosis in this class of cases is bad. The patients reach a certain stage in which they are able to be about, but are of little use to others or to themselves. They do not suffer much pain, and sometimes are hopeful and cheerful. Reaching this chronic stage, the disease progresses very slightly, and they may live for many years; but recovery is extremely rare, and if it occurred we should be obliged to consider that a large part of the symptoms were hysterical.

Pathology.—It is becoming more and more my conviction that all cases of multiple sclerosis are either traumatic neuroses or are the result of acute infectious diseases. The pathology, therefore, of the grave traumatic neurosis would be nothing different from that which is usually described as the pathology of disseminated sclerosis due to other causes. If any actual organic disease exists in this class of cases it must be one that is produced by small multiple hemorrhages which set up foci of softening, followed by a reparative process that leads to the development of small connective-tissue nodules in the brain and to a less extent in the spinal cord. It is not my purpose to go further into the description of a process of which full accounts are given in systematic text-books. It may be said, however, that the anatomical condition underlying a traumatic multiple sclerosis is more favorable than that underlying one that follows infectious fevers, for the reason that in the latter case some microbic poison may be associated with the development of each diseased focus. In both forms of trouble there seems to be the same tendency for the nodules of sclerosis to be situated most frequently in the white matter, especially in that of the pons, internal capsule, and centrum ovale. The cranial nerve roots are sometimes affected and also the spinal cord, but the diseased process is essentially a cerebral one.

TRAUMATIC HYSTERIA.

Hysteria is a chronic functional brain disorder characterized by nervous attacks or crises, and by a peculiar interparoxysmal state in which certain marks or stigmata are present. There are two forms of hysteria, the hysteria minor and hysteria major. Hysteria minor is that form of the morbid condition which is generally meant by the term hysteria. It is the hysteria of popular conception and of general medical parlance. In hysteria minor there is simply an exaggeration of the emotional side, together with outbreaks of various kinds, such as crying or laughing, fainting-attacks or convulsions. This minor hysterical condition is present in men and the great majority of women, and it is not always to be considered a disease. It is, however, when associated with neurasthenia or with other neuroses, often an unpleasant and disagreeable complication. It is not of the hysteria minor that we speak when we use the term traumatic hysteria. Traumatic hysteria is really a major hysteria, and it is a definite disorder, quite different in its essential characters from that malady which is popularly understood as hysteria. In hysteria major there is a decided and serious disturbance of certain special functions of

the brain. As a result of this we have severe crises or attacks, during which the patients exhibit convulsive or other explosive phenomena, and we have between these paroxysms very striking symptoms, consisting of anæsthesia, paralyses, contractures, tremors, peculiar mental conditions, and even vasomotor and trophic disturbances. Traumatic hysteria major is essentially the same disease as hysteria major due to other causes.

In making a study of the anæsthesias of twelve cases of major hysteria some years ago I found that four of them were of traumatic origin, and the clinical history of these four cases was not essentially different from that of the other eight. In a description of traumatic hysteria, therefore, I shall have to go over, to a certain extent, the same ground that would be taken in the systematic description of this disease. Let me say now that in using the term hysteria in this connection I shall mean, unless I specify otherwise, hysteria major.

Age.—The traumatic form of hysteria occurs chiefly in middle life. Berbez found the average age of 21 cases to be 25 years, the range being 19 and 56. Thorburn found the average age to be 31 among 17 cases, being $28\frac{1}{2}$ in the female and 35 in the male; the range was from 18 to 42. Among 16 of my own cases the average age was 33, the range being from 14 to 54. The age of the female cases is younger than that of the male.

Sex.—The disease occurs oftener in men than in women. This is the experience of Berbez, who found 14 males to 7 females, and in my own cases, where there were 11 males to 5 females among 16 cases. Thorburn would explain this on the ground that more men are injured than women in railway accidents. Few of my cases, however, were railway cases, but were injured by electric shocks, by falls, or blows. Thorburn states, however, that among 228 persons injured in railway accidents there were 157 males and 71 females. Among the former there were 10, among the latter 13 cases of hysteria, so that he estimates that the probabilities of a railway accident being followed by hysteria are three times as great in the female as in the male. Thorburn probably uses the term hysteria in a less definite sense than I do. In my experience hysteria major is rarely found in women who have suffered from railway accidents. They more frequently develop spinal irritations, functional spinal palsies, and hysteria minor or neurasthenia. Marriage has no effect upon males, but unmarried women are perhaps somewhat more susceptible than the married.

Race.—Hysteria of the major type is apparently much more common in France than in other countries. English observers state that it is rarely seen in that country. In Germany it seems to be a relatively frequent traumatic neurosis. In this country traumatic hysteria is less frequent than traumatic neurasthenia. In Walton's experience the percentage of hysterical cases was 17; in Knapp's, 15. In my own experience I have had an apparently unusual percentage of hysteria, for I found that among 33 carefully recorded cases of traumatic neuroses 16 were cases of hysteria. About one third of these were of German or of Russian origin, one fourth of Irish, and the rest were of American parentage. Chronic alcoholism predisposes to a development of traumatic hysteria. Every year I find in the alcoholic cells at Bellevue one or two cases of typical hysteria occurring in chronic alcoholics who have been subjected perhaps to some blow or shock. Traumatic hysteria, however, occurs in persons of perfectly temperate habits, and in most of my traumatic cases.

no history of alcoholism was noted. Traumatic hysteria occurs more frequently among men of the lower social class—that is to say, among laboring-men and mechanics and men who are subjected to hard work and privation.

The influence of heredity has been much dwelt upon by French writers. Charcot maintains that there is always or nearly always some hereditary taint. The German writers do not take this view, and in my own cases there is no evidence that heredity plays any important part; certainly in none of my cases was there discoverable any serious neurosis or psychosis in the family. The patients, however, were many of them of a neurotic temperament, but perhaps no more so than many other persons who have not been victims of major hysteria.

The exciting cause is the injury. In my experience an electrical shock has a particularly powerful effect in producing traumatic hysteria. Three of my sixteen cases developed hysteria in this way. In one case, however, the patient did not actually get a shock, but only thought that he got one. The nature of the injury does not seem to be of nearly as much importance as the fact that the surrounding circumstances excite intense fear. However, it seems likely that blows upon the head are rather more apt to produce hysteria than contusions or injuries of other parts. I do not know of any case in which a person got hysteria if he was injured while intoxicated or asleep. Direct injury to a nerve is said by Thorburn to be a potent cause of producing hysteria. The climate and season of the year seem to have no special effect upon the disorder, other than that hysteria is more prevalent in temperate climates and in large and populous cities. The person's state of mind previous to the injury prepares the way for the development of the neurosis. Thus if a person travels with a mind full of alarm and agitation over some possible calamity, the hysteria would be more likely to develop should such an accident actually occur. This is well illustrated in the case of a patient of mine who had read of the killing of a man by an electric wire. A few days after he was walking along the street, when suddenly a dead wire fell and struck him on the head. The blow was not very severe, nor was there any electrical current passing through the wire, but the man fell unconscious, and when he was aroused he was found to have a typical hysterical hemiplegia with hemianæsthesia. The fact may well be borne in mind that traumatic hysteria may be produced by surgical operations, and especially, in my experience, by minor operations conducted under cocaine rather than under ether. Operations upon the nose and throat and minor operations upon the uterus are not infrequently followed by nervous and hysterical disorders.

Symptoms.—The disease develops in different ways; it may be either gradual or sudden. In some cases the patient receives an injury or fright, and at once becomes excessively excited, and perhaps even delirious for a few hours. Upon becoming quiet it is noticed that one half of the body is paralyzed, and upon further examination it is found that there is a loss of sensibility upon this same side, and that all the classical symptoms of a hysterical hemiplegia have developed. In other cases the patient after a fright or shock falls down in a state of unconsciousness or passes into an hysterical attack, during which violent convulsive movements are made. After emerging from this attack he is found to be suffering from some form of hysterical paralysis. In still other cases a

PLATE IV.



HYSTERICAL HEMIPLEGIA, showing the peculiar dragging of the foot.

person receives an injury, becomes somewhat stunned or prostrated, but recovers and goes home or resumes his work. In the course of a few days he notices that he suffers from headaches and sleeplessness; that he is irritable and easily excited, and is entirely unlike himself. After a few weeks he perhaps gives up his work, and during this time he has attacks of swooning or of cataleptic or convulsive character. These attacks are alarming, but they pass away and he continues to be simply suffering from a nervous irritability and depression, with more or less vague pains about the head and back. The picture, in other words, is much like that of a traumatic neurosis. In the course, however, of a few weeks, or perhaps even months, there develop symptoms of a much more severe character. The patient is found to lose the power of one side of the body, or perhaps to be gradually becoming paraplegic; and associated with this condition of paralysis are found disorders of sensation and other symptoms of the hysterical condition. In a typical case of traumatic hysteria the symptoms may be described very much as follows: The patient is usually a man of middle age. He suffers from a paralysis of the arm and leg on the same side—in other words, a hemiplegia. This paralysis affects most the arm and less the leg, while the *face itself is not involved*. The paralysis is never absolute. The patient can move the arm a little and can draw up the leg and often can walk about, though with some difficulty. The hemiplegia is of a flaccid type—that is to say, there is none of the rigidity associated with hemiplegia due to organic lesion. The reflexes at the knee are, if anything, diminished, though sometimes slightly exaggerated, but there is no ankle-clonus. The gait of the patient with this hysterical hemiplegia is characteristic; instead of swinging the foot round in a semicircle as in organic hemiplegia, the paralyzed foot *is dragged in a nearly straight line*, the toe scraping the floor. (See Pl. II.) The absence of paralysis of the face is characteristic. Sometimes there is said to be an apparent facial paralysis, which is, however, really due to facial spasm. The tongue when protruded goes out straight, as a rule, but sometimes it turns over toward the paralyzed side, owing to spasms of the muscles of that side. This lingual spasm is an interesting characteristic of traumatic hysteria. The patient has sometimes—in fact, in the majority of cases—along with this hemiplegia a tremor of the arms and to a less extent of the lower limbs and facial muscles. This tremor is more marked on the paralyzed side. It has the characteristics generally of the tremor of a multiple sclerosis, though it is often even more exaggerated and jerky. The tremor ceases when the hand is quiet; it begins when voluntary motion is made, and it becomes very exaggerated in attempts to place the finger upon some definite part of the body or to use some instrument in a definite muscular action. This tremor ceases during sleep. It affects sometimes the tongue, producing a peculiar nervous articulation, not exactly like that of multiple sclerosis, but more like that of an excessively excited man. There is no nystagmus, nor is there usually much tremor of the face, though this may be slightly present. The tremor as I have described it is often not very much marked, and it may be even practically absent. There is no atrophy of the muscles of the affected side, nor are there any electrical degenerative reactions. Vigouroux at one time stated that there was an increase in the resistance of the paralyzed limb to the electrical current over the limb on the sound side, and this is occasionally observed. The patient is

found to suffer not only with a paralysis on one side of the body, but with an anæsthesia of the skin upon this side. This cutaneous anæsthesia in some instances involves the whole of the paralyzed side of the body from head to foot, stopping sharply, however, and absolutely, at the middle line. Such extensive anæsthesia is rare. More often the anæsthesia involves the foot and leg up as far as the middle of the thigh, the arm up to near the shoulder, and the side of the head; in other words, it has what Charcot has called the gauntlet and stocking type. (See Fig. 53.)

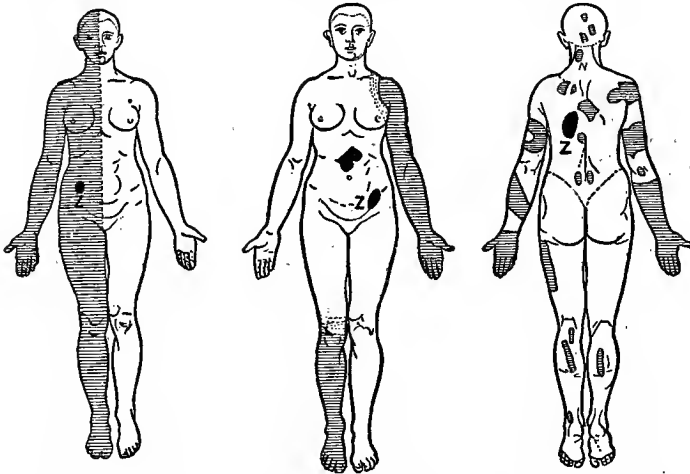


Fig. 53, showing the different modes of hysterical anæsthesia. The dark spots indicate hysterogenic zones.

The anæsthesia may extend, however, to the other side, so that there is a bilateral anæsthesia. This is extremely rare, especially in traumatic cases. The anæsthesia may occur in zones or patches on the surface of the limbs or the head. These zones or patches do not correspond with the distribution of any nerves, and in this respect they are characteristic of a hysterical condition. The anæsthesia much more frequently affects the arm, leg, and face together; next in frequency the arm and leg; then come the irregular types that I have spoken of. In some instances the anæsthesia may be crossed—that is to say, there is anæsthesia on one side of the face and on the opposite side of the body. The anæsthesia as well as the paralysis is usually found to be on the same side as the injury, particularly if the injury is a blow on the head. This fact is often an important and practical one. A blow upon the right side of the head, for example, if it produces a hemiplegia from organic disease, would produce a hemiplegia on the left side of the body; but if it produces hemiplegia of a functional or hysterical character *this will occur on the same side as the external lesion.*

Regarding the character of the cutaneous anæsthesia I have made a number of observations.* I have found that the touch sense was the least affected, while the reaction to painful sensations was most frequently and

* "A Study of the Anæsthesias of Hysteria," *Amer. Jour. Med. Sciences*, October, 1890.

most extensively abolished. Between these two came the temperature anæsthesia. I found also that there was very rarely any anæsthesia of the muscular sense or articular sense except when the paralysis was very profound. This latter conclusion is at variance with the theories of Dr. Bastian and with some of the data which he has collected. However, I believe it will be found that in moderate grades of hysterical hemiplegia there is no great degree of ataxia or disturbance of muscle or articular sensation; certainly this is the experience in a number of very carefully observed cases of my own. When, however, the paralysis is absolute, there is undoubtedly, in most cases, if not all, muscular anæsthesia also. (See Figs. 54, 55, 56, and 57.)

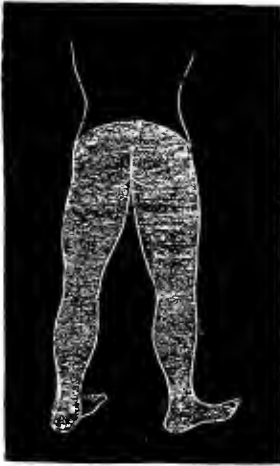


Fig. 54.



Fig. 55.

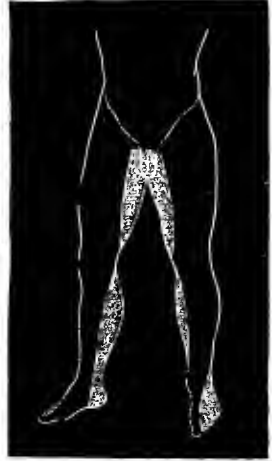


Fig. 56.

Figs. 54 to 57 show by contrast the distribution of anæsthesia in lesions of the cauda equina (Figs. 54, 55, 56) and in myelitis Fig. 57, on next page), as compared with that in hysteria (Fig. 53).

Besides the cutaneous anæsthesia there is an anæsthesia of the special senses—of sight, hearing, taste, and smell—upon the affected side. There may be a very great dimming of the vision of the eye of the affected side, but as a rule the disturbance consists in a concentric limitation of the visual field. With this phenomenon there is at times a change in the color sense and in the color fields. In some cases the only trouble consists in a disorder of the color fields, and in some cases there is an actual loss of color sense altogether. I have observed this in two cases. Drs. Mitchell and De Schweinitz, who have made a study of this subject, failed to find it in a series of twenty-five cases, not, however, of traumatic character.* The green field is relatively more and more often contracted

* Complete studies of this subject have been made by Pansiea (*Ocular Manifestations of Hysteria*, Paris, 1892), by Wildbrand and Sanger, by Frankel, Hopevart, and Topolanski, by Wilhelm Konig, and very recently by Mitchell and De Schweinitz (*Journal of Nervous and Mental Disease*, January, 1894), who give a full bibliography. These latter authors give specific directions for testing the concentric limitation of the visual field. Their tests were made by means of the perimeter. The test-objects were white and colored cards $1\frac{1}{2}$ cm. in diameter. The patient is placed in a good light, and the test must be made in several different ways. First, for near objects: in this case the test-card is moved from without inward, and the point noted where it is

than the others. (See Figs. 58 and 59.) Reversal in the normal sequence of the colors, so that red is the largest field, is usually present, the normal order being blue, red, and green. The field of vision is contracted in both eyes, but more on the affected side. The contraction is always more or less concentric, and does not present the characters of a hemianopsia—that is to say, the visual field is contracted at all points of its circumference, and there is no half-blindness, either horizontal or vertical. To this rule Mitchell and De Schweinitz have reported an apparent exception (*loc. cit.*).

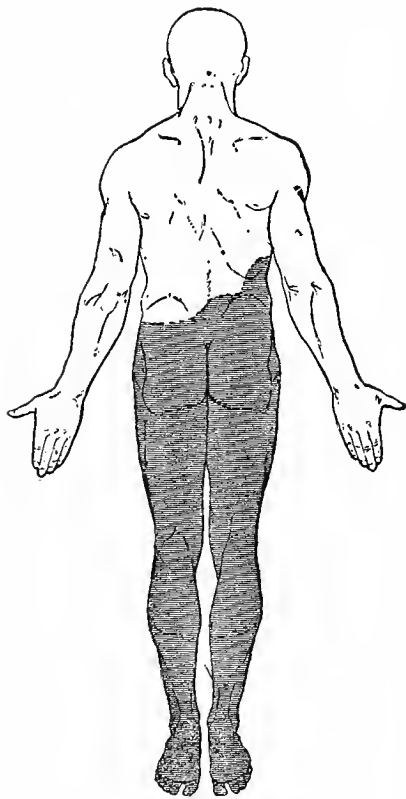


Fig. 57.
Distribution of anæsthesia in a case of myelitis.

The hearing on the affected side is sometimes much impaired, and is almost uniformly affected in some way or other. The most frequent disturbance is a diminution of hearing or absolute deafness to bone conduction, while hearing is fairly good to aerial conduction. Loss of the power of hearing high notes and very low notes is also a frequently observed phenomenon. The deafness to high notes occurs almost without exception, as tested by a Galton whistle. Deafness to low notes I have found in only two or three cases. In these the patients were unable to hear a note made by the bass string of a viol giving vibrations of about 34 or 68 per second. The senses of smell and of taste are abolished on the affected side.

The most striking symptoms of hysteria major are those that I have just described—paralysis and anæsthesia. The distribution of these symptoms, however, is not always hemiplegic. Sometimes a patient suffers from simply a paralysis of one arm or of a leg, or of both legs. An hysterical paralysis of an arm is the more common. Hysterical paraplegia is relatively rare, particularly the cases which can be spoken of as in a true sense hysterical, that is, of cerebral origin. When the patient suffers from an hysterical arm-palsy he has, along with the palsy, which is flaccid in type, anæsthesias of the skin and perhaps of the muscles, and he has at the same time some of the anæsthesias of the visual, auditory,

first recognized. Then it is to be moved from within outward and the point again noted. It is well to repeat this procedure once or twice. If there is ground for suspecting simulation the test must then be repeated with the test-object held some five or six feet away, and the results compared with those obtained at a nearer distance. The accompanying chart represents the physiological limits of the field for form and for blue, red, and green. (Fig. 58, p. 343, also Fig. 59.)

and other special senses. If a person suffers from hysterical paraplegia of a type that is truly hysterical, he will, I am convinced, have along with this paraplegia some disturbance of cutaneous sensation of the affected parts. There will be also some evidences of disturbance of the special senses, and often there occur certain disorders of motor cranial nerves, more especially a lingual spasm. In hysterical paraplegia there is some exaggeration, as a rule, of knee-jerks, and after a long period of time there may be contractures. There are, however, in the early stages no muscular atrophies and no changes to the electrical currents. There may be a slight disturbance of the bladder for a time, but no persistent impairment of its function. I am convinced, with Dr. Bastian, that as we become more familiar with the characters of these paraplegias we shall be less inclined to consider them all as of cerebral or hysterical origin, but rather to place some among the functional paralyses of spinal character.

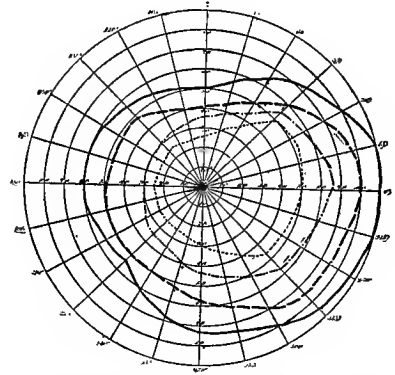


Fig. 58. Diagram of the normal field of vision of the right eye for blue, red, and green. The outer continuous line indicates the limit of the form field; the broken lines, the limits of the color fields. (De Schweinitz and Mitchell.)

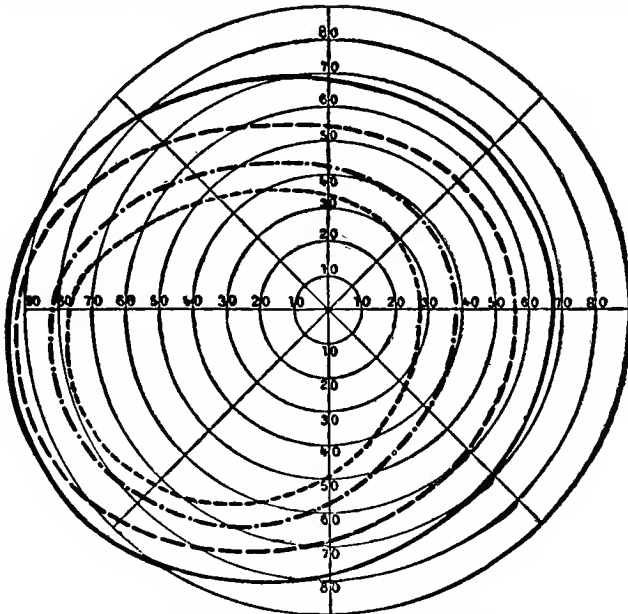


Fig. 59. Diagram of the normal field of vision of left eye for form blue, red, and green. (Landolt.)

Besides the symptoms of hemiplegia and sensory disorders there are other troubles from which these patients suffer. As a rule, the patient is very

much depressed mentally and discouraged about himself. (See Pl. V.) He suffers a great deal from pains in the back and limbs and hip, and is apt to be of a very complaining habit. He is usually emotional, and cries easily. He is persistent in his expressions of a desire to get well, and will usually carry out very faithfully the directions given to him by his physician. He has at times hysterical attacks or crises. In men these attacks seem to take more often the character of simple comatose or lethargic stages, the patient passing off for a few minutes or hours, or even days, into a state of what resembles hypnotic sleep or lethargy; at other times the patients have emotional and almost maniacal attacks or decided convulsive seizures, and more rarely go through the characteristic hystero-epileptic phenomena. I have never, however, in this country, seen the typical hystero-epileptic attacks develop in males with hysteria of traumatic origin. Again, the patients may suffer from violent and obstinate attacks of vomiting. Nearly all the curious and weird manifestations of hysteria may be exhibited by these patients—the cutaneous eruptions, the edematous swellings, the anuria, the visceral crises, the palpitations, the angular attacks, and so on. Sometimes there may be attacks of hysterical mutism. It is not necessary for me to go into details of this character, because the symptoms are those which will be found described under the head of major hysteria in special treatises.

I have found in my experience that in young women the interparoxysmal marks of hysteria, such as the anæsthesias and paralyses, are less common, while contractures and tremors of various kinds and painful neuralgic disorders are more frequently observed. In traumatic hysteria in women also crises of various kinds, more particularly convulsive attacks, are much more frequent. I believe that I cannot better supplement a description of traumatic hysteria than by giving the history of certain typical cases of this disorder. The first is that of a man who illustrated in a classical way the ordinary symptoms of traumatic hysterical hemiplegia. The second case illustrates a somewhat irregular type of this disorder, occurring also in a man. The third case illustrates the development of traumatic hysteria in a young woman.

CASE I.

Traumatic Hysteria.—B. N., aged fifty; married; Moravian by birth; clerk. Mr. N. states that he has always been well, is of temperate habits, has had no venereal disease, has a family of five children, all healthy. He was walking along the street September, 1889, at the time of the great excitement about street currents, when he saw a wire from an electric-light pole falling toward him. The wire struck him across the head, making a welt on his derby hat; he seized it in his right hand. He does not remember any more until he came to in New York Hospital. He is said to have fallen down, then to have been helped up, and to have walked with some assistance. When struck, he saw a bright light, but felt no peculiar sensations of any kind.

When admitted to the hospital he was conscious and soon able to talk, losing his amnesia except, as he says, of the events just after the blow. There was a black stain on his right hand, but no burn. His right arm and hand and leg were paralyzed, the leg almost completely,

PLATE V.



Fig. A.



Fig. B.

MALE HYSUERIA, showing characteristic physiognomy.

so that he could not walk. The face or tongue was not involved. There was complete hemianæsthesia of the right side of the body. The bladder was normal. The mental condition good, though he did not sleep well for a few nights. The abdominal and thoracic viscera seemed to be normal.

Through the kindness of the visiting-physician, Dr. William G. Thompson, and the house physician, Dr. Cobb, I was enabled to make an examination of the patient, September 24th. He was then able to walk slowly and to use his right arm fairly well. He seemed to be an intelligent man, somewhat emotional, but anxious to tell the truth about his symptoms and to get well and back to his work. His mind was clear, and he suffered from no emotional depression or crises. He was sleeping well. His pulse was quite rapid (120) under my examination, but it had been normal, as were the temperature and respiration.

The face showed no paralysis, the tongue was protruded straight, and the pharyngeal arch was even. The right arm was weak, but he could execute all movements with it except raising it directly over his head. Dynamometer: right hand, 25; left hand, 40. There was a tremor in the arm and hand and occasionally in the leg. This tremor was rapid, but of rather large excursion, and increased on voluntary movement, or on directing attention to it. It was an "intention" and "attention" tremor. It did not affect the face or tongue. Speech was clear and deglutition normal. The leg was much more paretic than the arm. The foot and toes could barely be moved, the leg could be flexed and extended but partially. The tendon reflexes of arm and leg were present, but not exaggerated. The skin reflexes were well marked. There was anæsthesia in varying degree over the right side of the body. It was most marked in the lower limb, where it extended diffusely up to about Poupert's ligament in front and the gluteal fold behind. In the arm the anæsthesia was more marked over the area of the ulnar, but it was present in a degree over the whole extremity. Around the shoulder and neck it became less. It was present over the right half of the face, including the tongue, but was less marked here than on the extremities. The anæsthesia was most marked for cold sensations, well marked for pain, and less marked for tactile sense. There was no muscular anæsthesia or loss of coördination as tested by weights and by touching the nose and posturing the limbs.

The special senses showed peculiar conditions. The pupils were normal, even, and reacted to light and accommodation. There was no color-blindness. The man was presbyopic, but since his admission he had been unable to read well. (He had broken his glasses.) His right eye showed decided limitation of visual field, the left very much less, though some was present. No difference in visual acuteness was noted, and no hemianopsia.

The right ear showed hearing equally acute to the tick of a watch or the voice or tuning-fork, but absolutely deaf to bone conduction. A large tuning-fork vibrating on the mastoid was not heard; and vibrating on the teeth was heard only by left ear. Tested by Galton's whistle, the left ear showed a decided loss of hearing of high notes; the right still more. I had never met before a person so deaf to so great a range of the upper notes, though it is not very uncommon to find slight degrees of this deafness in the aged. The man had evidently a limitation of the auditory field comparable to that of the visual field.

There was an almost complete loss of smell in the right nostril, and a complete loss of taste on the right side of the tongue. There was also absence of pharyngeal reflex when the finger was thrust into the back of the throat.

There were no manifest secretory or trophic disturbances of the affected side. The man complained of very little pain. The electrical reactions were not taken.

We have here a case of traumatic hysteria of the type described by Charcot, Guinon, and the French writers. The points are so marked and characteristic that a discussion as to diagnosis would be supererogatory. We have the (1) hemiplegia not involving the face; (2) the anæsthesia distributed in the "gauntlet" shape, i.e., not following nerve tracts but involving mainly the limbs, and covering them like a stocking or glove; (3) we have the peculiar limitation of visual field (4) and auditory field, the bone-deafness, (5) the ageusia and anosmia, and (6) pharyngeal anæsthesia.

Three years after this accident, the patient was much improved but far from well. Case in litigation and not settled.

The auditory phenomena are particularly interesting, as they have not been investigated with as much care as the visual, and are in my experience rarer. The loss of smell on the right side is confirmatory of the view of a functional hemiplegia; for in organic hemiplegia from hemorrhages, etc., it is sometimes on the opposite side to the paralysis. It has also been claimed that the olfactory nerves do not decussate, and hence that hysterical hemiageusia is only apparent and due to trigeminal anæsthesia. This would not explain the present case. For the trigeminal anæsthesia was very slight and the ageusia almost complete.

CASE II.

Traumatic Hysteria with Violent Tremor.—Mr. X., aged fifty-four; of American birth and parentage; married; business man. The family history is good in every way so far as any details can be obtained. The patient himself had always been an active business man, traveling a good deal. There is no history of syphilis or alcoholic excesses; he has, however, been somewhat excessive in sexual indulgence. He had never suffered from any serious disease or injury, and was perfectly well at the time of his accident. He was riding on a horse-car when this occurred. There was a collision; his car was suddenly stopped, and he was thrown violently against another person, being struck on the side of the head. He was not knocked down, but was very much confused. He went home, however, being at the time somewhat excited and nervous over the accident, and in a few hours passed into a partially comatose state, which lasted for two days. This ended in a violent hysterical outbreak of a maniacal or delirious character. This had subsided in the course of a week, and he was then found to be unable to use the left arm or leg. One month later muscular twitching and tremor began in the left arm. This tremor extended and soon involved the right arm and the muscles of the neck and head. About this time there was found to be also a left hemianæsthesia. He complained all the time of pains in the neck and head while these various phenomena were developed. The pains in the

head and neck and the tremor were found to be somewhat relieved by pulling on the head, so that his physician constructed for him a jury-mast by which permanent support was given, and while wearing this he stated that he felt more comfortable. He was able to walk about, though not without much difficulty. The patient was brought to me by his physician, Dr. Gray, for examination while in this condition, some six months after the accident.

I found him to be a well-nourished man, not at all anæmic, but having a depressed and distressed look. He walked with a dragging of the foot on the paralyzed side, in a manner that was perfectly typical of hysterical hemiplegia. His face was not involved by either paralysis or spasm. The tongue turned slightly toward the left. The left arm and leg were nearly powerless. He could flex, extend, pronate, and supinate the forearm and hand, but his upper arm was weaker; he could only partly contract the biceps and could barely raise the arm out from his side a few inches. He could not keep the arm up when held. He showed the same general weakness in the leg, though this was relatively less paralyzed. He could stand and drag the leg along; he could extend and flex the foot; he could do all movements, though feebly. The paralysis of both arm and leg was of the flaccid type, and there was no rigidity or spasm. The knee-jerks were normal on the left, somewhat exaggerated on the right; the elbow-jerks the same. The arm was affected with a marked tremor, which was coarse in character, and did not increase with voluntary movement, but continued active. On resting the arm the tremor ceased. He could carry a glass of water to his mouth. There was more tremor in the right arm than in the left. There was a very decided antero-posterior oscillation or tremor of the head; this was lessened and almost stopped by taking hold of the head with the hands and pulling upward. There was no notable tremor of the legs. There was some cutaneous anæsthesia on the left side, involving especially the arm, the shoulder, upper part of the trunk, and to a less extent the leg. The face was not involved. There was no ataxia. There was a vasomotor paresis of the left hand and arm, which were reddened and felt colder than the right. There was a slight atrophy of the left arm, the left forearm measuring $8\frac{3}{4}$, the right forearm $9\frac{1}{2}$ inches. The electrical reactions showed a slight lessening of galvanic and faradic irritability. Electric sensibility was lessened in the left arm.

The pupils were normal in reaction, and not dilated. Some visual weakness in the left eye; concentric limitation of the visual field; no reversal of the color fields, but the green field was very much contracted.

The ears showed a loss of hearing to high notes, especially in the left ear, with a lessening of bone conduction in that ear.

There was impairment of taste on both sides and a loss of smell on the left side, also an anæsthesia of the nasal mucous membrane, although there was no evidence of anæsthesia of the cutaneous surface of the face.

The patient was a man of fair intelligence. He was suffering a good deal from pain in the head and mental depression, and from the inconvenience of his tremor and paralysis. He had no convulsive attacks or crises of any kind after the first week following the accident.

The case was settled out of court and lost sight of by me.

CASE III.

Traumatic Hysteria in a Woman-cataleptic.—K. C., female; aged twenty-two, single; nativity and parentage, American; occupation, saleswoman. Family history absolutely negative, parents and brothers and sisters were all healthy. The patient used to be a well, strong, and healthy girl, said not to have been of a nervous temperament. She had done her work regularly as saleswoman for several years, and was intelligent and competent. On December 11, 1892, she was struck on the top of her head by an iron instrument which fell from a shelf upon her. It knocked her down and she was made senseless, and shortly after went into convulsions the character of which I do not know. She was revived and walked home two hours later. There was a cut found upon the head when she was examined by the physician that day. She went to bed and slept that night, and stayed at home for the next three days, suffering from headache and loss of appetite. Then she went to work, but suffered continually from headache, loss of appetite, and a feeling of weariness and exhaustion. At times she had to go home from her work before the day was over. She menstruated regularly. She gradually lost flesh, but kept up her work until the early part of March, 1893, three months after the accident. She then had an attack of convulsions again, without any known cause. There had been meanwhile no attempts at litigation on her part. The convulsions continued daily after this time; she would have them several times in the course of the twenty-four hours. She would fall back on the bed apparently unconscious and become perfectly rigid, then she would go through various coördinated but irregular convulsive movements. She sometimes did not lose consciousness, so she said; at other times she did. I had an opportunity of examining her in one of these states of unconsciousness with rigidity, about a month after the convulsions began. I made the diagnosis of traumatic hysteria, prescribed for her some valerianate of zinc with tonics, and advised, if possible, a removal from home. After my visit the attacks became somewhat lighter and consisted simply of fainting-spells, during which she became unconscious and somewhat rigid for about half an hour. She would have several of these weekly. During the next six months these attacks grew still lighter and more infrequent. The patient gained some strength, though she was still weak and pale, and in all respects unlike herself. Examined by me at this time, nearly nine months after the original injury, I found that she had no paralyses, no tremor—in fact, no special motor-disturbance except a general weakness. There was some exaggeration of the knee-jerks, however, and of the elbow-jerks. There was no cutaneous or muscular anæsthesia. Examination showed a very decided concentric limitation of the visual fields. This was almost equally marked for all colors in the right eye, but only a limitation by the rule for all colors in the left eye. There was no loss of color sense and no reversal of the blue and red fields in either eye. The vision of the right eye was somewhat weaker, apart from limitation of the field, and she had decided anæsthesia of the right nostril both to ammonia and to odors. There was also some pharyngeal anæsthesia and some disturbance of taste on the right side of the tongue, so that bitter was tasted as salt. The hearing in both ears

was good as to range and conduction and acuity. The patient has continued to improve, and I have since lost sight of her.

Prognosis.—It is difficult to make a general statement with regard to the prognosis of traumatic hysteria. There are cases which are well in a few weeks from the onset of the symptoms; there are others in which the disease lasts for three or four years, and I have known cases in which the duration was very much longer. Charcot gives a rather unfavorable prognosis for cases of hysteria major where the symptoms have become fixed, whether this be of traumatic or other origin. Thorburn speaks more hopefully of such cases, and believes that if they are treated promptly and if there is no complicating element of physical injury or litigation, patients ought to get well in a few months at least. My own experience is that in traumatic cases the patients may all be said in a general way to be curable, but that even under good conditions they may suffer for several years and are liable to a relapse after recovery has taken place. There are many cases, however, in which complete recovery has taken place within a few months. There is no doubt that the fact of a litigation and the prospect of damages influence markedly the prognosis, and few patients, even though they be perfectly honest, get well while the anxiety of a trial weighs upon them. The coexistence of a physical injury, such as a severe sprain or an injury to a nerve or a bad contusion of the head, makes the prognosis less favorable. The prognosis is less favorable in middle-aged males than in young men, and it is usually more favorable in women than in men. The presence of chronic alcoholism, of sexual abuse, of a decided neurotic tendency, all make the prognosis less favorable. The marked fluctuation in the symptoms, such as transference of the anæsthesia or partial disappearance of it under metals, makes the prognosis more favorable. Finally, it must be remembered that severe types of hysteria major appear in rare instances to be associated with the development of organic changes in the nervous centers.

Pathology.—The prevalent view with regard to the nature of major hysteria is that which has been so carefully elaborated by Charcot. This is to the effect that through the influence of the nervous shock the patient becomes to a certain extent self-hypnotized, and as a result of this has paralysis which is strictly comparable with that artificially produced by hypnotism; in other words, traumatic hysteria major is a condition of auto-suggestion in which the anæsthesia, paralysis, tremors, contraction of the visual field, and other symptoms are the result of a violent excitement of the imagination, with an accompanying loss of volitional and inhibitory power. Reduced to non-technical language, this theory is that traumatic hysteria is all a fancy. Such view is entirely insufficient, in my opinion, to explain the symptomatology of the disease. No person who had not received some previous suggestion could by any exercise of his imagination think himself suffering from loss of smell, taste, vision, hearing, and tactile sense on one side of the body alone, for such complex of symptoms is entirely unknown to the laity. There must be, therefore, something more than this postulated in order to explain these curious phenomena. This further element in the theory of the condition is assumed by others to be a vascular spasm, it being thought that by the influence of a nervous shock there can be produced a spasm of certain vascular areas which nourish the posterior parts of the internal capsule

and perhaps the sensori-motor areas of one side of the brain. Dr. Bastian seems to think that the vascular theory is the essential and perhaps the efficient one. For my own part, it seems to me we are at present quite unable to explain the phenomena of major hysteria with any degree of satisfaction.

So far as the pathological anatomy is concerned, we stand upon a firmer ground. It seems almost incredible when one sees these severer types of hysteria that there should not be some organic change underlying it. The fact that there is no such change, however, has been demonstrated: first, by the histories of cases in which sudden cure has taken place even when the paralysis and anaesthesia were most complete; and secondly, post-mortems by Pell, Oppenheim, and others on cases of traumatic hysteria have demonstrated that there are no lesions appreciable to the naked eye or through ordinary microscopical research.

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THE EFFECTS OF ELECTRIC CURRENTS OF HIGH POWER UPON THE HUMAN BODY.

BY

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THE utilization of electricity nowadays is too general and familiar to need extended comment; suffice it to say that an agent that until a quarter of a century ago was used only for the operation of the telegraph, in electrometallurgy and other chemical processes, and in medicine, to-day provides a large part of the motive power, light, and heat of towns and cities throughout the civilized world, while in our own country the smallest villages are equipped with electric-light and street-car plants, and before another decade is finished electricity is likely to find its way into every household for some economic purpose.

Incident to its adoption it is natural that the use of so potent and dangerous an agent should have been attended by accidents more or less grave, due sometimes to want of familiarity upon the part of those who were engaged in providing it, or in its application, and of consumers who were for the most part entirely ignorant of its properties or manipulation. These accidents have so far not found their way into courts as the basis of litigation except to a limited degree, though there is no reason why the responsibilities of electric corporations differ from others where injury or death has been the result of negligence. The determination of culpability is, however, much more difficult, and contributory negligence is naturally claimed with some reason where the regulations and instructions are not complied with, or where the bodily harm is the result of foolhardiness upon the part of the injured person.

The properties of electric currents should by this time be well enough known to fix the blame where it belongs—either upon the victim, the power-providing or subway companies, or those who supply or maintain imperfect apparatus or poorly insulated conductors, or exact dangerous services from their employees, or in any way expose others to risk of life or limb.

The mechanical causation of accidents is a subject that is fully gone into by writers upon electricity, and it is only necessary to say that where more or less serious harm has resulted it has been through imperfect conductors or insulations, when the person places himself in the circuit, receiving a much more powerful current than he expected, or where as the result of underground leakage a current of high voltage has been turned where it does not belong, either traversing wires designed for

currents of lower voltage or finding escape through iron water or gas-pipes which the victim grasps. Again, the person places himself in the circuit of a current of great amperage, so that he is burned.

The effects of the passage of an electric current of high power through the human body are exceedingly variable and uncertain. It sometimes produces instant death and again no result whatever. As will be seen later, nervous shock, more or less severe burns and a variety of minor nervous disorders may follow.

Modifying Conditions.—What is a current of high potentiality and what are the conditions which antagonize its effects? The voltage sufficient to produce death is commonly fixed at 1500 volts, yet cases are reported where very much more was received without fatal consequences, but in these cases it is probable that the entire current did not enter the body. In the determination of the strength of the current we are to consider the element of surface resistance, remembering Ohm's law that the intensity varies chiefly with the electromotive force and inversely with the resistance. The conditions of moisture and the pressure of metal fastenings increase the danger, while it is likely that it is somewhat diminished by the dryness of the hands or the interposition of non-conducting substance.

Gaertner and Edison found the resistance of the body when the surface was denuded to be from 1600 to 2000 ohms, but this is probably much greater. The effects of the alternating and direct differ greatly, a voltage of from 250 to 800 of the alternating killing a dog which withstood a continuous current of 1000 to 1400. The rapidity of the alternations also increases the fatality. It would seem that sudden interruptions have much to do with the serious effects, for a sudden break of the continuous current, say of 500 volts, is likely to produce much more decided effects than where no break is produced.

"The problem of the electromotive force is by no means so simple as it would appear from the ordinary statement that the current used was one of 500 or of 2000 volts. In the early days of Faraday's researches he was asked why a shock was felt when a circuit containing an electromagnet was broken, and why no shock was felt when the circuit contained neither electromagnet nor wire coil. This led Faraday to study what he called extra currents, but which are now spoken of as currents of self-induction or inductance.* If the circuit contains a coil of wire it is found that on making closure a current of brief duration is induced in that wire, which runs in the opposite direction to the steady current. On opening the circuit another current, running in the same direction, is induced in the circuit. These extra currents, or currents of self-induction, were carefully studied by Blaserna,† who found that the extra current of opening was of shorter duration but much more intense than the extra current of closing. Now every dynamo-current necessarily contains a coil in its circuit, and consequently must present the phenomena of inductance. Hence when a person receives a shock from a dynamo-current he must also get, when the current is broken, a self-induced or extra current of opening, of great intensity but short duration. The strength of this extra current depends on so many factors that it is not easy to

* Fleming, *The Alternate-Current Transformer*, pp. 37 et seq. London, 1889.

† Blaserna, *Giornale di Scienze Naturali ed Economiche*, vol. vi., p. 22, 1870.

calculate, but I understand that with a current of 500 volts it may reach 2000 or 3000 volts.

"It follows, then, that where the factors in the problem are so variable we cannot make any positive assertions and say that because A received a shock from a 2000-volt current without harm it must be harmless to B, when we know neither the body resistance of A or B, nor what part of the current A received. As well say that because A swallows ten grains of morphine and survives, ten grains is a safe dose to give to B." (Knapp.)

Effects of Discharges that do not Kill.—Slight shocks may result in pains, numbness, paresis, or swelling of an extremity; headache, vertigo, insomnia, and disturbed vision. Of course all such cases must be studied by themselves, for the temptation to exaggerate some of the subjective symptoms is very great. Persons who have been subjected to shock are sometimes worse during electrical atmospherical disturbances, their aches and pains and nervousness being exaggerated by a thunder-storm. These symptoms are usually recoverable, though there may be a variety of residual shock, with deep-seated nervous disturbance of an emotional kind, which obstinately persists. Dana is of the opinion that electrical currents when they do not kill produce no permanent harm, but this, we believe, is not always the case. The immediate effects of a strong non-fatal current (300 to 1000 volts) are temporary tetanus, the victim falling, with preservation of consciousness, but a sense of terror and pain which disappears with the rigidity. Of course the unexpected plays a part in the demoralization. A large number of residual conditions are left after electric shock. These vary from *neurosis* and the condition which is known as the traumatic neurosis (see Dana's article) to light hysteria. The demoralization that remains after railway accidents is sometimes witnessed in these cases, and the resemblance to this kind of disorder is very close. In hypochondriacal persons the nervous excitement is extreme, and an excellent case of Knapp's may be used in illustration to show how powerfully the imagination may be excited when there is no actual injury but simply fright:

"I was asked by Dr. D. W. Cheever to see George L., forty-two, married, a coachman, who was said to be suffering from an electric shock. I saw him on April 14, 1889, and obtained the following history of his accident: He had always been well and strong, although slightly hypochondriacal; had used alcohol pretty regularly, although never to excess. He had been in one or two serious runaway accidents, and had conducted himself with marked coolness, judgment, and courage. Five days ago, on the 9th, a wet day, he was driving a span of horses attached to a coupé, and about 10.30 A.M. one or both of the horses stepped on the conduit of the West End Street Railway, which, from some defect in construction, had become charged with the electric current used in running the cars, claimed to be 500 volts, but probably greater. The horses got a shock, dropped, and lay squealing and struggling for a moment. As they fell, the driver, who was sitting on the box holding the reins, says that his hands felt numb and queer, and pricked and tickled. He jumped down, and thinks he stepped on the conduit; at any rate he felt a shock and a prickling sensation like needles in his legs, which was worse than in his arms, but neither shock was painful. He wore ordinary sewed single-soled shoes, with iron nails only in the heels. He thought he did

not touch the conduit with his hands, but he may have touched the tire of the wheels, although he felt no further shock; he cannot say whether he knelt on the conduit. He saw no sparks before his eyes and had no queer taste in his mouth. He sprang to the coupé, after alighting, and got the horses loose, and they started and ran to the stable. A friend who helped him move the carriage felt a slight shock, which was not painful. L. was very much excited and felt that he could not go after the horses. He did go to a house some two blocks away to tell his employer of the accident. In doing so he had to take a friend's arm, as he had severe pain in the knees, especially in the knee-caps. He then returned to the scene of the accident, where he met the stable-keeper, who had come in a buggy to see what the matter was. L. got into the buggy, helped take the coupé to the stable, and then went home. Since that time he has stayed in the house most of the time, being unable to do anything. He has been extremely nervous and apprehensive, and for two days had the feeling of pins and needles in his feet, and cramps in the calves of his legs at night, with occasional pain in the knees; but he has had no pain in the knees since the 12th. He has occasionally an aching pain in the back. He has a general shivery feeling, but does not feel cold or sick. He had a little headache on the 9th and the 13th, but not enough to amount to anything. He feels a little dizzy on stretching. There is no trouble with vision. Sleep has been very poor until last night, when he slept pretty well under thirty grains of bromide. He has been kept awake by a nervous feeling, and when he did fall asleep would start. Night before last he shook all night. To-day he has a slight pain across the epigastrium. He has had no sexual desire since the accident. Since his accident he has had a constant tremor, most marked in the hands; this is rather better to-day. When he came home he could not put his toes down to the floor very well. The calves now feel a little stiff.

"L. is stout, ruddy, and the picture of vigorous health. He is very nervous, apprehensive, and restless, constantly rubbing his hands together. He fears that he will never be able to work again or be the man he was before. There is a tremor of the head and limbs, most marked in the hands; this tremor is slightly increased in the arms on intended movements. The grip is not very strong, but there is no ataxia or Romberg's symptom, and he walks well. The tactile sensibility seems a trifle blunted all over the body, possibly more on the left side of the face than on the right, but there is no distinct line of division and no true hemianæsthesia to touch. The field of vision, as tested by fingers, seemed slightly contracted on the right. All movements were well performed. There was slight tenderness over the calves and the fourth dorsal vertebra, and rather more tenderness over the upper lumbar vertebrae. The knee-jerks were exaggerated; there was front tap contraction, and a tendency to a patellar clonus. There was no real clonus either at the patella or ankle, but a tap caused several contractions and a general muscular spasm. Examination of chest negative; pulse 106. No electrical tests were made.

"April 16. Sleeping better; tremor almost gone. Complaints of soreness in the back. Goes out a little, but is unable to do any work.

"May 30. Getting on well. Still has a slight tremor in the right hand. Knee-jerks normal. Says he is not the same man, and is rather despond-

ent and anxious. Nervous; gets out of breath easily; arms give out on carrying anything.

"Soon after he went with his employer to the sea-shore, and resumed his work."

Jackson reports a case where the shock was severe but the consequences not fatal: R. R., aged twenty-two, well developed and muscular, was driving, and the feet of his horses became entangled in a live electric-light wire. R., in his attempts to remove the wire, probably took hold of some unprotected spot and was thrown to a distance of twelve feet against a curbstone and then instantly to the middle of the street again, swaying back three or four times. His hands were in contact with the wire about three minutes, when from some unknown cause the current broke and he dropped to the ground unconscious, remaining so about ten minutes; then in a semi-conscious state was taken to the office of the writer. Two hours after was first seen by Dr. Jackson; then the pulse was 100, strong and bounding; temperature 100° ; pupils dilated; headache, and was nervous and irritable; reflexes increased. The headache, accompanied by insomnia, continued three days, then rapidly disappeared, and he resumed his work as section-hand without inconvenience, none the worse for the shock. His hands were blackened from the finger-tips to midway between the elbow and wrist. The current was from a fifty-light Thomson & Houston arc-machine, ampere-current 6.8, voltage 2100.

Donnellan (*Medical News*, August 4, 1894, p. 126) reports a case where the subject received 1000 volts and recovered after remaining comatose for some hours: "On the 20th of April, 1894, J. R., aged forty-four years, while engaged in repairing broken wires for the Bell Telephone Company, grasped the ends of a wire that had crossed an electric-light wire conveying 1000 volts. He received the full force of the current through his body, and was immediately rendered unconscious. He was thrown violently to the ground, and could not be released until the current was broken by a fellow-lineman, who cut the wires apart with a hatchet. The man was brought to St. Mary's Hospital at 11 A.M., within half an hour of the accident, and I saw him a few minutes after his admission. He was in profound coma, with pupils widely dilated and irresponsive to light, breathing stertorous, face pale and bathed in perspiration. About ten minutes later he vomited, and then became wildly delirious, so that it required the combined efforts of three men to keep him in bed. He moaned and cried incoherently, and tonic and clonic convulsions of a severe type succeeded each other with great rapidity. At this time we were unable to take his temperature on account of his extreme restlessness, but to the hand it appeared about normal. His respirations now lost their stertorous character and became more of the Cheyne-Stokes variety, averaging about ten per minute for two hours after his admission. The pulse was 80 per minute, of high tension. At 11.40 A.M. the man was given morphine, gr. $\frac{1}{4}$, by hypodermic injection, and as the delirium and convulsions did not abate the injection was repeated at 12.10, and soon afterward he gradually quieted down. About 1.30 P.M., as his respirations were alarmingly feeble, he was given strychnine, gr. $\frac{1}{30}$, by hypodermic injection, with excellent effect. At 2 P.M. he fell into an apparently normal sleep, from which he awoke four hours later, conscious but slightly dazed, and feeling, as he expressed it, 'tired and sore all over.' On my visit to the hospital next morning I found that he

had slept well during the night; his temperature was 98.8°, his pulse 72, his respiration 18. He complained of pain from a number of severe burns that he received during his contact with the wire. These burns were distributed irregularly in lines over the back, arms, and legs, and evidently were caused by the intensity of the current, as the clothing which covered the affected areas showed no signs of having been scorched. On questioning the patient as to the nature of the accident, he remembered perfectly all of the incidents of his morning's work up to the time when he grasped the wire that conveyed the shock through his body. After that moment he had not the slightest knowledge of what had occurred, and did not suffer the least pain until he awoke at 6 P.M., as already stated, to find himself in bed in the hospital."

Death from electricity is, as a rule, sudden and accompanied by appearances which have been more or less carefully observed at the various electrical executions that have occurred in the State of New York. Those of an objective character consist of the immediate production of a general tetanic state with current-closure, which disappeared with current-opening. There were also in some cases clonic muscular spasm of the thorax, immediate loss of consciousness, a slight escape of mucus from the mouth, pallor, facial petechiæ, dilatation of the pupils, dimness of the cornea, and extinction of the pulse. In two or three cases the causation of death was evidently not immediate—notably in that of Kemmler. One of the condemned—the most horrible case of all—was first actually anæsthetized after being removed from the "electrical chair," and when rendered insensible was finally put to death by a second turning on of the current.

William G. Taylor (Brown, J. W., "The Latest Electrocution," *Medical Record*, New York, 1893, vol. xlv., p. 222) was electrocuted at Auburn, July 27, 1893. A current of 1260 voltage was turned on at a given signal, and with a crash the legs shot forward and upward, tearing the standard and entire front from the chair. For exactly 52 seconds this condition was sustained and then the current was shut off. The condemned now pitched forward and would have fallen upon his face had he not been restrained by straps. For 20 seconds he remained apparently dead, a slight froth oozing from the mouth below the mask; then gasped. An attempt was made to again turn on the current, but this failed. Pulse could not be felt. Thirty seconds later pulse was slight and thready, respiration 6 per minute. He was unbound and placed on a cot and removed to adjoining room; respiration now 12 to 13, pulse 100 and full, breathing stertorous, and features possessing the idiotic expression seen in apoplectic seizures. Breathing continued labored, but increasing in frequency, and at half an hour after contact was 18 and pulse 120 and full. He now made the first movement of left foot and in a very few moments became restless, moving legs and arms and rolling from side to side. He was now given, hypodermically, $\frac{3}{4}$ gr. morphia. After 15 minutes, no appreciable effect being produced, a cone was saturated with $\frac{1}{4}$ chloroform and $\frac{3}{4}$ ether and applied. He opened his eyes and tried to object to this. Forty-eight minutes after contact pulse was 130, full and vigorous. Readily responded to the anæsthetic and was again placed in the chair and a second contact made and continued 40 seconds; an examination proved him dead from a voltage of 1220. Autopsy 1 hour and 34 minutes later: no rigor mortis, slight eschar on temple, exten-

sive one on right leg, slight congestion of peritoneum, lungs slightly congested at apex, one ounce serum in pericardium, otherwise normal conditions, blood fluid throughout.

This case and another quite recently reported in France by Arsonval raise a grave question of how electricity kills, and whether the production of asphyxia is not what really takes place. The subject of the French case was a workman who received 5000 volts (!) in some way, and was restored to life by artificial respiration and other means. Again and again cases "struck" by lightning have, though apparently some time dead, been resuscitated, and it certainly is a grave question whether post-mortem examinations should not always be delayed until the matter of death is indisputably settled.

Buchanan (London *Lancet*, 1892, vol. i., p. 629) reports a fatal case of a man who received a current of 2400 volts. He was seen ten minutes after the accident. His face was livid, lips congested, pupils dilated, bloody mucus oozed from the nares, hands almost clenched; he was lying on his back inclined to the right side. Artificial respiration was resorted to; he respired three times, and then died in four minutes, quite rigid. There were no marks on the head or body, but a dirty spot on the right hand, which was probably the japan from an iron bar held in the hand, he having struck at the induction-wire while the insulating india-rubber was fusing. After having struck at the wire he fell back with a cry for help and was then carried away insensible. Post-mortem 31 hours after death: rigidity conspicuous; no signs of violence; lividity marked; superficial intestines slightly congested; deeper abdominal contents highly congested (hypostatic); urinary bladder congested; spleen enlarged and deeply congested, and adherent to posterior parts by bands of adhesions; stomach evidenced old inflammation; heart normal; superficial veins congested; right auricle distended; right ventricle flaccid; left ventricle firm and solid; left auricle containing from one to two ounces of liquid blood; right lung firmly and universally adherent; both lungs congested, right more than left, tarry blood and air exuded on pressure, floated in water, and absence of disease; epiglottis, larynx, and trachea deeply congested, otherwise normal; brain and spinal cord congested, otherwise normal; death evidently by asphyxia.

One of the carefully detailed autopsies (that of Jugigo) made by Van Giesen may be presented (*The Infliction of the Death Penalty by Means of Electricity*, by C. F. Macdonald, M.D., New York, 1892, D. Appleton & Co.), and fully describes the appearances found in other cases: "The post-mortem examination was held four hours after death. The pupils were alike and moderately contracted. The body was well nourished and unusually well developed. The anterior epithelial cells of the cornea had desquamated from the central portion by the action of heat. There was a bulging forward of the sclera of the left eye at the left sclero-corneal junction. Conjunctiva anæmic. The scalp and the skin covering the neck had a dull, purplish hue. The skin of the anterior surface of the body was not discolored or ecchymosed. At the flexure of both elbows were a number of symmetrical linear ecchymoses, which were more marked on the right side; also a curved, narrow ecchymotic line just below the outside of the right nipple. These probably were caused by the straps. At the posterior surface of the right knee-joint, and on the posterior and inner and upper surface of the calf, the epidermis was

raised, wrinkled, and folded. At the flexure of the knee-joint the epidermis had been torn away to the extent of about an inch in diameter. The right lower extremity was flexed and bent more to the median line than its fellow. There was a slight discharge of thin, milky fluid from the urethra and some still remaining in the canal. A sample of this fluid was taken for microscopical examination. Post-mortem rigidity well marked, except in the arms, where it was only slight. The whole posterior surface of neck, trunk, arms, and lower extremities was of a dull, purplish hue. There were a few slight blisters on both temples and both cheeks and eyelids. There were raised whitish streaks on both sides of the neck, just below the angle of the jaw. The trunk was opened by a straight incision from the top of the sternum to the pubes. The fat was an inch thick over the abdomen. Muscles red and firm. Diaphragm at left side was found at the level of the sixth intercostal space, and on the right side at the fifth intercostal space. Portions of small intestines were taken for microscopical examination. Examination of heart: auricles and ventricles flaccid and in diastole and filled with fluid blood. The larger vessels were tied and the heart removed. The left ventricle was well filled with fluid blood but no clots. The auricles were the same. The blood was of the same color in the left ventricle as in the right. Valves normal. On opening the vessels a large quantity of dark-colored liquid blood escaped, half filling the pleural cavity. There were no pleural adhesions. Lungs perfectly healthy, but slightly congested. The spleen was found to be of normal size, the capsule smooth, pulp firm and uniformly filled with blood, and the arrangement of the Malpighian bodies and splenic connective tissue entirely normal. The pancreas was perfectly normal and a portion removed for microscopical examination. Liver entirely normal, and a portion was also removed for microscopical examination. The gall-bladder was filled with bile. Left kidney: the capsule was non-adherent. It was rather large and the cortex of normal thickness. The kidney was uniformly injected, and the markings in the cortex were normal as to number and arrangement. The right kidney was in the same condition. The stomach was empty, the mucous membrane pale; the rugæ were well marked and perfectly healthy. The intestines were healthy. The small intestines were filled with semi-fluid fæces. The large intestines showed the same condition. The urinary bladder was normal and half full. Examination of brain: The brain was exposed by a straight incision of scalp over the vertex from ear to ear, and saw cuts through the skull at a slight angle and at the level of the eyebrows. The scalp showed several old scars, and was slightly less adherent under those portions where the electrode was attached. The skull was symmetrical. The dura mater was normal and the vessels moderately dilated. The longitudinal sinus was found to be normal and contained some fluid blood. The brain was removed in the usual way. The pia mater was uniformly thin and transparent; the vessels in a medium state of congestion; subpial fluid small in amount. The blood was everywhere fluid in the meshes of the pia mater. There was no apparent difference in that portion which the electrode covered. The vessels at the base were perfectly normal. The ventricles contained a small amount of clear fluid. The roof and floor of the lateral ventricles were normal. The ependyma was smooth and transparent. White substance firm. Gray matter normal in every respect.

Floor of the fourth ventricle at the upper half contained some dilated vessels, and on the left side there were a number of minute, radiating petechial spots from one to two millimeters in diameter. The spinal cord was exposed in the usual manner. The external appearance of both cord and membranes was entirely normal, and the vessels contained if anything, even less blood than usual, due, probably, to the short time that had elapsed between the occurrence of death and the holding of the autopsy. Sections half an inch apart showed nothing abnormal. A portion of both sciatic nerves was taken for microscopical examination. Owing to the great length of time necessary to make this autopsy as completely and minutely as was done, and the subsequent careful microscopical examinations, it was not considered necessary to examine the brain and spinal cord in the other cases, especially as nothing of any importance had been observed in these organs in this case. The microscopical examinations showed no recognizable changes in the tissues or organs of the body.'

Falls and Other Injuries.—As a result of falls which follow the receipt of a shock by the victim, who may be engaged in a high place in repairing wires or doing some other work, there may of course be almost any kind of other injury, which varies from simple concussion to fracture of the skull or spine; but these do not concern us except so far as they are the result of an initial shock, the mode of receipt of which is to be determined, as well as whether the contact was due to the victim's carelessness, or whether he was unnecessarily subjected to danger through the fault of others. In New York City and elsewhere there are any number of "dead" wires, which become, by crossing, the conveyers of fatal currents, and these are often responsible for such accidents.

Electric Burning.—Cases of another kind are those in which the electric current produces burns of greater or less gravity. Nankevell reports the case of an electric-light trimmer who received accidentally the full pressure of 2400 volts through his left hand, which held the wire. He was rendered insensible; his legs were drawn up to the trunk. This brought his full weight on the wire, which then broke and released him. He was taken to the hospital and there recovered consciousness, and, though excited, gave an account of the accident. The thumb and forefinger were black and charred, and an eschar was perceived which extended on the dorsum of the hand to the end of the ulna, the tract being burned to the bone. The burned parts were insensible, but there was intense pain in parts not burned. On removal to bed four toes of the left foot were found burned on the palmar surface, each eschar being about the size of a threepenny piece. There was no mark on the boot. He recovered in the course of a few weeks.

The following fatal case of burning, which was carefully observed by Dr. Galvin at the Boston City Hospital, is cited:

"Electric shock. Fall from pole. Severe burns from electric-light wire. Sloughing of burns, gradual failure, and death.

"Peter K., nineteen, single, born in Ireland, a lineman. Some alcohol; denies syphilis. At 2 P.M. on November 17, 1886, while on a pole trimming an electric light, was severely burned, and fell about twenty feet. Has no recollection of the fall, or how he struck. Considerable shock. Well developed and nourished. Right wrist burned superficially over a space about three inches each way. Right thenar eminence burned through

to the muscles, and adductor pollicis laid bare over a space the size of a quarter of a dollar. Middle finger burned to the bone over a space about two inches long, beginning at tip of finger, and on the back of it. Third finger burned over a space about one inch long on the back. Little finger burned the same as the third. Two middle toes on right foot burned a little. Poultices to burns. Two wounds of forehead over right eye, each about three quarters of an inch long, and one of them just over the border of the orbit. Large subconjunctival hemorrhage in left eye. Both wounds stitched with catgut, and sealed up with absorbent cotton and compound tincture of benzoin, after being powdered with iodoform. Brandy, ℥ xxv, and Magendie's solution, ℥ v, subcutaneously; heaters. November 19th. On dangerous list. Poultice has made burns much less painful. Little finger of left hand, which had a brass ring on it, was slightly burned underneath the ring. November 22d. Little finger of left hand has turned completely black. Sloughs on right hand are deeper, and are separating out. Arm swelled to elbow. To-night he feels miserably, and says he felt a repetition of the shock of the electricity at four o'clock this afternoon, the time of the accident, or very near it. Still on the dangerous list. November 25th. Has been delirious for some days. Pulse and temperature up. Very sick to-day, and failing fast. This afternoon was constantly muttering to himself. Pulse getting weaker and weaker. Takes brandy, a teaspoonful at a time. Sloughs on right hand very deep and foul-smelling. Little finger of left hand entirely dead. Died at 4.45 P.M."

The burns are chiefly about the hands, and depend in severity very much upon the dryness of the skin; a moist skin conducting more freely, though there are cases where the current is so strong and the contact so perfect under all conditions that the inevitable result is a bad burn or series of burns. These are deep and do not heal quickly, are attended by sloughing, but not necessarily by much surgical shock. Many of the burns are severe as the victim is unable to let go or because he is entangled with wires so that the contact is prolonged. Sometimes anæsthesia and paralysis of the forearm or arm follows the receipt of such a shock.

Medical Electricity.—Accidents in connection with the medical use of electricity are rare, and arise from the incautious application of currents of high tension to the head, especially when the subject is a person of advanced age, and when there is latent cerebral disease. The too early use of electrical currents after cerebral hemorrhage, or when inflammation of the nervous structures is concerned, is prone to retard the cure or precipitate fresh trouble. In certain peripheral paralyses excessive electrical stimulation may do much harm, but in such cases what the electrical reactions were before treatment must be determined, and the nature of the particular disease settled. Vertigo and transitory losses of consciousness have been observed by the writers as sequellæ of cerebral disturbance due to galvanic currents of high potentiality. Static electricity may, through a careless use of Leyden jars and connections, produce a shock of considerable violence; and a case is known to one of us where the transmission of a six-inch spark through the head produced a temporary unconsciousness, and great subsequent weakness. Induced currents from ordinary medical apparatus are not dangerous.

Late Legal Decisions.—Some recent medico-legal cases are cited in illustration of the issues that may arise. An interesting case is that of the *Southwestern Telegraph and Telephone Company vs. Robinson*, 2 U. S. App. 205, in which it was decided that though the injury was inflicted in a manner that the telephone company could not prevent, they were liable. On the afternoon of October 29, 1889, J. B. Robinson was traveling on horseback on the Dallas and McKinney Highway, Texas, during a heavy thunder-storm, and came in contact with one of the telephone company's wires, which had fallen and was suspended within a few feet from the ground, and, the wire being heavily charged, he was knocked from his horse and seriously injured. The jury returned a verdict for \$2500, which the United States Circuit Court of Appeals for the Fifth Circuit affirmed. The telephone company claimed that the electricity by which the injury was caused was produced by the heavy thunder-storm which was raging at the time. In answer to this the court said: "If the electric fluid with which the wire of the telephone company was charged at the time was an element, or the main element, in the production of the injuries to the defendant in error, still it is clear that the displaced wire furnished the means of the communication of the dangerous force which resulted in the injury to him."

An ordinary and clear case of negligence is the case of *Clements vs. Louisiana Electric Light Co.*, 44 La. Ann. 692. Joseph Clements, who was a tinsmith, was killed on October 4, 1890, by a current from the wires of the Louisiana Electric Light Company, while repairing the roof of a gallery in New Orleans. The wires were fastened to a "house" on the gallery. They were insulated and appeared to be safe. While cleaning the gutter of the roof he came in contact with two wires and was immediately killed. After the accident the insulation on the wires was discovered to be much worn by exposure. This action was brought by the parents of Clements for damages, and the jury awarded them \$5000. The Supreme Court of Louisiana affirmed the judgment, holding that the defendants were negligent in not properly insulating the wires, but regarded the verdict as excessive, and reduced it to \$2000.

An important case is that of *Burt vs. Douglas County Street-Railway*, 83 Wis. 229, where suit was brought by Burt, who received a shock in the manner below stated. The defense was contributory negligence, which, however, was not entertained. The defendants operate a street-railway in Superior City, Wis. On December 23, 1890, they ran two cars attached together. Each car was built with a platform at each end, guarded by a dash-board, with an iron handle attached. The plaintiff got upon the first of these cars, but, finding it cold, attempted to go to the other, where there was a fire, while the cars were moving, and took hold of the iron handle on each car to step from one car to the other. The wires attached to the cars were not properly insulated, and the electricity escaped, the handles becoming heavily charged with it, unknown to plaintiff, and when he took hold of them he received a severe shock and was badly injured, being dragged a considerable distance by the cars, because he was unable to loosen his hold of the handles. He brought suit against the railway company for damages and received a verdict for \$1500, which the Supreme Court of Wisconsin affirmed, holding that the company was chargeable with notice of the defective condition of their ap-

paratus, and that it was not negligence for the plaintiff to pass from one car to the other while in motion.

In the case of the *Colorado Electric Co. vs. Lubbers*, 11 Colo. 505, the action was defeated on the score that the person was injured at a time when he should not have been working at the wires and had been so forbidden to do; but a verdict for the defendant was reversed on error. Charles Lubbers was employed by the Colorado Electric Company as a carpenter to assist in taking care of its light-towers. At 3.30 o'clock in the afternoon of December 17, 1881, he was sent by the superintendent to remove a lamp and connect the wires with the circuit. The usual time for turning on the current at that time was from 4.30 to 4.45 o'clock. This was outside of his duties and he was not experienced in the work. While connecting the wires after removing the lamp the current was turned on and he was shocked and thrown to the ground and seriously injured. Lubbers sued the company for damages and received a verdict. On appeal the Supreme Court of Colorado held that the question of contributory negligence, which was the only defense urged, was a matter of fact for the jury. But the Trial Court admitted, under objection, evidence that after the accident the company put up notices in its works warning all employees to quit work at four o'clock and not to continue without notifying the officers. The court held that this was error, and on this ground reversed the judgment.

A case resembling the last, in the question of the element of time, was that of *Kraatz vs. Brush Electric Light Co.*, 82 Mich. 457. This was an action for damages caused by negligence brought by Almeron Kraatz against the Brush Electric Light Company, by whom he was employed as a trimmer. On August 19, 1886, at nine o'clock in the morning, he was trimming lamps on an electric tower in Detroit, when he received a shock and was seriously injured by the contact of a day-wire which was in operation with the wire upon which he was working, which was "dead" at the time. There was a verdict for the plaintiff, which was affirmed by the Supreme Court, reciting the above facts. One of the grounds of defense was that the injuries had been caused by a stroke of paralysis, but this being a matter for the jury the court refused to go into it, the jury having decided the question.

The defense of trespassing was made in the case of *Sullivan vs. Boston & A. R. R. Co.*, 156 Mass. 378. Daniel Sullivan and another boy were playing ball near a coal-shed of the defendant, on Lehigh Street, Boston. The ball was batted and fell on the coal-shed, and Sullivan went up and recovered the ball. He then came into contact with two naked copper wires on the roof, which were used by the defendant to conduct electricity, and received injuries resulting in his death. Charles Sullivan, as administrator, then brought this action against the railroad company for damages for his death, and on the trial the court ordered judgment for the defendant. The Supreme Judicial Court of Massachusetts, on appeal, affirmed the judgment on the ground that the wire was a lawful apparatus, and not a trap, and that decedent, if not a trespasser, was only a licensee, and that therefore the company was not liable.

A case in which the injured man was hurt by the wires of another company, which approximated those he was repairing, is that of the *Augusta Railway Co. vs. Andrews*, 89 Ga. 653, in which the defense of tres-

passing was advanced. Andrews was employed by a telephone company in Augusta, Ga., to put up wires. On the same poles on which these were to be placed were wires of the Augusta Fire Department and the Augusta Railway Company. While attempting to place the telephone-wire over the fire-alarm wire he received a shock which threw him to the ground and seriously injured him. He brought suit against the railway company for damages, charging negligence in the operation of their "feed-wire" in allowing it to come into contact with the fire-alarm wire at the intersection of two streets, and that the contact of the two wires produced the current which caused his injuries. The verdict was for the plaintiff, but on appeal the Supreme Court of Georgia reversed the judgment, holding that the railroad company was under no duty to protect him, that he had not been granted permission to climb the poles and thus became a trespasser, and that therefore he could not recover.

In the case of *Piedmont Electric Illuminating Co. vs. Patteson's Administ.* the issue depended upon defective apparatus provided by the defendant. Miles Patteson, a negro, about thirty years of age, uneducated, but noted as a cautious man, had been in the employ of the illuminating company as a day-trimmer of street electric lights in Lynchburg for about four months at intervals. About eight o'clock on the night of March 23, 1886, it was discovered that one of the circuits was open, and Patteson and several others were sent out to repair the trouble, each taking with him a "shunt" cord or switch. The shunt cord which Patteson took was visibly defective and absolutely worthless. Soon after they started to work the broken line lit up with a flash, and Patteson was discovered hanging at the top of a lamp-pole dead. He had found the break, and in trying to turn on the current grasped the shunt cord at its defective end with one hand and put his other on a live wire. His two hands were severely burned and the insulation of his shunt cord was burned off at both ends, one end being entirely broken off, showing that his death was caused by the current passing through his body by reason of the defective shunt cord while fixing the lamp. The company proved that Patteson had received erroneous instructions from another negro, under whom he had been placed when he entered their employ, as to the disadvantage of the shunt cord; also that the circuit could have been tested without turning on the current. Patteson's widow, as administratrix, brought suit against the company for damages for his death, and the jury rendered a verdict for \$3000, which, on appeal, the Supreme Court of Appeals of Virginia reversed, saying: "The plaintiff's own testimony fails to prove negligence on the part of the defendant company unmixed by the concurring coöperating negligence of the decedent, but for which the accident could not have occurred."

A negligence case where damages were obtained for the loss of a horse is that of the *Electric Railway Co. vs. Shelton*, 89 Tenn. 423. This was an action by C. F. Shelton against the Union Electric Railway Company and the Cumberland Telephone and Telegraph Company for damages. During a fire the wall of the burning building fell and broke a pole of the telegraph company, which in falling broke the wires at several points; one of these wires fell across the trolley-wire of the railway company, and while resting on it Shelton's horse came in contact with it and was killed. The trolley-wire was not guarded. The Circuit

Court gave judgment for plaintiff, which was affirmed by the Supreme Court of Tennessee, who held that both companies were negligent in not properly protecting their wires from contact in case the telephone-wire fell.

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ACCIDENT CASES.

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THE term "accident cases" is the colloquial legal expression for actions brought to recover damages for personal injuries which it is claimed were the result of the defendant's negligence. The greater number of these actions are brought against common-carrier corporations or the owners or occupants of premises upon which the accident occurred. When it is remembered that probably half the jury cases tried in the courts of the State of New York alone, in any one year, are actions for personal injuries resulting from alleged negligence, and that in almost all such actions one or more medical experts are called to testify in regard to the plaintiff's injuries, it is apparent what an important part medical testimony must play in this large field of litigation. Medical experts in these cases are generally called to testify as to the probable effect of wounds and injuries in respect to their duration, extent, and result upon the general health or capacity for mental or physical work, of the injured person; and in some jurisdictions the services of the experts may be called upon, by legal procedure, before the trial. One of the most interesting questions which this class of cases has created has had public attention recently directed to it by the passage of a statute of the State of New York (L. 1893, chap. 721) providing that in an action for personal injuries the court may, and in certain cases must, grant an order compelling the plaintiff to submit, before trial, to a physical examination by one or more physicians or surgeons. It is left to the discretion of the court whether or not to grant such an examination, unless the defendant shall present to the court satisfactory evidence "that he is ignorant of the nature and extent of the injuries complained of." This statute has come up for construction several times during the past year and has been the cause of much discussion; and in a recent case in which a female infant sued the Manhattan Elevated Railway in the City of New York, and an order was obtained for her examination by a physician before trial, the statute was sharply attacked as an unconstitutional invasion of personal rights and the sanctity of the person, and was unadverted upon by the court; but its constitutionality has been thus far upheld. According to the procedure under the New York statute the physician asks questions of the plaintiff, makes a physical examination, and reports his conclusion in writing. This report is filed and may be used by either party on the trial. It certainly seems as if this statute would prove a salutary measure and tend to check the practice of bringing suits for large damages for very trifling or non-existing injuries.

But the right to such an examination has been held by the Supreme Court of the United States not to exist at common law, and Mr. Justice Gray, in his opinion in the case of the *Union Pacific Railway Co. vs. Botsford*, 141 U. S. 250, says: "The inviolability of the person is as much invaded by a compulsory stripping and exposure as by a blow. To compel any one, and especially a woman, to lay bare the body, or to submit it to the touch of a stranger, without lawful authority, is an indignity, an assault, and a trespass." The rule was the same in New York previous to the passage of the statute above mentioned.* But in the States of Iowa, Ohio, Kansas, Wisconsin, Minnesota, Nebraska, Missouri, Arkansas, Texas, Georgia, and Alabama it has been the practice of the court to grant orders compelling the plaintiff to submit to a physical examination before trial. It is probable that in those States the plaintiff would also be compelled to submit to a physical examination at the trial. But in New York, even since the passage of the act of 1893 before alluded to, such an examination cannot be compelled at the trial. The plaintiff may be requested to submit to such an examination, and if he refuse his refusal may be considered by the jury as bearing on his good faith, but he cannot be compelled to undergo it. In the *Union Pacific Railway* case before cited Justices Brewer and Brown dissented vigorously from the conclusion reached by the majority of the court, and enunciated by Justice Gray, and said:

"It seems strange that a plaintiff may, in the presence of a jury, be permitted to roll up his sleeve and disclose on his arm a wound of which he testifies; but when he testifies as to the existence of such a wound the court, though persuaded that he is perjuring himself, cannot require him to roll up his sleeve and thus make manifest the truth, nor require him in the like interest of truth to step into an adjoining room and lay bare his arm to the inspection of surgeons. It is said that there is a sanctity of the person which may not be outraged. We believe that truth and justice are more sacred than any personal consideration; and if in other cases, in the interests of justice or from considerations of mercy, the courts may, as they often do, require such personal examination, why should they not exercise the same power in cases like this, to prevent wrong and injustice?"

An analogy to the case of compelling an examination of the person of the plaintiff in actions for personal injuries is to be found in the law of divorce. In actions for a divorce or for a decree of nullity on the ground of incapacity to consummate the marriage, it is the practice in England, Scotland, France, and generally in the American States, where the evidence is necessary, and can be obtained in no other way, for the court to order an inspection of the person by medical experts. The same objections have been urged in divorce cases to such inspections as have been urged to an examination in actions for damages for personal injuries, and as far as the violation of the sanctity of the person is concerned the objection to an examination in divorce cases is more weighty, for the reason that the intrusion and violation of the subject's modesty are greater. But the necessity, it may be said, is also greater. "It has been said," remarked Lord Stowell, "that these modes resorted to for proof on these occasions are offensive to natural modesty. But nature has pro-

* *McQuigan vs. D., L. & W. R. R. Co.*, 129 N. Y. 50.

vided no other means; and we must be under the necessity of saying that all relief is denied or of applying the means within our power. The court must not sacrifice justice to notions of its own."*

Even in a case where a husband sued for divorce on the ground of the physical incapacity of his wife, and his bill was taken for confessed, that is to say, the wife interposed no defense, Chancellor Walworth of New York ordered an examination of the defendant by surgeons and matrons, and a report to the court. And that learned jurist, in discussing the application, said: "Investigations of the kind are always indelicate, and the mode of proof to which resort must of necessity be had must frequently be very distressing to the feelings of parties. This court, however, is not at liberty to decline jurisdiction in such a case, but must proceed to the examination and decision thereof in the manner required by law, if the injured party thinks proper to insist upon his legal rights." †

In many actions for personal injuries the plaintiff greatly exaggerates his injuries, even if he does not perjure himself about them, and a medical examination, conducted under proper safeguards and restrictions, would seem a wise check upon the temptation to such exaggerations or perjuries. And in connection with the natural anxiety of the plaintiff to make his condition out as bad as possible, a story is told of an action for personal injuries in the New York courts, in which the plaintiff testified that his right arm had been so injured that he was unable to raise it any longer to a horizontal position. Upon cross-examination the defendant's counsel asked him to indicate how high he could now raise his arm. "Only so high," replied the witness, lifting his arm with apparent difficulty a few inches from his side. "And how high could you raise it before this unfortunate occurrence?" said the lawyer suddenly. "So high," replied the witness, raising this same injured arm above his head with ease.

When it comes to the actual trial of actions for personal injuries there are two difficult questions, to the solution of which the testimony of the medical expert may be directed. One of these is how far the defendant's negligence is responsible for some subsequently developed infirmity or disease, or, in other words, how far a given injury may be said to be the natural and proximate cause of a subsequently developed condition, and therefore render the defendant liable for that condition. The general rule is easily stated—to wit, if the subsequent disease or infirmity is one which would occur as the natural result of the injury, and it is not shown that any other independent cause existed of which it might have been the result, then the author of the original injury is liable for the subsequent disease or infirmity. But, like all general rules of law, the difficulty of this rule lies in applying it to particular states of facts. Some illustrations may be useful. The question has frequently arisen where, in the case of women, it is claimed that a miscarriage is the ultimate result of the shock of an accident, though not of any direct physical injury.

A pregnant woman was driving with her brother over a defective bridge. The hind feet of the horses went through the bridge. The woman got out of the carriage and went for help, and claimed that her exertion in so doing and her fright brought on a miscarriage. It was left to the

* *Briggs vs. Morgan*, 3 Phillim, 325.

† *Devanbagh vs. Devanbagh*, 5 Paige, 554.

jury to say whether the accident was the natural and proximate cause of the miscarriage.* And so where a railway train was backed off the rails through a fence and into the plaintiff's porch—she being upstairs in the house at the time—and two days later she had a miscarriage, it was held that it was proper to leave it to the jury to say whether there was a sufficient proximate connection between the accident and the miscarriage to warrant a recovery.† These cases are also illustrations of the rule that it is not necessary, to warrant a recovery, that the disease or infirmity should have been the result of actual physical contact with the medium of the negligence. But an instance in which it was sought to carry this liability for miscarriage a little too far is to be found in a case in Illinois, where the defendant went to his neighbor's house and used violent, threatening, and abusive language to the plaintiff's husband in the hearing, but not in sight, of the plaintiff, as a result of which, through fright, the plaintiff had a miscarriage. The court very properly, it would seem, held that the injury in question, not being one which the defendant could reasonably be expected to anticipate as likely to ensue from his conduct, could not, therefore, be regarded as the natural consequence thereof, for which the defendant could be held responsible.

In a case in which a boy sued the city of Ripon, Wis., for damages for falling on a defective sidewalk and injuring his arm it was shown that the ultimate result to the arm was that the humerus was in a necrosed condition nearly its whole length, and that there was a running sore on the arm. It was also shown that the boy was scrofulous, and it was contended for the defense that the damage to the arm was principally the result of the plaintiff's condition at the time of the accident, and that the defendant's negligence was not, therefore, the proximate cause of the whole injury for which the plaintiff recovered. The court, however, held in effect that the sidewalks of a city are for the use of the scrofulous as well as the sound, and that if a sick person falls on a defective sidewalk so much the worse for the city, and upheld the plaintiff's contention that the negligence of the defendant was the proximate cause of the whole injury for which the plaintiff recovered damages.‡

The other difficult question, which is, in a sense, the converse of the foregoing, is how far the defendant's negligence is responsible for an existing condition where a disease or injury existed previous to the negligence complained of, and is claimed to have been aggravated by that negligence. For instance, the fact that a person suffering injuries from the negligence of a railroad company is afflicted with a disease of which he must ultimately die, will not relieve the railroad company of responsibility for injuries which hasten his death.§ And the fact that a person was suffering from Bright's disease at the time he was injured does not prevent his recovery, although the injury was aggravated by the disease.|| And if the plaintiff had a tendency or predisposition to cancer this will not relieve the defendant from liability for a cancer which develops as the result of an injury.¶ So a person predisposed to mala-

* *Oliver vs. Town of Lavelle*, 36 Wis. 592.

† *Chicago & Northwestern Ry. Co. vs. Humerberg*, 16 Bradwell, 387.

‡ *Stewart vs. City of Ripon*, 38 Wis. 584.

§ *Louisville & N. R. Co. vs. Jones*, 83 Ala. 376.

|| *Louisville N. A. R. R. vs. Snyder*, 117 Ind. 435.

¶ *Baltimore R. Co. vs. Kemp*, 61 Md. 74.

rial, scrofulous, or rheumatic tendencies, but otherwise in good health, may recover damages for the development of such tendencies by a negligent injury.* Nor do previous fractures affect the measure of damages for a subsequent fracture caused by the defendant's negligence.† And where an injury to a child was aggravated by a latent hereditary hysterical diathesis which might never have been developed but for the accident, it was held that the entire damages were recoverable from the party whose negligence caused the injury.‡ It has also been held that a plaintiff could recover for hernia resulting nine months after a scalding by steam escaping from a locomotive, and for cancer resulting three months after a blow on the breast.

If, however, any casual or unexpected causes intervene between the acts which injure the plaintiff and his ultimate condition, and these causes are such as could not have been reasonably foreseen in the light of attending circumstances, the party causing the first injury will not be liable for the ultimate result. For instance, a man was hurt in a railway collision and became insane as a result of it. Eight months after the accident he committed suicide. His personal representatives sued the railway company for damages for his death. The Supreme Court of the United States held that they could not recover.§ Of course in this instance the chain of reasoning by which it was sought to hold the railway company liable was just as logical and contained no more links than some of the cases before cited in which the defendant was held liable; but there must be a line drawn somewhere, and the place to draw the line is, after all, to be pointed out by common sense rather than by any hard-and-fast rule of law.

Suppose, however, one of the possible or probable intervening factors to produce the ultimate result has been the malpractice of the physician or surgeon called in to treat the original injury: must the defendant bear the burden of this too? The answer is that if the injured person has used reasonable care and judgment in the selection of his physician, the defendant must suffer the consequences of the ignorance or want of skill of that physician. The patient is not obliged to call in the most eminent physician or surgeon, of the highest professional skill and most infallible judgment, before he can hold the defendant liable for the condition in which he is left at the end of his medical treatment. If, for instance, a man who is injured in a railway accident, and uses ordinary judgment in the selection of his physician, is told by his physician to take exercise, and it is proved that if he had not taken exercise he would have recovered sooner, this will afford no defense to the railway company. The reason for this rule, as given by the Supreme Court of Maine, is this: "In the present imperfect state of the medical science, and amidst the conflicting theories of medical men, as well as the uncertain reliance to be placed upon the different modes of treating injuries and diseases, it would not be difficult to make it doubtful, in a given case, if the professional treatment might not have been improved or was unskillful, and thus a way of escape might be prepared for wrong-doers from the legitimate and legal consequences of their negligence or mis-

* *Louisville R. R. Co. vs. Falvey*, 104 Ind. 409.

† *Dreiss vs. Frederick*, 73 Tex. 460.

‡ *Lapleigne vs. Morgan's L. & T. R. Co.*, 30 La. Ann. 661.

§ *Scheffer vs. Railroad Co.*, 105 U. S. 249.

conduct. The principle, therefore, of holding the defendants responsible, is founded in sound reasons of public policy.*

In case of the death of the injured person, and an action brought by his or her personal representatives to recover damages therefor, it is obvious that the elements entering into the question of the amount of damages will be different from those which may be considered by the jury in an action brought by the injured person himself. At common law the right of action for injuries resulting in death perished with the deceased, and the right given to the personal representatives of the deceased to sue is entirely the creation of statute; and the elements, therefore, which enter into the question of damages in such cases are controlled by the construction which is put upon the statute of the jurisdiction in which the suit is brought. For instance, under Lord Campbell's Act, which is the British statute giving a right of action for injuries resulting in death, the jury is limited to the actual pecuniary injury done to the family of the person killed, and can give nothing by way of solatium for their grief and injured feelings, or to compensate them for the loss of society or companionship which they have suffered, nor can anything be allowed in such action on account of the physical or mental suffering of the deceased; and the rule is substantially the same under the New York statute, so that where the injured person dies the office of expert testimony will be limited to the question of whether, in a case where there is any doubt, the death was the result of the injury. Where, however, the injuries do not result fatally, and the action was brought by the injured person himself, the elements which the jury may consider in determining the amount of damages are the impaired capacity of the plaintiff to earn money, the cost of his cure, and his physical and mental pain and suffering. In all these matters the testimony of physicians may be material. In estimating the loss of earning power, just as in determining how far the defendant's negligence is responsible for subsequently developed infirmity, the rules of common sense must be applied, and the decrease in earning power for which there may be a recovery must be such as is reasonably certain to result from the injury in ordinary course of nature, and not such as may be the possible consequence of the injury. In a leading case in New York, *Dr. Spitzka*, who had examined the plaintiff, who was a boy who had been injured in a railway accident, was asked as to the permanency of this condition of the plaintiff, and he answered that it was very likely to be permanent. He also stated that the plaintiff was liable to retain the greater part of the symptoms which he had, if he did not develop worse signs. He was then asked what he referred to by his statement that the boy's condition might develop into worse signs or conditions, and he answered, "A patient sustaining such injuries and presenting such premonitory signs may develop traumatic insanity or meningitis or progressive dementia or epilepsy, with its results." The question was objected to as speculative and hypothetical, but was allowed, and the Court of Appeals, in reversing the judgment and ordering a new trial, said: "The door was opened for the jury, in estimating the damages, to include compensation for the mere hazard to which the plaintiff was claimed to be exposed of being afflicted with the terrible disorders, or some of them, enumerated in the answer," and "to entitle a plaintiff to

* *Stover vs. Bluehill*, 51 Me. 442.

recover present damages for apprehended future consequences there must be such a degree of probability of their occurring as amounts to a reasonable certainty that they will result from the original injury."*

There is an English case, illustrating some of the rules of law by which the jury are to be guided in deciding upon the amount of damages for personal injuries, which may have a peculiar interest to members of the medical profession, owing to the fact that the plaintiff was himself an eminent London physician. To lawyers the case is of importance because it is a leading English case on the subject, and was twice tried before a jury and twice appealed, and the principles involved were very thoroughly discussed by the appellate courts. The plaintiff, Dr. Phillips, was an eminent London physician of middle age and robust health, earning an income from the practice of his profession of about £5000 a year. He was injured in a railway accident and his health irreparably impaired to such a degree as to render life a burden and a source of the utmost misery. His condition, as Lord Chief-Justice Cockburn put it, was at once helpless and hopeless. The expenses incurred by reason of the accident had already, at the time of the first trial, amounted to £1000, and medical attendance to still more, and the latter was likely to be for a long time necessary. He had already lost his income for the period of sixteen months which had elapsed between the time of the accident and the trial. On the first trial the jury gave him £7000 damages. The Court of Queen's Bench reversed the judgment and ordered a new trial on the ground of the insufficiency of the verdict, and this reversal was affirmed by the Court of Appeal. Lord Cockburn said:

"But we think that a jury cannot be said to take a reasonable view of the case unless they consider and take into account all the heads of damage in respect of which a plaintiff complaining of a personal injury is entitled to compensation. These are the bodily injury sustained; the pain undergone; the effect on the health of the sufferer, according to its degrees and its probable duration as likely to be temporary or permanent; the expenses incidental to attempts to effect a cure or to lessen the amount of injury; the pecuniary loss sustained through inability to attend to a profession or business, as to which, again, the injury may be of a temporary character or may be such as to incapacitate the party for the remainder of his life. If a jury have taken all these elements of damage into consideration, and have awarded what they deemed to be fair and reasonable compensation under all the circumstances of the case, a court ought not, unless under very exceptional circumstances, to disturb their verdict. But looking to the figure in the present case it seems to us that the jury must have omitted to take into account some of the heads of damage which were properly involved in the plaintiff's claim."†

On the second trial, before Lord Chief-Justice Coleridge, the jury found a verdict for £16,000. This time the defendant appealed and the case again went to the Court of Appeal, but the judgment was affirmed. On the second appeal, in discussing the evidence upon which to base compensation for the loss of a professional or trade income, Lord Justice Brett said:

"It has been in effect suggested by the counsel for the defendants that

* *Strohm vs. N. Y., L. E. & W. R. R. Co.*, 96 N. Y. 305.

† *Phillips vs. Southwestern Ry. Co.*, 4 Q. B. D. 406.

the amount of the income at the time of the accident ought not to be taken into account. This suggestion seems to me to be erroneous. . . . If no accident had happened, nevertheless many circumstances might have happened to prevent the plaintiff from earning his professional income. He may be disabled by illness, he is subject to the ordinary accidents and vicissitudes of life, and if all those circumstances of which no evidence can be given are looked at it would be impossible to exactly estimate them. Yet if the jury wholly pass over them they will go wrong, because those accidents and vicissitudes ought to be taken into account. It is true that the chances of life cannot be accurately calculated, but the judge must tell the jury to consider them in order that they may give a fair and reasonable compensation."

The plaintiff can always recover the cost of medical attention, nursing, and all ordinary and reasonable expenses which he has incurred by reason of his sickness, and it has been held to be no defense to a recovery for money paid to a nurse that the plaintiff had a family capable of taking care of him. This last defense in these days of trained nursing strikes one as being a little strained, and evidently struck the court so.* It has even been held that a plaintiff may recover the value of medical services gratuitously rendered, the reason being that these services were rendered for the benefit of the plaintiff and not for the benefit of the defendant, and the defendant should not, therefore, be allowed to profit by them. In one of the cases in which this rule was enunciated the plaintiff was a physician, and it was sought to prove that it was a universal custom among physicians and surgeons not to charge members of the profession for services rendered, but the evidence was held inadmissible as immaterial.† The term "medical services and expenses" does not merely include doctors' bills, medicines, and nursing, but covers also reasonable, necessary, and judicious trips to health-resorts; as, for instance, where a person injured in a railway accident went to the Electric Wells in Georgia and the Glenn's Springs in South Carolina for treatment, he was allowed to prove the expense of these trips as part of his claim.‡ But where a parent sues for the loss of services of a child as the result of an accident, he can recover as expenses for medical attendance only those actually incurred or immediately necessary; future and contingent expenses are recoverable only by the child and not by the parent.§

* *Kendall vs. City of Albia*, Iowa Supreme Court, October 27, 1887.

† *City of Indianapolis vs. Gaston*, 58 Ind. 224.

‡ *Hart vs. Charlotte R. Co.*, 32 S. C. 427.

§ *Jones vs. Chamberlain*, 109 N. Y. 100.

MENTAL DISTRESS AS AN ELEMENT OF DAMAGE IN CASES TO RECOVER FOR PERSONAL INJURIES.

By JOHN E. PARSONS, Esq.

It is common experience that anguish of mind, laceration of feeling, a sense of shame, of indignation, or of humiliation, anxiety, distress of a sentimental character, are often more difficult to bear than bodily hurt. Where such injury has been occasioned by the fault of another, the question arises whether in every case the law affords redress. The maxim of the law is that for every wrong there is a sufficient remedy. Does this maxim hold true in all cases of the character referred to? The general principle is well established that in actions of tort, where for the wrong there is a right to recover damages, mental distress may be taken into consideration in fixing the amount. But the weight of authority seems to establish that when the injury consists in distress of mind alone, or where the mental distress is separate from and independent of the wrong, it does not constitute an element of damage and may not be considered in determining the amount of a recovery.

In support of the general proposition, *McIntyre vs. Giblin*, 131 U. S. 174, is a recent authority. This was a suit to recover damages for the careless shooting and wounding of Giblin by McIntyre. On the trial the court charged the jury that in computing the damages they might take into consideration "a fair compensation for the physical and mental suffering caused by the injury." The United States Supreme Court, Chief-Justice Waite delivering the opinion, held that there was no error in permitting a recovery for mental suffering. The court said that the effect of the instruction was no more than to allow the jury to give compensation for the personal suffering of the plaintiff caused by the injury.

In *Hamilton vs. Third Avenue R. R.*, 53 N. Y. 25 (1873), the Court of Appeals of the State of New York held, where the plaintiff was forcibly ejected from one of the defendant's cars because of his refusal to pay his fare a second time, that the injury to his feelings might be taken into consideration by the jury and a suitable recompense given therefor. In *Hamilton vs. Eno*, 81 N. Y. 116, the same court affirmed the decision of the General Term of the Supreme Court (*Hamilton vs. Eno*, 16 Hun, 599), holding in an action for libel that, in a case where damage had been shown, injury to feelings might be treated as a proper subject for consideration.

Other illustrations of the general rule will be found in cases decided

by the English courts and by the courts of many of the States. Thus in *Blake vs. Midland Railway Co.*, 18 Q. B. 93, Coleridge, J., said: "When an action is brought by an individual for a personal wrong, the jury, in assessing the damages, can with little difficulty award him a solatium for his mental sufferings alone, with an indemnity for his pecuniary loss." *Godeau vs. Blood*, 52 Vt. 251, was a case where a child was bitten by a vicious dog. Redfield, J., said that the apprehension of poison from the bite of the dog, and the fear and solicitude as to evil results therefrom, were proper matters for consideration by the jury in estimating the damages. In *Heddles vs. Railway Co.*, 77 Wis. 228, it appeared that one of the defendant's engines ran over a boy and crushed both his legs. It was held on appeal that damages might be awarded for the "mortification and anguish of mind which he has suffered and will suffer in the future by reason of the mutilation of his body and the fact that he may become an object of curiosity and ridicule among his fellows." *Seeger vs. Town of Barkhamstead*, 22 Conn. 290; *Sherwood vs. Railway Co.*, 88 Mich. 108; and *Railroad Co. vs. Stables*, 62 Ill. 313, are similar cases.

Kennedy vs. Standard Sugar-refining Co., 125 Mass. 90, states the principle under novel circumstances. Kennedy, an employee of the defendant, fell several stories and was killed. The fall was due to a defective floor. When he struck the ground he became unconscious and remained so until death. This action was brought by his administratrix. At nisi prius the mental sufferings of the deceased during the fall were allowed as an element of damage. Morton, J., on appeal, said: "It may be true, as an abstract proposition of law, that if a man is precipitated from a height by the negligence of another, and is injured, he may recover, as one element of his damages, for any mental suffering he may prove he endured during his fall." Damages were refused simply because, Kennedy having remained unconscious till death, there was no way of proving mental suffering.

The cases all proceed upon the principle that where personal injury has been inflicted, for which the wrong-doer can be made liable, mental distress may be taken into account as well as injury to person or character. Some go to an extreme length in permitting a recovery where it is wounded feeling, mortification, indignity, or a sense of humiliation in which consists substantially the entire injury. Thus in *Craker vs. Railway Co.*, 36 Wis. 657, it was held that a female passenger on a railway-train could recover for the sense of shame and personal affront which accompanied the act of the conductor of the train in placing his arm around her against her protest, and kissing her. Obviously in this case the bodily injury was nominal. It was for the indignity that the plaintiff was permitted to hold the company liable. The extent to which courts have gone in grasping at the slightest proof of bodily harm to permit a recovery for distress of mind occasioned by the same occurrence is illustrated by many cases. *Railroad Co. vs. Brown*, 17 Wallace, 445, and *Railway Co. vs. Williams*, 55 Ill. 185, were suits brought by female colored passengers who were not permitted to sit in cars reserved for ladies. In the first case the Supreme Court of the United States refused to disturb a verdict of \$1500, although the passenger aggrieved was carried safely to her destination; and in the second it was held upon appeal that a verdict of \$200 was not excessive, Scott, J., saying: "We apprehend that if the act is wrongfully and wantonly committed the party

may recover, in addition to the actual damages, something for the indignity, vexation, and disgrace to which the party has been subjected." In *Anonymous, Minor* (Ala.), 52, it appeared that one broke into the house of another without a warrant, under pretense of searching for stolen money. The court said: "He [plaintiff] may have sustained no pecuniary loss, but the injury fixes on him the eye of public suspicion, inflicts a rankling wound on his feelings, and tends to prostrate his character." It was held that for such injury to his feelings the plaintiff might recover. In *Cumming vs. Inhabitants of Williamsburg*, 1 Cushing, 451, Metcalf, J., said: "Though that bodily injury may have been very small, yet if it was a ground of action within the statute, and caused mental suffering to the plaintiff, that suffering was a part of the injury for which he was entitled to damages." (*Vide*, also, *Curtis vs. Railway Co.*, Supreme Court of Iowa (1893), 54 Northwestern Reporter, 339; *Willson vs. Railroad Co.*, 5 Wash. 621 (1893); *Chicago, etc., R. R. Co. vs. Conley*, 6 Indiana Appellate Court Reports, 9 (1892); *Shepard vs. Railway Co.*, 77 Iowa, 54 (1889); *The Lake Erie, etc., Railway Co. vs. Fix*, 88 Ind. 381 (1882); *Chicago, etc., R. R. Co. vs. Flagg*, 43 Ill. 364 (1867).)

What remains to consider is the right to recover for mere mental distress consequent upon the negligence or misconduct of another. Upon this subject an interesting and instructive case is *Lynch vs. Knight*, 9 H. of L. Cas. 598. The case came to the House of Lords from the Irish Court of Exchequer Chamber. It was heard just before the death of Lord Campbell. He left a written decision which, with comments by way of partial dissent, was read by his successor, Lord Brougham. The defendant had impugned the chastity of the plaintiff's wife in terms which were not actionable *per se*. The husband sued in his own right, joining his wife, and recovered £150 for the deprivation of her society, he having sent her home to her parents in consequence of the imputation upon her conduct. All the judges agreed, there being no evidence of special damage, that a recovery for mental suffering could not be sustained. *Hyatt vs. Adams*, 16 Mich. 180, is to the same effect. The action was brought to recover damages sustained by the plaintiff by reason of malpractice resulting in the death of his wife. The plaintiff claimed damages for his mental agony on account of his wife's sufferings for the three days prior to her death. Christiancy, J., in overruling the charge of the judge below, speaks of "the propriety and good sense of the rule which restricts the right of action for mental suffering to the person who has received the physical injury." *Connell vs. Western Union Telegraph Co.*, 116 Mo. 34, deals with the general subject in a very able way. The case was elaborately discussed, all the leading authorities upon the subject being referred to. The action was to recover damages for the negligence of the defendant in failing to deliver to the plaintiff the following telegraphic message sent to him by his wife:

"Sedalia, Mo., December 13, 1889. To Matt. Connell, Soldiers' Home, Leavenworth, Kansas. Your child is dying. Mary."

The child died on December 24, 1889. The plaintiff, claiming that the defendant had negligently failed to deliver the message, and that in consequence he had been unable to attend the funeral of his child, brought suit to recover among other things for the mental anguish and prostration which he had suffered. The court held that he could not recover, the mental distress not having attended upon or been accompanied by

physical injury. The same principle was decided in *Wilcox vs. Richmond & D. R. Co.*, 52 Federal Reporter, 264. The complaint alleged that the plaintiff, being informed by telegraph of the dangerous illness of his father, engaged defendant to convey him to Columbia, S. C., where his father was, in a fixed time, paying for the service \$195. The plaintiff charged that the defendant refused to perform its agreement, and that as a consequence he suffered great distress of mind, anxiety, mortification, and suspense, for which he claimed \$5000 damages. There was a second cause of action for the return of the \$195. The plaintiff was permitted to recover the latter amount, but the Circuit Court of the United States for the District of South Carolina, Chief-Justice Fuller sitting with the Circuit Judge and District Judge, affirmed a decision by which it was held, on the authority of *Lynch vs. Knight*, that for mental pain alone, unattended by injury to the person, caused by simple negligence, an action could not be sustained.

Victoria Railway Commission vs. Coultas, L. R., 13 App. Cas. 222 (1888), privy council on appeal from Supreme Court of Victoria, is a recent case. A female crossing a railroad track in a wagon just escaped being dashed into by a passing train, in consequence of the negligence of an employee. She received a severe nervous shock from fright, and the consequence of the fright was an attack of illness. On appeal it was held that for this she could not recover, the damages being too remote. Sir Richard Couch, in delivering the opinion of the court, said: "Damages arising from mere sudden terror unaccompanied by any actual physical injury, but occasioning a nervous or mental shock, cannot under such circumstances, their lordships think, be considered a consequence which in the ordinary course of things would flow from the negligence of the gate-keeper." To the same effect are *Ewing vs. Railway Co.*, 147 Pa. St., 40; *City of Salina vs. Trosper*, 27 Kan. 544; *Wyman vs. Leavitt*, 71 Me. 227. In *Railroad Co. vs. Stables*, 62 Ill. 313, it appeared that Stables, while crossing a railroad track, was struck by a passing train. His wagon was broken and he was severely injured. The court held that for his mental sufferings Stables could recover, saying: "The mental anguish which would not be proper to be considered is where it is not connected with the bodily injury, but was caused by some mental conception not arising from the physical injury."

It is proper to state that although the cases cited and others seem to settle the rule that for mere mental distress there can be no recovery, their authority has not gone unquestioned. In *Bell vs. The Great Northern Railway Co.*, 26 L. R., Ireland, 428 (1890), the court expressly refused to follow *Victoria Railway Commission vs. Coultas*. The plaintiff was put in great fright by the anticipation of a collision. She suffered from nervous shock and ill health in consequence. She sustained no bodily injury. It was held on appeal that, since the fright was the direct consequence of the occurrence and the plaintiff's ill health the consequence of the fright, damages might be recovered for impairment of health.

And in some of the States it has been stoutly maintained that there might be a recovery for nervous shock or mental distress where there was no bodily or pecuniary loss. *Hale vs. Bonner*, 82 Tex. 33, was such a case. The plaintiff sued to recover damages for breach of contract on the part of the defendant in failing to deliver promptly the body of her deceased husband. The contract was for carriage from San Antonio to

Jefferson. When the train arrived at Jefferson, where many friends were waiting to accompany the body home, it was not on board, to plaintiff's great distress of mind. When the body did arrive it was in an advanced stage of decomposition, which caused the plaintiff additional pain of mind. A demurrer was sustained in the court below. On appeal the judgment entered on the demurrer was reversed. *Western Union Telegraph Co. vs. Newhouse*, 6 Indiana Appellate Court Reports, 422 (1892), is a case in which a plaintiff was permitted to recover because he failed to see his mother before her death in consequence of the failure of the defendant to deliver a telegram. *Womack vs. The Western Union Telegraph Co.*, 22 Southwestern Reporter, 417 (1893), Court of Civil Appeals of Texas, is to the same effect.

These and numerous other cases are reviewed with great ability by Gantt, P. J., in *Connell vs. Western Union Telegraph Co.*, previously cited. He said: "We are fully aware that the plaintiff's claim appeals strongly to the sensibilities; but to adopt that view we must either be guilty of adopting one rule of damages for one class of common carriers, and the breach of their contract, or we must conclude that all of our predecessors in the great common-law courts were at fault, and henceforth repudiate not only their utterances but our own on this subject, and this we have no inclination to do. We prefer to travel yet awhile *super antiquas vias*. If, in the evolution of society and the law, this innovation should be deemed necessary, the legislature can be safely trusted to introduce it, with those limitations and safeguards which will be absolutely necessary, judging from the variety of cases that have sprung up since the promulgation of the Texas case."

This may be accepted as an accurate statement of the present state of the law upon the subject.

FEIGNED DISEASES OF THE MIND AND NERVOUS SYSTEM.

BY

PHILIP COOMBS KNAPP, A.M., M.D.

THERE are two great motives which incite a man to feign disease—the desire to escape from something unpleasant, and the desire for gain. The first motive is most potent among criminals and soldiers. In the former class responsibility for criminal acts may be lessened by proof of mental disease, and illness may alleviate the discomforts of prison life, or even obtain a pardon. The criminal and the loafer in our public institutions by simulating disease can often escape from the hated work and perhaps obtain the more agreeable diet of a hospital. In military life the illnesses which develop just before a battle have caused “sogering” to become synonymous with malingering, and in countries where compulsory military service exists, numerous devices are reported as practiced by those who desire to escape conscription. The second motive for feigning disease is the one which will most likely be met with by the physician in ordinary practice. There are many ways in modern life in which a man, although in the exercise of due care, may suffer personal injury by another’s negligence; and, consequently, the dockets of our courts are filled with suits for damages, and railway corporations are compelled to pay large sums for such purposes, a single corporation in Boston paying annually on an average over \$150,000. Such accidents also lead to claims against insurance companies and charitable associations. In other cases, the desire for a pension may be the cause which leads the claimant to feign disease. Considering, therefore, the large number of persons whose moral sense is, to say the least, defective, it would not be strange if many fraudulent cases presented themselves before the claim-agents, and if feigning were common.

With the advance in our knowledge of disease and in the methods of clinical research it is obvious that the difficulty of simulation is enormously increased. Only those affections the symptoms of which are subjective can be successfully feigned. The stethoscope, the ophthalmoscope, and the microscope give us testimony which the malingerer cannot counterfeit; consequently the majority of surgical affections, together with most of the diseases of the lungs, heart, and kidney, which present symptoms clearly objective, cannot be simulated so as to deceive the trained physician. It is in the domain of the nervous system that the majority of cases of alleged simulation occur. Many physicians are

unfamiliar with the rarer forms of nervous disease and with the newer methods of diagnosis, and many of the symptoms are purely subjective. The feigning of a broken leg is practically unheard of; the feigning of the various conditions classed as traumatic neuroses is claimed to be extremely common.

Statistics as to the frequency of feigning are somewhat uncertain, and show great variations. My personal belief is that simulation in any form is rare, and that successful simulation, if the examining physician be competent, is even rarer. Out of 23,903 surgical cases admitted to the Boston City Hospital in ten years, the diagnosis of malingering was made in two, and in 30,639 medical cases the diagnosis was made in fifteen. As might naturally be expected, malingering is more frequent in the office of the admitting physician of the hospital, where a considerable number of the simulators are detected and turned away. In addition to the cases which were admitted to the hospital in the ten years, there were 15,957 rejections, and of these 511 were refused admission, the cause being assigned "no disease and malingering." Of these 511 rejections, the admitting physicians considered about one fourth were cases of malingerers who were anxious to get the shelter and food of the hospital; the other three fourths were not suffering from any disease. These latter figures, however, show merely the number of rejections, and not the number of persons, for it has sometimes happened that a malingerer has been turned away eight or ten times in the course of a year.

In penal institutions malingering seems to be distinctly more common, but its frequency seems to depend somewhat upon the strictness of the prison discipline. A considerable number of prisoners will report to the physician at sick-call in the morning for the sake of escaping from work for a time, or in the hope of being admitted to the prison hospital; but such cases are usually readily detected, and they seldom attempt such a proceeding except upon a new physician whom they think is inexperienced. In my own experience and in that of my colleagues at the Suffolk County House of Correction in Boston, there were many cases who, we thought, came to sick-call when there was no real disease; but the physicians who have been in charge at the House of Correction in recent years agree that there have been very few cases of deliberate and persistent simulation of any form of disease or of insanity. Dr. W. B. Bancroft, the present physician, has informed me that, in his opinion, simulation was distinctly rare; that in five years fifty prisoners have been committed to insane asylums, and that there were only three cases where insanity was deliberately feigned. Dr. G. F. Jelly, the examiner in lunacy for the public institutions, coincides in this opinion, and adds that certain cases, which were believed to have feigned insanity, gave evidence of genuine insanity after admission to an asylum. At the Massachusetts Reformatory Prison at Concord Dr. G. E. Titcomb writes that there is little simulation; however, the men have a powerful motive for refraining from deceit, because the length of their sentence is determined by good behavior. Where prison discipline is relaxed, however, malingering becomes much more frequent. Dr. C. D. Sawin writes me that at the Massachusetts State-prison at Charlestown, where the discipline has been very lax, feigning has been extremely common, but usually it has been readily detected.

Statistics from the pension offices as to simulation are not easily to

be obtained in sufficient numbers to give a definite opinion, but the impression of several of the examiners seems to be that deliberate, conscious simulation is rare.

The question as to the frequency of simulation has been most discussed with reference to the claims for damages for personal injuries, and here opinions vary very greatly. Hodges (*Boston Med. and Surg. Journal*, April, 1881) believed that out of 21 cases he had seen, 10 were fraudulent and 6 were doubtful. Rigler (*Revue Medicale*, January, 1879, *Ueber die Folgen der Verletzungen auf Eisenbahnen*) out of 28 cases thought 7 were fraudulent and 13 doubtful. Page (*Injuries of the Spine and Spinal Cord*) in 234 cases considered simulation or gross exaggeration to be very common. To these figures, however, the objection may at once be raised that they are the opinions of surgeons accustomed to deal with objective symptoms, and unfamiliar with the subtler and more obscure phenomena found in nervous diseases. It is obvious that only a man with long experience in the observation of patients with mental and nervous diseases can judge correctly of the reality of nervous symptoms. It is only within a very few years that neurologists have brought forward statistics showing the frequency of simulation. In 1890 J. H. Hoffmann (*Berlin. klin. Wochenschr.*, July, 1890) started a discussion upon this subject, which was carried on at the Berlin International Medical Congress in the same year by Schultze (*Sammlung klin. Vorträge*, No. 14, 1890), Seeligmüller (*Deutsche med. Wochenschr.*, October, 1890), Mendel, and others (*Verhand. des X. internat. med. Congress*, B. iv., Ab. ix.).

The writers mentioned claimed that in the so-called traumatic neuroses simulation was extremely common, existing in from one fourth to one third of all the cases. The cases which they published in support of their opinions are not, however, absolutely conclusive; the variable character of symptoms often observed in hysteria and neurasthenia, and some of the subtler peculiarities in those symptoms, seem to have been overlooked, and in more than one instance the destructive criticism of Dubois (*Corr.-Bl. f. Schweiz. Aerzte*, September, 1893), Möbius (*Münch. med. Wochenschr.*, September, 1891), Oppenheim (*Weitere Mittheilungen in Bezug auf die traum. Neurosen*), and others, has shown that the accusation of simulation was not substantiated. Indeed, in a later communication, Schultze (*Deutsche Zeitschr. f. Nervenheilk.*, vol. i., p. 445) found only ten per cent. of simulation instead of thirty, as in his previous series.

It is clear that simulation ought frequently to be seen in the claim-agent's room more than in the office of the neurologist, and claim-agents, corporation lawyers, and railway surgeons are fond of saying that the vast majority of cases are frauds. The more pronounced cases of simulation are recognized at once, and only the doubtful cases run the gauntlet successfully and are subjected to the expert judgment of the neurologist. Even in the whole mass of cases that come to the claim-agent's office, however, the amount of deliberate simulation seems to be small. Dr. M. D. Field (*Trans. Am. Neur. Assoc.*, 1893; *Journ. Nerv. and Ment. Dis.*, March, 1894), the examining surgeon of the Manhattan Elevated Railway, has stated that deliberate simulation is seen only in a very small percentage of the cases, and that in such cases it is so manifest and the symptoms are so grossly exaggerated as to be at once recognized by a trained observer. Other examining physicians have expressed to me similar opinions. My own personal experience coincides fully with

these views. In less than four percent. of the cases that have come under my own observation was simulation at all probable, and I have succeeded in demonstrating the genuineness of the symptoms in some cases where simulation was claimed by good observers, and I have also known some suspected cases to terminate fatally. Exaggeration of symptoms is more common, but it must be remembered that exaggeration is a common feature in all sorts of nervous diseases, where introspectiveness, hypochondriasis, and fear lead the patient to make much of minor ailments.

The possibility of the successful simulation of the various forms of nervous disease is not great, provided the investigator be familiar with the clinical manifestations. The simulator's task is not easy. He must be as familiar with all the symptoms of the feigned disease as the physician is, he must be prepared for all the forms and variations of tests employed in a clinical examination, and he must be constantly on his guard lest he betray himself by some unguarded admission. It is clear that such knowledge and such skill are beyond the grasp of the average patient. Many of the minor symptoms of nervous disease and the more exact and elaborate methods employed in their diagnosis are unknown even to the average physician, and the patient cannot learn of some of them unless he is able to read a foreign language. Granting that he could acquire this knowledge, or that he could find a physician sufficiently expert to coach him, another difficulty stands in the way: he must simulate all these symptoms accurately before a physician at least as well acquainted with them as his coach, familiar with all the symptoms of the disease feigned, and ready at any mistake to catch him off his guard. Recent psychological investigations, however, have shown that a man can keep his mind fixed upon any special topic only for a short time. Hence most persons, even if they know the particular movement which constitutes the "trick" of a sleight-of-hand performance, will fail to note it because the performer chooses the one moment to make that movement when their attention is distracted. The simulator must be prepared to feign a dozen symptoms at the same time, so that his task becomes much more formidable, and a successful examiner can readily take him off his guard by the application of some unexpected test. This has been clearly shown by Pitres (*Leçons cliniques sur l'hystérie*, vol. i., p. 79), who had a remarkably good opportunity to prove it. A man had for several years taken the part of the anæsthetic man in a show, enduring pricks, cuts, etc., without the slightest manifestation of pain. In order to obtain the shelter of hospital life this man feigned a disease, one symptom of which was anæsthesia; but when he was subjected to the unexpected application of painful stimuli Pitres proved at once that the anæsthesia was feigned.

One of the striking characteristics of the average simulator is that his symptoms are usually pronounced, and are always made prominent in the clinical picture. There is paralysis, not weakness; anæsthesia, not diminished sensibility; violent pain, not aching. He calls attention to his symptoms; they do not have to be sought for by special tests in a clinical examination. Such symptoms as a moderate contraction of the visual field, a diminished sensibility to pain or temperature, with normal sensibility to touch, or the quibblings or questionings of insanity of doubt, have nothing to do with his complaints. The exaggeration of

symptoms, the manner of thrusting them before the examiner, the absence of any shading or qualification, the total absence of objective phenomena, the detection of false statements with regard to certain symptoms of a partly objective character, and the like, render the detection of fraud easy.

It must be borne in mind, however, that contradictory statements and even conflicting data from examinations are by no means absolute proof of simulation. A very limited acquaintance with patients suffering from actual disease will prove how contradictory their statements sometimes may be, and, in nervous troubles especially, how their condition may vary from one hour to the next; what an influence expectant attention has upon their symptoms; and how suggestible they may be to the slightest influence. Certain conditions, too, may seem absolutely contradictory, and may, to the inexperienced, seem absolute proof of the unreality of all the patient's complaints. Thus, tenderness so extreme that the slightest touch cannot be borne may be associated with comparative insensibility to deep pressure; hysterical amblyopia may be shown to be really psychical, and to exist only on monocular vision; complete inability to stand or walk, as in *astasia-abasia*, may be associated with normal strength and power of coördination in the legs, and the like; so that, without knowledge of such conditions, the diagnosis of simulation is often incorrectly made.

In the detection of attempts to feign disease certain general rules are to be borne in mind. Whenever it is possible, confirmatory evidence should be sought from disinterested persons in regard to the patient's condition. Then the history should be obtained from the patient himself. Careful inquiry should be made in regard to all the bodily functions, and detailed inquiries in regard to all his complaints. The simulator usually proclaims all his sufferings loudly, but the genuine sufferer may often require close cross-examination to elicit the whole story. It is well to return after an interval to certain symptoms in order to see whether the patient's story is consistent or not, and to ask if he has ever had certain symptoms, either impossible in themselves or inconsistent with the type of disease he presents. It must be remembered that many people are incapable of telling a connected story or of giving an accurate account of real sufferings, that many affections show pronounced variations, and that sometimes the claim that the symptoms always remain the same, or of the same severity, may of itself be suspicious. During the process of taking the history, the patient should be quietly and unobtrusively watched, and it may be that he will be detected in performing some act which he has just announced himself incapable of performing.

The taking of the case history should be followed by a thorough and complete physical examination, paying especial attention to the motor functions, sensation (including sensibility to pain and temperature as well as to touch), the special senses (always including examination with the ophthalmoscope and perimeter), nutrition, the electrical reactions, the reflexes, and the condition of the internal organs. It is safe to say that if there be any real disease of the nervous system such a complete examination will reveal some symptoms which it is either impossible or extremely improbable for the patient to feign. Among the symptoms which cannot be feigned are optic neuritis and atrophy, *Argyll-Robertson* pupils, *nystagmus*, muscular atrophy, reactions of degeneration, loss of

knee-jerk, ankle clonus, and a difference in the activity of the skin and tendon reflexes on the two sides. After this the physician will probably be in a position to give a definite opinion. Sometimes repeated examinations will be necessary, and in rare cases it may be necessary to apply the crucial test of protracted observation in a hospital. Seeligmüller (*Art. cit.*; *Verhandl. des X. Internat. Med. Congress*, B. iv., Ab. ix.) has urged this, and thinks it advisable to establish observation hospitals where patients who claim damages on account of traumatic nervous affections may be sent. In very few cases, however, would such hospitals be required.

Until the physician be absolutely convinced, after a thorough examination, that the patient is feigning, it is important not to treat him as a malingerer. Such a course will directly antagonize the patient and his friends, and the cases of deliberate feigning are too few to justify it. The suggestion made long ago by Casper (*Handb. d. Gerichtl. Med.*, B. i., Ab. v.) that the physician should make unexpected visits to the patient to catch him off his guard would naturally arouse suspicion, and thus do more harm than good, and this, and similar proceedings, will seldom be found necessary.

With a thorough knowledge of modern methods of clinical research, the old brutal methods of ignorance must be abandoned. Flagellations, douches, and the cautery may injure one who is really suffering, and they give no help to the scientific observer. Even the so-called crucial experiment of etherization will rarely be necessary. It is of legitimate use in the diagnosis of certain affections, as is well known; but it is not wholly devoid of danger, and it should be employed in suspected simulation only in cases where we might legitimately employ it in ordinary diagnosis.

Many writers point out the danger to the malingerer of feigning disease. By persistently feigning certain symptoms there is danger that a morbid habit may be established, and the feigned disease may become real. This is held to be especially true of attempts to feign insanity. I have seen one case where, in order to obtain a pardon, a prisoner at first deliberately induced vomiting, but finally the vomiting got beyond his control, and although he became alarmed at his condition and wanted to stop, he was for some time unable to control the vomiting. In many cases, however, allowance must be made for the mistakes of the physician, who regards the early symptoms of mental or nervous disease as feigned, only to find out later that there is really trouble.

I have spoken thus far of the deliberate feigning of disease. There are, however, four conditions to be borne in mind by the physician in examining the ordinary cases: first, cases where no disease exists and all the symptoms are deliberately feigned; second, where there is some disease, but the symptoms are greatly exaggerated and additional symptoms perhaps feigned; third, where certain morbid conditions are deliberately produced by the patient, such as conjunctivitis, skin affections, and the like; fourth, where the symptoms, although genuine, are not due to the alleged cause but have existed long before. Although deliberate simulation is, in my opinion, rare, and is usually easily to be detected, it is a harder matter to determine, when there is genuine disease, how far the complaints are exaggerated. In many cases exaggeration is in itself a symptom of nervous disturbance; introspectiveness, hypochondria,

and exaggeration are characteristics of the mental condition of many nervous patients. To appreciate these conditions justly requires long familiarity with nervous patients and nervous affections; and, as a rule, the physician and the friends are too apt to undervalue their complaints. For the detection of exaggeration no definite rules can be given; the physician must be guided by his knowledge of nervous disease in general, by his personal estimate of the individual case, and by his general knowledge of human nature. He may be aided in some cases by the lack of correspondence between the complaints and the symptoms revealed by an examination, and by the statements of the patient's friends and acquaintances, especially by disinterested observers. The chances of error in damage suits from the statements of interested friends are too obvious to need mention. It is well to bear in mind a source of error on the other side in the frequent tendency among the laity to make light of all nervous troubles and to regard them as imaginary.

In cases of the third class, where morbid conditions are deliberately produced by the act of the patient, we are seldom in a position to detect this by the symptoms alone, and in such cases we must be guided by the evidence brought forward to show such facts.

In cases of the fourth class also the physician is rarely in a position to testify as to the exact relation between the alleged cause and the symptoms. The symptoms may be wholly due to preëxisting disease, or the accident may have aggravated some of the symptoms of such a disease. In some cases indications of previous trouble may be elicited on close inquiry; the patient may admit, for instance, the existence of rheumatic pains for years before an accident, and these pains may have been the early symptoms of a tabes which has been referred to the accident. Such questions are often not a matter of expert opinion but a matter to be determined by ordinary evidence, and the only position which the physician can take is to state that the existing condition may well have been due to such an accident as the patient is said to have suffered. Whether the disease existed before the accident, or whether the patient ever experienced an accident, are alike questions of evidence which the jury must determine.

Having thus discussed the general conditions relative to the feigning of disease, it remains to consider the possibilities of feigning the various symptoms of nervous disease, since the consideration of feigning in special cases can be more succinctly and clearly treated in this way than by the attempt to discuss the simulation of individual types of disease. The feigning of insanity, however, can better be considered under a separate heading.

MOTOR SYMPTOMS.

Paralysis.—Paralysis, being one of the most striking symptoms of motor disturbance, is, next to convulsions, the symptom most likely to be feigned. Certain associated symptoms, however, when present, render it exceedingly improbable that the paralysis is feigned. Thus, if paralysis be associated with muscular atrophy, especially with degenerative atrophy, with contracture, vasomotor disturbances, or changes in the reflexes (symptoms which of themselves cannot be feigned), the paralysis is also, in all probability, genuine. If there be anæsthesia, which, as will be shown later, is hard to feign, the probability that the paralysis is

feigned becomes distinctly small. If the paralysis be limited to the distribution of a peripheral nerve or a spinal segment, it is highly improbable that the patient has knowledge sufficient to make the attempt to simulate such a condition, and it is often impossible for him to have such control of the muscles as to succeed in his attempt. Furthermore, the voluntary control over some of the muscles, such as the ocular muscles, the upper facial muscles, and the like, is not sufficient in most cases for the patient to feign paralyzes of them. Most paralyzes of long standing show simple atrophy of the muscles from disuse—the limb is smaller, and the muscles feel softer and flabbier. It is therefore evident that the question of simulation is likely to arise only when there is a recent flaccid paralysis, without anæsthesia and without degenerative reactions and atrophy. In such cases it may be possible to detect the fraud by noticing movements in the limb claimed to be paralyzed, when the patient is off his guard, or is attempting to do some ordinary act such as taking off his clothes; by finding that when the patient stoops the limb is held rigidly to the side and does not follow the action of gravity; that passive movements are unconsciously resisted, and the like. In feigned hemiplegia the characteristic droop of the shoulder, the circumduction and dragging of the toe of the paralyzed leg, the greater degree of paralysis in the arm and in the distal joints, and like symptoms, may be absent. The shoe may not show the wear upon the inner and anterior portion of the sole that it would if the foot were persistently dragged. If the paralyzed limb be held up for a time and the support suddenly removed, it may not fall immediately. In hysterical paralysis, however, many of these characteristics may be absent. Thus, in hysterical hemiplegia there is not the circumduction of the leg, the proximal joints may be as much paralyzed as the distal, and the influence of suggestion may keep the paralyzed limb extended when the support has been taken away. In such cases the detection of hysterical stigmata may enable the physician to make an accurate diagnosis and to determine that the paralysis is genuine. With a flaccid paralysis, without any stigmata, where the patient makes none of the errors just mentioned, it may be necessary to subject him to a more protracted observation. In such cases the application of powerful faradic currents may, on account of the pain which they cause, lead the patient to make voluntary movements; and during the period of excitement at the first administration of ether, on recovery from etherization, on waking from sleep, or when under the influence of alcohol, the alleged paralyzed limb will often be moved.

Paralyzes of the sphincters, which often occur especially in spinal paralyzes, can readily be detected. If the patient has been subjected to a long examination, without an opportunity of passing water, and at the end of that time the clothing be still dry, his complaints of incontinence lack credibility. In true incontinence the characteristic odor and the reddened, irritated condition of the skin will indicate that the clothing is constantly wet. Wichmann (*Der Werth der Symptome der sogenannten Neurose*, p. 15) has suggested that in alleged incontinence the meatus be carefully dried with absorbent cotton; if, after that, the urine be found oozing from it, it is proof that the incontinence is genuine, since the urine cannot be voided in this way voluntarily. Paralysis of the sphincter ani can be readily recognized from the patulous condition of the anus on inserting the finger.

In conditions of paresis the detection of simulation is not so easy. Oppenheim (*Die traumatische Neurosen*, p. 149, 2 *Aufl.*) has stated that in some cases of traumatic nervous affection the patient makes apparently great effort and calls many muscles into play, without accomplishing any great result, the memory of the muscular effort required being lost. Such a condition may give rise unjustly to the suspicion of simulation. In most cases we must be aided by other associated symptoms. Wichmann (*op. cit.*, p. 56) has suggested a method of testing the muscular strength by the dynamometer in alleged parietic conditions, the value of which I have been able to corroborate by personal experiment. The patient is blindfolded and told to squeeze the dynamometer to the extent of his strength. If he does so, the index will reach very nearly the same point each time, although after several trials the strength begins to diminish. If the patient does not exert his full strength he will not squeeze to the same point each time, but there will be quite distinct variations. This test may be applied to the muscles of the leg by means of the apparatus recently described by Krauss (*Trans. Am. Neur. Assoc.*, 1893).

Convulsions.—Epilepsy, the chief convulsive disorder, is the form of nervous disease most frequently feigned. The epileptic seizure is so striking, and the disease itself is so common and is so well recognized as a grave disorder which may lead to serious mental disease, that malingerers are especially apt to feign it. It is one of the commoner forms of nervous disease feigned by criminals, either in the hope of escaping work, or of being sent to a hospital or an asylum. There is also a special class of criminals who feign epileptic attacks ("chuck a dummy") in public places to attract a crowd, the performer obtaining alms from the benevolent on account of his malady, while his accomplices pick the pockets of the by-standers.

It is a point in favor of the genuineness of the disorder if it can be proven that the patient has had such attacks since childhood. Attacks coming on in adult life where there is a powerful motive for simulation may be regarded with suspicion. The average simulator has his attacks only when he thinks he is observed; he seldom falls so as to hurt himself; he is not likely to pass urine or feces in his clothing; the movements are more exaggerated than are usual in epilepsy; they may not be at all like the epileptic movements, and they are often limited to the extremities; the tongue is less apt to be bitten; the simulator seldom speaks of the aura, and he may omit the characteristic cry. Other symptoms are more difficult to feign. During a genuine attack the patient is unconscious and anæsthetic, the pupils are often dilated and almost always immobile, and the conjunctivæ are anæsthetic; the epileptic is often pale at the onset of the attack, and becomes cyanotic if the convulsion be severe; after a severe convulsion there is profound sopor. Opisthotonos and the short contractions of the spinal muscles can be feigned only with great difficulty. Heller (*Simulationen und ihre Behandlung*, p. 35) has suggested that during a suspicious attack firm pressure be made by the hand on some group of muscles, such as the thigh muscles; after a time these muscles will relax; if then an attempt be made to flex the limb the simulator will contract the muscles again. If the clenched hand be opened during a genuine attack it will not be closed again—a simulator is apt to close it. After a severe attack, as was first pointed out by Hughlings Jackson (*Medical Times and Gazette*, February, 1881), and

as I have myself seen in several cases, there may be ankle clonus or loss of knee-jerk, symptoms which cannot be feigned. After a succession of fits the temperature rises, in extreme cases reaching 40° C. or more (104° or 105° F.). The confirmed epileptic has a characteristic facial expression, familiar to all who have seen many cases; his face is often disfigured by the bromide-acne, and the tongue, head, and body often bear scars from the injuries received in the attacks.

The simulator of epilepsy can be unmasked in various ways. Westphal (*Berlin. klin. Wochenschr.*, No. 40, 1873) and Winkler (Heller, *op. cit.*, p. 33) have both detected cases by saying in the patient's presence that certain movements, such as no epileptic performs (for instance, extending the arm and spreading the fingers), ought to be performed in the attack, and the simulator in his next attack performed them. Tamassia (*Rivista sper. di freniatria*, vol. xviii., p. 140) reports a case of a woman who feigned symptoms of insanity and epilepsy. He found that she remembered what happened during her attacks, and, after she had overheard his inquiries as to whether she had certain symptoms in her attacks, she protruded her tongue to the left during an attack, vomited, contracted her fingers in a curious way, cried out in a way unlike the epileptic cry, kept the left arm rigid and the right arm flaccid, protruded the tongue when asked to do so, and finally had an attack when the cervical vertebrae were pressed upon—none of which symptoms had she shown before they were spoken of in her presence. A prisoner at the Massachusetts State-prison ceased his convulsion when it was proposed to give him ether, of which he stood in great dread.

Given a motive for feigning, it is ground for suspicion when a patient has a fit in the physician's presence. Out of ninety cases of epilepsy in patients who were able to come to see me I recall but three who have ever had fits during such a visit, and it is often difficult to get the opportunity of observing a fit from its beginning when the patient is in the wards of a hospital. Partly from the occurrence of a fit on his first visit and partly because the patient did not close the hand over the thumb, Macdonald (*Boston Med. and Surg. Jour.*, December, 1880) was able to unmask the "dummy-chucker" Clegg, who had baffled many prison officials and physicians, and had several times escaped punishment or prison duty on account of his supposed epilepsy. This case was so remarkable that it merits a brief notice. Clegg, by much study and observation, had learned to imitate fits very accurately. In an attack he made no manifestation of feeling when pins were thrust under his nails or when the cornea was touched; he turned livid, bloody frothy saliva came from the mouth, his head was turned back, and the trunk was twisted in an attack. In one attack he had clonic spasm of the muscles of the neck so that the head was beaten against the floor with force enough to abrade the scalp. He could assume the characteristic facial expression perfectly, and he had various scars on his head and body to which he was fond of calling attention. Knowing that simulators rarely fall so as to hurt themselves, he once had a fit in the gallery of the prison and rolled off thirty feet to the pavement beneath, breaking one or two bones. The reasons which led to the detection of his simulation were the definite motive he had for feigning, the fact that he had a fit on the physician's first visit, the way he called attention to his trouble and his scars, the change from the epileptic to a natural expression when he thought no one saw him, the

fact that in the fit the fingers were not closed over the thumb, the nails were not livid, the rigidity could be easily overcome, the hands closed again after they were once opened, the sphincters were not relaxed, and finally that there were no ecchymoses, extravasations, or petechiæ on his person.

There is another form of convulsive seizure, however, which sometimes resembles epilepsy, yet in which many of the phenomena which in epilepsy suggest simulation may actually occur. In hysterical attacks the patient may have a seizure at such a time as strongly to suggest the desire for display, consciousness is not wholly lost, the patient seldom falls so as to hurt himself, and the sphincters are not relaxed. The grand attack of hysteria is rare in America, and its stages of epileptiform convulsions, contractions and grand movements, plastic poses and passionate attitudes, and delirium, demand such great knowledge, such mimetic power, and such extraordinary muscular control that it can seldom be successfully counterfeited. In lesser attacks we must rely for the demonstration of the reality of the affection partly upon the careful observation of the attack, but chiefly upon the discovery of other symptoms of hysteria. In some cases we may find regions where pressure will provoke an attack—hysterogenous zones—or regions where pressure will check an attack—hystero-phrenic zones—but such zones are seldom found in patients in this country. After an hysterical attack Gilles de la Tourette and Cathelineau (*La nutrition dans l'hystérie*) have found that the amount of urine was somewhat decreased for the ensuing twenty-four hours, that the solid constituents (urea and phosphates) were one third less, and that the ratio between the earthy and alkaline phosphates, which is normally from one to three, rose to from one to two or even to equality. Where there are no attacks the urine is usually normal.

It is important also to determine the genuineness of the post-epileptic unconsciousness, as well as unconsciousness arising from any other cause. If firm pressure be exerted upon the supra-orbital nerve as it emerges from the notch, the pain soon becomes too great for the simulator to bear. Similar results may be obtained by the faradic brush or by the needle-point electrode with a very strong faradic current.

Contracture.—In certain forms of paralysis contracture of the affected limb becomes an important symptom, but it is impossible to feign it successfully. On passive motion the physician can at once detect the difference between the tonic rigidity of true contracture, the limb being absolutely stiff and yielding gradually a trifle to pressure, and the active resistance of voluntary muscular contraction where the resistance is more irregular. The attempt voluntarily to resist passive movements will also be indicated by an increase in the pulse and respiration, flushing of the face, and, if more strength be applied, by the active resistance of other muscles of the body. In contracture, too, there is often an increase in the tendon reflexes in the affected part.

In catalepsy the contracture of the muscles is of a different type, the limb is perfectly flexible and remains in whatever position it is put, slowly and gradually falling after some time by the action of gravity. The old experiment of Hunter (*Wichmann, op. cit.*, p. 54) may detect any simulation. Hunter hung a weight to the arm of a supposed cataleptic by means of a tape; the weight drew the limb down very slowly and gradually, he suddenly cut the tape, the weight fell, and the limb flew up

when the resistance to the voluntary contraction was suddenly removed, showing that the catalepsy was feigned. Charcot (*Leçons sur les maladies du système nerveux*, vol. iii., p. 17) has demonstrated by means of a registering apparatus that if a cataleptic limb be put in any position it will gradually fall by the action of gravity, and that the curve of descent will be a perfectly even and regular line. In feigned catalepsy, however, the curve of descent will be very irregular, the limb sinking and then being brought back again by a sudden voluntary effort, showing many oscillations; the simulator, too, will, after keeping a limb in a given position without support for a certain length of time, give evidence of his effort by an increase in the pulse and respiration.

Other forms of spasm are more rarely simulated. The feigning of tonic spasm may be detected in much the same way as the feigning of contracture. The various forms of clonic spasm, such as tic, respiratory spasm, and the like, are to be detected by protracted observation of the patient when he thinks himself unobserved, or by determining whether the affected muscles are such as are normally capable of such action voluntarily.

Tremor.—Although tremor is a comparatively common symptom of nervous disease, its simulation is not an easy matter. Walton (*Jour. Nerv. and Ment. Dis.*, July, 1890), however, thinks that it can be easily simulated, and says that by resting the hands on a walking-stick or table a tremor of the head may be kept up for a long time without fatigue. Other observers have shown that tremor of the feet or hands can sometimes be kept up by supporting some part of the foot or hand against the wall, the bed, or a table. Such obvious methods of feigning should deceive no one. Hönig (*Ueber Simulation und Uebertreibung*, p. 30) has reported a case where the patient kept up for some time a tremor of the legs by steadying the toes against the foot of the bed, but the tremor at once ceased when the support was taken away. Seeligmüller (*Lehrbuch d. Krankheiten des Rückenmarks*, p. 673) has suggested a method for detecting feigning in such cases. The patient is put upon his belly and his feet are concealed from his sight; if he can press the toes against the bedclothes or the foot of the bed he can in this way keep up a tremor. The legs are then flexed at the knee so that the soles of the feet point upward. In this position Seeligmüller claims that the tremor will cease and will not begin again until the toes can once more be touched to some rough surface so as to start it again. A very rough form of tremor, however, can be maintained with difficulty while the feet are in the air, and can be started again without pressing the toes on anything. Such a tremor, however, is manifestly artificial. Real tremor cannot be feigned persistently. After a very short time the rhythm of the tremor becomes irregular, the excursions vary very much, and as fatigue comes on the effort to continue the tremor manifests itself in the pulse and respiration. Tracings of a simulated tremor would easily show the irregularity. Many genuine tremors may cease during sleep, so that such a cessation is of slight diagnostic value. The peculiar tremor of the eyes, nystagmus, cannot be feigned at all.

Ataxia, Choreic Movements, etc.—The various disordered movements, such as ataxia and chorea, can quite easily be feigned, but, when genuine, they are usually associated with definite objective symptoms. A simulator can feign the ataxia and the gait of tabes, but he cannot feign

the condition of the pupils or the loss of the knee-jerk. The diagnosis of any condition will rarely depend upon these symptoms alone, and the only certain method of testing their genuineness is by protracted observation.

SENSORY SYMPTOMS.

Anæsthesia.—The successful feigning of anæsthesia is easy when the patient can see what he is about and knows that the tests are to be applied. Under such circumstances many persons have nerve enough to permit the cornea or the conjunctiva to be touched without winking, to endure needle-thrusts, strong electrical currents, or even the hot iron. Most schoolboys have driven pins into themselves up to the head without any manifestation of pain. It is another matter, however, when the tests are applied unexpectedly. Here, if powerful stimuli be used, the patient will almost invariably start or make some manifestation of sensibility. Thus Hönig (*op. cit.*, p. 27) observed a simulator who made no manifestation of pain at a deep prick of a needle when he knew that the test was going to be applied; but the next day, when a needle was stuck into him without his knowing it, he at once made an outcry. In a case of feigned insanity, Field (*Jour. Nerv. and Ment. Dis.*, June, 1890) saw no signs of sensibility when he sprinkled cold water on the patient while standing in front of him, but the man started when it was unexpectedly sprinkled on him from behind. Gray (*Treatise on Nervous and Mental Diseases*, p. 146) has suggested accidentally spilling very hot water on the alleged anæsthetic spot. Pitres' case cited above shows the practical impossibility of feigning anæsthesia when the tests are applied unexpectedly.

In all cases where the sensibility is to be tested the patient should be blindfolded. If, after the ordinary testing with the tip of a finger or a camel's-hair brush, the patient claims complete anæsthesia, the best test for demonstrating the reality of the anæsthesia is the unexpected application of a powerful faradic current through a sharp-pointed electrode; this can be done most easily while testing the ordinary electrical reactions of the muscles. An ordinary testing electrode being attached to one cord of the battery, a pin or a needle may be thrust through the cord between this electrode and the battery, and concealed by the hand. A large indifferent electrode should be attached to the other cord. A faradic battery capable of giving a very strong current should be used. The muscular reactions should be tested with a mild current in the ordinary way, and the patient's attention will thus be distracted from any question as to his sensibility. While doing this the current can suddenly be turned on to its full strength, and instead of applying the electrode, the pin may be applied to the anæsthetic spot. The pain of such an application is so great that if it be unexpectedly applied the patient cannot refrain from manifesting his sensation. If the hand or foot be anæsthetic, a pin or some other sharp instrument may be pressed down under the nail toward the matrix. If the anæsthesia be feigned the malingerer will give some indication of his pain, either by muscular contraction, an outcry, or, at any rate, by an increase in the rapidity of the pulse.

If the anæsthesia be limited to a definite part of the body it is presumption in favor of its genuineness if it be limited to a definite periph-

eral nerve distribution or to the area of any of the spinal segments, since the average simulator knows too little of such distributions of anæsthesia to be likely to feign them.

If the boundary between the anæsthesia and the sensitive regions be sharply defined the test becomes easier. The boundary should be marked out with a colored crayon before the patient is blindfolded. Then, after he is blindfolded, the skin on the sensitive side should be lightly touched at some distance from the line, and the touches repeated, gradually approaching the line, until the patient says he no longer feels them. The point where he ceases to feel the touch should be indicated by a crayon mark of another color, and the test repeated. After a new boundary line has been established in this way, the skin on the anæsthetic side of the line should be touched in the same way, the touches approaching the boundary until a point is reached where the patient says he feels the touch; this should be marked with a crayon of a third color until a boundary line is again established. If possible, the part should be covered and examination of other parts be undertaken, and these tests be repeated after an interval. If the three lines agree the anæsthesia is undoubtedly genuine, for no one can always say correctly on which side of an imaginary line he is touched, when he is touched close to the line. Some people can tell with considerable accuracy whether a touch is on one side or the other of the median line, but they cannot tell in regard to lines elsewhere, especially the curious boundary lines of the geometrical anæsthesias occasionally seen in hysteria or of the anæsthesias from a peripheral nerve lesion or from the lesion of a spinal segment. If this boundary line pass through one of the less sensitive regions of the skin its genuineness is still more probable, for it is still harder to say on which side of an imaginary line a touch is made in such regions. Burghardt (*Praktische Diagnostik der Simulationen der Gefühls lähmung, Schwerhörigkeit, und Schwachsichtigkeit*) has suggested that when the boundary lines are found to disagree they be shown to the patient and a new test made, but the advantage of this is not apparent. Burghardt has also suggested that the patient be told to indicate by raising the finger whenever he is touched, claiming that, if the touches be rapidly made, the malingerer will sometimes indicate when the anæsthetic region is touched. In most cases, however, it is difficult to get an ordinary patient to lift the finger quickly enough to make this test very practical. The compasses may be useful in testing the relative sensibility of two different parts of the body, but their use requires very much time, and, as a rule, the results obtained by them are hardly worth the trouble. Goldscheider has suggested another method of testing the genuineness of anæsthesia when its boundary is sharply defined. A wire brush electrode or Erb's faradocutaneous electrode is placed on the boundary line and the faradic current passed through it. When evenly pressed upon the body the patient will of course feel the current in the sensitive region, but if it be slightly tipped it may be made to rest almost wholly on the anæsthetic territory without the patient observing it has been tipped. If then he states that he still feels the current the probabilities are that his anæsthesia is feigned.

In most cases of anæsthesia the skin reflexes are lost or diminished in the affected part. In hysterical conditions, too, some of the reflexes from the mucous membranes may disappear; a loss of the pharyngeal reflex is especially common.

While these tests are sufficient to demonstrate clearly the genuineness of anæsthesia, we cannot always say, if the tests fail, that the anæsthesia is feigned; for in hysteria, as is well known, the boundaries of the anæsthetic region may shift rapidly, and in certain forms of anæsthesia the application of electricity is of itself sufficient to change the extent of the anæsthesia, perhaps to diminish it, and in hysterical cases the influence of suggestion may sometimes be so great that under examination the anæsthesia may increase, diminish, or perhaps be transferred to the other side. Furthermore, it is now recognized that hysterical anæsthesia is distinctly of psychical origin, that the patient actually feels a touch or a prick in the anæsthetic limb, and that by hypnotism, or in other ways, the patient may be made to state definitely where and how many times he has been touched. All these facts, therefore, must be duly considered before we state positively that an anæsthesia is feigned.

Of other forms of anæsthesia it is not necessary to speak in much detail. The tests already mentioned will reveal any analgesia, which may occur with normal sensibility to touch. Few simulators are likely to know enough to feign thermanæsthesia. If the temperature sense be carefully tested by metal rods of different temperature, according to the method described by Goldscheider (*Diagnostik der Nervenkrankheiten*, p. 33), and there be a distinct diminution to either heat or cold in one region as compared with that of the opposite side, the symptom is very apt to be genuine, although, of course, the success of such a test is not an absolute proof. The unexpected application of very cold or very hot water will usually elicit signs of sensibility if the thermanæsthesia be feigned. Few patients, too, have sufficient knowledge to feign disturbances of the muscular sense, and, if they should, it is usually possible, on protracted observation, to discover that the patient knows more in regard to the position and the movements of his limbs than he claims. It must be borne in mind that a genuine anæsthesia can be temporarily produced by the application of belladonna, cocaine, and other drugs. If, however, the area of the anæsthesia be extensive, it is not probable that it is caused by the application of such drugs; for if they were used in amount sufficient to produce anæsthesia of such an extent, there would, in all probability, be pronounced signs of their physiological action.

Pain and Hyperæsthesia.—Since pain is a symptom of almost every disease, and since, moreover, it is a purely subjective symptom, it is not strange that it is one of the chief symptoms complained of by malingerers. Of the truth or falsehood of such a complaint we have no absolute method of judging, but in many cases we can find some confirmatory evidence from other symptoms to aid us in forming an opinion. If, for instance, the patient complains of lancinating pains, and we find objective signs of tabes, or if the pain be referred to a given nerve distribution, and we find Valleix's tender points or changes in the reflexes, we can assume the pain to be real. In cases, however, where there is no other evidence of disease, we cannot come to a definite conclusion, excepting that if the patient's claim of severe, extreme, and continued pain be true it will often be manifested by disturbed sleep and impaired nutrition.

With regard to tenderness, however, Mannkopf and Rumpf (*Centralbl. f. Nervenheilk.*, No. 12, 1889) have suggested a procedure which often enables us to say definitely that the tenderness is real. If firm pressure be made upon a tender spot, the pain will often cause an increase in the

pulse rate, sometimes as much as twenty beats a minute. In some cases there may be, in addition to, or instead of, an increase in the rapidity of the pulse, a weakening of the pulse, a flushing of the face, or an outburst of sweat on the forehead. If there be no increase in the pulse, however, we cannot say that there is no tenderness, for in cases of real disease the pulse is sometimes unaffected, especially if the tenderness be slight. In many cases, however, I have been able to demonstrate the reality of tenderness by this means. It is needless to say that the patient should have no idea of the test to be applied, and it is also better that he should be blindfolded.

SPECIAL SENSES.

Vision.—The detection of feigned visual disturbances is a comparatively easy matter. The feigning of complete blindness of both eyes demands great perseverance and unusual skill in order to counterfeit the general demeanor of a blind person and the rigid, unaltered look to the eyes, which does not vary at any visual impression. Few have sufficient control to remain unmoved when objects are closely approximated to the eyes. If a large object, however, be suddenly brought before the eyes even of a blind man, the current of air engendered by the movement may cause him to make some motion of defense. Sudden and unexpected movements in the neighborhood of one who is feigning blindness, especially threatening movements, may lead him to make some unexpected movement which indicates that he sees. Protracted observation will also show that he has not the characteristic habits of a blind man, and that he is governed by his eyesight when he is moving about a room and thinks himself unobserved.

Burghardt (*op. cit.*) has suggested a method of detecting feigned blindness. The patient is asked to put out one finger and then to touch it with the other. A person who is actually blind can do this perfectly well; the simulator is very apt to overact the part and not to touch it correctly. Burghardt then had an attendant, with bandaged eyes, do it in the presence of a simulator, and the next day the simulator succeeded in doing it perfectly well. Arlt (Heller, *op. cit.*, p. 73) has pointed out that in feigned blindness, if we throw a strong light into the eye so that it strikes the macula, after a time the eye becomes restless and tears begin to flow. In such a case we might properly suspect there was perception of light. If, however, this experiment be tried in an eye which has even a slight perception of light, the same effect may be produced, and error may arise. Such experiments, however, are seldom necessary. There are very few cases of blindness in which the ophthalmoscope will not reveal definite structural changes in the optic nerve, the retina, or the conducting media. If the eye be normal in an ophthalmoscopic examination, and if there be no renal disease, our suspicions may properly be awakened. In a few cases of optic neuritis, or of optic atrophy, blindness may precede any changes in the eye itself. Von Graefe (Heller, *op. cit.*, p. 73) states that atrophy may occur six months after the cessation of any sensation of light; but, on the other hand, we see many cases of neuritis and partial atrophy where considerable visual power is still retained, and in cases of atrophy peripheral limitation of the visual field may precede the visible signs in the retina.

Heller (*op. cit.*, p. 74) claims that the simulation of unilateral blindness

is much more common than that of complete blindness, as it is naturally much less unpleasant for the simulator. Even in such a case simulation is exceedingly improbable, since changes would, in all probability, be found by the ophthalmoscope in the blind eye. If blindness of one eye be feigned, however, it can usually be quite readily detected by means of prisms or by similar tests. The simplest method is that proposed by Von Graefe (*Archiv f. Ophth.*, vol. ii., p. 266). The prism, of from six to twelve degrees, with its base turned upward or downward, is placed before the healthy eye. If the flame of a candle, or a small dot or a fine line upon a paper, be seen double, the simulation is at once proven. We may also try whether the double image moves during the rotation of the prism, or whether the double image disappears upon the reëstablishment of binocular vision by turning the base of the prism outward. If the simulator be shrewd enough to know that one of these images belongs to the pretended blind eye, we may hold a prism which refracts vertically before the normal eye so that its refracted angle will bisect the pupil. In this way, when the alleged blind eye is covered, monocular diplopia may be produced: if the simulator deny this diplopia, there is good reason to doubt his statements; if he admits it, it can very easily be made into binocular diplopia by uncovering the pretended blind eye and moving the prism slightly so that it shall cover the whole pupil. Feigned blindness of one eye can also be detected by the stereoscope. As is well known, in binocular vision through the stereoscope the fields of the two eyes are united into one. Rabl-Rückhard (*Deutsche militär-ärztl. Zeitschr.*, 1874) has recommended that we should put into the stereoscope a figure which should have a circle in each field; in normal vision through the stereoscope the two circles would blend into one, forming a single object, which may serve as a fixation point. By arranging the cards so that other figures can be moved about in the field in varying positions, the simulator can readily be led astray, for an object in the right half of the left field will lie on the right side in the common field, and the patient cannot tell whether he sees it with the right eye or with the left.

It must be borne in mind, however, that there are genuine cases of hysterical blindness of one eye, where the patient can really see with the eye that seems to be blind. Pitres (*op. cit.*, vol. i., p. 103) states that an oculist once said to him that every case of hysterical blindness was fraudulent. Pitres himself demonstrated the plausibility of this by placing a screen perpendicularly between the two eyes, and holding in front of the patient a card with a line of printed letters. When the blind (left) eye was closed the patient could see with the right eye only the letters to the right of the screen; when the right eye was closed no letters at all were perceived; when both eyes were open the patient could read not only the letters to the right of the screen, but also the letters to the left of the screen, showing conclusively that the letters were perceived with the left eye. This agrees with the conditions which have been spoken of under anaesthesia, where it has been shown that the patient actually feels a touch in some of the forms of hysterical anaesthesia; and as this has been demonstrated in many cases where there is no reason to doubt the genuineness of the hysterical symptoms, we must consider, as Pitres does, that in hysterical blindness of one eye the blindness exists only with monocular vision. In such cases the other symptoms of hysteria will usually be present, so that we can make an accurate diagnosis.

The detection of poor vision is somewhat more difficult. In most cases, however, there are distinct physical conditions in the eye to account for such vision. Possibly in such conditions there may be some corneal opacities, retinitis pigmentosa, etc., or else the failure of vision may be due to errors of refraction. In the latter case these errors can be readily determined. If the patient makes false statements in regard to the ordinary test with lenses, a degree of refractive error, amounting from one half to one diopter, can be determined by a skilled observer with an ophthalmoscope, or by the shadow test, if the patient's accommodation be paralyzed by atropine, and refraction errors of less than one diopter cannot have a very marked effect upon the vision.

Hemeralopia is sometimes feigned by soldiers. In examining this condition the patient is made to look into a dark chamber at various objects. By means of a sliding shutter, the chamber can be more and more illuminated, and the degree of light gradually increased until the patient says he can see the objects upon the test-card. A simulator can seldom give consistent and accurate statements.

Feigning of color-blindness can usually be detected by the ordinary worsted test. Unless the patient be thoroughly experienced in the mistakes which the color-blind make, he will put together worsteds of colors which no color-blind person would confuse.

In many cases of alleged defective vision very much can be learned by a careful examination of the field of vision. Various investigations in hysteria and the so-called traumatic neuroses have given added weight to the changes in the visual field. No satisfactory results, however, can be obtained without a careful investigation by means of the perimeter, and in many cases the field should be tested not only for form but also for color. If there be hemianopsia there will usually be other symptoms to confirm the diagnosis, such as anæsthesia, paralysis, or the hemiopic pupil reaction. In many forms of disease, including the initial stages of optic atrophy, hysterical amblyopia, and other affections, there will be a concentric limitation of the field. If the perimeter be placed so that the light comes from behind the patient's back, and the patient be facing a uniform dark surface, it is impossible for him to feign successfully the concentric limitation as tested on the perimeter. The outline of a feigned contracted field, as Oppenheim (*Weitere Mittheilungen in Bezug auf die Traumatischen Neurosen*, p. 43) has shown, will be irregular, and much greater in some meridians than others. Furthermore, on repeated tests the simulator cannot feign the same contraction. Should doubt arise, we may adopt the method suggested by Wilbrand and Saenger (*Ueber Sehstörungen bei functionellen Nervenleiden*, p. 189), and test the field by perimeters of different diameters. This renders it practically impossible to simulate repeatedly a contracted field which shall have the same extent and outline.

Hearing.—In the great majority of cases of actual deafness a careful examination of the ear by means of the aural speculum will reveal the cause, unless the deafness be due to lesion in the auditory nerve or the labyrinth. Should there be a motive for simulation, and should any changes be found on examination, deafness may usually be detected by protracted observation. The simulator seldom knows enough to distinguish between the vibratory sensations which are conveyed to his sense of feeling by loud noises and those which are conveyed to the sense of

hearing by the same noises, and he will often deny any sensation whatever. The simulator may also start at unexpected noises, and may be aroused from sleep by a loud noise, or when drunk or under the influence of an anæsthetic he may answer questions that are put to him.

Heller (*op. cit.*, p. 103) has suggested that simulated deaf-dumbness may be detected by a person who is genuinely deaf and dumb, or by a teacher of the deaf and dumb, owing to the failure of the simulator accurately to feign the behavior of a genuine deaf-dumb person. Furthermore, if the simulator be uneducated, and attempt to write, he will not spell his words correctly, but will be apt to spell them as they are pronounced, whereas the deaf and dumb person will not be guided by the sound of the word, but will spell it as he has been taught.

Absolute deafness, however, is not so likely to be feigned as partial deafness, and it is a well-known fact that in partial deafness the power of hearing may vary very greatly from time to time. In genuine cases of partial deafness there are usually definite changes in the ear. The simulator often fails to imitate the characteristic expression of a deaf person. Casper long ago suggested a method of examination which is of some value. A sentence should be begun in a very loud voice, and the voice gradually lowered. The simulator will often be confused by this simple experiment. Burghardt (*op. cit.*) has suggested another method of some value. One ear is closed and the patient is put at such a distance that he cannot, as he claims, hear the ordinary spoken voice, the eyes being blindfolded; a tube is put in the affected ear, through which the patient can still hear. If now the tube be closed suddenly, without the patient hearing it, and he still hears the spoken word, he hears it through the air, and his previous statement was incorrect.

Unilateral deafness is also occasionally feigned. If there are no changes to be found in the ear itself, this may be detected in various ways. Erhardt (*Deutsche militär-ärzt. Zeitschr.*, 1872) has pointed out that the sound of a repeater may be heard, even when the ear is closed by the finger, at a distance perhaps of ten feet. If the repeater be held six or eight feet in front of the sound ear the patient naturally hears it perfectly well; if that be closed and it be brought within four feet of the ear which is said to be deaf, and the simulator says he no longer hears it, the chances are that his statements are incorrect. The best method of detecting simulation of one-sided deafness, however, is a modification of the experiment described by Coggin (*Zeitschr. f. Ohrenheilk.*, vol. viii.). Coggin suggests that the ordinary binaural stethoscope be used. By this means the object is brought rather too near the ears for careful testing, and the experiment should be modified so that the binaural stethoscope can be used with much longer tubes, the patient sitting several feet away from the testing-object. With the stethoscope placed in the ears it may then be possible, without the patient's knowledge, to close one or the other of the conducting-tubes; the sound is conveyed either to the sound ear or to the alleged deaf ear at the will of the examiner, without the patient's knowledge, and the simulator can in this way be readily led to make contradictory statements.

Disturbances of smell and taste are of extremely slight importance, and we have no absolute means of testing them apart from the statements of the patient.

SPEECH DISTURBANCES.

Feigning of speech disturbances is extremely rare. The most common form is the feigning of absolute dumbness. Genuine acquired dumbness occurs only in hysterical mutism, where the patient is unable to make any sound whatever. In the loss of speech of aphasia the patient makes various inarticulate sounds. True aphasic disturbances, such as word-blindness, word-deafness, motor aphasia, and paraphasia demand extreme skill upon the part of the simulator, and in the vast majority of cases they are associated with hemiplegia. Feigned mutism is occasionally seen as one of the symptoms of feigned insanity, but in these cases protracted observation will usually give the opportunity for revealing the patient's deception, and lead him into making some unguarded remark.

FEIGNED INSANITY.

From the old statement of Zacchias, "*Nullus morbus facilius et frequentius simulari solet quam insania*," to that of Kühn (*Archiv f. Psychiatrie*, vol. xxii., p. 649), that the number of simulants of insanity are in inverse ratio to the physician's psychiatric knowledge, is a long step, but it shows both the increase in our knowledge of insanity and the change of medical opinion in regard to feigning. Even at the present time, however, although all physicians regard feigned insanity as rare, there is not general harmony as to its absolute frequency. Thus Schüle, in the second edition of his *Klinische Psychiatrie*, stated that he had never seen a case. Fritsch (*Jahrbücher f. Psychiatrie*, vol. viii., p. 115) saw but one case out of 3800 in Meynert's clinic, and Moeli (*Ueber irren Verbrecher*) and Sander and Richter (*Die Beziehungen zwischen Geistesstörung und Verbrechen*) have all considered feigning as extremely rare. It may be said, however, that these figures are taken chiefly from the statements in regard to general insane asylums and the ordinary clinics for mental disease; but Fürstner (*Arch. f. Psych.*, vol. xix., p. 601) has urged that if statistics were taken from criminal asylums, or from the cases of alleged insanity among criminals, it would be found that feigned insanity was not so very uncommon. Fürstner himself found 12 cases out of 25. Holmboe (*Norsk Magazin f. Lægevidensk.*, No. 2, 1893) found 1 case in 21. Snell (*Allg. Zeitschr. f. Psych.*, vol. xlv., p. 4) considered feigning not rare, and Binswanger (cited by Fürstner) found 21 cases out of 73. Kühn (*art. cit.*, p. 650), on the contrary, who had the opportunity of observing over 10,000 criminals, and had investigated nearly 150 cases of insanity occurring among them, saw but two who had simulated. The figures already given from Massachusetts prisons would indicate that feigning of insanity by criminals was distinctly rare. It must, however, be again noted that at the Charlestown State-prison there were many attempts at feigning, which were readily detected by the prison physician without the need of calling in a special examiner in lunacy. In the vast majority of cases insanity will be simulated only by the criminal, although Nichols (*Boston Med. and Surg. Journal*, April, 1891) has reported one case of a boy who simulated dementia in the hope of obtaining damages on account of a railway accident. It must, however, be borne in mind that the percentage of

actual insanity among criminals is probably much greater than it is in the community at large. Not only is the criminal more exposed to the various acquired injurious factors which may produce insanity, but often, as is well known, he is himself degenerate and comes of a bad heredity. Even if we do not accept the theories of Lombroso that the actual criminal must be regarded as mentally diseased, the evidence in favor of his degeneracy is too great to be absolutely neglected; and this is often shown, not only in his mental characteristics, but also in many of the physical characteristics. More than one case indeed is upon record where a criminal who already had one form of insanity simulated another form; and many writers agree with Fritsch that the simulation of mental disturbance is very rarely seen in healthy individuals, and that, in general, the hypothesis is not unjustifiable that simulation points with some probability to a coexisting neuropathic disposition or psychopathic taint, or that it may be brought into relation with previous conditions of so-called degeneration.

Sander and Richter (*op. cit.*) have called attention to the fact that in criminals who are actually insane the type of mental disease often shows peculiar mixed forms, which are peculiar as to their nature and their periodicity, and are marked by irregularity and lack of harmony in the symptoms. Fritsch has pointed out that much may seem simulated which really is not so, and cites the case of a young man who was repeatedly arrested for various crimes, who presented a peculiar combination of symptoms, characterized, first, by a peculiar gait and gesticulations, with periods of silence, then by various delusions of a hypochondriacal type, which were not at all in harmony with one another, and gave rise to much suspicion of malingering; yet protracted observation finally showed a distinct underlying condition of paranoia. We must consider, therefore, that even the attempted simulation of insanity is rare, and that in few cases, if the physician have any experience, is it ever successful. In many cases it is difficult to make an absolute diagnosis of insanity from a single examination, and when there is reason to suspect simulation a period of protracted observation in an asylum may be necessary.

From what has already been said the difficulty of simulation is apparent. Krafft-Ebing (*Lehrbuch d. gerichtl. Psychopathologie*, p. 42) has emphasized this. The simulator is in some respects like an actor; but, unlike an actor, he must be an author as well, and he must also constantly be an improviser; his acting, moreover, must be incessant, even if he thinks himself unobserved. A simulator must also act before an audience of trained critics who cannot be diverted from his performance; consequently, he must become exhausted after a few hours, and the mental strain of such a performance may in itself be a cause of mental breakdown.

The absurd attempts to depict insanity in the majority of novels well show the false ideas which are usually held in regard to mental diseases. The lunatic, according to popular belief, is either raving or so demented that he is incapable of any sensible act or word.

In a few cases, of course, the simulator may have had the opportunity of associating with the insane and of studying their symptoms with care. In such cases the portrayal of insanity may sometimes be sufficiently realistic as to cause considerable doubt as to the actual condition. In ordi-

nary cases, however, where this opportunity for special study is absent, the simulation is so grossly exaggerated, and so entirely unlike the behavior of a person who is actually insane, that it can be readily detected, the simulator seldom presenting symptoms which correspond to any particular form of insanity. As a rule, the symptoms of simulated insanity begin suddenly, developing upon a period of apparent mental health; the slight prodromal stages, which can usually be elicited in ordinary cases, are lacking. In most of the attempts at feigning insanity at the Charlestown Prison, the prisoners began by being very noisy and demonstrative, or else, less frequently, they began by some lascivious act, such as exposure of the person. The simulator usually grows worse under examination, and at other times he watches the acts of the physicians and attendants in a way which is seldom seen except in some cases of paranoia. He also fears to be too reasonable; he has no memory of anything; he is never coherent; in the quiet periods of his insanity he knows nothing; he manifests no logical reasoning and no association of ideas. The case of a man reported by Krafft-Ebing (*Jahrbücher f. Psychiatrie*, vol. viii., p. 293) who simulated dementia, deafness, and dumbness, shows some of these peculiarities. The patient suddenly became demented, deaf, dumb, and did not react at all to external processes. Previous to that time he had been sane. Such a condition naturally could result only from some severe psychical shock or acute brain disease leading to profound mental disorganization, yet, although apparently so demented, he showed himself capable of various acts requiring considerable mental power. When given a written order to perform certain acts he responded by writing various letters in a disconnected manner. He had apparently lost all idea of the movements for feeding himself, yet he acquired them at once when shown how to eat. Unlike a dement, he became violent when deprived of food. Another patient, who feigned acute hallucinatory confusional insanity, was apparently anæsthetic to a pin-prick when he knew what was being done, but responded when he was unexpectedly pricked. His delirium was not continuous, but he was forced to break off until he could think of new material for his delirium, and fill the interval by singing a song or repeating some stereotyped phrase, and when the symptoms which he at first presented failed to win confidence other symptoms were added.

The simulator, moreover, may assume certain symptoms which are suggested to him. A shrewd feigner might naturally be upon his guard if the physician were to make use of the phrase which was once advised, that if the patient were insane he would present such and such symptoms; but he would often be taken off his guard if the remark be made that such symptoms, if present, would indicate a particular type of disease; or if careful inquiry were made whether such symptoms, which were characteristic of the disease, were present. Thus, in the case already cited, reported by Tamassia, the patient manifested a feeling of cold in the ear, and a lively pain on pressure over the left clavicle, on overhearing the remark that in the type of disease which she exhibited those symptoms were always present; later, after another suggestion, pressure over the third cervical vertebra caused extension of the great toe. Simulators often manifest a loss of memory, which is so great as to render it practically impossible that it should be real. As a rule, if an insane person can be made to respond to any questions he retains some memory of familiar

facts; but a simulator whose case was reported by Bernardini and Petrazzani (*Rivista sper. di freniatria*, vol. xix., p. 696) could not remember his own name or that of his father, did not know in what town he was, was ignorant of the motives for which he was arrested, and did not recognize persons seen a moment before. One of Fritsch's patients stated that there were six months in the year and three days in the week, that four and five made six, and that three times four were five. Another patient when asked to mention the names of the days of the week left out Tuesday. When the insane answer questions at all they usually answer with some degree of sense. Thus, if an insane person be asked his age, he may not give a correct answer, but his answer will always have some definite relation to the question put, and not be something entirely different. He will never say, as did Derozier (Spitzka, *Insanity*, p. 355), "245 francs, 35 centimes, 124 carriages to carry it."

Spitzka (*op. cit.*, p. 364) has mentioned various special signs which justify suspicion of simulation. The simulator will demonstratively avoid looking the physician in the face, which the patient in stuporous conditions never does. He will give extravagant, absurd answers to simple questions; he will often be very slow in answering and yet not present the appearances of depressed states. He will be watchful to see whether an observer is approaching. He may recollect his acts and expressions during a feigned epileptic state; he may make various strange, rhythmical movements which have no analogy with any form of insanity; he may complain more of strange feelings and pain in the head than the insane usually do. He may, if he be clumsy, state that he has delusions, whereas an insane person who really has delusions always states them as absolute facts. It is, moreover, suspicious if the insanity appear immediately after a crime.

Norman (*Dictionary of Psychological Medicine*, vol. i., p. 504) thinks that paranoia is very commonly feigned, but the reported cases of feigning of paranoia are certainly very few, and to one familiar with the workings of the paranoiac mind the detection of simulation becomes easy. Few simulators could ever feign the logical reasoning of the paranoiac on the subject of his delusions, his facial expression and actions. His delusions are highly systematized and worked into every act and thought of his daily life, and traces of them may be found in hundreds of trivial matters. The shrewdness and logical reasoning by which every event of the day is brought into train with the general ideas of persecution is something that no one is able to counterfeit without unusual opportunities for study. In paranoia, too, there will be the history of a bad heredity or of mental peculiarities beginning in early life and of a gradual development of the symptoms.

The feigning of other forms of insanity is distinctly less common. Paretic dementia in its advanced stages presents certain well-known physical signs of the disorder, so that it cannot be simulated; but Fürstner (*art. cit.*) has reported one case of a man who had formerly spent several weeks with a paralytic, who feigned the dementia, the delusions of grandeur, the speech, the uncleanness, and even the attacks. Spitzka (*op. cit.*, p. 354) has cited the case of a man who feigned, with considerable skill, the prodromal symptoms, and Norman (*art. cit.*) has mentioned another case.

Fürstner (*art. cit.*) states that most frequently the simulator presents

the picture of dementia, with coexisting apathy or mutism, or with striking contradictions of speech, writing, and actions. Next in frequency comes a condition of clouding or loss of consciousness, which is claimed to have occurred at the time of the criminal act and is usually accompanied with hallucinations. In the third group the symptoms are variable, irregular, and confused. The fourth group presents conditions of excitement, with confused, senseless utterances, and a tendency to violent acts. All these forms, however, present symptoms not unlike those seen in acute hallucinatory confusional insanity (*Acute hallucinatorische Verwirrtheit, Amentia*, of Meynert), the form of insanity which probably is the least readily recognized by alienists in this country. In this form of insanity the simulator usually misses the peculiar confused condition. He is too incoherent, and does not manifest the occasional intelligent association of ideas seen in these confused states; he does not give the sensible answers which patients can sometimes be roused into giving. Such patients, moreover, will often manifest sense enough to answer in regard to familiar matters of life, to tell their name, to remember people, to state the days of the week, to count, or to do simple sums. Most cases of this condition, too, show distinct physical changes, a sluggish circulation, cold and congested extremities, and a marked loss of weight; they also show occasional violent outbursts and distinct delusions.

In all the acute psychoses there are usually distinct physical conditions coexisting with the mental disease which point definitely to a morbid state, such as the increased pulse, insomnia, loss of appetite, loss in weight, defective circulation, and various conditions of the skin, especially coldness and cyanosis. The simulator will sometimes cease his actions if he thinks himself unobserved. A simulator at Charlestown was extremely noisy when anybody was about, but he was very quiet when he supposed the officers were out of hearing.

Occasionally the simulator will not go far enough. In a case of insanity simulated by a young woman at the Suffolk County House of Correction, communicated to me by Dr. Fisher, conditions of dementia and mania were feigned. The patient finally became extremely noisy and demonstrative, and tore all her clothing to pieces, and was found in her cell stark naked; yet, when the officers came to the cell, she turned her back to them, which no maniac as violent as that would have done.

In rare cases, especially where the simulator has had opportunities for studying or observing insanity, the skill in feigning is sometimes extremely great, and shows wonderful powers of endurance. A simulator at the Suffolk County House of Correction went so far as to daub himself and his cell with excrement, and finally to eat his own fæces.

In regard to the feigning of the different types of insanity the forms which can be most successfully feigned are those which present the type of apathy and dementia. Snell (*art. cit.*) claims that if a person can remain absolutely mute it becomes exceedingly difficult to unmask his feigning. Field (*art. cit.*) has reported such a case, where a man for weeks would not utter a word. Careful observation failed to show that he moved during the night, and in passing through a low doorway he would strike his head unless the attendants took pains to push the head down low enough for him to go under. In this way he received several pretty severe blows. He would not take food, even if it were left beside

him, although he would swallow when food was put into his mouth. He did, however, respond when cold water was sprinkled upon him unexpectedly, and he finally escaped from the prison. One of his fellow-prisoners afterward confessed that the man talked with him, and occasionally moved about when he knew no one was near.

It may be possible to simulate the slight excitement of simple mania or the slight depression of simple melancholia, or convalescence from these conditions, with a certain amount of success; but no patient has the physical endurance to feign the excitement and violent actions of ordinary mania, and although he can assume incoherence for a time, he cannot keep up the incessant flow of incoherent phrases; after a time nature must assert itself and fatigue will be manifested. Insomnia, rapid loss of weight, and loss of appetite, are all beyond his control. The same may be said of the feigning of acute melancholia. Although for a time he may assume the depression, he cannot keep up the psychical anæsthesia, the profound depression, the manifestations of grief, the self-absorption; nor can he feign the insomnia, the cold and clammy extremities, the weak pulse, the loss of appetite, the constipation, and the various other physical symptoms so often seen.

In conclusion, it may be said that in the majority of cases where simulation is suspected there may be symptoms present upon examination which will prove that our suspicions are in part groundless; but it must also be borne in mind that the failure to find such symptoms as have already been described, or even the detection of symptoms which are apparently contradictory, is not absolute proof that the disorder is simulated.

BIRTH, SEX, PREGNANCY, AND DELIVERY.

BY

ANDREW F. CURRIER, M.D.

I. BIRTH.

Legal Obligation of Physicians with Reference to the Recording of Births —Determination of the Period of Development in New-born Infants, especially in the Still-born, with Evidence Relating to the Viability of the Latter.

THE importance of correct and accurate vital statistics both to the lawyer and the physician is self-evident. Indeed it is a matter in which the entire community is interested, for in the absence of accurate records of this character how can the status of a community as to population be ascertained? But there are other considerations which are of much greater significance in this connection—considerations which affect the material welfare of large numbers of individuals, and which depend in no small degree upon the faithfulness with which these records are made. The responsibility of physicians is, therefore, direct and decided in this matter, and should be appreciated from the very beginning of their career. The state rather than the church should be the custodian of such records, at any rate in so far as the material interests of the individual are concerned. The recognition of this fact has doubtless been an important factor in the formation and development of bureaus of vital statistics in connection with the systematic regulation of all matters which pertain to the public hygiene. One of the decided evidences of advancing civilization consists in the very general establishment of boards of health, and the development of sanitary science in all parts of the world. With increasing experience the work of such bodies is yearly becoming more perfect and valuable. It will continue in this direction, *pari passu*, with the importance which physicians attach to it, and the heartiness and intelligence of their coöperation. In New York the law requires the return of a birth-certificate to the local board of health or other official keeper of records within ten days after the birth of every child, whether alive or dead at birth; and a penalty of ten dollars attaches to neglect to fulfill this requirement. This is the duty of the physician if he were in attendance at a given birth; otherwise the return must be made by the midwife or other person who assisted when the birth took place. The importance of this subject should be emphasized by those who serve as instructors in

medical colleges, and in the examinations which candidates for license to practice are compelled to pass.

In France the following sections from the Civil Code appertain to the registry of births:

"ART. 55. Declarations of birth must be made within three days of accouchement to the proper civil officer; the child shall be shown to him.

"ART. 56. The birth of a child shall be declared by its father, or, in default of the father, by the physician, surgeon, midwife, officer of health, or other person who assisted at the accouchement, and if the mother were confined away from her own home by the person at whose house she was delivered. The fact of the birth shall be stated in proper legal form in the presence of two witnesses.

"ART. 57. The return of a birth shall specify the day, hour, and place of birth, the sex of the child and the names he has received, the first and second names, occupation, and residence of the father, mother, and witnesses."

"PENAL CODE, ART. 346. Every person assisting at an accouchement who shall fail to make the declaration as prescribed in Art. 56 of the Civil Code and in Art. 55 of the same Code shall be punished by imprisonment of from six days to six months and by a fine of from 16 to 300 francs."

The father or head of the house must report the birth if present at the time; otherwise upon the physician, if one were present, devolves this obligation, if he assisted efficiently in the accouchement. The duty devolves upon him though the child is born upon his arrival, if it is still united by the cord to its mother and the placenta is still *in utero* or *in vagina*. The same obligation holds for still-born infants if they have passed the fourth month of fetal life. (Vibert, *Précis de Médecine Légale*, Paris, 1886, p. 645.) The determination of the period of development which has been reached by a new-born infant, whether it is mature or premature, whether it was living and viable at birth, are all matters of the greatest importance, and can usually be decided with a considerable degree of precision. These subjects are elaborated in the article upon Infanticide (q.v.).

II. SEX.

Hermaphroditism—Defective and Rudimentary Organs of the Genital Apparatus, and the Bearing of the same upon Matrimony and Fertility—Determination of Sex—Puberty and its Attendant Phenomena—Menstruation, Normal and Abnormal—The Menopause.

Hermaphroditism or hermaphroditism is a condition which has elicited a great deal of attention from the earliest times and has given rise to a great variety of opinions and speculation. The work of Klebs upon this subject is scholarly and rational, but that of Pozzi in his *Traité de Gynécologie*, vol. ii., p. 1069, is more recent, and will be frequently referred to in this article. To go to the root of the matter in defining the term, we must have in a true hermaphrodite, as Pozzi correctly states, a being who has the genital organs of both sexes, with the possibility of functional activity of both sets of organs. The testicles and ovaries are the essential organs of reproduction in the male and female sexes respectively.

A true hermaphrodite must have organs with the anatomical peculiarities of both ovaries and testicles. Pozzi declares that there does not exist a single incontestable example in which this condition has been realized; but he, as well as Klebs, has evidently overlooked the case of Heppner (quoted by Garrigues in Mann's *System of Gynecology*, vol. i., p. 269), which was that of a child which died at the age of two months and was found by post-mortem examination to have a hypospadiac penis or enlarged clitoris, a cleft scrotum, a sinus urogenitalis and Rosenmüller's organ representing parovarium and epididymis, a prostate gland, both testicles, vagina, uterus, Fallopian tubes, both ovaries, round and broad ligaments. The ovaries contained Graafian follicles with ova, and the testicles had seminal canals. Among plants and many of the lower orders of invertebrate animals the condition of true hermaphroditism is common enough. Bland Sutton states (*Transactions London Pathological Society*, 1885, pp. 509, 510) that among the vertebrates it occurs in the cod and herring, and that an ovo-testis is very common in the toad and frog. Hermaphroditism is usually classified as true and spurious, the former of which must be exceedingly rare, making due allowance for any cases which may not have been reported. Pozzi has examined many specimens which have been regarded as examples of hermaphroditism in the Musée Dupuytren and elsewhere, as well as the available literature, and has found them all spurious.*

Instead of true and spurious hermaphrodites it would seem more practical to follow Pozzi in classifying them as *gynanders* and *androgyns*, according as the peculiarities of the female or the male sex predominate. In *gynanders* there may be menstruation, well-developed mammae, uterus and ovaries, and the possibility of impregnation. In *androgyns* menstruation is absent, the breasts are of the male type, uterus and ovaries are absent, and there is a possibility that they may beget offspring. In both

* Plenty of cases are recorded in legal and medical literature as veritable instances of hermaphroditism. Lukomsky's case (quoted by R. Guiteras in Morrow's *System of Genito-urinary Diseases, Syphilology, and Dermatology*, vol. i., p. 50) was that of an individual thirty years of age, with penis two inches long, without urethra, below which was a scrotum with two testicles. Below the scrotum was a normal vulva, with labia majora, labia minora, and clitoris, the urethral opening being below the clitoris. The vagina was three inches in depth and terminated in a normal uterus. The patient had never menstruated. When coitus was practiced with a female a whitish fluid was ejected through the vaginal slit. Whether ovaries were present is not known; hence the evidence is inconclusive.

Wharton and Stillé (*Medical Jurisprudence*, 1884, vol. iii., p. 140) narrate several cases of varying degrees of importance and authenticity, including the following: Kiwisch's case was thirty-three years of age, had a normal penis, with rugose but empty scrotum, a normal uterus in proper position, a rudimentary vagina opening into the prostatic portion of the urethra, Fallopian tubes, three and three-quarter inches long, with imperfect fimbriae, normal round ligaments, no ovaries, testicles with epididymis and efferent duct leading to the inguinal ring and finally opening into the prostate gland, the latter being of normal size and provided with vesiculae seminales on either side.

Ackley and Blackman's case was twenty-six years of age, with the general appearance of a man, but with very broad hips. Painful discharge of blood had occurred from the penis at monthly intervals. There was a large penis, also an empty scrotum, pervious Fallopian tubes, ovaries, testicle on each side above the ovary, with excretory ducts leading from them, vagina opening into the neck of the bladder, and prostate gland. The inner surface of the vagina was covered with blood when examined post mortem. The same specimen was examined by J. B. S. Jackson, who found no trace of the os externum uteri, no vaginal portion of the cervix uteri, and a vagina only

varieties the individual may act as the male or female agent in copulation, and it may be impossible to determine the sex without abdominal operation or post-mortem examination. In *gynanders* the clitoris may

be so much enlarged as to serve the functional purpose of the penis; in *androgynus* the penis may be very small, the scrotum bifid, and the opening of the urethra so large as to admit the penis in the copulative act. The accompanying figures from Pozzi's work show the difficulties which may be encountered in attempting to determine the sex in such cases.

Hermaphrodites, of whichever variety, are probably able to beget and bear offspring, at least

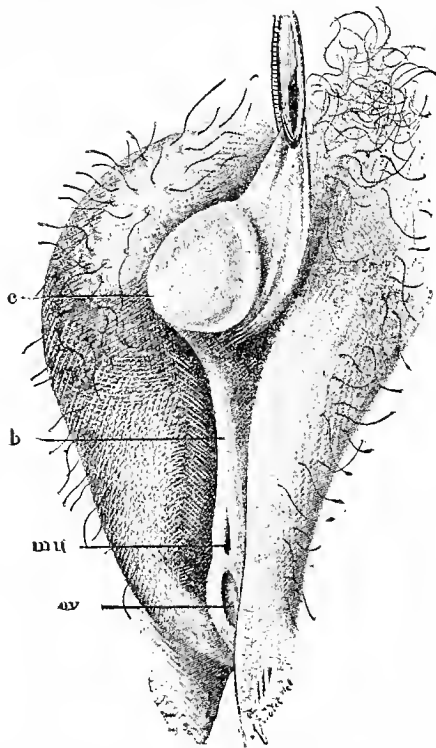


Fig. 60.—*c*, Clitoris; *b*, connecting bridge from clitoris to meatus urinarius; *mu*, meatus urinarius; *ov*, orificium vaginae. (Pozzi.)

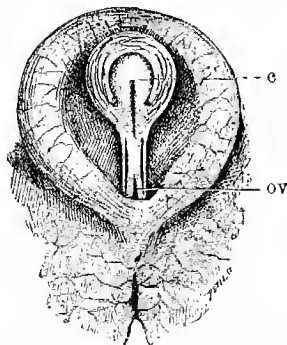


Fig. 61.—*c*, Clitoris; *ov*, orificium vaginae. (Pozzi.)

in some cases, but the common observation is that they are sterile; in fact but two cases occur to the writer in the literature of the subject in

four or five lines in circumference. No true ovarian structure was found. The testicles were normal in size and structure, but there were no vasa deferentia, vesiculae seminales, or prostate gland.

Among recently reported cases may be mentioned one of Mr. Edgar Willett's, reported at the meeting of the London Pathological Society, February 6, 1894. The specimens presented were from a man who died, at the age of forty-four, of cerebral hemorrhage. The testicles were undescended; there was a well-developed uterus and vagina; the sexual glands, though occupying the situation of the ovaries, proved on microscopical examination to be the testicles, the membrana propria of the tubuli being very thick. There was a tunica vaginalis on either side of the scrotum, and the penis was well developed. The man wore a beard, was married, and had two children. The testicles were provided with vasa deferentia, which passed down by the side of the vagina toward the prostatic division of the urethra. The vagina narrowed as it perforated the prostate gland, and opened in the usual situation of the uterus masculinus. A closed Fallopian tube proceeded from the uterus on either side, terminating above the globus major of the epididymis in a body representing the usual hydatid of Morgagni. Mr. Stonham reported a similar case to the society a few years ago.

which they were observed to be fertile. (Cases are reported in which hermaphrodites have discharged semen containing living spermatozoa, while others have had ovaries in which were Graafian follicles and ova.) They must necessarily hold a peculiar position before the law. Their right of holding property and voting might be called in question. If they married the marriage might be annulled on account of their physical defects, and yet the law does not forbid their marrying. They may have inordinate or defective sexual desire. In the cases which one finds recorded, those who resemble females are in some instances excessively libidinous. This may be due to the exuberance of erectile tissue in the preternaturally enlarged clitoris, and the irritation to which that sensitive organ is continually exposed. In those who resemble males, on the other hand, an aversion to women and to the sexual act is sometimes reported. The absence of well-marked peculiarities which are common in the physical development of well-formed specimens of either sex is to be expected in individuals of such doubtful or blended sex as are hermaphrodites, but one does not see, in actual experience, the grotesque characteristics with which writers have been prone to clothe these unfortunates. One should not expect to find, on the one hand, a strong voice and a manly beard, or, on the other, well-rounded limbs and womanly breasts—these are the attributes of persons who are not physically defective; but one may sometimes see individuals with imperfect generative organs of one sex and well-marked peculiarities of figure and habit of the other. The precise determination of the sex in such cases is not easy. Hermaphrodites are not the only ones who possess peculiarities of the genital organs, but such peculiarities are often their chief distinguishing feature, and they will now be considered in detail, together with similar or related peculiarities in individuals about whom the sex is not doubtful.

The genital organs of the male are the penis and scrotum externally, the latter containing the testicles with their appendages, the epididymides, and the spermatic cords, which connect the testicles with the seminal vesicles, the latter lying at the base of the bladder and serving as reservoirs for the semen. This fluid is conveyed from the testicles, where it is secreted, through the vas deferens, a tube contained in the spermatic cord, to the seminal vesicle, whence it is discharged in the act of copulation into a short tube called the ejaculatory duct, and thence into the urethra, the canal which extends through the entire length of the penis, terminating in the bladder, the reservoir of the urine. The penis is joined to the bladder by a trilobate structure called the prostate gland, through which the urethra passes, terminating in the bladder. The minute anatomy of these structures is not essential in this connection. The testicles are developed in the early months of fetal life on either side of the lower (lumbar) segment of the spinal column, from which position they gradually descend into the pelvis or bony basin which connects the body or trunk with the lower limbs. During the seventh month each testicle leaves the pelvis, passing down a canal in the anterior and lowermost portion of the abdomen known as the inguinal canal, and by the end of the eighth month it has reached its final destination in the scrotum.

In the female the external structures are the mons Veneris, which is composed mainly of fat, with its appropriate external coverings (skin and hair), and the labia majora, the latter presenting an elliptical appear-

ance, lying under the mons Veneris and being partly concealed from view on account of the inclination of the pelvis when a woman is in the erect position. Within the depression at the inner aspect of the labia majora and including its upper two thirds are the labia minora or nymphæ, and at their apex is the clitoris.

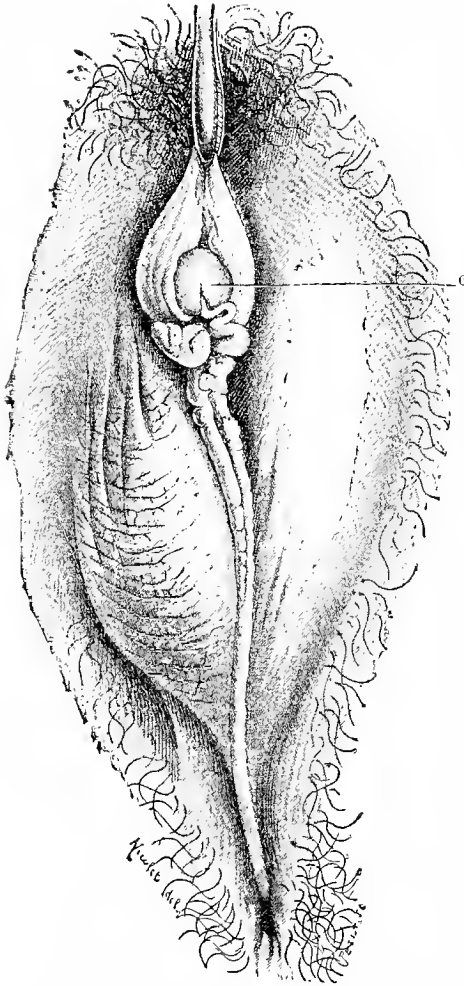


Fig. 62.—Example of hermaphroditism. (Pozzi.)
c, Clitoris.

opening of the urethra, the latter terminating in the bladder; and below this opening the entrance or introitus of the vagina, which in the virgin is usually shielded by a membranous structure, the hymen. The vagina is a tube about three inches long which terminates in the uterus or womb, a portion of its *neck* being within the vagina, while the remainder of the *neck* and the entire *body* are above the vagina and in the cavity of the pelvis. The uterus is pear-shaped, and from each upper corner or horn extends a cylindrical tube three and a half inches long, the Fallopian tube, terminating in a beautifully fringed extremity. Below each tube, and attached to its inner or uterine end by a ligament an inch or an inch and a half long, is the ovary, an ovoid structure about as large normally as a small English walnut. It is also attached to the fringed extremity of the tube by a single stalk or pedicle of very delicate structure. As an ovum matures in the ovary, its envelope, the Graafian follicle, swells, and when it ruptures, the ovum is grasped by the fringe or tentacles of the tube, like the tentacles of a sea-polyp, and carried forward into and along the tube, the cilia of the epithelium with which the tube is lined pushing it along until it reaches

the uterus. On its way through the tube or within the uterus it is met by the spermatozoön, union of the two elements and conception taking place; or if this does not occur the ovum is cast out of the uterus as inert matter.

The penis may be abnormally large or abnormally small. It may be so small as to simulate an enlarged clitoris and perhaps cause uncertainty

as to the sex of the individual. If the organ in question has a canal and this canal terminates in the bladder, the organ must be a penis and the individual a male, no matter what other defects may exist. An imperfect urethra with an opening on the lower surface of the penis (hypo-

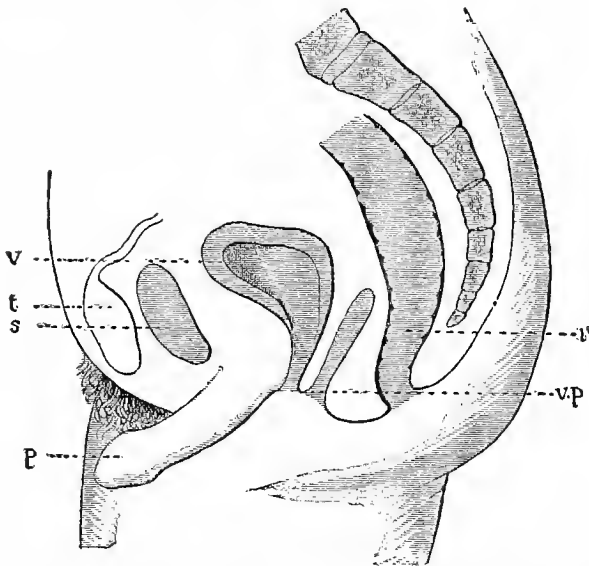


Fig. 63.—*p*, Hypospadiac penis; *s*, symphysis pubis; *t*, testicle; *v*, bladder; *v.p.*, pseudovagina; *r*, rectum.

spadias), or on the upper surface (epispadias), or on the skin (perineum) between the scrotum and the anus, is a common deformity in hermaphrodites and in some in whom there is no doubt in regard to sex. Such a deformity often prevents fruitful sexual intercourse. Absence of the penis may result from disease or injury; congenital absence of the organ is of very rare occurrence. The scrotum may be cleft or bifid, suggesting the labia majora of the female, and this is common in hermaphrodites. It may be empty, that is, without testicles, or it may have a single testicle, neither of them, or only one, having descended during fetal life. It may have a smooth surface like the labia majora, or the wrinkles and creases which are normal to it. The development of the testicles may have been arrested, or they may have withered (atrophied) and disappeared. If the testicles have descended only partially they may be found thus dislocated post mortem, and give rise to uncertainty as to whether they are ovaries or testicles. Absence of the testicles may be due to disease or injury. In eunuchs the testicles alone may have been removed, or the testicles and penis. Disease of the other organs of the male genito-urinary apparatus may have an important bearing upon the question of procreative power and sexual capacity, though it might not cause difficulty in the determination of sex.

In the female the appearance of the labia majora might suggest a defective scrotum, especially if one or both ovaries had descended into

them; an accident which has sometimes occurred, though in an extensive experience during many years the writer has never seen it. The clitoris is normally half an inch to an inch in length, only its minute extremity being usually visible, but it may be enlarged to a length of three, four, or even five inches. (See Wharton and Stillé, vol. iii., p. 143.) It is susceptible of erection, and when greatly enlarged may perform the same function as the penis in the copulative act; but it has no canal, or if an abnormal canal exists it does not terminate in the bladder. The labia minora may be small and inconspicuous—in hermaphrodites they may be rudimentary—especially if the clitoris is greatly enlarged. In adult life they may become large and prominent; in the Hottentots they are enormously enlarged and pendent. They are often enlarged as the result of masturbation, and sometimes as the result of venereal disease.*

The urethra, normally of small caliber, and about an inch long, is

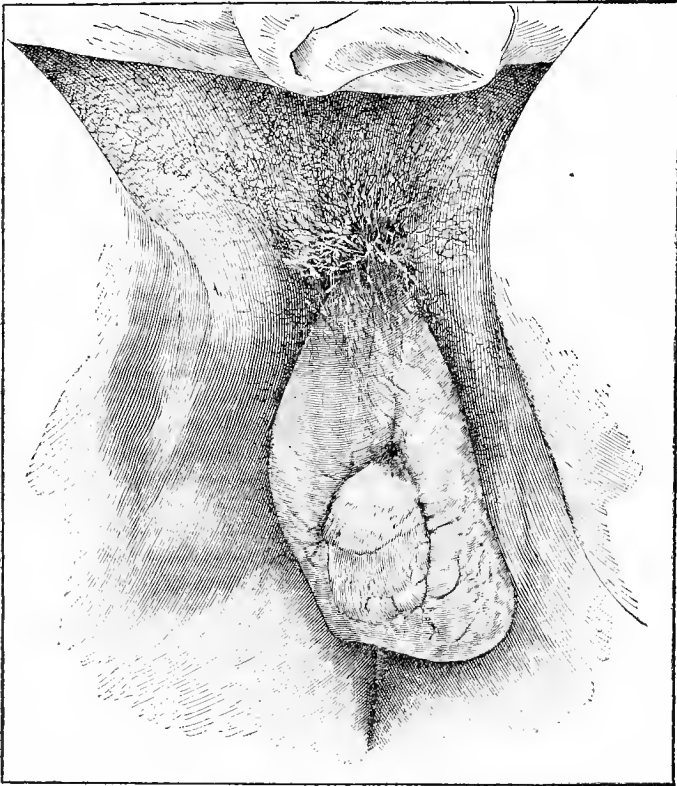


Fig. 64.—Author's case, representing enlargement of labia minora.

* The accompanying figure represents a rare case of this character which has been under the writer's care. The patient is a large, well-developed woman, twenty-four years of age, a prostitute, a syphilitic for three years, an opium-smoker for a year. The tumor has existed a year and a half, is painless, and does not prevent sexual intercourse. After endeavoring ineffectually to reduce its size by means of anti-syphilitic drugs it was entirely removed with the red-hot cauterizing-knife.

susceptible of considerable dilatation. In hermaphrodites and those who were otherwise deformed, it has sometimes been mistaken for the vagina and has been used in the copulative act, of course to the great detriment of the individual.

The hymen may be rudimentary and present no obstruction to coitus, or it may be so thick and firm that coitus will be impossible until it has been incised or entirely removed. In such cases serious difficulty may

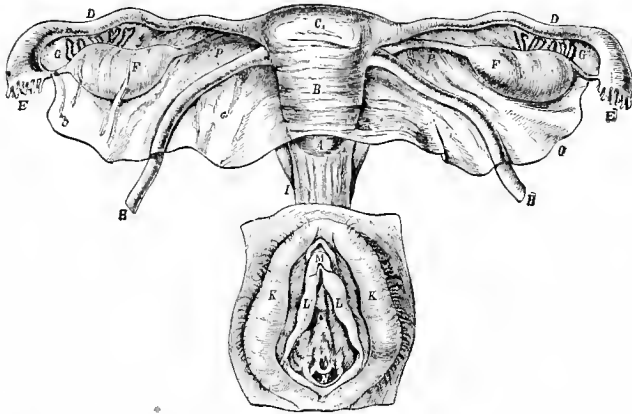


Fig. 65.—Figure representing the female organs of generation. (D. Berry Hart.)

F, Ovary; G, par ovarium; H, round ligament; I, broad ligament; N, entrance to vagina; L, labium minus; K, labium majus; M, clitoris; P, vagina; A, os uteri; B, body of uterus; C, fundus uteri; D, Fallopian tube; E, fimbriated extremity of tube.

arise on account of the retention of the menstrual fluid. A large abdominal tumor may thus be formed, and the issue may be a fatal one. The vagina may be rudimentary or entirely wanting.* If the vagina is rudimentary it is often possible that it may be so developed as to accomplish all the necessary functional purposes.

The uterus is seldom entirely wanting. I. E. Taylor has reported two cases in which post-mortem examination revealed no trace of the organ. It is very frequently rudimentary. Peaslee has reported a case in which it was a mere band of tissue of no functional importance. (Mann's *System of Gynecology*, vol. i., p. 269, quoted by Garrigues.) The writer has seen many cases in which it was very small and insignificant. In hermaphrodites it is usually rudimentary. Such a condition may

* An interesting case of this character was under the writer's care recently. The patient was a girl, sixteen years old, with no vagina, all the other organs being well developed. Inability to discharge the menstrual fluid had led to the formation of a large abdominal tumor. This was opened and evacuated through the rectum. A false opening was then made where the vagina should have been, but after two months her physician unfortunately allowed it to close. The menstrual fluid then reaccumulated, and the writer found it necessary to open the abdomen and remove the ovaries, thus bringing menstruation to an end. In view of the possibility of matrimony a vagina was then made by cutting, tearing, and dilating, the operation requiring several months for its completion. This vagina might serve the purpose of population, but could not be expected to answer for the safe passage of a fetus; hence the necessity of sterilizing the patient to anticipate a possible calamity. The patient was at last accounts entirely well.

effectually prevent impregnation, but it is astonishing to what an extent such an organ may be developed by suitable gynecological treatment or by the stimulus of coitus. If impregnation takes place serious results may occur, on account of the imperfect character of the tissue; either abortion or rupture of the organ, usually with fatal result, being the consequence. The Fallopian tubes are essential organs in the female reproductive apparatus, forming the only medium of communication between the uterus and the ovaries, and unless they are in proper functional and structural condition the passage of ova to the uterus and the accomplishment of impregnation become impossible. The tubes are not essential to menstruation, as some writers have affirmed, for menstruation has been known to continue after they have been removed, more or less of the ovarian structure having been retained. Their importance as oviducts is supreme, and for this function there can be no substitute. They may be rudimentary, mere impervious cords, and they are susceptible of various forms of disease at all periods of life. Disease of the tubes may be curable spontaneously or as the result of surgical treatment, or it may be incurable. It may be of a malignant character (sarcoma, carcinoma), or inflammatory, the result of gonorrhoea, abortion, or labor at term; it may be due to infection from unclean hands or instruments, the infectious process having extended from the vagina or uterus; or it may be an element in an infectious disease such as tuberculosis or syphilis. In the great majority of cases the disease is due to gonorrhoea or abortion, the ultimate cause being an infective bacterium. It is one of the most common forms of disease peculiar to women, and its importance in a medico-legal sense, especially with reference to the responsibility of the gynecologist in its recognition and treatment, is great. It has heretofore escaped recognition in medico-legal works, principally for the reason that until very recently correct knowledge of the subject was possessed by very few. In hermaphrodites the Fallopian tubes are often wanting or rudimentary.

The ovaries are the distinguishing sexual organs of the female as the testicles are of the male, and the absence of them renders the individual absolutely incapable of conception. They control the function of ovulation and have a very decided influence upon menstruation. In cases in which they have been removed menstruation usually ceases at once or within a short time, but it has been known to continue for many months after their removal, thus supporting the statement of Arthur Johnstone that the menstrual function is controlled by a nerve in the broad ligament contiguous to the uterus, and that this nerve has not been cut when the ovaries are removed should menstruation persist. The ovaries may be congenitally absent or they may be very small and defective in structure. Like the Fallopian tubes, they are extremely susceptible to disease, and the disease may begin in fetal life or it may be deferred until advanced age. There is perhaps no organ of the body which is subject to disease in a greater variety of forms, and perhaps none which is attacked more frequently. It further resembles disease of the Fallopian tubes in that it may be recovered from spontaneously, it may make the patient an invalid for life, it may be fatal without a timely surgical operation, or it may be inevitably fatal in spite of any form of treatment. Disease of the ovary may be independent of disease in any other organ, or it may be an extension of disease in the tubes. It is the glory

of modern gynecological surgery that it has found a remedy for the disease in thousands of cases which formerly were doomed to certain death. The medico-legal importance of ovarian disease, like that of tubal disease, has but lately been recognized. In hermaphrodites questions relating to the ovaries are always of great significance, and the sex of an individual under consideration may require for its determination an abdominal operation, inspection of the pelvic organs, and differentiation with the aid of the microscope of ovaries from testicles. Undescended testicles may be mistaken by outward examination of the body for ovaries, the general contour of the person's frame and the appearance of the external genitals may still leave one in doubt as to the question of sex, but the structure of the organ as revealed by the microscope will usually set doubt at rest.* Pozzi has analyzed three remarkable cases reported by excellent German authorities, which were regarded as illustrations of the coexistence in the same person of testicles and ovaries. He concludes that the propositions advanced have not been proved.

The condition of the breasts in hermaphrodites or those who are of doubtful sex may prove of great value in deciding the question of sex. In some cases in which the external genitals are of the female type, the breasts will be flat, the nipple poorly developed, and the mammary gland rudimentary. This has been the history in a number of recorded cases of hermaphrodites of *gynander* variety, but other cases are recorded in which the resemblance to the female type of breast is unmistakable.†

In recent years, that is, since the era of abdominal surgery began, and in which the number of operations upon the essential organs of generation in the female has multiplied, fewer cases of doubtful sex have been reported. Should they be necessary, exploratory operations may be resorted to in cases of doubtful sex, without waiting for the decision of the post-mortem table.

The bearing of the foregoing pages upon the questions of fertility and matrimony is direct and important. Marriage being a contract in the eye of the law, and one which may be dissolved under certain adequate conditions, it follows that both parties to the contract have a right to know beforehand whether each is in such physical condition that the marriage relation can be properly consummated. It is assumed that such knowledge is lawful, because a divorce is granted in cases in which physical defects prevent the consummation of the marriage relation. The family is the unit in civilized society; it is essential to the stability of society that the propagation of species should be effected under the safeguards of the family; the love of offspring is innate, and should be encouraged within reasonable limits, and is one of the bulwarks of society: therefore, whatever our views as to the morality or immorality of divorce may be, we must admit that society can protect itself only

* The writer is aware that Zweifel has stated that the ovary and testicle in early infancy closely resemble each other in their anatomical structure, and that differentiation of them may be an extremely difficult and delicate task. (Pozzi, *loc. cit.*, p. 1079.)

† In Von Franqué's case (quoted by Garrigues, Mann's *System of Gynecology*, p. 269 et seq.), the individual whose picture is given has a strongly marked female face, broad hips and back, long hair, and finely developed breasts. She lived as a woman until her forty-sixth year; then, as the male organ of copulation was strongly developed, and as a whitish fluid was discharged from it during coitus, she assumed male attire, married, and lived as a man the rest of her life.

by the marriage of men and women in whom the reproductive apparatus is not impotent. This is fundamental for society at large, and if true for the mass it should be true for the individual. But absence of offspring does not necessarily imply absolute impotence or even defect of the reproductive apparatus in either a husband or a wife; all the organs may be structurally sufficient for the proper performance of copulation, the desire for offspring may be intense, and yet the desire is not gratified. It has often happened that in some of these cases the adoption of suitable medical or surgical measures brings the desired end; in others the husband or wife, by marriage with some other person, demonstrates by the presence of offspring after a suitable period the fact of his or her ability to beget or to conceive. Divorce in such cases must be for some other cause than physical defect, otherwise husband or wife might be the victim of grave injustice. What, then, are the conditions pertaining to the reproductive apparatus which render marriage invalid because necessarily infertile? Plainly, the absence of those organs which are essential to the marriage act and to the begetting or bearing of offspring. A man who was without testicles at the time of his marriage would be absolutely unable to beget offspring. But a man without a penis, with one which is rudimentary, or with only a stump resulting from disease or injury, may accomplish the sexual act, though imperfectly, and may beget offspring. It would therefore be a question whether a woman whom he may have married could secure a divorce from him on the ground of his imperfection.* Eunuchs are incapable of begetting offspring because deprived of testicles. This does not signify that they are always without sexual desire, and it is said that in cases in which the penis has not been removed the sexual act is not unusual.

If a female is without a vagina sexual intercourse and conception are both impossible, though all the other genital organs are present and well developed. If in such a case the abdomen were opened, the uterus, ovaries, and tubes found well developed and without apparent disease, and a pseudovagina were made, conception might be possible and no ground for divorce for absolute deformity be tenable; though it might be urged with justice that the woman was physically defective, for the delivery of a full-term child by such an unnatural passage, if possible at all, would almost certainly result in the death of the mother and probably in that of the child as well. The only alternative to this hazardous method of delivery would be the Cæsarean section. Readily as such operations may now be performed, and willing as the writer would be on all suitable occasions to perform them, he would in no instance feel justified, nor deem it justifiable in another, to deliberately bring about by operation upon a woman such conditions as would expose her to such great risk to her life. There are many women who express a willingness to take such a risk, or any other which would offer to them the

* A case in point is that of a man of robust physical development and defective moral sense, who copulated not only with his wife but with numerous other women. Cancer attacked his penis and it was amputated, only a stump of insignificant proportions remaining. His sexual appetite remained, and he continued to have indiscriminate sexual intercourse. He stated upon inquiry that none of the women with whom he cohabited experienced any difference of sensation at the change in his condition. Whether any of the women were impregnated after his operation is not known, but the essential elements in his procreative power were said to have remained.

possibility of maternity, so strong is the maternal sense with some women; but the writer must leave to others the coöperation in all such cases, which to his mind is entirely unwarrantable. The vagina may be normal and coitus be readily accomplished, but if the uterus is absent or extremely rudimentary, conception will be impossible. The condition of the uterus can usually be ascertained by a careful examination, especially if the tissues are thoroughly relaxed by the administration of an anæsthetic. In some cases a decision can be reached only by incision of the abdomen and direct inspection of the pelvic organs. In hundreds of cases the uterus has been removed for serious disease, the disease being of such a character as to render conception improbable or impossible. It has frequently been successfully removed by the writer under such conditions.

Absence or rudimentary condition of the Fallopian tubes renders conception impossible. Such a condition resulting from congenital fault is rare, but disease of these organs not infrequently occurs before marriage, rendering the woman hopelessly sterile, and the situation is equivalent to that in which they have been removed by the surgeon's knife.

Absence or rudimentary condition of the ovaries places a woman in a condition similar to that which obtains when the tubes are absent or rudimentary. Disease in the tubes and the ovaries very often coexists, and a condition which demands removal of the tubes demands equally the removal of the ovaries. There is no law which forbids hermaphrodites to marry, but as marriage with such individuals is almost certain to be unfruitful and result in discontent and unhappiness, and as, moreover, there is in most cases legal ground for divorce, such unions are always to be discouraged.

The period which is known as that of puberty marks one of the most important and critical eras in the life of every individual, whether male or female. The changes which then take place are marked and prominent, and are indicative of a decided transformation in the physical condition. Ripeness of intellectual faculties, however, is no feature of this period, though it has been stated that in the negro race, at least as that race has been observed in this country, quickness of perception reaches its acme at puberty, intellectual progress thenceforward being relatively slow. From the period of puberty, at whatever age it may occur, the maturity of the reproductive apparatus begins, and in this respect the individual is as completely equipped functionally as he will ever be. Puberty means, therefore, ripeness of the procreative power, ability to beget or to conceive, the culmination of childhood, and immergence into physical maturity. The voice of the boy changes at that time, coarse hair begins to grow upon the skin and in particular surrounds the external genitals, the sexual appetite is aroused. In girls, similar phenomena upon the skin are apparent, the breasts enlarge, the curves of the body formed by the development of the muscles and fat are accentuated, and the important function of menstruation is established. This function is peculiar, not only on account of its regular recurrences, its suspension under certain well-recognized conditions, notably the condition of pregnancy, but also from the fact that it is the visible expression and announcement to the individual that the period of puberty with all its possibilities has arrived. No wonder that among primitive people who

were in the least observant the appearance of menstruation should be the occasion for the performance of appropriate rites and ceremonies.*

There are numerous factors which determine the time and the manner of the establishment of puberty. While these factors are influential for both sexes they are especially so for the female, inasmuch as the female is usually more sensitively organized than the male. They may be regarded as subjective and objective: among the former are race and family peculiarities, general physical condition, temperament, etc.; among the latter are climate, occupation, altitude, personal habits, etc. (See the writer's "Disorders of Menstruation," *Trans. N. Y. State Medical Society*, 1889, p. 154.) In general it may be said that puberty occurs one or two years earlier in girls than in boys, earlier in warm than in cold climates, earlier at the sea-level than at high altitudes, earlier among those who are healthy than among the sickly and delicate, earlier among savages than among the civilized. In boys puberty is most frequently reached between the thirteenth and sixteenth years. In girls the limits are farther apart: it may occur as early as the eighth or as late as the twentieth year. The latter limit is not at all unusual in very cold climates, while in the tropics menstruation at ten years of age is not precocious. Even in our own climate maturity may occur very early, the writer being familiar with a number of instances in which pregnancy occurred between the twelfth and fourteenth years.

A question which is often a very important one relates to the coincidence or want of coincidence of menstruation and ovulation. Some writers are of the opinion that ovulation may begin almost at birth. However this may be, it is certain that conception does not usually occur until menstruation has been established. On the other hand, menstruation often occurs with considerable regularity when the ovaries are absent. The establishment of menstruation is often a slow process—a discharge of blood may take place from the genitals, with the attendant phenomena of the nervous system, an interval of several months may follow, then another discharge of blood lasting several days, then perhaps a less prolonged interval before another recurrence, and finally, after a year or so, the recurrences may be at stated monthly periods; or the function may assume full-fledged peculiarities from the start. The discharge of bloody fluid continues from one to six or seven days, gradually increasing in quantity until the maximum is reached, and then as gradually receding and disappearing. There may be no accompanying phenomena which are worthy of note, or there may be pain in the back, headache, and general discomfort; and these symptoms vary within very wide limits, so that the period of menstruation is justly looked upon as one of the most important in the functional life of a woman. It is one which often calls for the most careful attention on the part of the physician. It may demand examination of the genital organs, and surgical treatment for the relief of faults which are fundamental to the menstrual disorder, which if unrelieved make life a burden during a not inconsiderable portion of every month. Rarely does a boy require the same

* Among the American Indians at the Quapaw (Ind. Terr.), Round Valley (Cal.), and Neah Bay (Wash.) reservations such celebrations are observed. The ceremonies are somewhat disgusting to the civilized mind. (See the writer's investigations relative to the functions of the reproductive apparatus in American Indian women, *Trans. Amer. Gyn. Soc.*, vol. xvi., p. 272.)

careful and prolonged supervision as a girl while puberty is being established. He certainly should be instructed during or before that period concerning the control of his sexual appetite and the care of the sexual organs, neglected though this duty usually is; but he suffers far less frequently than the girl from defects and disorders of his sexual organs, and far less frequently does his future welfare depend upon the wise counsel and treatment of his physician at this time.

Gynecology, the science which deals particularly with the diseases peculiar to women, has done very much to mitigate the ills and evils of the period of puberty, as well as of subsequent periods; and if it has sometimes shown excess of zeal in the treatment of such conditions, which call for the highest manifestations of tact, skill, modesty, and conscientiousness, it still has a proud record in the relief of present discomfort and the wisdom with which it has frequently anticipated trouble which was impending. The influences of climate, altitude, and the general condition of the individual have been referred to as factors in determining the early or late appearance of puberty, and we have also seen that in some cases it was established without disturbance while in others it was attended by perturbations or storms, repeatedly recurring, until the system had adjusted itself, as it were, to the new conditions. In boys, if they have been the victims of nervous disease, such as epilepsy or chorea, the disease may disappear at puberty; or, on the other hand, it may be exaggerated, especially if the subjects are masturbators. The same is true with regard to girls, and it is at this time, also, that the hysterical temperament is wont to become apparent. It may be added that this is also the best time to bring it under control. Insanity develops at this period of life with far less frequency than at the period which ushers in old age with its degenerative tendencies and processes. Malignant disease, which is also frequently associated with the period of senility and decay, seldom makes its attacks at puberty. Certain serious constitutional diseases, such as pulmonary consumption, frequently become exaggerated at this time, but it is not clear that this is necessarily due to any influence peculiar to puberty. On the whole it may be said that this period should be as conducive to robustness of physical condition as any period of life, for it is the time of youth and exuberant physical activity. Consequently there is seldom anything in the experience of puberty to impair the legal accountability of the individual in so far as a stage of legal accountability has been reached at that epoch of moral and intellectual development.

Menstruation or the menstrual flow is a discharge of blood and other material which is derived from the uterus, ovaries, and Fallopian tubes. It recurs with considerable regularity each lunar month in females who have attained the age of puberty, if they are not pregnant and are not suffering with any wasting disease. It continues, as we have already seen, under normal conditions, from one to six or seven days. It is composed not only of blood but of glandular secretions and degenerated tissue-material, and, unlike the blood under its ordinary conditions, does not coagulate or clot except when the circumstances attending its discharge are unusual or pathological. A somewhat analogous discharge is observed among many of the lower animals, and in the apes and monkeys it has decided resemblances to the monthly flow of women. With the animals the flow coincides with the *rut*, or period of heat, that

is, the period of active sexual desire, which is the natural expression of functional activity of the reproductive apparatus. It is not improbable that the function of menstruation is an outgrowth or evolutionary process of the condition which has been referred to in animals. Its modifications and varying effects are apparent enough as woman advances in the scale of civilization and intellectual development. One of the characteristic features of the menstrual function is the increase in the tension of the blood-vessels, especially in those which supply the genital organs. The tension being greater than the resistance of the superficial vessels in those organs, rupture and hemorrhage result. When menstruation is performed under normal conditions it gives rise to no particular disturbance, with the exception of the annoyance from a moist and sometimes malodorous discharge, and even this annoyance may be entirely overcome by the use of suitable means. Like all the other functions of the body, it is painless when it is normally performed. The most reasonable theory in regard to its object, and the one which comports most with the analogous function in the lower animals, is that it serves as the expression of the fact that a membrane or decidua has been formed in the uterus for the reception of an ovum, such a membrane being an indispensable necessity should insemination of the ovum and conception occur. Should such a result not occur the unfertilized ovum passes out of the uterus, and the decidua, with the small vessels which it contains, breaks down and is washed away by the blood-current, the latter forming one of the phenomena of menstruation. Should this phenomenon fail to make its appearance at the customary time, it is often, but not always, the sign that conception has taken place. The abnormalities of the menstrual function are many. In civilized life, especially in the cities and among those whose manner of living is artificial and highly irregular, there are more women who experience pain and annoyance with menstruation than there are of those who pass through it unconsciously and naturally. This might be regarded, from one point of view, as an argument that civilization had acted unfavorably upon the physical condition of woman. The fault, however, is not exactly that of civilization, but of its accompaniments of wealth and poverty, vices and excesses, neglect to inculcate in the young the importance of hygienic laws and precautions. Among savages and barbarians the abnormalities in question are of rare occurrence. The following digressions from normal conditions are often observed:

1. Painful menstruation, or dysmenorrhœa.
2. Profuse menstruation, or polymenorrhœa.
3. Scanty menstruation, or oligomenorrhœa.
4. Absence of menstruation, or amenorrhœa.
5. Irregular or substitutional menstruation, or atropomenorrhœa.

The first of these abnormal conditions, always referred to by physicians as dysmenorrhœa, is so common that many physicians are of the opinion that it is almost a necessary and unvarying accompaniment of the function. This we deny, both because of experience in the observation of many cases in which menstruation was absolutely unaccompanied with pain, and because it would hardly be fair to assume that so important a function was an exception to all the other functions of the body in being normally painful. With many women pain is a symptom of menstruation only during the earlier years of life, perhaps until they

have borne one or more children; but with others it is a customary and expected and trying symptom during the entire period of life in which menstruation occurs. It is most frequently located in some portion of the head and in the lumbar region of the back. Very often it is also in the thighs and legs and the muscular system in general. It may be present during the entire menstrual period, or during the day or two preceding it, or it may not occur until the blood begins to flow, this form being less common than the others. Pain may also be present in the stomach and bowels, with or without nausea and vomiting, and in the uterus itself in the form of cramps or contractions, comparable to the pains of labor, and often due to the blood which has accumulated in the organ, which it takes this method to expel. Young and unmarried women are the greatest sufferers from this disorder, but the married ones and those who have borne children are by no means exempt. The effect of these repeated attacks upon the mental condition, especially in those who are predisposed to mental disturbance, is sometimes very pronounced, many of the inmates of lunatic asylums being sufferers from the severer forms of dysmenorrhea. In determining the cause of insanity it is very important to ascertain the history of the patient with respect to her menstrual function.

Profuse hemorrhage during the menstrual period is sufficiently common, but less so than dysmenorrhea, the condition just described. Its cause is often apparent enough when there are tumors in the uterine structure or when the mucous membrane of the uterus is diseased from other causes, but frequently the cause is obscure. It is a common occurrence in young girls who are anemic but without perceptible disease in the womb itself, the hemorrhage reducing their strength and sometimes bringing them to the verge of collapse. It is common in prostitutes and others who have abused the sexual act, in those who have suffered abortion which has been imperfectly or improperly treated, and occurs almost invariably in those who suffer with malignant disease of the womb or its appendages. The hemorrhage may appear in gushes, in clots, or in a continuous leakage lasting many days. In some cases a woman has barely time to rally from one attack before she is seized with another. Unless the root of the matter can be quickly reached such women become hopeless invalids, dying from exhaustion or becoming an easy prey to disease of some other character.

Scanty menstruation may be an indication of a depraved general condition or of some disturbance located in the genital organs. The menstrual period may last only a few hours or it may extend over several days, the quantity of blood lost each day being insufficient to relieve the tension in the blood-vessels and give the woman a sense of relief. It may be due to a sudden checking of the menstrual flow caused by low temperature, a high wind, a cold bath, or a profound mental emotion. It is often accompanied with severe pain (dysmenorrhea); the blood itself may be pale and watery, with an unusually small proportion of the constituents (especially the red corpuscles) of healthy blood. The condition is usually amenable to relief, either by measures directed to the general condition or by treatment of the genital organs themselves; but it is far less frequently an expression of organic disease than is profuse menstruation, and far less calculated to cause alarm on the patient's behalf.

Absence of menstruation, or amenorrhœa, is relatively an infrequent condition, those cases being excluded, of course, in which it is an accompaniment of the pregnant state. The cause is sometimes quite beyond the existing state of our knowledge, but at others a rational explanation is entirely possible. It sometimes occurs in women who are suffering with severe wasting disease, such as pulmonary tuberculosis, chronic Bright's disease, or diabetes. It may occur in connection with an ocean voyage or residence by the sea. Many of the young immigrants to this country suffer in this way for months, if they remain at the sea-coast; but it usually disappears, leaving no bad effects, after they have become accustomed to the climate. It is sometimes observed in women who are well developed, but who in early life have suffered with chorea, epilepsy, or some other disease of the nervous system. Very fat women occasionally suffer in this way. It is suggestive of pregnancy, and women who are thus affected frequently consult a physician in great alarm, fearing pregnancy, especially if they are single and have good reason for fearing that such a condition might exist. It is a common superstition that it may cause or lead to *consumption*. This it never does in and of itself. It is often a conservative process on the part of nature when the woman is too weak to bear without detriment the loss of even a small quantity of blood; and this is a most important point for the medical jurist. The superstition alluded to is probably attributable to the fact already mentioned, that it may be an incident in the course of the wasting diseases. In such cases it is both *post hoc* and *propter hoc*. At the present time, when the removal of the ovaries is of such frequent occurrence, it is an almost inevitable result, and is a matter of daily observation. It is remediable in many ways—by removal of the residence from a moist to a dry climate, by improvement of the general condition, and by removal of existing causes in the genital organs. It is irremediable if due to the removal of the ovaries, or the uterus and ovaries, or if the patient is suffering with the incurable diseases such as were mentioned as its causes.

Irregular or displaced or substitutional menstruation is the variety which has often been called vicarious menstruation, a term which is misleading and objectionable. The somewhat clumsy term atropomenorrhœa is suggested as a substitute which is correct etymologically and explicit. It is a substitute for menstruation of the ordinary type or it may be a sort of addendum to it. One variety of which the writer has seen several instances consists in spots or patches of a dark-red color upon the skin, known by dermatologists as *purpura*. These spots are caused by exudations of blood from the vessels beneath the surface of the skin. *Nævi* or birth-marks are usually swollen and darker in color than usual during menstruation. The blood or blood-serum may even exude through the skin like a bloody sweat, and cases of this character have sometimes been used to impose upon the minds of the superstitious and the credulous. In women who have ulcers or open sores the discharge therefrom is more abundant during the menstrual period than at other times, on account of the rise of the blood-pressure which then obtains. Other varieties of atropomenorrhœa are bloody diarrhea, bleeding from the gums, the nose, the anterior chamber of the eye, vomiting of blood from the stomach. Malingerers have been known to swallow blood, or red fluid resembling blood, and then vomit it as an exhibition of abnormal menstruation, especially if the object be to excite attention or notoriety.

In all these cases it becomes the duty of the physician to ascertain whether the fluid ejected is a natural product or whether it is the result of fraud on the part of the individual, the opportunities for deceit and imposition being abundant.

Concerning the relation of menstruation to gestation, the menstrual flow and its attendant phenomena are ordinarily absent during gestation, and the explanation appears in the theory of menstruation which has been given. But this is not always the case: some women menstruate regularly while pregnant the same as in the unimpregnated state. In the dangerous condition known as placenta prævia, in which the placenta is implanted directly over the internal opening of the womb, a discharge of blood occurs every month and may result in abortion or even in fatal consequences. If malignant disease coexists with pregnancy, hemorrhage may take place either at the customary time of menstruation or at irregular intervals. In all cases of pregnancy in which hemorrhage takes place, whether at regular or irregular intervals, it is very desirable to ascertain its cause, for serious consequences may thereby be averted.

If the menstrual flow occurs in any other than the normal manner—if it is too abundant or too scanty, if it continues too long, at too frequent or at too infrequent intervals—its cause should be ascertained as promptly as possible. It has been shown that such irregularity may be associated with disease of the uterus, the Fallopian tubes, or the ovaries, and the bearing of any such possible conditions must be carefully determined. Gonorrhœa involving any of the genital organs may produce a bloody discharge; also syphilis, abscess of the pelvis, or pelvic congestion from any other cause. Certain diseases of the bladder and urethra are also accompanied with hemorrhage, and such a discharge must not be mistaken for the menstrual flow. Bloody discharges from the rectum and anus must also be carefully referred to their proper origin and not be hastily regarded as an evidence of abnormal menstruation. It will therefore be apparent that all discharges of blood from the female genital organs are of very decided significance, and only by careful attention can their true nature be determined.

The menopause, or *change of life* as it is commonly called, marks one of the important eras in the life of a woman. Puberty announces the initiation of the child-bearing period, the menopause its termination. By this term is meant primarily the cessation of the menstrual function. In temperate climates it occurs, in the great majority of instances, between the fortieth and fiftieth years.* In very warm and in very cold climates it often occurs prior to the fortieth year. Those who reach puberty early frequently reach the menopause late in life. Those who bear many children in rapid succession, also those who are very fat, usually cease menstruating early. The same is true of those who suffer with the wasting and exhausting diseases: as was remarked in a previous part of this article, the limit of the reproductive force has been reached, and is evidently dependent upon the general condition of nutrition of the body. Those whose ovaries have been removed experience the menopause as the direct consequence of such an operation.

* This rule is very far from universal in its application. The writer has known many instances in which menstruation has occurred as late as the fifty-fourth year without interruption. Very late occurrence of the menopause is a noteworthy characteristic in many families.

The menstrual function may terminate abruptly or gradually, the interval between the periods gradually lengthening until they cease altogether. If a bloody discharge from the genitals recurs after the menopause has taken place it may be regarded as an unfailing evidence of disease, and it is usually an evidence of serious disease. No one of experience, nowadays, would think of attributing to menstruation a hemorrhage or series of hemorrhages occurring five or ten years or even longer after the disappearance of the menstrual function, though such diagnoses were common enough in the practice of a generation ago and earlier.

The menopause marks not only the cessation of menstruation and the child-bearing function, but the advent of diminished resisting power of the tissues and organs to disease processes. Repair now takes place less readily than in the previous years of life, and the individual is more susceptible to disease. Cancer and other malignant and degenerative processes are prone to develop, also insanity and other diseases of the nervous system.

Women who are passing through the menopause are often troubled with sudden flashes of heat upon the surface of the body, especially about the face and head, which appear without warning and vanish as mysteriously; they may suffer with unaccountable attacks of hysteria, with disorder of the stomach, liver, and bowels, or with great irritation of the kidneys and bladder. In fact, if the menopause is a stormy one, as it very often is, they are to be judged by a different standard of physical condition and behavior from that which is applicable to younger women or to those who are fortunate in getting through it without particular perturbation. In consideration of the many possibilities of discomfort of this period a grave responsibility is laid upon the gynecological surgeon who may be called upon to perform an operation which will precipitate it. The frequency with which this operation is done sometimes gives rise to the suspicion that these possibilities have not been weighed with sufficient care. The subject is certain to require more profound and extensive consideration at the hands of the jurist than it has heretofore received.*

In women who are the victims of fibroid tumor of the uterus the menopause usually comes later than with those who are free from such disease. Schorler (see Gusserow, *Neubildungen des Uterus*, p. 28) found the average age of the menopause in women without tumors to be 47.13 years. Of those who had tumors the average of 29 in private practice was 49.14 years, and of 23 in hospital practice 48 years. In Gusserow's investigations menstruation persisted at 50 years in 5.4 percent. of all cases of fibroid tumor of the uterus in private practice, and in 7.7 percent. in hospital practice. The teaching that fibroid tumors of the uterus are quiescent and harmless after the menopause is frequently erroneous. The writer recently removed the uterus with a large fibroid tumor which was firmly fixed in the pelvis and actively growing from a woman who had passed the menopause two years previously. The tumor was abundantly nourished by the adhesions in which it was ensheathed.

* In this connection see a timely article by Goodell, "The Effect of Castration on Women, and other Problems in Gynecology," *Annals of Gynecology*, January, 1894, p. 198.

III. PREGNANCY.

Marriage and Conception—Sterility—Evidences of Pregnancy in its Early Stages, also in its Later Stages—Conditions which Simulate Pregnancy—Superfetation—Complicated Pregnancies—Age-limits within which Pregnancy is Possible—Can Pregnancy Exist and the Mother be Ignorant of the Fact?—Viability—Duration of Gestation under Ordinary and Extraordinary Conditions—Determination of the Period which Pregnancy has Reached in a Given Case—Legal Questions Relating to the Foregoing.

Marriage implies the possibility of sexual intercourse; sexual intercourse during the child-bearing period implies the possibility of conception: judging from analogy in many of the lower animals, that is its physiological object and not solely the gratification of the sexual appetite. If conception does not take place after sexual intercourse it is because the conditions as to ovulation are unfavorable, or because of physical disability on the part of the man or the woman, or because of mechanical interference in some way or other. This statement is comprehensive enough to answer and explain many facts and questions. It explains the failure of countless women to become pregnant though they and their husbands long for children with earnest longing. It explains the failure of other women to become pregnant who would not submit to pregnancy and labor if there were any possible way of avoiding it. It also suggests the explanation of pregnancy when it occurs against the will of the pregnant, and when they were under the impression that they had used all the means which were necessary to prevent conception. It is not affirmed by the writer that absolute non-interference prior to conception is the proper and only line of conduct to be followed. In this respect he is well aware that all of his medical brethren will not agree with him. It seems to him that there are cases in which interference to prevent conception is desirable and just, and not injurious to the physical condition of either the husband or the wife. Indiscriminate intercourse between those who are not married to each other is excluded as at all times immoral, unnecessary, and improper. That men and women are often very badly mated is abundantly shown by the hideous mental, physical, and moral monstrosities and deformities which result from such unions. It would be well for the world if the reproductive power of many individuals were terminated. A stock-raiser who should breed his animals with no more care and thoughtfulness than is exercised by the average of human beings would soon be compelled to go out of the business. Greater wisdom in the pairing of men and women, wisdom and judgment in the getting and rearing of offspring, may result in fewer children, but they will be better than the present average, and marriage will have less misery and bitterness connected with it.

After conception has taken place, to interrupt it is to destroy life, and this is rarely warrantable. In many years of city practice the writer has seen but two cases in which such practice seemed to him justifiable. In one the mother was reduced by persistent vomiting to such a degree of exhaustion that longer delay would almost certainly have resulted in death. The case was seen in consultation and its gravity

appreciated, but the operation was not performed until the patient had been seen by an obstetrician of great eminence and wisdom, who concurred in its propriety. In the other case the alternative would have been a serious cutting operation at or near the conclusion of pregnancy. Such an alternative would at the present time be adopted, at least in the majority of cases, but at that earlier period it would not have been deemed advisable.

Sterility is the term which is commonly applied to the condition of unfruitfulness in a married woman. But a man may be sterile as well as a woman, and this condition, whether in man or in woman, may be relative or absolute. The result of the marriage of Napoleon I. and Josephine was sterility and divorce, though the latter as Josephine Beauharnais had borne two children prior to her marriage with Napoleon, and he was subsequently a father by Marie of Austria. This familiar example has had many counterparts. Absolute sterility is necessarily present when those organs which are essential to reproduction are wanting. This matter has been elaborated at sufficient length in the section relating to hermaphroditism and rudimentary and defective organs.

Relative sterility refers not merely to the incompatibility of a given man and woman for each other with reference to having offspring, but also to the inability of either to perform the necessary part in the experiences connected with reproduction during a prolonged period of time. Thus a woman who has no children, after having had one or more, during five or ten successive years is relatively sterile. Or the relative sterility may be due to some physical defect in the man or the woman or both which in time is remedied and they ultimately have offspring. In the man the condition of epispadias or hypospadias, or a defect of some other character in the organ of copulation, may prevent insemination of his wife though his testicles and their secretion may be normal. Or, on the other hand, the semen may be lacking in vitality, the spermatozoa being few or inactive. Such a condition is frequently remediable by such measures as careful diet, stimulating exercise, or tonic drugs. In any case it must be remembered that it is premature to pronounce a woman sterile until the condition of the genital organs and the secretions of her husband has been ascertained, and this may necessitate one or more microscopical examinations of the semen, the examinations being made with the greatest care and delicacy immediately after the semen has been discharged. A great variety of conditions in women, in addition to those which have been mentioned as causing absolute sterility, may prevent conception. A thickened and nearly impervious hymen may prevent effective access of the spermatozoa to the uterus;* an abundant and acrid vaginal secretion may destroy the vitality of the spermatozoa; and equally effective causes of sterility may consist in induration of the vaginal portion of the cervix uteri, with very minute external opening of the same, catarrhal inflammation of the lining membrane of the womb, also acute anterior or posterior displacement of the womb. All these morbid conditions are usually remediable by proper surgical procedures, and if the other necessary prerequisites to conception are present

* Such an obstruction is not always efficient. Grandin reports a case (*New York Journal of Gynecology and Obstetrics*, November, 1893) in which impregnation occurred, the evidence being conclusive that introduction of the penis was impossible.

the case cannot be regarded as one of absolute sterility. In not a few instances the writer has had the satisfaction of a practical acquaintance with women in whom the difficulties which have been alluded to have been overcome; and to a woman with whom the maternal sense is strong there is no greater boon than the satisfaction of that sense. More difficult of treatment than any with such abnormalities as have been mentioned are those cases in which the sterility depends upon serious disease of one or both of the ovaries or the Fallopian tubes. In such cases entire organs or parts of organs must be removed, and the parts which are retained must be brought into such relations as to functionate as nearly as possible like the organs in their natural condition. To overcome such obstacles and thus facilitate a succeeding pregnancy is a triumph of surgical art.* A method of overcoming sterility which was ardently advocated by the elder Sims and practiced by him as well as by other gynecologists, especially by those of the French school, consists in artificial insemination, the semen being collected from the vagina and introduced into the uterus by means of a clean glass tube as soon as possible after it has been deposited in the vagina. This method is attended with many difficulties and has been so seldom successful that it has not been generally adopted by the profession.†

The question of overcoming sterility is often an important one in connection with the inheritance of estates. It is, of course, justifiable and proper to use all available means for the attainment of this end. It is useless to attempt it in cases in which absolute sterility is present, and suspicion must necessarily be aroused in such cases if a child is brought forward as a claimant for property. If the condition is one of relative sterility it is proper to extend the hope that the difficulties may be overcome and a child obtained, even though a long course of medical or surgical treatment, perhaps continuing for years, be necessary for its accomplishment. This result will seldom be accomplished by artificial insemination, though the trial of such a method will be warranted, especially if other measures have been tried without success.

* A case of this character has occurred in the writer's practice, and is so unusual in its particulars that he feels justified in narrating it at some length. The patient was a young Irishwoman, twenty-three years of age, who was first seen October 20, 1888, eighteen months after her marriage. She had never been pregnant, though intensely desirous of offspring. Her womb was retroflected and fixed by firm adhesions. After various attempts to relieve her by mild measures, which were entirely unsuccessful, she consented to have the abdomen opened and a radical operation performed. The womb was forcibly detached from its improper position, brought forward, and secured by silver wires passed through each horn to the abdominal wall (January 8, 1891). Both ovaries were diseased. The right one was as large as a man's fist, and with its corresponding Fallopian tube was removed. The left ovary was enlarged to the size of a hen's egg, but contained a certain portion of tissue which seemed to be normal. The diseased tissue was cut away, the remaining fragment properly stitched and brought into relatively normal relations with its tube, and the abdominal wound closed. The operation resulted in recovery and in great improvement in the general condition. After ten months she became pregnant, and at the proper time (September 8, 1892) was delivered by the writer of a fine, large female child.

† Personal communication with Dr. Harry Marion Sims in regard to the experience of his father with the subject of artificial insemination revealed the fact that this method is not only a very troublesome but a very unsatisfactory one. The elder Sims practiced it in fifteen cases, and in only one did pregnancy result, and then it occurred only after sixteen operations. Dr. Harry Marion Sims has also tried the method in eight cases, and in none of them did his efforts result in pregnancy. If the method fails in such skillful hands others may well despair.

Gestation or pregnancy is that physiological condition in the female which is essential to the reproduction of species. It implies the effective union of spermatozoön and ovum and their subsequent development. It does not imply anything in regard to the result of the process. It implies the existence of the essential genital organs—the vagina, uterus, Fallopian tubes, and ovaries. When the condition proceeds normally the products of conception are in the cavity of the uterus—that is the normal *nidus* of the human ovum. There are many instances, however, in which pregnancy has taken place outside the uterus, in some cases proceeding without interruption to the end of the period which is necessary for the full development of the fetus, in others suffering interruption at an early stage, with consequent destruction of the fetus, and often with fatal result to the mother as well. The greater number of these extra-uterine or ectopic pregnancies undoubtedly take place in some portion of the Fallopian tubes. Some writers of the highest authority deny that they can ever take place anywhere else, but it does not seem to the writer impossible that spermatozoa should work their way through a tube and meet an ovum just as it was extruded from a ruptured Graafian follicle. Should that occur and union of the two elements take place, it would seem quite possible that development of the fructified ovum might take place upon the ovary or even within the free abdominal cavity. A number of cases are recorded in which it has been asserted that true ovarian pregnancy was present; also a number of cases, including one of the writer's, in which the pregnancy seemed to have been limited to the abdominal cavity.* Some of the specimens of these cases are preserved in medical museums, and they have been examined by various experts, some of whom admit, while others deny, that they represent ovarian or abdominal pregnancy. The subject is still in dispute. It is much easier to believe that impregnation takes place, in these extra-uterine cases, in some portion of the tube rather than upon the ovary or intestine or other portion of the surface of the peritoneum, and it is quite possible that an ovum inseminated at the fringed extremity of the Fallopian tube might, after a short time, fall or drop from its primary place of attachment and locate itself anew on the surface of the ovary or elsewhere. In the unmistakable tubal pregnancies the tumor may develop in any portion of the tube and the remaining portion may present a normal appearance. In the great majority of cases the tubal tumor ruptures from the sixth to the tenth week of gestation, the opening being into the free peritoneal cavity or into the folds of the broad ligament which lie under the tumor. In the former case the fetus may be precipitated into the free abdominal cavity, usually dying, but in rare cases retaining its life and developing in this strange situation. Such cases are often fatal to the mothers from hemorrhage. In the latter case a roomy pouch is found, to which the fetus adapts itself, and development may continue in this situation until the child has reached maturity. From this position it can be extricated only as it is removed through an incision in the abdomen or the vagina, or after the slow process of decomposition has taken place, the bones and other solid tissues ulcerating

* In the writer's case a fetus of the fifth month or possibly later was found in the mother's abdomen after death. So far as could be judged at the time, from the condition of the uterus, tubes, and ovaries, none of these organs had been at any time the seat of this pregnancy.

their way through the rectum, bladder, vagina, or abdominal wall. Very few women are able to endure the strain of such a terrible process. Extra-uterine pregnancy occurs much more frequently than was formerly supposed, but it would probably be much more frequent still if impregnation began, as is maintained by many writers, in the Fallopian tubes, the ovum then descending into the uterus. It would seem more reasonable to believe that the sperm and germ cells meet and unite in some portion of the uterine cavity, and that when this does not take place it is because of some abnormality in the uterus, the tubes, or the ovaries. A number of cases of tubal pregnancy in the writer's knowledge, in which such abnormalities have been present, have confirmed his views in regard to the correctness of these statements.

The ovum and spermatozoon having united, conception becomes a fact, the ovum becoming imbedded or implanted in the uterine mucous membrane, and developing in accordance with physiological laws which have been carefully investigated and clearly determined, and which are embodied in the beautiful science of embryology. If pregnancy proceeds normally the first evidence or intimation of its presence to the woman consists in the absence of the menstrual flow when the time for its appearance has arrived. At this early stage of gestation the ovum may be readily dislodged, and many abortions are produced by the drastic remedies which are taken by women who are alarmed because their "sickness" does not appear. If the ovum is not disturbed and the time for the menstrual flow recurs again with experience similar to that of the preceding month the hope or suspicion of pregnancy which was entertained by the woman will, in most cases, have developed into a certainty. If the woman is pregnant for the first time she will usually be a sufferer with nausea and vomiting, especially in the early hours of the day (morning sickness); her breasts will begin to enlarge, and perhaps be painful. In a certain number of cases there will be milk in the breasts, but this is by no means a customary occurrence. The changing contour of the abdomen will compel the woman to loosen her clothes about her waist. Constipation will frequently be a troublesome symptom, also an abundant leucorrhœal discharge from the vagina. The appetite may be increased, and the struggle between increase of the appetite and inability to retain the food which is taken is often very distressing. Such are the principal subjective symptoms during the first two months of pregnancy. If a physician is called on account of the non-appearance of the menstrual flow at the customary time he may be assisted in his diagnosis by the statements of the patient, or they may be intended to mislead and deceive him; he should therefore be on his guard against deception and depend upon objective rather than subjective symptoms. He should refrain from introducing instruments into the uterus, as he might inadvertently puncture the ovum, produce an abortion, and thus accomplish the very end which his patient desired, though she may not have expressed such a desire. If the pregnancy has not advanced beyond the fourth or fifth week a positive diagnosis of the condition may be very difficult or even impossible. An examination with the finger will usually reveal a softness of the vaginal portion of the neck of the uterus, which is suggestive of pregnancy; and the bimannual examination will show that the uterus is larger and somewhat more globular than in the unimpregnated state: but there are no unfailing signs which will indicate with absolute accu-

racy that pregnancy exists; the symptoms mentioned may all be due to other causes, and both physician and patient may be compelled to await further developments before arriving at a conclusion.*

A sign, called after its discoverer Hegar's sign, and consisting in a boggy and resiliency of the lower segment of the body of the uterus, is discernible from the fifth to the seventh week, but it is not constant and is not universally recognized as a sign of value. The sign upon which the writer places greatest dependence between the fifth and tenth weeks is the discoloration of the mucous membrane of the vulva and vestibule. This varies from a pale purple to a pale violet, in place of the light-pink hue of the unimpregnated state. It implies obstruction of the venous circulation of the tissue involved, and, while it may be an indication of obstruction from some cause apart from pregnancy, it is of great value in determining a diagnosis when taken in conjunction with the other early signs of the pregnant state. It is the first sign which arrests the attention of the practiced eye in making an inspection of the genitals. It has been observed by the writer in hundreds of instances and has rarely proved misleading.

From the second month of pregnancy onward the signs may still be considered with advantage from a subjective and an objective standpoint, the former being first considered. The menses continue to be wanting; the breasts continue to enlarge, and give rise to more or less pain and soreness; nausea and vomiting persist until the fifth or sixth month and gradually disappear as the womb rises from the pelvis into the more capacious abdominal cavity, though in some cases they continue until the end of pregnancy. The patient has uncontrollable drowsiness and sleeps much of the time, also backache, vaginal leucorrhœa, frequent inclination to urinate, and other annoyances; or, on the other hand, the latter portion of pregnancy may be free from discomfort, or even attended by a greater degree of comfort than is customary in the unimpregnated state. One of the most important of the subjective symptoms of pregnancy is *quickening*, which is a peculiar sensation, sometimes compared to the fluttering of a bird, caused by the movements of the fetus within the womb, and the first intimation to the mother that she is carrying in her body a living, moving being.

Of the objective signs the discoloration of the vulvar mucous membrane becomes more and more marked as gestation progresses, until, during the last month, the color may be almost black. In some cases the veins of this region are much enlarged and resemble bunches or

* Dickinson (*New York Journal of Gynecology and Obstetrics*, November, 1893, p. 985) offers the following scheme concerning the early signs of pregnancy, which is the most recent contribution to the subject:

Six signs of early pregnancy obtained by the bimanual examination:

- | | |
|--|-----------------------------|
| 1. Belying or bulging out of the body of the uterus. | } About four to six weeks. |
| 2. Elasticity or boggy of the body of the uterus. | |
| 3. Compressibility of the lower uterine segment. | |
| 4. The transverse fold. | } About six to eight weeks. |
| 5. The longitudinal fold or furrow. | |
| 6. The denser spot. | |

Dickinson thinks that *in favorable cases* the presence or absence of pregnancy may be determined between the second and sixth week after coitus, or between the third and eighth after the beginning of the last menstruation.

clusters of worms. The softness of the vagina and vaginal portion of the neck of the womb also becomes more pronounced; the cervical canal becomes patulous, readily admitting the end of the index-finger as the time for labor approaches. The enlargement and ascent of the uterus progress, *pari passu*, with the development of gestation. There is little difference of description among the best obstetric writers concerning the relations of the uterus to its surroundings during the different months of pregnancy. We shall follow the description of Winckel (*Text-book of Obstetrics*, 1890, p. 79 et seq.):

At the end of the second month the fundus of the uterus can be felt by the examining hand behind the *symphysis pubis*.

At the third month the uterus is as large as a man's fist, and the abdomen begins to be prominent.

At the fourth month the fundus of the uterus has risen out of the pelvis.

At the fifth month the fundus is midway between the symphysis and the navel. Striæ begin to appear upon the surface of the abdomen, and the *linea alba* assumes a more pigmented appearance. During this month the sound of the fetal heart may be detected in many cases.

At the sixth month the fundus rises to a point about two fingers' breadth below the navel, and its lower half becomes flatter.

At the seventh month the fundus is two fingers' breadth above the navel, and during this month the lower pole of the fetus may usually be felt through the vagina, though the fetus is still quite movable in the fluid in which it floats.

At the eighth month the fundus is midway between the navel and the epigastrium, the lateral expansion of the uterus is considerable, and the movements of the child are very vigorous and can readily be felt when the hand is placed upon the abdomen.

During the ninth month the fundus nearly reaches the epigastrium, continues to expand laterally, and in the closing weeks of pregnancy the presenting portion of the fetus descends into the pelvis, preparatory to its exit from the birth canal.

In addition to the gradual enlargement, hardness, and soreness of the breasts during pregnancy, an important point to be observed in making a diagnosis is the enlargement of the papillæ or sebaceous glands surrounding the nipple, also the greater prominence of the nipple, the increase in the deposit of pigment in the colored areola around the nipple, and the development of a secondary areola around the first, which is lighter in color and narrower than the first, and does not appear until the later months of pregnancy. Among the objective signs of pregnancy which were formerly more frequently alluded to than they are at the present time may be mentioned *kiestein* and *ballottement*. The former was first brought to the attention of the profession by Nauche, who asserted that its presence in the urine was a certain sign of pregnancy; it consists simply of triple phosphates and low forms of life—but it is also found in the urine of males (Winckel, *loc. cit.*). It has frequently been referred to in works on medical jurisprudence as a diagnostic sign. *Ballottement*, which consists in pressing smartly upon the fetus with a finger in the vagina, the ball of the finger being applied to the anterior vaginal wall, the pressure causing the fetus to rise in the fluid in which

it is immersed and then rebound against the finger, is a good enough sign, but not always practicable nor easily accomplished. Besides, it is unnecessary because there are so many other means of determining pregnancy which are easier of application and just as reliable. The condition of the kidneys must not be overlooked in determining pregnancy, especially if there is any suspicion that disease of these organs existed prior to pregnancy. Frequent examinations of the urine should be made, especially with reference to the presence of albumin. A trace of albumin during the earlier months need not cause alarm, but if, after the sixth month, when there is more or less pressure from the uterus upon the kidneys, there is albumin to any considerable extent in the urine, the condition becomes one of grave importance and calls for the most careful watchfulness and wisdom on the part of the physician. Eclampsia or convulsions is sometimes associated with renal disease during the latter portion of pregnancy, and constitutes one of the most dangerous complications of the pregnant, parturient, or puerperal state. There are no peculiar conditions of the heart, lungs, intestines, or other viscera during pregnancy which call for particular attention in a book of this character. The systematic treatises on obstetrics may be consulted in regard to all such unusual incidents. It is a well-known fact that deceit is often practiced by those who desire to be pregnant, as well as by those who desire to be relieved of pregnancy, the physician being often imposed upon by both. Erroneous diagnoses are made by physicians through ignorance, want of discrimination, and sometimes on account of difficulties which render error quite pardonable. Mistakes of this kind are far less frequent than formerly, for the general diffusion of gynecological knowledge has informed the profession at large concerning the anatomy of the pelvis to a far greater extent than ever before.

Cases which simulate pregnancy may be divided into two groups, in the first of which enlargement of the abdomen will be the chief symptom, while in the second this symptom may or may not be present, other noteworthy symptoms being prominent. According to this classification individuals of the first-mentioned variety and their friends may be deceived by the situation, but the physician usually will not be. In the second case the physician also may be the victim of deception.

The most conspicuous members of the first group include those women with whom the great object and desire of life is to become pregnant. This group also includes cases which are interesting and important, and in which the entail of an estate depends upon the birth of an heir. The intense desire of these women to have children very often leads them to imagine that they are pregnant whether there is any ground for it or not. A famous illustration of this group was Queen Mary of England, wife of Philip II. of Spain, who was continually reporting herself pregnant, and even appointing the time for her accouchement. The enlargement of the abdomen in these cases is usually due to fermentative changes in the intestines, with resulting accumulation of gas and such gastric and intestinal disturbance as is not an uncommon accompaniment of pregnancy. The distention of the abdomen from this cause may continue a long time, and a woman who is thus affected may readily deceive herself with the thought that she is pregnant, especially if she

happens to be very anxious to become so; and the deception is fostered by sympathizing friends who have had a somewhat similar experience in connection with their own pregnancies. A condition of this character should never mislead a physician, because he can determine by examination, with the aid of an anesthetic if necessary, whether the distention is gaseous or due to an enlargement of the uterus, or to the two causes combined. Collections of fluid in the abdomen may simulate pregnancy. Such collections occur in connection with malignant disease of the abdominal viscera or with tuberculosis of the peritoneum. This condition sometimes occurs in young unmarried women, and the unjust suspicion which is aroused is peculiarly cruel by adding to the hardships of a disease which, in malignant cases at least, is hopelessly incurable. Enlargement of the abdomen due to the presence of an unusually abundant deposit of fat in its wall, or to solid or fluid tumors in its cavity, may simulate pregnancy. The first of these statements need not seem incredible, since a layer of abdominal fat three or four inches in depth is not uncommon. The tumors referred to have many times been mistaken by the uninitiated as evidence of pregnancy, to the great detriment and unhappiness of those who suffer with them.* Before the time when ovarian tumors were well understood, those who had them were often accused of pregnancy. The injustice of such accusations was in some notable instances demonstrated by the removal of the tumors after death. Happily such growths are now removed with such facility and comparative safety that an innocent woman need no longer suffer such aspersions until her veracity can be attested by a post-mortem examination.

But in the second group of cases mentioned the conditions which simulate pregnancy may be of such a character as to deceive even the expert diagnostician: first, when the uterus alone is affected; second, when the difficulties involve other organs of the genital apparatus. The uterus may enlarge slowly and symmetrically on account of the presence of a fibroid, a fibrocystic, or a purely malignant growth, the enlargement being strongly suggestive of the early months of pregnancy. A single examination may leave the physician in doubt as to the existing state of affairs, and it may be necessary to repeat the examination several times at short intervals. A spurious pregnancy in the form of a mole or a hydatid tumor of the uterus may also prove misleading. Cessation of the menses from any of the causes mentioned in the remarks concerning menstruation (q.v.) may also mislead both the patient and the physician. The presence of milk in the breasts is always suggestive of the pregnant state, but it may be an isolated symptom.† Softness and swelling of the vagina and cervix and external genitals, and discoloration of the vulvar

* It must be remembered that these tumors may coexist with pregnancy, introducing an element of gravity which may be very serious.

† A particularly noteworthy case was seen by the writer in 1891. The patient was an Irishwoman, thirty-one years of age, who had been pregnant but once, having borne a child when sixteen years of age. For several years prior to 1891 there was milk in her breasts, and for the two years immediately preceding it was constantly present, as much as a tablespoonful being frequently removed at once. She had suffered six years with disease of the pelvic organs, but the exact relation of this to the active condition of her mammary glands could not be ascertained.

mucous membrane caused by interference with the circulation on account of neoplasms in the pelvis, may make it difficult or impossible to affirm or deny the existence of pregnancy.

Multiple pregnancy, in which two or even three fetuses are developed simultaneously, is sufficiently well known as a physiological fact. King (*Manual of Obstetrics*, 1892, p. 341) states that twin pregnancies occur once in seventy-five cases, triplets once in five thousand, and that quadruplets and quintuplets are extremely rare. Winckel believes that five is the largest number of fetuses that a woman can sustain in her uterus at once, and that the statements, especially in ancient literature, concerning women who have had more than five infants at a birth are fabulous. Well-authenticated reports of quadruplet and quintuplet births are to be found in recent literature. (Winckel, *op. cit.*, p. 114.) These multiple pregnancies may result from one ovum which has undergone subdivision, or each fetus may be the product of a separate ovum.

Superfetation, or the condition in which fecundation of an ovum has taken place after development has begun in an ovum in the same uterus which has been fecundated at an earlier period, is considered a possibility, but one which has not yet been proved. In the condition which is

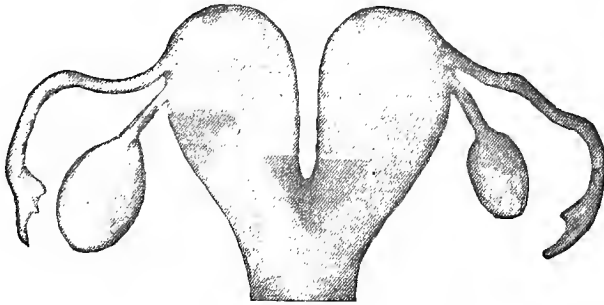


Fig. 66.—Author's case of double uterus (*uterus bicornis unicollis*).

known as double uterus (see figures and history*), in which there are two distinct uterine bodies, union of the two having failed to take place during fetal life in accordance with the usual course of development, there may be simultaneous or nearly simultaneous impregnation in each

* *Author's Case of Double Uterus.*—The patient was an Irishwoman, twenty-five years of age, first seen August 15, 1889. She had borne five children within a period of five years, all the labors having been tedious, and the last three of them breech presentations. She had had no miscarriages, and there was nothing noteworthy about her menstrual history. The vaginal portion of the cervix uteri was very large, indurated, and fissured, the uterus retroflexed and adherent. There were large external hemorrhoids and fissure of the anus. These latter difficulties were first operated upon; then Emmet's operation was performed upon the cervix, the operation not resulting satisfactorily. Subsequently the cervix was amputated and the ruptured perineum closed, the result being good. A month later the abdomen was opened to relieve the adherent uterus, and the condition found which is represented in the picture. The round ligament of each uterus was shortened, the organ being thereby brought into its normal relations. The patient recovered without mishap. This anomalous condition is termed by Kussmaul *uterus bicornis unicollis*.

cavity, or it may take place in one after quite an interval from its occurrence in the other. In such cases one of the children might be born days or weeks before the other. It is even possible in a normal uterus in which there is a twin pregnancy that development may not proceed absolutely *pari passu*, and that one fetus may mature and be delivered somewhat sooner than the other, the supposition being in such cases, of course, that the two fetuses are in two separate ova. The late Dr. For-dyce Barker reports a case in which a woman gave birth to a child from one horn of a double uterus July 10, 1855, and to another from the other horn September 22, 1855. Cases are recorded in which black women have borne twins, one of them being black and the other white. This is probably due, as Lusk has suggested, to the detachment of two ova at the same menstrual period, and to coitus with a black man and also with a white man while the ova were still in the uterus. The same writer thinks that impregnation at two periods of time remote from each other, in the same uterus, must be regarded as inadmissible until physiologists shall succeed in demonstrating in a single instance, by the presence of corpora lutea in different stages of development, that ovulation ever occurs during pregnancy.*

In addition to the peculiarities which are involved in that form of pregnancy which has just been considered the pregnant state is susceptible of others of a most interesting though usually very grave character. Allusion is made to the so-called ectopic pregnancy, in which the ovum is implanted outside the cavity of the uterus and usually in some portion of the Fallopian tube (see illustration of the author's case of tubal pregnancy, with accompanying history †). The principal facts in regard to this most undesirable method of fetal development have already been given in an earlier part of this article, and need not be repeated. A number of cases have been reported in which living children have been removed through an incision in the abdomen after having developed in this abnormal manner; but they have been defective and short-lived in almost all cases. What is still more strange, there are cases on record in which two fetuses have been found in the same tube, in different stages of development; also cases with one fetus in each tube, and others with one fetus in a tube and another where it belonged, in the cavity of the uterus. Such facts are quite in the realm of the marvelous, and impress us with wonder at the eccentricities of which nature is capable.

The advent of puberty in the female is, as we have seen, usually regarded as the announcement that conception is now a possibility. The age at which this occurs, as well as the age when the child-bearing func-

* Obstetricians of the highest authority admit the existence of superfetation in animals. Schroeder narrates a number of such cases (*Lehrbuch der Geburtshülfe*, 1880, p. 76); but the same high authority, with Kleinwächter, Leishman, Scanzoni, Wagner, Ramsbotham, and Churchill, all concur in denying the existence of any reliable evidence, thus far, that superfetation ever occurs in women.

† A recent case of the writer's, a drawing of which is given herewith, illustrates in a general way the condition of tubal pregnancy. This case was that of a negro woman thirty-three years of age, who had given birth to one child twelve years ago (1882). She had been complaining for some weeks prior to operation, which was performed February 12, 1894, but pregnancy was not suspected. The tumor *A* represented the results of pregnancy. It was as large as a hen's egg, and was intimately associated with the tumor *B*, both tumors containing much blood and blood-clot. No

tion ceases, is, as we have also seen, variable, depending upon climate, race and family peculiarities, and other well-known conditions. In temperate climates pregnancy rarely occurs earlier than the sixteenth or later than the forty-fifth year. In tropical climates women mature early

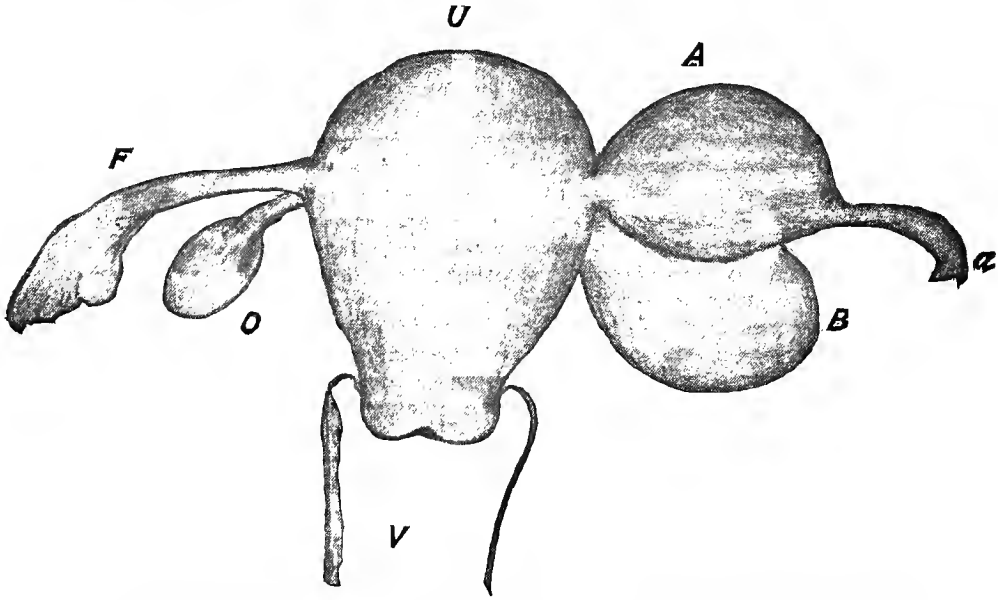


Fig. 67.—Author's case of tubal pregnancy. The structures are seen in front or face view. V, Vagina; A, α , left Fallopian tube, with tumor of pregnancy at A; B, tumor of left ovary; F, normal right Fallopian tube; O, normal right ovary.

and the child-bearing function ceases early. Among the savages of New Mexico and Arizona (Mojaves, Apaches) complete womanly development is often seen as early as the twelfth year. Among the Arabs of the desert the child-bearing period is said to end frequently as early as the twentieth year or soon thereafter.

In cold climates puberty is delayed. Among the Esquimaux, as well as among the northern Swedes and Norwegians, it is often delayed until the eighteenth or twentieth year, the child-bearing function ceasing early from the same cause which delays puberty. Winckel is authority for the statement that in Germany the power of reproduction is established from the thirteenth to the fifteenth year. In India, with its warm climate and its pernicious system of child-marriages, early menstruation and conception are common, the latter sometimes occurring as early as the tenth year. Even in New York City, Barker has seen conception at the tenth year, and I. E. Taylor at the twelfth. The writer has seen it a number of times at the fourteenth year. At the other extreme,

fetus was found in tumor A, but placental structure was shown by microscopical examination made by three expert microscopists. The fetus probably died at a very early period and was quickly absorbed, the other structures retaining their vitality, and hemorrhage had probably taken place on several occasions. Both ovaries and tubes were removed, the woman making an uneventful recovery.

Barker has seen a first pregnancy as late as the fifty-second year, followed by a second and a third in the same person at the fifty-third and fifty-fifth years. He thinks this the latest period of which there is any authentic record of such an occurrence, with the exception of that of Sarah which is mentioned in the Book of Genesis.* (*Transactions American Gynecological Society*, 1888, p. 301.) Legrand du Sault (*Médecine Légale*, second edition) states, without referring to particular cases, that pregnancy may occur as late as the seventieth year.

The question as to the possible existence of pregnancy without the knowledge or consciousness of the woman may be regarded from different standpoints. We must consider not only the facts relating to the woman's physical condition, but also the very important question of her truthfulness. It is undeniable that many women, especially the young and unmarried, unblushingly refuse to admit the possibility of pregnancy from its beginning to its termination, and it may be impossible to decide whether this is due to their untruthfulness or to their unconsciousness of their condition. The deception or attempt to deceive must ultimately be exposed. In other cases, in which conception has taken place without the introduction of the penis into the vagina, in which the hymen is practically intact, it is easy to understand the unwillingness on the part of the woman to believe that she can be pregnant. In cases in which coitus has taken place during sleep or intoxication or the hypnotic state, self-deception is also possible. There is also the class of cases associated with uterine or ovarian tumors, in which pregnancy has supervened after the existence of the tumor was recognized. The writer has seen such a case in which pregnancy was unsuspected until labor actually began. Again, there is the entire class of extra-uterine pregnancies, in which the condition may not be suspected until the abdomen is opened by the surgeon for the purpose of removing a tumor the character of which he might be quite unable to determine in advance or until the situation is determined by autopsy. In a case which has been reported by the writer, a woman was under the constant supervision of an acute and unusually intelligent physician for weeks before her death. The latter event took place suddenly, after symptoms of great abdominal disturbance accompanied with agonizing pain. An autopsy was made, and when the abdomen was opened an infant, nearly full-grown, was found lying free in the abdominal cavity, where it had developed entirely outside the uterus. Normal pregnancy has many times been mistaken even by the expert gynecologist for a tumor which required removal, the true situation becoming known only when the abdomen was opened.† From

* The writer has been informed of a case which was known to one of his associates (Dr. G. W. Smallwood), in which delivery of a living child took place when the mother was sixty years of age, fourteen years after the menopause was supposed to have occurred. Such cases demonstrate the persistency of ovulation beyond the limit which has usually been fixed for that event.

† Three such cases have occurred in the writer's practice in recent years. In one, the wife of a physician, long under the writer's observation, presented all the characteristic symptoms of tubal pregnancy. The writer's diagnosis was concurred in by a colleague of great experience. The abdomen was opened and the uterus found displaced, but with the fetus within it and not outside of it. An abortion followed on the third day, and death from peritonitis several days later. In the second case there was disease of the ovaries, but the pregnancy was not recognized until the abdomen was opened. The patient recovered without abortion. In the third case, a Syrian

the foregoing it will be evident that it is quite possible for a woman to be ignorant of the fact that she is pregnant, or to be conscious that she is pregnant and be able to successfully deceive the physician without disparagement to his skill and discrimination.

Viability is the term which is applied to the susceptibility of an infant to sustain existence outside its mother's womb. It implies a degree of development sufficiently advanced to sustain such an existence. A child is not mature or ripe until the normal termination of pregnancy, but it is frequently capable of living and developing though born prior to maturity. Premature children are of course more sensitive and delicate than those who have reached full maturity, but there are countless instances in which such children have surmounted such adverse conditions and lived to adult life or old age. The seventh month has usually been regarded as the earliest limit of fetal viability, and many who are born at that early period quickly succumb. The vital organs are sufficiently developed to permit the continuance of life, but unless the surroundings are unusually favorable attempts to rear such feeble infants are usually futile. In recent years, and especially in France, the use of the *couveuse* or incubator has resulted in the saving of many premature or immature children. The names of Tarnier and Auvard are prominently identified with this important work, and Auvard believes that by the judicious use of the incubator the limit of viability may be set back as early as the end of the sixth month. The question of successfully continuing existence is quite different from that of merely showing signs of animation, such as gasping, moving the limbs or even the body. Children who give such signs of life are *quick* or living, in distinction from the still-born, who give no evidence whatever of life. Signs of life, though few and feeble, may be of the greatest importance from a legal standpoint. Cases are not infrequent, especially in the gynecological literature of the past few years, in which signs of life have been shown at the sixth, fifth, or even fourth month.*

The absolute duration of gestation—that is, the exact time from conception to delivery—is, for many reasons, a difficult matter to determine in the great majority of instances. If a woman experiences sexual intercourse every day or nearly every day it will be almost impossible in case of pregnancy to decide just when conception occurred. If sexual inter-

unable to speak English, the tumor was supposed to be one requiring extirpation of the uterus. The pregnancy was recognized when the abdomen was opened, and the patient promptly recovered, also without abortion.

In another case known to the writer a surgeon of great experience opened the abdomen on account of supposed ovarian tumor, mistook the pregnant uterus for such a tumor, thrust a trocar into it, and only then discovered his error. This patient also recovered, and, it is believed, without abortion.

* Coe's case of extra-uterine pregnancy, which was recently reported, is a very remarkable one. The fetus was said to be between three and four months old, and after it had been removed from the mother's abdomen "it made vigorous movements of the arms and legs for at least three or four minutes, which were observed by several spectators." (*Transactions American Gynecological Society*, 1893, p. 271.)

In Lusk's case of extra-uterine fetation the infant was well advanced in the sixth month. It lived twenty-six minutes after delivery from the mother's abdomen. It was between eleven and twelve inches in length, weighed twenty-four ounces, had fine hair upon its head, fat in the cellular tissue, but no lanugo or vernix caseosa. The eyelids were separate and the pupillary membrane still distinct. The nails did not reach to the tips of the fingers. (*Trans. Amer. Gyn. Soc.*, 1893, p. 263.)

course occurs only at considerable intervals the date of conception may be more nearly approximated. If ovulation invariably coincided with menstruation, and occurred at no other time, the solution of the question would be facilitated. Some writers are of the opinion that ovulation may occur at any and all times, irrespective of menstruation: if this is correct the habit of dating conception from the last menstruation is unreliable. Even if the last coitus for a long period of time were assumed to be the fruitful one there would still be a chance of error, for the reason that a previous coitus might have been the fruitful one. If the last coitus were fruitful the exact date would still be uncertain, on account of the uncertainty as to the occurrence of ovulation, and also as to the activity and vitality of the spermatozoa. The microscope has shown that this vitality may continue as many as eight days, and as long as active motion is apparent they are capable of performing their function in fructifying the ova. None know better than the obstetrician that the habit of fixing dates for conception and labor is untrustworthy, for none suffer more annoyance and inconvenience as the result of such miscalculation. It is merely a method of guessing, for the premises upon which to base mathematically accurate calculations are wanting. The development of the fetus *in utero* may be influenced by the same causes which influence puberty and menstruation, though of course not to the same extent. Such conditions are climate, race and family peculiarities, the general state of body and mind of the mother during the period of gestation, etc. The statements which women make concerning the data of their pregnancies are not always to be relied upon, however truthful the intention of the individual may be.

J. Veit (quoted by Winckel, *loc. cit.*) observed the following variations in the duration of pregnancies in the same series of women:

In 7 cases the variation was less than 10 days.	
" 4 " " " " from 10 to 20 "	
" 7 " " " " from 20 to 40 "	
" 2 " " " " more than 40 "	
" 1 case " " " 64 "	

Schlichting, also quoted by Winckel, observed in 456 cases that the duration of pregnancy varied from 240 to 334 days.

Of several observers who have started from a common basis, their information being assumed to be reliable, and the basis being that the ovum of the last menstruation is impregnated, the duration of pregnancy being calculated from the first day of that period:

Mattei found the average duration	265	days.
Schlichting found the average duration	273.1	"
Matthews Duncan found the average duration	278	"
Wachs, Jr., found the average duration	279.87	"
Lowenhardt-Ahlfeld found the average duration	281.6	"

Winckel (*op. cit.*, p. 94) made a careful study of more than 5000 cases of pregnancy in order to give expert testimony in regard to its duration before a German court. In 70 of these cases the duration exceeded 300 days, and in 47 it exceeded 302. In one it was 314, and in another 318, days from the day of the presumably effective coitus to the day of delivery. The conclusion of Winckel is in the following words: "The

average duration of pregnancy is about 280 days; it may vary, however, from 240 to 320, and perhaps even exceed this latter limit, which is by no means so rare as was formerly supposed, for in 6.8 percent. the duration is over 300 days."

Schroeder wisely says that a very large child, with evidences of unusual development, vigorous voice, large frame, long hair, etc., does not necessarily mean an unusually prolonged gestation, for all these phenomena may be seen in immature children.

Winckel narrates a case in which 310 days intervened between the last coitus and the birth of the child. The mother had been divorced from her husband on account of adultery, and additional punishment was sought by the husband by civil process. The possibility that the duration of pregnancy, under lawful conditions, was 310 days could not be disproved, and this fact, together with the very large size of the child, led to the mother's acquittal.

Protracted gestation exceeding even the limit mentioned in the foregoing statements may occur either in the intra-uterine or extra-uterine variety. In the former variety some unusual conditions may have caused the delay, such as abnormal rigidity of the uterus, undue absence of irritability in the uterus, absorption of the liquor amnii, or disease and death of the fetus. If labor does not occur within a short time after the fetus has reached maturity its death must follow as a consequence, and in this condition it is possible that it might be retained weeks or months, perhaps undergoing decomposition, or withering and shriveling without decomposition, or becoming converted into a hard, stone-like mass, called lithopædion from the abundant deposit of lime salts within its tissues. An inert mass of this character may be carried by a woman in her uterus for the remainder of her life, it may be delivered spontaneously, or its delivery may be brought about by the efforts of the physician. The last-mentioned course is always proper, and should be resorted to as soon as it is definitely determined that the child is dead.

If the pregnancy is of the extra-uterine variety and should continue until term, that is, until the fetus is perfectly mature, false labor-pains may be experienced at that time. They are *false* because they do not occur in a uterus which is pregnant, and because delivery by the natural avenues and means is impossible. Death of the mother may result from hemorrhage, or from septicaemia (blood-poisoning) in connection with the decomposition of the child, or she may have vitality sufficient to withstand these or any other accidents in this connection and die eventually from some entirely different cause. The child may be converted into a lithopædion, which was described in the preceding paragraph; it may decompose and the firmer tissues eventually be discharged after ulceration into the rectum, the vagina, or the bladder; or it may be removed from the abdomen by surgical operation. Cases which illustrate all these possible consequences are recorded in recent gynecological literature.

The duration of pregnancy is insufficient when labor occurs before the fetus has reached maturity. This does not imply that a living child may not be born and be susceptible of development though it may be immature in many respects. The facts which relate to this phase of the question have been considered in connection with viability, and the subject will be further discussed in the article on Abortion (q.v.).

The determination of the period of pregnancy which has been reached in such cases is by reference to the last menstruation or by inspection of the fetus itself.

The question of legitimacy of offspring must in many cases hinge upon the supposed duration of pregnancy, and it has been shown that this is a subject in which error is very liable to occur. Many States have fixed legal limits to the duration of pregnancy, but it must be evident from the testimony which has been adduced that such limits are very fallible, and that adherence to them provides the opportunity for possible injustice. By Scottish law and by the French Code 300 days is the legal limit allowed for pregnancy; by Prussian law the limit is 301 days (note as exception the case quoted by Winckel in a previous paragraph). By English law no time-limit for pregnancy is fixed, cases being decided in accordance with the evidence of medical experts and the moral and collateral aspects of each case. In this country great latitude is allowed. Two cases are quoted by Taylor, in both of which legitimacy was admitted, the duration of pregnancy, counting from the last coitus, being 313 days in one and 317 in the other. (See Leishman's *System of Midwifery*, 1875, p. 181.) As it has been shown to be impossible to determine with accuracy the exact duration of completed pregnancy in any given case, this being a variable quantity, it may be shown to be equally impossible to state with exactness the point or extent of development which has been reached in any given case of incomplete pregnancy. It is quite possible, however, to answer such a question approximately, and thus satisfy all legal requirements. Reference to the last menstruation will usually be regarded as the most important limit from which to make the necessary calculations. The size of the uterus will also be of assistance in such calculations, and we may add, upon this point, to the suggestions already given, the convenient statements of Lusk, which are as follows: In the second month the uterus is as large as an orange; in the third it is as large as a child's head; in the fourth it is as large as a man's head and can be felt above the *symphysis pubis*; in the fifth the fundus is midway between the symphysis and navel; in the sixth it has reached the navel; in the seventh it is two fingers' breadth above the navel; in the eighth it is half-way between the navel and the epigastrium; in the ninth it reaches the epigastrium; in the tenth (lunar months are considered) it sinks until its upper level corresponds with the situation at the eighth. (See cut from Lusk's *Science and Art of Midwifery*, p. 113.) As the navel is not a fixed point and varies considerably in different women in its distance from the symphysis, Spiegelberg suggests that measurements be made from the symphysis as a constant limit. Lusk adds, however, that it must be remembered that the uterus is subject to variations according to the size of the child and the quantity of amniotic fluid. Spiegelberg's measurements from the symphysis to the fundus at different periods are as follows:

From the 22d to the 26th week	8½ inches.
From the 22d to the 28th week	10½ "
From the 22d to the 30th week	11 "
From the 22d to the 32d and 33d week	11½ "
From the 22d to the 34th week	12 "
From the 22d to the 35th and 36th week	12½ "
From the 22d to the 37th and 38th week	13 "
From the 22d to the 39th and 40th week	13½ "

Ahlfeld, whose work on the determination of the size and age of the fetus prior to birth (*Archiv für Gynäkologie*, Band ii., p. 353) is authority with the best recent obstetrical authors (Schroeder, Winkel, Lusk, *et al.*), adopts methods which are rather complicated for general use, and Lusk's

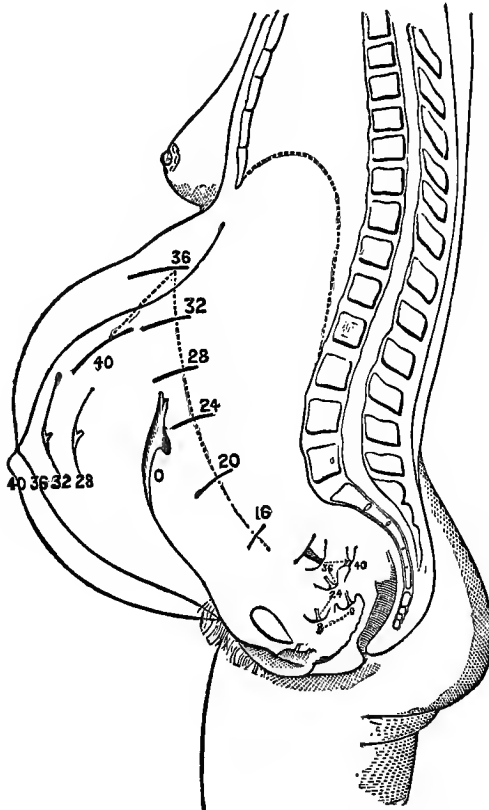


Fig. 68.—Schultze's diagram, illustrating schematically the enlargement of the uterus during the successive months of pregnancy. (Lusk.)

criticism of them is that they show such variations in the size of children born in the same week of pregnancy as to somewhat impair their practical value. Additional assistance in determining the period of gestation may be derived by reference to the date of quickening. This is said to occur usually at the eighteenth week of pregnancy, but allowance must always be made for variations from that limit.

The measurements of Farre are regarded by many as very valuable, and differ from those which have been given by Spiegelberg. They would, perhaps, be seldom applicable upon the living subject; nevertheless they demonstrate the impossibility, even on the part of competent anatomists, of arriving at identical results upon such a question as this. The following are Farre's measurements of the pregnant uterus:

	Length, Inches.	Width, Inches.
End of 3d month	4½ to 5	4
“ 4th “	5½ “ 6	5
“ 5th “	6 “ 7	5½
“ 6th “	8 “ 9	6½
“ 7th “	10	7½
“ 8th “	11	8
“ 9th “	12	9

If after the foregoing rules have been applied the utmost limit of gestation has been reached and no signs of labor are apparent, the suspicion will be warrantable that there is extra-uterine gestation, or that there is intra-uterine gestation and that the fetus has died. The former supposition will be warrantable if a sound introduced into the uterus shows that the organ is only slightly enlarged if enlarged at all. If the latter supposition is the correct one there will be absence of fetal movement; palpation of the uterus will show want of resiliency in the organ, and a sensation of bogginess or doughiness, while the patient will be conscious of an uncomfortable feeling of weight or chilliness in the uterus, which is very different from the sensation which is produced by the presence of a living child.

IV. DELIVERY.

Delivery and the Puerperal State—The Condition of the Genital Organs at the Time of Delivery, together with Evidences in General of Recent Delivery—Lochial and Lacteal Secretions—Supposititious and Suppressed Children—Feigned Delivery—Duties of the Physician when the Consequences of Labor are Likely to Prove Serious to Mother or Child—Intervals between Successive Pregnancies—Evidences that Pregnancy has Existed at any Time—The Injuries of Parturition, their Frequency, Extent, and Possible Consequences—Duty of the Obstetrician in Recognizing and Treating Them—Responsibility of the Patient when the Physician's Advice is not Heeded—Questions Concerning the Duties of Physicians in the Presence of Conditions which Call for the Major Operations in Obstetric Surgery.

Delivery or labor or parturition includes the phenomena associated with the extrusion of the fetus and the structures appertaining to it through the birth canal. It is divisible into three distinct stages or periods, the first being concerned with the softening and dilatation of the tissues through which the fetus is to pass, the second with the passage outward of the fetus, and the third with the expulsion of the placenta or fleshy structure which has been the bond of union between the mother and the child, the medium through which the vital current, with its nutrient elements, has been communicated from the one to the other. With the placenta are also expelled the membranes or envelopes in which the fetus has been surrounded.

Delivery at term signifies completion of development—the fruit, being ripe, drops, having no further necessity for attachment to the parent stem. If labor occurs before the fetus has matured it means, as in the

analogous condition in vegetable life, unripeness and imperfection, with possible harm to the stem from which it has been separated.

Delivery, like pregnancy, is a normal function, and when accomplished in a perfectly normal manner should give rise to no serious disturbance. Among many of our native Indian tribes the pain and discomfort associated with labor are insignificant. A woman may fall in labor while on the march: she stops awhile until the child is born, washes it in the nearest stream, straps it on her back, and then hurries forward to rejoin her comrades, who have not waited for her. In civilized life the best-conditioned, best-developed women bear children without great discomfort, though there are few who are entirely insensitive to the pain which accompanies childbirth, especially when they experience it for the first time. Others who are weak and badly formed find the pangs of labor almost insupportable, and there are many whom death would claim as its victims, on account of absolute inability to bring forth their children, if art did not intervene and remedy nature's deficiencies. The obstetric art is essentially life-conserving; it is more than that—it is life-giving; and it was never practiced with such skill and success and discrimination in any previous age of the world, by the profession at large, as are exercised now.

To conduct a labor to a successful issue the physician must determine with reasonable accuracy the following facts: that the vitality of the mother is not being seriously encroached upon by the pain which she is suffering; that the birth canal of the mother is of ample dimensions to permit the extrusion of the child at the proper time; or, if the foregoing conditions are not satisfied, that the proper instrumentalities are at hand to reinforce the vitality of the mother, and to furnish a safe delivery, and, if possible, the safe delivery of the child as well. A physician is negligent who trusts to the unaided efforts of nature to effect delivery when it is evident to one of ordinary perception and experience that nature unaided cannot deliver, or can do so only at the gravest risk to the mother's tissues or life: the interests of the child, though important, are secondary, for many reasons, to those of the mother. A physician is negligent, when operative measures are required, who does not call to his aid skill superior to his own for the performance of such operative measures, if his own skill and experience are insufficient, if such superior skill is available. Except under extraordinary conditions, a woman should not be allowed to die undelivered. Except under extraordinary circumstances, the life of a child should not be deliberately sacrificed by operative measures. A physician should, in the great majority of cases, be able to discriminate whether the interests of mother and child are best subserved by the operation of version or by the use of the obstetric forceps. A physician should be able to discriminate, with the assistance of counsel if necessary and available, whether the interests of mother and child may not be best subserved by the performance of symphyseotomy or Cæsarean section. In view of all the resources which modern obstetrics places at the command of the physician, including the practice of rigid asepsis, which is only another term for cleanliness, there are few complications which place any case of midwifery beyond the reach of efficient relief.

After labor is concluded the puerperal state begins. It usually continues four to six weeks, and is a period of very great importance, for it is

the period in which the uterus undergoes involution by means of contraction and fatty degeneration of its muscular fibers, the placental site becoming obliterated, and by which restitution to the condition which it sustained prior to pregnancy is established. This condition is, however, never precisely identical with the condition of a uterus which has never been impregnated, the contour of the organ being somewhat more rotund, while its external orifice almost invariably declares to the practiced eye or finger that the virgin state no longer exists. While the process in question is going on, especially in its early stages, the condition of the woman is a very sensitive one. Within the uterus, and sometimes in other portions of the birth canal if the labor has been a severe one, there is an extensive raw surface through which poisonous germs may be absorbed with great facility. It is the period in which the dreaded and dreadful puerperal fever, which sometimes sweeps through communities like a pestilence, is a possible contingency. Only since the self-denying labors and sacrifices of the lamented Semmelweiss has it been appreciated that this disease is preventable if the labor has been properly conducted and strict cleanliness observed in all the surroundings of the patient. This disease is practically unknown among savages and others who lead an out-of-door life. This is not, however, on account of superior cleanliness or caution on their part, but because of the beneficial effects of an out-of-door life. In many maternity hospitals in which puerperal fever once raged with terribly destructive effects it is now almost unknown. It is proper to reiterate the statement that a physician is negligent who does not observe the most scrupulous cleanliness in all his dealings with puerperal women.

In almost all labors, especially the first which women experience, the strain upon the tissues as the child leaves the birth canal is such that more or less tearing of them occurs. Such injuries are ordinarily most marked at its outlet, and careful inspection will usually reveal their location and extent. Their importance cannot be exaggerated if we remember that they often furnish the opportunity for septic infection; hence the necessity of treating them by means of suitable ligature material as soon as possible after they have occurred, thus anticipating any further injury from such a source. The tissues in question may be torn in any direction, the mucous membrane of the vagina being torn longitudinally, transversely, or obliquely, or the mucous membrane of the vulva may be involved, or the injury may extend outward to the skin, or through skin, mucous membrane, fascia, and muscle, finally going through the rectum, or it may extend upward and invade the bladder. The injury may result in the detachment of the fascia by which the vagina is supported, without any apparent involvement at the surface. The uterus may be wounded to any extent, from a simple fissure at its external orifice to complete rupture of the organ and delivery of the child into the abdominal cavity. It must therefore be plain that the accoucheur's duty has not ended when the fetus and its attachments have passed out of the mother's body and into the world. He should acquaint himself at the earliest possible moment after the conclusion of labor with the condition of the maternal tissues which have been subjected to such a severe strain. If this were always done as a matter of routine, much trouble would be obviated for patient and physician, and there would be fewer invalids from such a cause. In addition to the evidences of recent delivery from

the injuries which have been alluded to, one may also observe swelling and discoloration of the vagina and vulva, enlargement of the veins of the vulva and anus, and more or less prolapsus of one or both lips of the cervix uteri. In many cases there will also be paralysis of the bladder and consequent inability to pass the urine, which may continue several days after delivery.

As soon as the contents of the uterus have been expelled there is immediate shrinkage or contraction of the organ if the course of events is the natural one, and instead of extending far above the navel it does not extend much higher than the symphysis pubis, its size being quickly reduced to that of a small cocoonut. Thenceforward during the puerperal state or puerperium it continues to contract, as we have already remarked, until the normal unimpregnated size has been reached. In some cases the contraction is so excessive that a condition of atrophy is reached, the organ becoming reduced to the size of a seckel-pear. This is the condition which is known as *superinvolution*, and it is usually followed by irremediable sterility and the menopause. It is a rare condition, the writer having seen not more than four or five cases. In other cases the contraction is imperfect: the organ remains nearly as large as a base-ball for months, and is more or less *boggy* to the touch. With it are associated more or fewer uncomfortable symptoms, and unless another pregnancy supervenes or the patient is placed under the most judicious treatment the condition will prove a very troublesome one. This is the condition which is known as *subinvolution*, and is a very common one.

The abdomen, which has been greatly stretched during gestation, becomes relaxed and flabby, and the more numerous the pregnancies, and the shorter the interval between them, the less disposed the tissues to regain the tone and firmness which they had before pregnancy ever occurred. The skin of the abdomen shows furrows and striae and more or less pigmentation in testimony of the pregnancy which has recently occurred.

The breasts swell and harden, and by the third day after delivery lactation is usually established. The wonderful sensitiveness of the mammary glands and the intense sympathy which they share with the rest of the genital apparatus, and especially with the nervous system, are seen in the frequency with which they become inflamed after delivery in response to any disturbance in the parts with which they are in sympathy. Lochial and lacteal secretions are necessary concomitants of the puerperal state in normal cases, and, conversely, when they are observed the obvious inference must be that the pregnant state has recently existed. But it must not be forgotten that a bloody discharge from the vagina and milk in the breasts may occur independently of pregnancy, while it is also possible that both may be absent though pregnancy and delivery have been recent. The lochial discharge is composed of blood and broken-down tissue, and implies that the usual degenerative changes in the uterus are progressing. It usually continues three or four weeks, gradually becoming less abundant and more watery in character. It is a very important index to the physician of the situation within the uterus, and if it suddenly ceases or becomes unusually abundant or very offensive it is a warning that the situation within the uterus is not a desirable or proper one, and a plain indication that interference is necessary. The lacteal secretion is susceptible of great variation as to quan-

tity and quality, and the physician should be alert to discover the first evidence of disturbance in this direction, for it is then that the trouble may be averted or minimized.

The supposition or substitution of a child for fraudulent purposes is, of course, possible, especially if there has been collusion on the part of the physician or midwife. Cases are recorded in which such a fraud has been practiced for the purpose of securing an inheritance (see Wharton and Stillé, vol. iii., sec. 37); but detection cannot be avoided if the signs of recent pregnancy and delivery are wanting in the supposed mother. There is no way of counterfeiting such signs, taken as a whole, which is known to the writer. The same may be said in regard to *feigned delivery*. Many women have deceived themselves and their attendants, either willfully or unconsciously, during their supposed pregnancy, and have finally taken their beds in expectation of delivery. The possibility of such occurrences demonstrates the necessity of diagnosticating the condition of a woman by means of a careful examination and not by the statements which may be made, if one would preserve his reputation and his self-respect.

Suppression of a child after it has been delivered is possible either through accident or by design on the part of the mother. Cases are sufficiently numerous in which the mother has been suddenly taken in labor and has gone to stool apparently for the purpose of emptying her bowels: the child has been born and has perished from exposure, the mother returning to her household duties as if nothing had happened. It is possible to conceive that such cases and others of similar precipitate labor may occur without criminal intent on the part of the mother, but the inference in most cases will be that criminal intention was present.

The obstetric art has made a distinct advance in the last decade in the treatment of cases in which labor was likely, according to former methods of treatment, to prove serious or even fatal to the mother or the child, or to both. Unfortunately there are many women who are so deformed as to their pelvis, that it would seem impossible that they could be delivered of living full-term children by the natural process, if indeed they could be delivered of them at all. The alternatives are the destruction of the child, with dismemberment if necessary, and delivery through the contracted natural passage, the induction of labor at the seventh month or subsequently in the hope of obtaining a living child, or the removal of the child at maturity through an opening in the mother's abdomen and uterus (Cæsarean section), or the division of the bones at the symphysis (symphyseotomy). If the child is dead when the obstetrician takes charge of a given case it has no rights which are to be regarded, and it should be delivered in such a manner as will offer the highest degree of safety and comfort to the mother, whether with instruments or without them. But if the child is living it has natural and legal rights which must not be ignored. The Roman Catholic Church forbids the deliberate sacrifice of the child, even though the life of the mother may, in all probability, be saved thereby. There are certain contingencies in which the mandate of that church would be disregarded, especially if the obstetrician were not of that faith. If a child were manifestly feeble or deformed, or so constituted that it could not according to human judgment, survive, the obstetrician would be derelict if he

allowed its useless existence to jeopardize the life of its mother. But mere disproportion between the mother's pelvis and the dimensions of a living and presumably normal child would not, as a rule, be a valid excuse for depriving the child of life. If the mother is already in a dying condition when the obstetrician arrives upon the scene, and the child is vigorous in its movements and has a vigorously acting heart, the question of quickly removing it by Cæsarean section becomes pertinent. Such an operation has been done with the result of obtaining a living child. Of course it requires not a little fortitude to undertake such an operation. The chances of obtaining a living child are diminished if Cæsarean section is deferred until the mother has expired. Such operations have also been performed: they are usually unsuccessful, for the vitality of the child is dependent upon vitality in the mother.

The induction of premature labor at the seventh month, when the birth canal of the mother is not sufficiently capacious to allow the passage of a fully grown child, is a procedure which is directed chiefly in the mother's interests. A seven months' child, as we have already stated, has not the vitality or the development of a full-term child, and there is not only the risk that a child thus prematurely delivered may not be living when delivered, but that attempts to rear it, if living, may be futile. The homes of the poor and careless, where such children most frequently come, are illy equipped for the painstaking efforts which are required by such feeble infants. The mother suffers less risk by such a procedure than by any other which has thus far been devised, and no unusual skill is required of the obstetrician for its performance.

Of the two remaining measures suggested for the relief of unusual hindrances to delivery the indications for their employment differ. Symphyseotomy enlarges the dimensions of the pelvis at its brim or inlet in all directions, but particularly in its transverse diameter, through which the longest diameter of the fetal head usually first descends. The gain in this dimension may be as much as three quarters of an inch or even an inch. If by such an increase in area the birth canal might become sufficiently spacious for the passage of the child, symphyseotomy should be the operation of choice or election. The operation consists in dividing the tissues which cover the joint formed by the union of the two pubic bones, and then dividing the structures which hold the bones together. The pressure of the child upon the structures of the pelvis being constant, as soon as the bones are divided the pelvis expands like a hoop which has been cut and the ends pulled apart. This may give the additional half inch or inch of space which will be necessary for the delivery of the child. Even when this has been done delivery is not always accomplished by the unaided efforts of nature, but a way has been opened so that if further use of instruments becomes necessary they can be employed with greater advantage than before the operation. If the utmost space that could be gained by such a procedure still leaves the conditions unfavorable for delivery the alternative must be Cæsarean section, which signifies an incision in the abdomen of the mother, another in her uterus, and removal of the child through the two openings thus made. The experiences of the past ten years have made this operation relatively safe instead of almost uniformly fatal as was formerly the case. It is the last resort, with its modifications, of obstetric surgery, and if performed upon a woman who has not been exhausted by ineffectual attempts at delivery

by other modes—that is, if made a matter of choice and performed at the most auspicious moment, which is usually considered to be the moment when labor has commenced—the chances for success for both mother and child are, as a rule, very good. A certain amount of skill is required in the performance of either symphyseotomy or Cæsarean section, and this fact seems to be overlooked by many writers. It does not follow that one who is clever in the use of the obstetric forceps or in the performance of manual version would be equally successful in performing symphyseotomy or Cæsarean section; hence such operations will always appertain to the specialist rather than to the general practitioner. A more exact definition of the scope of these operations is not appropriate to a work of this character. Their history has been very gratifying, since it includes the restoration to health and usefulness of many mothers and the rescue from certain death of many children. Not a few instances are on record in which Cæsarean section has been repeatedly performed upon the same woman, the boon of living children being thus accorded to many who could have them in no other way.

The number of children which a woman may have or should have is a question which cannot be answered in a general way. Conditions of law, physiology, and casuistry may all be involved in its consideration and may all conflict with one another. It is not generally appreciated that an enormous number of the cases in which pregnancy occurs are abortive. This fact has its favorable and its unfavorable aspects. If all pregnancies resulted in the birth of living children it would be almost inevitable that overpopulation would quickly stare many communities in the face.* On the other hand, multitudes of fetuses are like blighted fruit, not having sufficient vitality to mature; other multitudes are killed, murdered *in utero*, and in the vast majority of cases neither those who commit the crimes nor their accomplices are ever brought before courts of justice, the rights of the murdered children being absolutely ignored. It was contended in ancient medical tradition that the pregnant state was the normal one for women, and certainly the anatomy of the endometrium, with its development and degeneration during each menstrual cycle, would seem to sustain such a supposition. But it must never be forgotten that a pregnant woman has two existences to provide for—her own and that of the fetus which she is carrying; and if her stock of vitality is insufficient to properly sustain herself, it is manifestly unjust to her to impose upon her the burden of sustaining herself and another: it is also unfair, or at least unfortunate, to her offspring that it should come into the world handicapped with an inheritance of physical debility. This is no plea for criminal abortion, but a protest against ill-assorted marriages, unrestrained sexual indulgence, and failure to guard against

* This statement is made with due caution and reservation because of the perfectly obvious fact that in many parts of the world conditions of climate, race, etc., are unfavorable to fecundity, even though abortion never occurred. Dr. F. A. Cook, ethnologist to the first Peary North-Greenland expedition, states that among the Esquimaux, with whom the impulses of nature are followed without restraint, abortion seldom occurs (though some of the women are sterile, and death during labor is an occasional occurrence). During the fifty years or more that these people have been under observation, though living under natural conditions and in surroundings to which they have become habituated, they have increased in numbers very slowly. It must be added that overpopulation is effectually prevented by their custom of killing the helplessly aged, and infants whose mothers have died.

impregnation when enfeebled and diseased offspring must be an inevitable consequence.

After impregnation has taken place the attitude which the physician should take toward the mother and her unborn offspring should be a conservative one. He cannot tamper with life. Those cases only are excepted in which failure to terminate the pregnancy prematurely would almost certainly result speedily in the death of the mother, and, of course, of the child also.

In the case of women who are suffering with serious constitutional disease, including pulmonary phthisis, chronic nephritis, syphilis, and diabetes mellitus, it is believed that pregnancy should be prevented if possible. It is hard thus to decide for those with whom the maternal instinct is strong, but it is better to suppress natural tendencies or self-love than to work lasting injustice to others. If a woman is not debilitated by disease and is of suitable physique for the requirements of pregnancy, parturition, and lactation, she will usually be benefited rather than harmed by impregnation occurring as frequently as it may occur naturally in the ordinary course of temperate married life. It will be understood that these statements refer only to the physical side of woman's life; their bearing in other directions is not under consideration.

Among our native American population, especially among those who are provident and temperate, the number of children which a woman bears rarely exceeds six; usually it is under rather than over this number. Who can say that it is not better to raise and train carefully a small number of children, both with regard to the interests of the individuals themselves and those of the state, than to breed immoderately, with resulting deterioration of the offspring and defective bringing up?

Six pregnancies at intervals of two or three years will consume as much vitality as the average American woman can spare for such purposes and at the same time do justice to the other duties of life. However natural it may be for a healthy woman to bear children—and that is conceded—it certainly is not the first and only duty which she has to consider.

There are many indications or signs which declare to the eye of an observant physician that pregnancy is present or has been present in a given case. In the absence of these signs it is not well to affirm too positively that it has not been present. A woman's statements that pregnancy has or has not existed at a previous time are useful only as they are confirmatory of a diagnosis which must be based essentially on the sight and touch of the physician. The facial expression of a woman who has borne children is entirely different from that of one who has not. It is frequently alluded to as the matronly or the maternal expression, and is easily caught if one compares the photograph of a girl who is just married with one of the same person with her baby in her arms a year or two later. Its description is almost impossible in words: sometimes it seems to consist in a broadening of the face, an enlargement of the features; sometimes there is a benignancy of expression which is entirely *sui generis*—the radiancy of maternity which the old Italian masters incorporated in some of their madonnas.

The breasts of one who has borne children are usually well developed, especially if the children have been nursed. Functional activity tends to the enlargement of these glands as it does to that of any others; but if the

quantity of fat associated with the glands is small the breasts may not be conspicuously large, though serving sufficiently well the object of lactation. The papillæ of the areolæ of the breasts, also the nipples, are suggestive by their prominence and enlargement that pregnancy has existed; but the evidence derived from the breasts may be misleading, and it is chiefly of value when combined with other evidence. The scars, the folds, and the pigmentation of the skin upon the abdomen are also suggestive. They are sometimes lacking in distinctness, especially if a woman has borne but one child, or if the nutrition of her body is unusually good; but they tell an almost unmistakable story in women who have been pregnant several times, repeated stretching having destroyed the natural appearance of the skin and the ordinary contractile force of all the tissues of the anterior abdominal wall. With regard to the evidence furnished by the appearance of the external genitals there may be little that is suggestive if pregnancy never proceeded to term, but if it had so proceeded the stretching and tearing associated with the delivery of the child would almost certainly leave behind some evidence as to the fact. If, however, the wounds which were made have been skillfully closed, determination as to the previous existence of pregnancy may be almost impossible. The vaginal mucous membrane of one who has borne children is smoother, less rugose than it is in the virgin, the folds having been stretched or spread out. The vaginal portion of the cervix in the parous woman presents decided points of dissimilarity from the conditions in the virgin: it is larger, its extremity suggests the section of a cylinder instead of a cone (as in the virgin), and its os or external opening is a transverse slit of variable extent instead of a round opening. The last-mentioned fact has heretofore been considered a diagnostic point of unfailling accuracy in differentiating those who have been pregnant from those who have not. Since the operation of trachelorrhaphy has come into vogue, however, it has frequently been found difficult to decide from this sign alone in regard to the question of a previous impregnation. From the foregoing statements it will be evident that the cases will be rare and infrequent in which it will not be possible for a physician of experience, especially if he has devoted considerable attention to the practice of obstetrics and gynecology, to state with considerable precision whether pregnancy has ever existed in a given case. If operations have been performed upon the pelvic organs the inferences therefrom will sometimes be of value and sometimes they will not. The scar of an incision upon the abdomen may be an indication that Cæsarean section has been performed, but it may also indicate that an operation for disease of the ovaries has been performed, and if those organs were removed subsequent pregnancy would be impossible. The scar might also indicate that an operation had been performed for appendicitis or any other disease of the abdominal viscera entirely distinct from disease of the genital organs. Scars upon the vagina or uterus might also signify the performance of operations which had no relation to pregnancy. Testimony of this character is therefore necessarily inconclusive and indirect, and should not be accepted by a court of justice as evidence *per se* that pregnancy has existed.

Obstetrics or midwifery is indeed a well-nigh perfect art. A correct appreciation of its principles is more generally diffused than ever before, and there is scarcely a complication which can arise which is not suscep-

tible of successful treatment by those who are masters of the art. The number of those who have acquired this mastery is increasing year by year. The obstetrician who practices in the cities is especially conscious of these facts, because to the city hospitals the greater number of those who suffer from the accidents of parturition are brought for reparative treatment. The number of those who suffer from certain forms of these accidents is far less than it was a few years ago. Take, for example, the accident of vesicovaginal fistula, one of the most distressing in the entire category of parturition injuries, resulting from a severe or a badly managed labor. A few years ago our special hospitals were filled with such sufferers: now they are rarely seen. This must prove that midwifery and its sister-art, surgical gynecology, are more intelligently and more successfully practiced than formerly. The question then arises, Why is it that so many women still continue to present themselves for relief from the accidents of labor? To this question several answers are possible. First, there are certain cases in which, owing to serious faults and defects of structure, injury cannot be prevented, no matter how skillful or intelligent the obstetrician may be. Again, the labor may have been properly conducted and terminated, but subsequent carelessness or injudicious conduct on the part of the patient may have led to conditions which could only be relieved by surgical measures; or an unskillful midwife or even an unskillful or badly equipped obstetrician may have been responsible for the injury; or, finally, bad results may have come about through no apparent error on the part of the physician or the patient, for reasons which cannot be explained. Unavoidable accidents from first labors are still quite frequent and probably always will be when the tissues have a tendency to tear rather than to stretch, as is so frequently the case when women do not become pregnant until after they have passed their thirtieth year. The particular forms which these injuries may take have already been noted. It is well to reiterate the necessity that the obstetrician carefully examine his patient after labor has been concluded and at once repair the damage as accurately and completely as possible. There are cases in which the excuse for not following so vigorous and thorough a line of treatment seems entirely valid: the labor may have occurred at night, and in the imperfect light which was available an injury may have been overlooked; or the cramped and contracted limits and appliances of a tenement-house may have furnished obstacles which at the moment seemed insuperable; or the patient may have been so exhausted by her sufferings that additional exposure and pain even for a few minutes would have seemed unwarrantable. But whatever the excuse, whether valid or invalid, it often happens that neglect to take the precautions mentioned results in infection through the wounded tissues, with subsequent scarring and contraction, or in inflammatory disease of the uterus, with subsequent involvement of the oviducts and ovaries.

If the patient leaves her bed too soon, or is exposed to cold, or is not kept sufficiently clean, evil results may follow for which the physician is in no way responsible, for he would not have allowed the imprudence or the exposure if he could have prevented it. The mother of a family among the poor is often compelled by stern necessity to take risks after her labor which a woman in more comfortable circumstances would never be subjected to. She is obliged to leave her bed and attend to her household duties long before she is in any condition to do so, and the

penalty in many cases is a very severe one. Finally, no matter how skillful or intelligent the physician or the midwife may be, no matter how careful or how clean in their treatment, there is a certain number of cases which go wrong from the beginning, not only among the ignorant, the poor, and the careless, but among the well-to-do and the careful.

In addition to the mischievous results of severe labor upon the structure of the genital and urinary organs, there are other morbid conditions affecting women who have been pregnant, which are sometimes secondary to and dependent upon those injuries which they have received, and sometimes occur independently of or in the absence of such injuries. Malignant disease of any part of the body, which may have been quiescent during pregnancy (though it frequently progresses *pari passu* with the pregnancy), may assume a dangerous aspect and progress rapidly to a fatal issue as soon as pregnancy has terminated. The same is true of tubercular disease of the different parts of the body, also of the chronic inflammatory diseases of the kidneys, etc. One of the most important groups of the morbid sequels of parturition includes the mental disorders, and these may occur with or without the surgical injuries before mentioned. The mental derangement may take the violent form of mania in its varying grades, or the subdued form of melancholia, also of varying degree. In a general way it may be said to be induced by the intense agony of parturition, manifesting itself in a burst of frenzy, transient, disappearing with the conditions which excited it; by preëxisting tendency to mental disease, which matures either into occasional attacks of mania or into a prolonged period of melancholia within a few days or weeks after pregnancy is over; or by septic influences or material operating during the period of pregnancy through the medium of the blood and lymph currents, or after labor has terminated.

The subject of legal procedures against physicians in cases in which parturition has resulted unfavorably in one way or another is an interesting and most important one. Such procedures are usually most annoying and vexatious, involving much time and expense, and, it may be, the very possibility to the physician of living and working at his calling in the community where all his interests are located. Such interests may have been built up by the laborious work of many years, and it not infrequently happens that they are jeopardized by those who should be attached to the physician by all the claims of gratitude and humanity. Let us see for a moment what are the phases of obstetrical practice. In the majority of cases it consists mainly in cleanliness on the part of all who are in any way concerned, in not being *meddlesome*, and in "giving nature a chance." Such cases may be handled by intelligent midwives with perfect propriety. Other cases demand the exercise of good judgment, common sense, and a reasonable degree of mechanical skill; they are beyond the sphere of the midwife, and should be attended by physicians of at least the average intelligence. The remaining minority of cases require the highest qualities of judgment and the highest degree of intelligence and mechanical skill—qualities which are possessed by but very few. The average physician, who has had no opportunity or training in special lines of work, should not be held accountable for injuries resulting from supreme difficulties, nor for injuries which have resulted from the carelessness or imprudence of the patient, nor for those which have resulted from her failure or unwillingness to comply with conditions

which he or one of greater experience and skill has deemed essential to her welfare.

The law, which recognizes the physician's work as largely one of humane effort, which exempts him from jury duty and other duties which are incumbent upon the ordinary citizen, should shield him also from the attacks of mischievous and irresponsible persons in the matter of the discharge of his duty in behalf of parturient women. In consideration of the present status of the science and art of obstetrics, and of the opportunities which are now widely diffused for obtaining the necessary information and experience in this direction, it may be boldly said that no one who practices in this department should offer the plea of inability to perform the operations which are necessitated by the lesser accidents which are incidental thereto. Certainly one who is incompetent to do such operations is not a proper person to practice obstetrics, for we have seen how important is their bearing upon the future welfare of the individual. Besides, in isolated communities and sometimes even in the cities, the services of the skilled specialist are often quite unavailable, and unless the operations in question are performed at the time the injuries are received they are either not done at all, to the possible detriment of the individual, or they entail no little expense and annoyance by being done at a subsequent period, perhaps necessitating a prolonged absence from home.

In the presence of the serious complications of midwifery—for example, such as require the opening of the abdomen, and incision, repair, or removal of the uterus or other important structure—what is the duty of the average obstetrician with but little surgical experience or skill and no experience at all in such supreme emergencies? The supposition is, furthermore, that he is unable to call to his aid the skilled assistance necessary for such an occasion. The condition is a dilemma either horn of which is disagreeable enough to take. Either he must attempt a serious, delicate, and difficult operation for which he has neither experience nor fitness, with a bare chance of success if it is done properly, and the certainty that it will make matters worse if not done properly, or he must fold his hands and do nothing except enforce cleanliness and drainage, with the possibility that nature may furnish the one chance in the patient's favor which is necessary to overcome the situation. The lesser evil would seem to the writer to be involved in the expectant or do-nothing plan, and he would therefore counsel against the performance of the operations in question by the inexperienced. There is no chance of success in ignorant and haphazard rushing into such serious situations for the sake of doing something, the most that can be accomplished being to bring the operative measures into discredit. It is better to do nothing than to do something rashly and unwisely. It is better to have the consciousness that a patient died because one did not know how to relieve her than to feel certain that she died because of the injudicious violence which was inflicted upon her. The performance of these major obstetrical operations must ever be limited to the comparatively few, and the part of prudence and wisdom will consist rather in anticipating and providing for these evils than in abortive attempts to remedy them with means which are almost certain to prove ineffectual and disastrous.

ABORTION AND INFANTICIDE.

BY

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ABORTION.

By the term abortion, or miscarriage, as used in criminal law, is understood the unlawful termination of pregnancy at any period of gestation. The distinction observed in medicine between the terms abortion and premature labor is not recognized in law. An abortion is said to be complete when the entire product of conception is expelled; incomplete when a portion of the ovum is retained *in utero* after the expulsion of the fetus.

For the purpose of this discussion the subject of abortion presents two general subdivisions, non-induced and induced abortion, and under the latter head must be distinguished legitimate and criminal abortion.

1. NON-INDUCED OR SPONTANEOUS ABORTION.

The frequency with which miscarriage occurs from innocent causes is variously estimated at from one in five to one in ten pregnancies.

The causes of spontaneous abortion may be divided into two groups: 1. Those which act by first causing the death of the fetus; 2. Those which act independently of the death of the fetus.

By far the larger proportion of cases are included under the first head. The fetus may die in consequence of malformation, disease, mechanical violence—as falls or blows—maternal toxemia (e.g., carbonic-acid poisoning, saturnism, alcoholism, mercurialism, iodism, etc.), excessive anemia, pathological conditions of the chorion, the amnion, the cord, or the decidua. Old age or disease in the father is an occasional cause. On the death of the fetus the ovum shrinks, and, as a rule, is expelled within a few days or weeks as a foreign body.

Under the second head are included reflex irritation of the uterus (as by stimulating rectal injections, irritation of the mammary glands, and the like), emotional excitement, placenta prævia, epileptiform convulsions from uremia or other cause, carbonic-acid poisoning, hemorrhages into the placenta, detention of the uterus in the pelvis by adhesions, displacements of the uterus, uterine carcinoma, hydramnios, multiple pregnancy, falls, or blows. Congestion of the pelvic organs due to circulatory obstruction in the lungs or liver, or to heart disease, violent muscular effort, excessive coitus, etc., may result in hemorrhage into the placenta and consequent abortion. These causes operate primarily to excite contractions of the uterus and thus the ultimate expulsion of its contents.

2. INDUCED ABORTION.

(a) **Legitimate Abortion.**—Under certain conditions it becomes the duty of the obstetrician to terminate the pregnancy. As a general rule artificial abortion is justifiable when the mother's life would be jeopardized by the longer continuance of the gestation. The conditions in which it is most frequently called for are nephritis and uncontrollable vomiting of pregnancy. In extreme contraction of the pelvis, and in certain cases of marked atresia of the soft parts of the parturient canal, the evacuation of the uterus in the early months of pregnancy is permissible, on election of the mother, where a Cæsarean operation would otherwise be necessitated if the case were allowed to go to term. It may also be called for in placenta prævia.

The induction of abortion, when required for scientific reasons, should be undertaken only with the formal assent of another practitioner. The physician should always, for his own protection, associate with himself a competent consultant in the management of the case.

Various measures have been used for provoking abortion. Among them may be mentioned the puncture of the membranes and the partial separation of the ovum by means of a uterine sound. These are more especially applicable in the early months; later the passage of a flexible bougie, and the injection of glycerin, high up between the membranes and the uterine wall, are recognized methods. Repeated strong applications of faradism or galvanism through the uterus will usually provoke abortion at any stage of pregnancy. In the first two or three months a good method in experienced hands is the dilatation of the cervix and the evacuation of the contents with a curette and uterine forceps. A skilled operator can easily empty the gravid uterus in this manner in fifteen to twenty minutes.

(b) **Criminal Abortion.**—The measures employed to procure illegitimate abortion are of two kinds, medicinal and mechanical.

Medicinal Measures.—Abortifacient drugs act by directly or indirectly exciting uterine contractions. Among the reputed abortifacients are ergot, borax, cimicifuga (blacksnake-root), extract of cottonwood, savin, rue, tansy, wormwood, apiol, yew, pennyroyal, digitalis, squills, quinine, belladonna, pilocarpine, sarsaparilla, hellebore, laburnum, grains of paradise, guaiacum, sodium salicylate, oil of amber, phosphorus, strychnine, broom-fern, lignum vitæ, hoarhound, camomile, mugwort, cantharides, juniper, juice of bamboo leaves, milk-hedge, and other euphorbiaceous plants, chiretta, molline, carrot seeds, saffras, arsenic, corrosive sublimate, cyanide of potassium, sulphate of copper, iron, and drastic purgatives such as aloes, croton-oil, elaterium, Epsom salts, gamboge, hierapiera, and pilacotia; carbonic dioxide, bisulphide of carbon, and illuminating gas, by inhalation, are also recognized abortives. Some of these preparations act directly to induce contractions of the uterine muscular fibers; such agents are known as ecbolics. Others act on the vascular system. With very few exceptions, these drugs are capable of causing abortion only when the ovum has an insecure attachment, if at all. When they operate promptly, at least in ordinary doses, it is to be presumed that there was a predisposition to miscarry.

Of the foregoing agents only a few require special mention.

Ergot.—This substance is a morbid growth sometimes found on the seed of rye and certain other grasses. The ergot of rye (*Secale cornutum*) is that most commonly employed. Ergot has the power to intensify uterine contractions already begun. That it can originate them *de novo*, during the first half of pregnancy, is considered doubtful; yet I have occasionally seen evidence of its influence as an abortifacient, even in the early months of gestation. The dose of the crude drug is from one-half to two drams, of the fluid extract, from one to two fluid drams, three times daily. In extreme doses ergot gives rise to toxic effects. A sense of heat and dryness of the throat, pains in the stomach and bowels, nausea, and sometimes diarrhea are the principal symptoms. Occasionally there is marked retardation of the cardiac movements, with headache and vertigo, delirium and coma. The pupils are usually dilated.

Ergot in powder has a faint, fishy odor which is especially developed by rubbing with a solution of potassic hydrate. The same odor is manifest on mixing the caustic potash solution with the tincture of ergot, when free from the odor of other substances. When ergot has been taken in powder the drug may usually be recognized by the microscope as small red particles deposited upon the mucous membrane of the stomach and intestines.

Tansy (*Tanacetum vulgare*).—In our own country, especially, this agent has a popular reputation as an abortive. The oil and the infusion are the preparations most frequently used. Fatal results have followed the ingestion of a half-ounce of the oil, and even smaller quantities. In a case mentioned in the United States Dispensatory, death resulted from a large dose of the infusion taken internally. The toxic symptoms consist of irregular respiration and extreme cardiac depression, with, finally, violent convulsions and coma. Abortion does not necessarily occur.

Cotton-root (root of the *Gossypium herbaceum*, or common cotton-plant).—The tincture or decoction of the bark of the root has acquired the reputation of an abortifacient, and is said to be used for this purpose among the colored race of the Southern States. The latter statement, however, has been denied on the authority of reputable Southern practitioners.

Savin (the tops of the *Juniperus sabina*).—The oil is the most active preparation. The fluid extract is nearly as effective. The powdered leaf is sometimes employed, as are also the infusion, the decoction, and the tincture. The medicinal dose of the powdered leaf as an emmenagogue is ten to fifteen grains, of the tincture one-half to one dram, and of the oil five minims. The toxic effects are severe pain, caused by its irritant action upon the stomach and intestines, with vomiting and diarrhea, and finally colic and convulsions. Salivation and hematuria are also common results of the ingestion of toxic doses. Its action upon the uterus is probably secondary to its violent systemic effects, and the drug is accordingly an exceedingly dangerous agent when used in quantities sufficient to produce abortion. It can be said to have no specific power as an abortive agent.

The oil is recognized by its yellowish color and the characteristic odor of the plant. It is soluble in ether, and may be recovered from the contents of the stomach by shaking them in a flask with this agent. After death by savin-poisoning the odor of the drug is sometimes perceptible in the tissues of the body.

Rue (*Ruta graveolens*).—Preparations of rue have a decided action upon the uterus. Most used are the powdered leaf, the essential oil, and the infusion. The medicinal dose is one-half to one dram of the powder, from one to five minims of the oil, and from five to thirty grains of the leaf in infusion. In toxic doses it produces vertigo and is a powerful vascular depressant. The tongue becomes swollen and the patient suffers from salivation, nausea, severe pain in the stomach, jaetitation, stupor, and chills. The abortive effects of the drug are usually developed only after marked systemic disturbance. The contents of the uterus are, as a rule, expelled on the second day after the onset of the toxic symptoms.

Yew (*Taxus baccata*).—Abortive properties have been attributed to the fruit of the yew-tree, but in all recorded instances of its use for the purpose, death has taken place without evacuation of the uterus.

Saffron (*Crocus sativus*).—The stigmas of the saffron flowers are a popular abortifacient; but their reputation as a uterine excitant appears to have no foundation in fact.

Pennyroyal (*Hedeoma pulegioides*).—The warm infusion, pennyroyal tea, is a much-used emmenagogue in domestic practice. Its reputation, however, as a means of provoking the menstrual flow is not well founded. Its mention here would be unnecessary but for the fact that active abortifacient properties have been erroneously attributed to it in a noted case in the criminal courts of Great Britain.

Drastic Cathartics.—Aloes, croton-oil, elaterium, colocynth, and other violent purgatives may act as reflex uterine excitants. Hiera-picra (a combination of canella bark, one part, and aloes, four parts) and pilacotia (a mixture of colocynth and aloes) are sometimes employed as abortives. This class of agents are of little effect as abortifacients except in conditions which predispose to miscarriage.

Apiol is an emmenagogue of undoubted power. It exerts a direct effect upon the circulation of the uterus. It is therefore capable of exciting abortion under favorable circumstances.

The tincture of the chloride of iron has been given in large doses with the intent of producing abortion. While it is capable of deleterious effects upon the general health when used in large quantities, it has no specific action as an abortifacient.

Mechanical Measures.—Mechanical measures are far more effectual abortives than drugs. These means may, after the first two or three months of gestation, be such as act by first causing the death of the fetus. Thus the child may be killed by blows upon the mother's abdomen. Generally direct violence to the abdomen produces abortion by disturbing primarily the relation of the ovum to the uterus. The attachment of the ovum to the uterine wall is partially broken up, with the effect to bring on expulsive efforts of the uterus.

Under this head are included blows on the abdomen, intentional falls and muscular strains, carriage-riding over rough roads, bareback riding, long walks, tight-lacing, vaginal or uterine douches, and direct interference by other means within the uterus. Tents of sponge, sea-tangle, or similar material are probably seldom used by criminal abortionists. These instruments consist of small, compact pencils of sponge of wood about two inches in length, which possess the property of expanding when moist. Placed in the canal of the uterine neck they absorb water

from the surrounding structures, and, swelling, they dilate the cervix. The ovum is partially separated from its attachments at the lower segment of the uterus, and becoming in part a foreign body, the uterus contracts to expel it.

The methods most employed are some forms of direct interference. The ovum may be partially detached from the lower uterine segment by means of a sound or probe, or it may be perforated. In the first method the curved uterine sound is passed between the membranes and the uterine wall, and the membranes peeled up by sweeping the point of the sound around the circle. Uterine contractions may thus be set up generally within a few hours. When abortion is induced by penetrating the membranes a blunt probe or pointed instrument is passed through the neck of the uterus and the membranes perforated. This operation is done by the professional abortionist and sometimes by the patient herself. The attempt is less likely to be successful in proportion as the stage of gestation is early and the ovum small. Among the instruments that have been used for this purpose by the woman herself may be mentioned knitting-needles, pieces of wire or whalebone, stilettos, hairpins, penholders, bougies or catheters, and wooden skewers; sometimes the finger. The professional abortionist generally employs a uterine sound or some similar appliance as a perforator. On puncture of the membranes the liquid contents of the ovum escape and the ovum collapses, the uterus retracts, partially separating the product of conception from its attachments to the uterine wall, and a greater or less amount of hemorrhage occurs. The embryo or fetus dies from beginning interruption of the uteroplacental circulation and other causes, and the uterine contents become a foreign body. As a rule contractions of the uterus are soon established, and it expels its contents generally within a few days. The final expulsion of the ovum may, however, be delayed for a week or more. Frequently the case terminates fatally by peritonitis or general sepsis. While in properly conducted abortion the death-rate is practically nil, the mortality of criminal abortion is very great. This is due to the fact that in abortion done by the woman herself or by an unskilled abortionist portions of the product of conception are usually left to putrefy in the uterine cavity. Often, too, the woman is infected primarily by unclean instruments and methods of operating. Moreover, unnecessary violence is frequently done to the uterine walls. The point of infection is often a wound of the uterus made by the instrument. Many cases have been reported in which the woman, in her desperate determination to put an end to the pregnancy, had passed a knitting-needle or similar appliance through the posterior vaginal fornix or the uterus into the peritoneal cavity. Bodies of this description have slipped wholly into the cavity of the abdomen and been subsequently removed by abdominal section. Such injuries to the peritoneum usually result in death by peritonitis. More scientific methods sometimes resorted to by expert abortionists are intra-uterine injections or the mechanical dilatation of the cervix uteri.

The galvanic or faradic current is sometimes employed to excite expulsive efforts. This method is frequently effectual when strong currents are passed directly through the uterus. One electrode is placed in the vagina against the cervix or is passed within the uterus, and the other rests on the lower abdomen or back. These agents act by inducing ute-

rine contractions, or possibly, when heavy currents are employed, by first causing the death of the fetus.

CLINICAL EVIDENCE OF RECENT ABORTION.

The amount and character of the medical evidence on which the proof of abortion depends differ with the stage of gestation, and with the time that has elapsed since the uterus was emptied.

Genital Discharges.—For at least one or two weeks after miscarriage at any stage of pregnancy there is a more or less abundant lochial flow. Flooding or the existence of a fetid, bloody vaginal discharge should arouse suspicion. These signs, however, in the living subject, disappear within a short time after abortion in the early months of gestation, and are rarely sufficiently marked, after one or two weeks have elapsed, to be of much value as evidence that pregnancy has existed.

When the product of miscarriage, or any portion of it, is available for examination the question presents little or no difficulty. Blood-clots which have been expelled from the uterus in the early months of supposed pregnancy should be broken up under water and careful search made for shreds of fetal membranes and fragments of placental tissue. The gross characters of the product of conception are usually sufficient for its identification. When doubt exists, if the specimen has not been too much altered by decomposition, examination by the microscope will decide. The discovery of fetal villosities in the material cast off by the uterus is conclusive evidence that the case was one of pregnancy. In the first two months the embryo is seldom found. It is either lost in the discharges or has disappeared by absorption before expulsion of the uterine contents. Its tissues at this early stage of development are so soft that they are rapidly broken down after its death, and are promptly absorbed or washed away in the discharges. Even when the ovum has been expelled and lost, chorial villosities may usually be obtained by curetting the uterine cavity within a few days after the abortion. By the end of a week after the expulsion of the uterine contents the search for fetal structures in the uterus will seldom be successful. At the third month, and later, the development of the fetus is such that it constitutes a conspicuous part of the product of conception.

Condition of the Uterovaginal Tract.—The uterus remains somewhat enlarged for at least two or three weeks after abortion at any stage of pregnancy, and its structure is for a time somewhat less dense than is normal to the non-gravid uterus. The cervical canal, too, is more patulous. The growth of the uterus is greater with each succeeding month of gestation, and its involution after labor in advanced pregnancy occupies a greater length of time than after abortion in the earlier months. For two or three weeks after delivery at or near term, the vagina remains enlarged and relaxed, and more or less extensive tears are to be found about the vaginal orifice. These injuries are more conspicuous in primiparæ than in multiparæ. The stage of repair will correspond with the length of time that has elapsed since the birth. Abortion in the early months leaves no similar traces in the lower portion of the genital tract.

Other Changes in the Maternal Organism During Pregnancy.—Before the end of the third month of gestation the changes which take place in other than the pelvic organs in consequence of pregnancy are

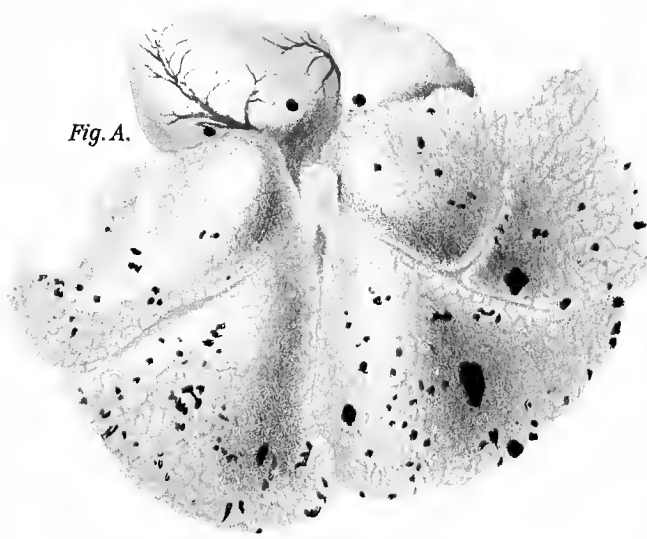


Fig. A.

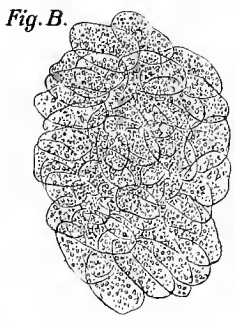


Fig. B.

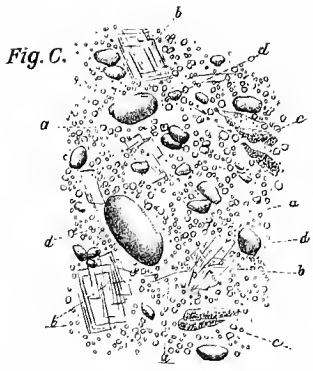




Fig. C.

Fig. A—Lungs and intrathoracic organs of a new born child at term, having lived and respired, who was the victim of infanticide by suffocation.
C Fig. —Spot of Meconium found on cloth.
B Fig. —Spot of Foetal Coating (enduit foetal Tardieu).

few and imperfectly developed, and they recede more or less within a few days after miscarriage. They are of practically no diagnostic value in pregnancies subsequent to the first, since many of the changes induced by pregnancy remain in a measure permanent. The size and firmness of the mammary glands will be found increased from the end of the second month of gestation. The increased pigmentation of the mammary areolæ, and the pigmented line extending from the pubes to the umbilicus, except in light-complexioned subjects, are perceptible by the second month. By this time, too, the veins over the surface of the breasts have become turgid, and by close inspection may be seen coursing across the primary areolæ. After the third month a milky serum may generally be pressed from the nipples. Practically all these changes may occur as the result of pelvic disease, which, therefore, must be excluded.

Evidence Afforded by Stains upon the Bedding or Clothing.—

Blood discharged from a woman in case of abortion is practically indistinguishable from human blood derived from other sources.

Meconium stains present certain distinctive characters by which they may usually be identified. This material is a dark-greenish, viscous liquid yielding the reaction of bile to the nitric-acid test. With tincture of iodine a green coloration is produced. Among its microscopical elements are intestinal epithelium and crystals of cholesterin. (Plate VI., Fig. C.)

In case of abortion in an advanced stage of pregnancy vernix caseosa may be found on the patient's linen or bed-linen. This material may be identified by its microscopic and chemical characters. The microscope reveals epidermic scales and lanugo. The presence of fatty matter is demonstrated by shaking up the particles with ether, which extracts the fat. (Plate VI., Fig. B.)

POST-MORTEM SIGNS OF RECENT DELIVERY.

All the changes in the maternal organism which may result from pregnancy should be looked for. The evidence of recent delivery, however, is to be found mainly in the condition of the vagina and the uterus. The vagina is increased in size, and, after delivery in the later months of pregnancy, its outlet presents the wounds or cicatrices characteristic of recent childbirth.

The uterus is enlarged according to the stage of gestation which had been reached and the degree of involution which had taken place. Immediately after delivery at term the uterus measures externally 7 or 8 inches in length, and 4 or 5 in width at the level of the Fallopian tubes. The thickness of the walls is about $1\frac{1}{2}$ inches. The depth of the cavity is at the close of labor 6 inches; at the end of the first week about $4\frac{1}{2}$ inches; at the end of the second week $3\frac{7}{8}$ inches; and about $3\frac{3}{4}$ inches at the expiration of a month. The fundus uteri, shortly after labor, lies at the level of the umbilicus; by the tenth day at the pelvic brim.

The average weight of the uterus at the close of a full-term labor is 35 ounces; at the end of the first week, 16 ounces; at the end of the second week, 12 ounces; end of the third week, 8 ounces. The uterus does not usually fully regain its normal dimensions for nearly two months. The regressive process is somewhat slower in multiparæ than after first labors. The cervix remains relaxed and soft after labor, begin-

ning to regain its form and consistence after about twelve hours; two fingers can be passed through the os internum at the end of twenty-four hours. At the expiration of a week the cervical canal admits one finger.

Directly after delivery the cavity of the uterus is still lined with the outer layer of decidua and with shreds of the inner layer. The placental site presents a slightly elevated and uneven surface studded with thrombi lying in the mouths of the uteroplacental vessels, which have been torn across by the separation of the placenta. More or less fluid and clotted blood is present in the cavity. The muscular fibers of the full-term uterus are from seven to eleven times longer than in the normal state of the non-gravid organ, and are increased in thickness. These changes in the uterus will have receded in proportion to the length of time that has elapsed since confinement, and will vary, too, with the degree of prematurity of the birth.

The presence of a corpus luteum in the ovary is not distinctive of pregnancy. A corpus luteum is found whenever an ovum has been recently discharged from the ovary. It is always to be observed during the first two or three weeks after menstruation. It reaches a higher degree of development during pregnancy and does not disappear for several weeks after childbirth. The absence of the usual corpus luteum of menstruation in its recent state would be evidence that a period of at least many weeks had elapsed since the last menstrual flow.

AT WHAT STAGE OF GESTATION HAS THE ABORTION TAKEN PLACE ?

The stage of pregnancy at which abortion has taken place must be estimated from the measurements of the uterus, and from the size and development of the fetus when the latter is available for examination.

The following table shows the dimensions of the uterus while it still contains the living ovum, at different periods of gestation :

SIZE OF THE UTERUS.

<i>Stage of Gestation.</i>	<i>Length.</i>	<i>Width.</i>
3d month.	5 inches.	4 inches.
4th "	6 "	5 "
5th "	7 "	6 "
6th "	8½ "	6½ "
7th "	10 "	7 "
8th "	11½ "	8 "
9th "	13 "	9 "
10th "	14 "	10 "

The measurements of the uterus are considerably diminished after expulsion of its contents, yet the foregoing figures may serve as a guide in estimating the period of pregnancy at which a miscarriage has taken place.

The nulliparous uterus is nearly 1 inch in thickness, 1½ inches in width at the fundus, and 2½ in length; it weighs about 1 ounce. The parous uterus in the non-gravid subject is approximately 1 inch thick, 2 inches wide, and 3 inches long, and its weight is 1½ ounces.

The uterus at the close of labor at term weighs about 35 ounces.

Development of the Fetus.—The length, weight, and development of the fetus at different stages of gestation are as follows :

At the end of the first lunar month the diameter of the ovum is $\frac{3}{4}$ of an inch. The chorionic villi are developed over the entire surface of the ovum. The embryo measures $\frac{1}{2}$ of an inch in length and weighs 15 grams. The nose and mouth form one cavity, the abdomen is still open, the umbilical vesicle persistent, and the members are indicated by mere papillae.

At the end of the second month the ovum is $2\frac{1}{2}$ inches in diameter ; the chorionic villosities have begun to disappear over two thirds of its surface. The length of the embryo is $1\frac{1}{4}$ inches, and its average weight is 1 dram. The mouth and nose are separate and the abdomen closed. The umbilical vesicle disappears. The members are formed, but the fingers and toes are webbed. Ossification is beginning in the inferior maxilla and in the clavicle.

At the end of the third month the diameter of the ovum is 4 inches. The placenta is formed. The embryo is $3\frac{1}{4}$ inches in length and weighs 1 ounce. The fingers and toes are separated ; the sex is discernible. There are points of ossification in the bones of the skull and the limbs. The length of the umbilical cord is $2\frac{3}{4}$ inches.

At the end of the fourth month the fetus measures 5 inches in length and weighs about 3 ounces. Hair begins to appear ; the sex is clearly apparent ; nails begin to be formed.

At the end of the fifth month the length of the fetus is 9 inches, and its average weight $9\frac{1}{2}$ ounces. The umbilical cord is about 1 foot in length ; its point of insertion, instead of being at the symphysis as it is till the fourth month, begins to move upward. Meconium is present in the intestines. Vernix caseosa appears for the first time. Ossification begins in the ischium.

At the end of the sixth month the fetus is 12 inches in length and weighs about 23 ounces. The cord measures $14\frac{1}{2}$ inches. Ossification begins in the pubic bones.

At the end of the seventh month the fetus is 14 inches long and weighs about $2\frac{1}{2}$ pounds. The average length of the cord is $16\frac{1}{2}$ inches. Ossification has begun in the astragalus.

EVIDENCE OF CRIMINAL ABORTION.

It will seldom be possible to determine by examination of the pelvic organs, the fetus, or its appendages whether the abortion has been spontaneous or the result of criminal interference. When the operation has been clumsily done the marks of violence may be sufficiently obvious in the living patient, and especially on examination after death, to establish the fact that criminal measures have been employed. The obvious presence of disease in the membranes or placenta would point to the probability that the abortion was spontaneous. In criminal abortion the product of conception is more likely to be mutilated than entire.

The history of the woman's illness should be carefully analyzed for the toxic symptoms of the medicinal agents commonly employed for producing abortion. In post-mortem cases the contents of the stomach and bowels should be examined for evidence of the presence of abortive

drugs. The abortive agents of this class which are usually employed are generally capable of recognition by their microscopic or chemical characters or by experiments upon animals.

EVIDENCE THAT CONFINEMENT HAS AT SOME TIME TAKEN PLACE.

It may devolve upon the medical witness to distinguish between the parous and the nulliparous condition—in other words, to determine whether the woman has ever been confined. The signs are general and local.

The pigmentary changes which take place upon the breasts and abdomen during the first pregnancy remain in a measure permanent. They are usually well marked in brunettes, but not so in women of light complexion. Moreover, they are not wholly reliable as evidence of pregnancy, since similar changes may occur as a result of pelvic disease. The irregular whitish, pinkish, or bluish lines which are developed over the lower half of the abdomen after the sixth month of pregnancy, once formed, are never effaced. They are also produced by abdominal enlargement to the same degree from other causes, yet this source of error may be easily eliminated.

The principal signs are to be sought in the condition of the organs immediately concerned in the pregnancy and the birth. Cicatrices of old lacerations may be found about the vulvar orifice. The presence of true *carunculæ myrtiformes* may be taken as evidence of childbirth. This condition must be distinguished, however, from mere rupture of the hymen. The *carunculæ* consist of four or five small, fleshy excrescences skirting the vaginal orifice, and which represent the remains of the hymen torn by the birth of the child. After delivery during the first half of pregnancy the condition of the hymen would not be sufficiently characteristic to be of value as evidence that confinement had taken place.

The vulva and vagina are more relaxed in the parous than in the nulliparous woman. Vaginal cicatrices may result from labor. Reliable evidence of previous childbirth is usually afforded by the condition of the cervix uteri. The lower border of the uterine neck is always more or less notched, and sometimes deeply fissured, after labor at or within two or three months of term. The uterus remains permanently larger. Whether the number of confinements which have taken place is one or more cannot be determined by the physical signs.

It is seldom possible to decide whether an abortion has at any remote time occurred in the early months of pregnancy. The signs are fewer and less perfectly developed than after delivery in the later months, and the solution of the question is the more difficult the earlier in pregnancy the abortion has taken place.

FEIGNED ABORTION.

For the purpose of incriminating others a woman may simulate abortion. Taylor relates a case in which a woman in Guy's Hospital accused a policeman, who, she alleged, had ravished her, of having procured an abortion by means of drugs which he had administered and by the use of local mechanical measures. On examination by a medical expert, two months after the alleged miscarriage, no evidence was found that she had

ever been pregnant. Primarily grave doubt, as the author observes, is cast upon a charge of this kind when so long delayed after the alleged fact.

Of interest in connection with this subject is a case of assumed abortion which was recently brought to public notice in Brooklyn. A gynecologist of recognized ability and unblemished reputation was arrested on the charge of criminal abortion. The woman, who had become ill during his treatment, joined in the accusation, under the belief, which was shared by her usual medical attendant, that she had miscarried and was about to die of peritonitis. On examination by the writer she was found to be still pregnant, at about the second month, with no evidence that violent measures had been employed. On investigation before the coroner the gynecologist, whose treatment was shown to have been entirely innocent and proper, was fully exonerated.

INFANTICIDE.

The term infanticide as used in medical jurisprudence applies to the murder of a new-born child. In the vast majority of cases the crime is committed at birth or directly after. It is immaterial, however, whether the age of the child is measured by minutes or days, since, under our law, "it is equally murder to destroy the life of a child which has been completely born as it would be feloniously to kill an adult." Nor is it necessary that the child shall have reached the full term of intra-uterine development, provided it has lived after its birth. It must, however, have been fully expelled in a living condition. It does not matter whether the cord has been divided or not; the child is born when it has been completely expelled from the maternal passages even though the cord be still intact. It may have been born alive even though it had never breathed. Death takes place only when the heart ceases to beat.

The destruction of a child *in utero* or in course of birth is not infanticide.

The law assumes that every new-born child has been born dead until the contrary is proved. The burden of proof that the life of the child has been willfully destroyed is cast upon the prosecution. This is a beneficent provision of the law to prevent unjust conviction, and is rendered necessary by the fact that a large number of children are at birth dead or non-viable. It will thus be seen that the problem presented to the medical jurist in a case of alleged infanticide is by no means a simple one; sometimes it is beyond the reach of medical evidence.

Adopting the scheme of Ogston, the questions which confront the expert are the following:

1. Has the prisoner been recently delivered?
2. Was the child mature?
3. Was it the child of the prisoner?
4. Was it dead or alive at its birth?
5. If alive, what was the cause of its death?

1. HAS THE PRISONER BEEN RECENTLY DELIVERED?

The facts upon which the solution of this question will depend have been already considered under Abortion.

The question may arise in this connection whether a woman who has just been confined could be ignorant of the fact. That a woman may give birth to a child without knowing it and without having recognized the existence of pregnancy is scarcely to be presumed. She may, however, be unexpectedly delivered. In very rare cases the labor is practically painless, and the child may be born before the mother is aware that the labor has actively begun. Again, the termination of the birth is frequently abrupt: the child is sometimes expelled from the uterus into the world in a single pain. This is more likely to occur if the woman is in an upright posture. A child expelled while the mother is in a standing or sitting position may sustain serious injury by precipitation upon the floor or into a water-closet. Yet simple falls are seldom fatal: the distance is short and the fall may be partly broken by the cord.

Unintentional precipitation of the child into a water-closet or privy vault may easily happen and is not an extremely rare occurrence. The pressure of the presenting part of the fetus in the lower portion of the birth canal usually gives rise to a violent rectal tenesmus. The sensation is mistaken for an urgent demand for stool. Responding to the seeming necessity, the upright position of the parturient, and the straining, help to precipitate the birth, and in this way it can happen that the child may be dropped into a water-closet consistently with the entire innocence of the mother. Unconscious delivery is of course possible in eclampsia, in coma from whatever cause, and under anæsthesia.

2. WAS THE CHILD MATURE?

The probability of natural death in the new-born is greater in proportion to the prematurity of the birth. The medical witness will therefore be required to testify to the probable stage of intra-uterine development which the child had reached.

The following are the data upon which an approximate estimate may be given in the last three months of fetal development. For the rate of fetal growth in the preceding months the reader is referred to page 477.

At the eighth lunar month the average fetus measures 16 inches in length and weighs $3\frac{1}{2}$ pounds. The nails are fully developed, but do not project beyond the finger-tips. Lanugo begins to disappear from the face.

At the ninth lunar month the fetus is, approximately, 17 inches in length, and its weight about 4 pounds. Lanugo is beginning to disappear from the body. The ossific nucleus in the lower femoral epiphysis first becomes visible.

At the tenth lunar month, the period of full maturity, the height of the child is from 18 to 20 inches. The measure is to be taken from the vertex to the lower border of the calcaneum. The average weight is 7 pounds.

The principal head diameters, subject to certain modifications due to molding when measured shortly after birth, are as follows: The bipari-

etal, measured through the parietal eminences, $3\frac{3}{4}$ inches; the fronto-mental, from the summit of the forehead to the center of the lower margin of the chin, $3\frac{1}{2}$ inches; the occipito-frontal, from the tip of the occipital protuberance to the root of the nose, $4\frac{1}{8}$ inches; the occipito-mental, from the tip of the occipital protuberance to the center of the lower margin of the chin, $5\frac{1}{4}$ inches; the suboccipito-bregmatic, from the junction of the nucha and occiput to the center of the bregma, $3\frac{1}{4}$ inches; the bitemporal, the distance between the lower extremities of the coronal sutures, $3\frac{1}{8}$ inches; the bimastoid, the greatest distance between the mastoid apophyses, $2\frac{3}{4}$ inches. The length of foot is $3\frac{1}{8}$ inches.

The average weight of the new-born child is from 7 to $7\frac{1}{4}$ pounds. Both weight and measurement are slightly greater in male than in female births.

The face and body are plump. The child suckles and cries lustily. Vernix caseosa is present chiefly on the child's back and on the flexor surfaces of the limbs. The skin lies in deep folds at the flexor surfaces of the joints. Portions of the integument, especially about the shoulders, are thickly covered with lanugo. In full-term children the skin is whiter than in those prematurely born. The epidermis begins to be thrown off on the second day. The exfoliation commences on the abdomen, spreads over the body and lower part of chest, and is complete in about two weeks.

The location of the umbilicus is above the center of length of the child's body. If the child has breathed, the thorax is arched and the diaphragm depressed; if respiration has not taken place, or only imperfectly, the chest is flat. The finger-nails project beyond the finger-tips, the toe-nails to the end of the bed of the nail. The cartilages of the nose and of the ear are firm. The cranial bones are hard, the sutures and the fontanelles small.

Ossification is beginning in the upper epiphysis of the tibia and in the cuboid bone. The ossific nucleus in the lower end of the femur has reached the diameter of nearly or quite $\frac{1}{4}$ of an inch. Ossification to this extent in the lower epiphysis of the femur may be taken as conclusive evidence of term-development. This bony nucleus appears as a small, distinctly marked, bright-red spot in the white cartilage. It may be much smaller or entirely wanting even in term-births. Hartmann failed to find it in 12 cases out of 102.

The examination of the epiphysis for determining the stage of ossification should be conducted as follows: The knee is slightly flexed and the joint laid open. Several horizontal sections are then made through the epiphysis. The dimensions of the bony nucleus may thus be readily determined. Its greatest diameter at term, which is the transverse, is from 2 to 5 mm. ($\frac{1}{4}$ inch).

When only portions of a dismembered body are at the disposal of the expert, his conclusion must be based on the evidence of development afforded by the bones. Measurements of the bones are liable to be misleading, yet may furnish presumptive evidence. The stage of ossification is more conclusive. The femur and the inferior maxilla, as we have already seen, afford valuable data.

Not only the ossific nuclei but the papillæ of the molars should be examined. The latter become crowned in the last weeks of fetal development. The germs of the teeth do not solidify during intra-uterine life.

The measurement and weight of certain portions of the body and the weight of viscera afford useful guides for determining the stage of development. The following figures are given on the authority of Letourneau: The distance from the pubis to the top of the head in a new-born child at term is about 12 inches. The distance from the pubis to the internal condyle of the femur is 2 inches; from the latter point to the lower border of the calcaneum, $4\frac{1}{8}$ inches. The distance from the acromion process to the epicondyle of the humerus is $3\frac{1}{2}$ inches; from the latter point to the styloid process of the radius, $2\frac{3}{4}$ inches. The weight of the right lung is 8 drams and 15 grains; of the left, 7 drams. The heart weighs 3 drams and 45 grains; the liver, 22 drams and 45 grains; the brain, $5\frac{1}{4}$ ounces; the kidney, $2\frac{3}{4}$ drams.

The size of the placenta, too, has an approximately constant relation to the development of the fetus. At term it is from 7 to 8 inches in width, and its average weight is 1 pound.

The average length of the umbilical cord is 20 inches; the length varies, however, from 7 to 60 inches.

While the foregoing may be regarded as a fair statement of the facts in the great majority of cases, some latitude must be allowed for variations in individual instances. The weight and measurements of the child, especially, are subject to deviations from the above-given figures in a certain proportion of cases. Occasionally a child born at full term may be considerably below the standard in point of weight and size. This is generally true of twins. Phenomenal instances have been reported in which the length of the new-born child was 22 and even 24 inches, and its weight proportionately excessive. Even the extraordinary weight of 25 pounds at birth has been recorded. New-born children, however, of more than 10 or at most 11 pounds are exceedingly rare. As a rule each succeeding birth of the same mother is larger than the preceding births. Notwithstanding these occasional exceptions to the general rule of size and weight, the sum total of the data available in a given case is sufficient for a definite opinion with reference to the stage of fetal development.

3. WAS THE DECEASED THE CHILD OF THE PRISONER?

The medical evidence bearing on this question will depend on the solution of several other questions:

- (a) Has the woman been recently delivered?
- (b) How long a time has elapsed since delivery?
- (c) Did the child live after birth, and if so, how long?
- (d) How long has it been dead?

The facts relating to the first and second questions have been discussed under Abortion. The other questions are considered below.

4. WAS THE CHILD DEAD OR ALIVE AT ITS BIRTH?

State of the Lungs.—Pulmonary Docimasia.—The most valuable evidence for determining whether the child lived after birth is afforded by the condition of the lungs. Before the first respiratory act these organs are devoid of air. As a rule the child breathes for the first time only

after its complete expulsion from the maternal passages. Not infrequently, however, respiratory movements begin during the birth. While it is generally possible to determine by examination of the lungs after death whether or not the child had breathed, these organs, unfortunately, afford no evidence by which it can be always learned whether the first respiratory act took place before or after the birth was complete. Evidence that the dead child had breathed is no proof that it was born alive in the legal sense of the term.

The lungs are fully expanded only after the child has breathed for several minutes or hours. When the air-cells are so completely filled that the lungs crepitate under pressure, it is fair to presume that the child continued to breathe for some time after it was completely born. Especially is this true of children prematurely born, since the alveoli do not fill so promptly in the immature as in the full-term infant.

On opening the thorax of a new-born child which has not breathed, the lungs are found small, do not appear to fill the chest, and do not cover the pericardium. They present a smooth surface, the color of which is most frequently a deep purplish red. Since the color changes somewhat after exposure to air, the appearance should be noted on first opening the chest. They have the consistency of liver, and do not crepitate under the fingers. On incision they present a compact structure with no appearance of reticulation.

The average weight of the lungs before respiration is 649 grains, including the bronchi and trachea. The precaution must be taken before removing the lungs for weighing to ligate the pulmonary vessels to prevent the escape of blood. It must not be forgotten that the weight of the lungs will differ according to the size of the child above or below the standard, and that it does not even bear an absolutely fixed ratio to the weight of the body.

The specific gravity of the lungs before inflation is greater than after the child has breathed. Placed in water they promptly sink.

After respiration, if the lungs have been fully inflated they are much increased in volume, they fill the chest, and their anterior margins overlie the greater part of the heart. They assume a pinkish or bright-red color, have a spongy feel, and crepitate on pressure with the fingers. The surface is lobulated, and the outlines of the alveoli are plainly visible. They show a vesicular structure on incision, and a frothy fluid oozes from the cut surface.

The absolute weight is nearly doubled by the afflux of blood which takes place on the establishment of respiration. The specific gravity, on the other hand, is greatly diminished in consequence of the access of air to the alveoli.

All the foregoing changes are imperfectly developed in proportion as the lungs are only partially expanded. It is especially important to note that when the child has breathed imperfectly the dilated portions are raised above the general surface of the lungs, and have taken on the bright vermilion color characteristic of respiration, while the unexpanded portions still retain the livid hue of the fetal state.

The Hydrostatic Test.—The specific gravity of the lungs before respiration is 1.05. These organs in the fetal condition accordingly sink when placed in water. After full inflation they float with considerable buoyancy. The pulmonary tissue, while actually heavier after the child

has breathed than before, owing to the afflux of blood to its vessels on the establishment of respiration, is relatively lighter than the corresponding bulk of water, owing to the increase in volume consequent upon the distention of the alveoli with air.

To decide the question, then, whether the lungs have been inflated, they are removed from the chest, the large bronchi and trachea being included, and placed in water which must be approximately pure and at even temperature with the surrounding air. Should they float, they should be cut apart and each tried by itself. Each lung should then be cut into ten or twenty pieces, and the sections tested separately. If all float, the lungs have both been completely expanded with air. Should both lungs, one lung, or any of the pieces sink, it is generally to be assumed that these organs have remained wholly or partially in the fetal condition. As a rule, then, flotation of the lungs or any portion of them may be taken as evidence that the child had breathed, and, conversely, failure to float is to be regarded as proof that respiration had not taken place. To these rules, however, there are certain exceptions:

(a) *Artificial Insufflation*.—The lungs may have been artificially inflated, either in the legitimate endeavor to resuscitate the child, or with intent to conceal the fact that it had been willfully destroyed. Merkel, experimenting on the effect of artificial respiration, found that after thirty Schultze swings the lungs of a still-born infant were well expanded. After fifteen swings they were only partially inflated. Simple movements of the dead child—shaking, tossing, compression or expansion of the chest, or a few feeble Schultze swings—produced no expansion of air-cells.

When the lungs have been found expanded, the medical expert will be called upon to show whether the expansion was the result of respiration or of artificial insufflation. While in either case they will float, the absolute weight will not have been augmented by insufflation after death, as is the case when the child has breathed, for the obvious reason that in post-mortem inflation no afflux of blood to the lungs takes place. The weight remains as in the fetal state. For the same reason, lungs which have been artificially inflated after death do not acquire the pink color characteristic of respiration, but are pale and colorless. Moreover, blood cannot be pressed from the pulmonary structure on incision, as can be done in the case of the lung that has breathed. Again, it is in general highly improbable that artificial respiration would be practiced except by the physician for the purpose of resuscitation.

(b) *Putrefaction*.—In rare instances the lungs from the body of a child that has not breathed may float, owing to the presence of putrefactive gases in the pulmonary tissues. In such cases the marks of decomposition will be found in other portions of the body. Putrefactive changes take place, in fact, more rapidly in most other structures than in the lungs. Again, the gases of putrefaction occupy the intercellular portions of the pulmonary organs, and can be in a great measure expelled from sections of the lung by pressure between the fingers, while the expansion of the air-cells remains nearly or quite unchanged under pressure. The surface is studded with bullæ, the structure softened and presenting the greenish or brownish discoloration and offensive odor of putrefaction. When the putrefactive process has not gone too far, the mere puncture of the gaseous vesicles may permit the lung or its segments to sink in water. It is important to distinguish between putrefaction and macera-

tion in examining the cadaver of a new-born infant. Maceration occurs in the body of a fetus which has been carried *in utero* for some days after death with the fetal membranes unbroken. In this condition the body is shriveled and the cranial vault collapsed, but the destruction of tissue and the characteristic odor of putrefaction are absent.

(c) *Solidification*.—On the other hand, under certain circumstances the hydrostatic test may fail to establish the fact even when respiration has taken place. Consolidation of the air-cells may occur from disease. This happens in pneumonia and in edema of the lungs. A little care on the part of the examiner will readily eliminate this source of error.

(d) *Atelectasis*.—Cases have been recorded, too, in which, though the child lived several hours and even days, every portion of the lungs sank when placed in water after death. Eckervogt has reported a case in which a child cried out loudly after birth, then stopped, but lived twenty-three hours; yet after death no air was found in the lungs and every portion of them sank in water. Bernt met with a case in which a seven months' child died two hours after birth; the lungs were divided, and every segment sank in water. Remer relates an instance in which the entire lungs sank after the child had lived four days. Many other similar instances have been observed. They are to be explained on the assumption of a partial atelectasis, the air-cells having received enough air to maintain life for a short period, yet not enough to cause flotation of the pulmonary structures. It is possible that partial resorption of the residual air takes place, as claimed by Eckervogt.

(e) *Freezing*.—The precaution must be taken to observe that the lungs are not frozen before applying the hydrostatic test, since frozen pulmonary tissue may float, even when in the fetal state, owing to the presence of ice. The frozen organs should be immersed in warm water until they have completely thawed.

Pulmonary Docimasia by the Microscope.—This method of examining the state of the lungs in suspected infanticide was proposed by Bouchut. Under a magnifying power of five or ten diameters the cut surface of a lung which has not breathed presents the appearance of solid tissue. It shows reticulation, but no air-vesicles. On the other hand, the pulmonary structure, after respiration has taken place, exhibits under the magnifier agglomerations of air-cells. By its aid imperfect expansion of pulmonary lobules is readily recognized. If respiration has not been fully established a portion of the alveoli is seen to be undilated. The inflated air-vesicles do not disappear under pressure with the fingers, as do the gaseous bubbles in the intercellular tissues.

Moreno proposes that the smallest bronchioles be examined. The ciliated epithelium passes into cubical, and by expansion of the alveoli in inspiration becomes squamous. The method is scarcely practicable for general use, since only after examining the entire lung could partial expansion be excluded.

Has the Child Cried?—The only medical evidence on this question is to be sought in the condition of the lungs. Full inflation of the air-cells may generally be taken as proof that the child has cried. On the other hand, it is improbable that it had uttered any sound if the lungs are found in the fetal state. Imperfect dilatation of the pulmonary lobules is not inconsistent with the allegation that the child cried feebly.

The fact that it had done so, however, is not evidence of living birth, since the child may cry before it is completely born.

The possibility of an intra-uterine cry (*vagitus uterinus*) is well recognized. This can occur, obviously, only after the rupture of the membranes, and with such accident or manipulation as may admit air into the utero-vaginal tract. The child cannot cry without air.

In general it must be remembered that the presence of air in the lungs, however demonstrated, while it is usually to be taken as proof of life during birth, is not evidence of living birth. The lungs may be partially inflated in a child that had died before it was completely born.

Air in the Alimentary Canal.—Before birth no air is contained in the stomach or intestines. Air gains access to the stomach and the deeper portions of the digestive tract directly after birth in the living child. This occurs either by aspiration or by the act of swallowing. Its presence, therefore, as indicated by flotation of these organs when placed in water, is generally an indication that the child was born alive, and the inference is the stronger in proportion as the air is found in larger quantities and at a lower point in the bowel.

To apply this test the stomach must be ligated at each end before it is opened, and the section of intestine must be tied in like manner on opening the abdomen. It must not be forgotten, however, that air may be introduced into the stomach and intestinal canal during attempts at insufflation of the lungs, and that the gases in the stomach and bowels may be the product of putrefactive decomposition.

Merkel found air in the digestive tract of the new-born child only after thirty Schultze swings, never after other methods of insufflation. The mouth-to-mouth method he probably did not use.

Cardiac Movements.—As has been already stated, life terminates with the cessation of the heart-beats. If on auscultation over the chest the heart-sounds are heard after birth, or if cardiac movements can be felt by pressing the fingers up under the inferior costal border on the left side, or if the umbilical stump pulsates, the child is living, even in the absence of respiration.

Wreden's Test.—Wreden has called attention to the fact that at birth the middle ear is filled with epithelial cells and mucus, and that in the living child these substances are absorbed within a short time after birth. The presence of a cavity in the middle ear is therefore to be taken as evidence that the child had survived its birth.

Docimasia of the Circulation.—Coagulability is the property of living blood. The blood does not coagulate in the dead body. Hence ecchymoses or blood-coagula in the tissues of the body are proof that the child was living at the time the injury was inflicted, irrespective of the state of the lungs.

How Long did the Child Live?—It is not always possible to determine the length of time the child lived. The question, as a rule, can be only approximately decided. The facts which bear on its solution are the following: The skin sheds its superficial epithelium in the first day or two after birth, and remains red for a week or two. After this length of time it assumes a whiter appearance. The caput succedaneum subsides within from twenty-four to forty-eight hours after birth. Its persistence after death may be regarded as evidence that the child did not survive the birth for more than a few hours at the most. A blood-tumor (cephal-

hæmatoma) must not be mistaken, however, for the mere edematous swelling of the caput succedaneum. These bloody effusions usually persist for two or three months.

The umbilical stump, when exposed to the air, or if loosely covered with a dry dressing, remains in a fresh state for only a short time, becoming dark-colored and shriveled by the second day. In the course of two or three days more it assumes a horny consistency, and generally falls off by the end of the fifth day. Yet in exceptional instances the cord may not separate for a week or more. It must be borne in mind that changes simulating those which occur in the living infant may take place after death, and that the separation of the cord may occur from putrefactive causes after the child is dead. The wound which it leaves in the living child usually heals in the course of four or five days after the cord separates, yet complete cicatrization may be delayed for a variable period.

Obliteration of the umbilical vessels is complete in from six to seven days after birth. The umbilical arteries are closed within two days; the umbilical vein, ductus venosus, and the foramen ovale in the course of six or seven days. Yet these periods are subject to some variation, and it is not an uncommon experience in post-mortem examinations to find the foramen ovale persistent in the adult. The ductus arteriosus is obliterated in from ten to fifteen days.

The examination of the lungs will show whether respiration has been established. If the lungs are found in the fetal state the child has died either before or directly after the birth. Yet a condition of partial atelectasis, as has been seen, is not inconsistent with life for a few hours or even days.

A frothy condition of the fluid contained in the stomach is evidence that the child breathed and continued to live for at least several minutes—long enough to have swallowed fluid material which had been mixed with air in the mouth. The presence in the stomach of lanugo and particles of vernix caseosa from swallowed liquor amnii would indicate that the child had probably died within two or three days after birth, before these substances could be passed off. This conclusion would be borne out by the presence of meconium in the intestinal tract. On the other hand, if the stomach contains food and the meconium has been wholly evacuated from the bowels and replaced by feculent material, the child has lived for at least three or four days.

Among the substances that should be looked for in the stomach are milk, blood, sugar, and starchy material. Milk and blood can usually be identified by the microscope. The iodine test should be used for starch; Fehling's or the fermentation test for the sugar of milk or grape-sugar. If the precaution be taken to boil a portion of the stomach contents before testing, with dilute hydrochloric acid, any cane-sugar that may be present will be converted into grape-sugar.

Attention has been called to the bony nucleus in the lower epiphysis of the femur, as proof of full-term development. Growth of this ossific center beyond the maximum size at term would indicate that the child had lived for at least several days. The extent of ossific development in other bones should also be noted.

How Long has the Child been Dead?—The decision of this question is more difficult the longer the time that has elapsed after death. An approximate estimate is generally possible when the examination is held

within a week or little more post-mortem. The only medical evidence is afforded by the stage of decomposition. The rapidity of the putrefactive changes, however, will obviously depend on the temperature and humidity of the air and other physical conditions to which the body has been exposed. They go on more rapidly in the air than in other media. As has been already stated, post-mortem changes begin at a later period in the lungs than in most other structures of the body. Marked putrefaction in these organs is therefore proof that the body has been dead for a considerable length of time.

5. WHAT WAS THE CAUSE OF THE CHILD'S DEATH?

The essential question to be decided by the medical evidence in a case of alleged infanticide is the cause of death. Nearly twenty percent. of all children die before or shortly after birth from other causes than criminal violence. In premature births the death-rate is still greater, and is larger in proportion to the degree of prematurity. Male children are more liable to die during labor than female, owing to the somewhat larger size of the former and the greater difficulty of birth. So, too, children die in larger numbers in first than in subsequent labors of the mother, the proportion being one to eleven in the former and one to thirty-one in the latter. These facts must be taken into account in estimating the probability of death from natural causes. It is therefore necessary that the medical witness be familiar with the natural causes of death in the new-born.

NATURAL CAUSES OF DEATH IN NEW-BORN CHILDREN.

The fetus may die *in utero* or shortly after birth in consequence of malformations, asphyxia, operative or accidental violence, or from fetal or maternal disease.

Malformation.—Congenital defects are frequently met with. They may be found in any organ of the body and they seldom occur singly. Death from this cause takes place oftener after than before birth. Among the faults of development which are inconsistent with extra-uterine life are anencephalus, exencephalus, spina bifida with ulceration of the tumor, acardia, and certain other malformations of the heart. The heart may consist of but one auricle and one ventricle. The aorta and pulmonary artery are, in rare instances, transposed, the former coming from the right, the latter from the left ventricle. Atresia of the esophagus, imperforate rectum incapable of surgical relief, and marked ectopia of the abdominal or thoracic viscera are necessarily fatal. Under this head, too, are included malformations of the respiratory tract, which prevent free access of air to the alveoli of the lungs. Contraction of the conus arteriosus, and other malformations of the heart or large vessels which permit mixing of the venous with the arterial blood, are usually inconsistent with extra-uterine life for more than a limited period at most.

On the other hand, moderate microcephalus or hydrocephalus, spina bifida when not ulcerated, dislocation of the heart, valvular cardiac disease, persistence of the foramen ovale, transposition of the stomach or other viscera, exstrophy of the bladder, and intra-uterine amputation of limbs, do

not usually cause death. In occasional instances the subjects of moderate hydrocephalus live to an advanced age. Spina bifida is much more fatal when situated in the cervical region than in the lower portion of the spine. Monsters, in a large proportion of cases, die soon after birth.

Fetal Disease.—Congenital disease is an infrequent cause of death in the new-born. Among the diseases which are possible during intra-uterine life are cardiac affections, rheumatism, rickets, leucemia, general dropsy, scirrhus, and probably all infectious diseases. Examples of the latter which are known to occur in the fetus are syphilis, scarlet fever, measles, smallpox, cholera, typhoid fever, yellow fever, pneumonia, tuberculosis, erysipelas, and septicæmia. Other causes of death in the child are, metallic impregnation, parents too young or too old, the effects of alcoholism and certain other chronic diseases in one or both parents, nephritis, diabetes, and feeble fetal development.

Syphilis is responsible for more deaths *in utero* or soon after birth than any other fetal malady. It may be either of maternal or of paternal origin. When the mother is syphilitic every ovum cast off from the ovary is probably affected with the disease, and the child which is developed from such an ovum is syphilitic. If the father be syphilitic it is believed by many authorities that the spermatozoa contain the active cause of the disease and convey syphilis to the ova which they impregnate. When the mother is infected at the time of the fruitful coitus, or shortly before, the child is invariably syphilitic. Frequently, though not uniformly, it develops the disease when the maternal infection is contracted during the pregnancy. In something less than fifty percent. of syphilitic cases the pregnancy terminates in abortion. A large proportion of the children die *in utero* in the later months of gestation. Only a small percentage of those born alive long survive the birth.

In children born dead from this cause, the recognition of the disease is usually not difficult. Among the most conspicuous lesions of fetal syphilis are osteochondritis between the head and shaft of the femur and other long bones, and enlargement of the liver and spleen. On examining the cartilage which separates the diaphysis from epiphysis in the long bones and especially at the lower end of the femur, the line between bone and cartilage, instead of being narrow, clean-cut, and sharply defined, as in health, is found wide and irregular in shape and of a yellowish color. The liver is enlarged to one twelfth, frequently to one eighth, the body weight.

Asphyxia.—One of the commonest causes of still-birth is asphyxia resulting from premature attempts at pulmonary respiration. It is to be remembered that during intra-uterine life the respiratory function is performed by the placenta, after birth by the lungs. So long as the placental functions are perfectly performed, the child has no need of pulmonary respiration, and makes no effort to breathe. If the placental functions are wholly or partially suspended, respiratory movements are provoked by the air-hunger thus developed. This may occur before birth from compression of the umbilical cord, premature detachment of the placenta, partial or complete, profuse hemorrhage, and from undue compression of the placenta by violent and persistent uterine contractions.

If the first attempts at respiration take place in the absence of air while the head is still in the birth canal, usually liquor amnii, blood, vaginal mucus, or meconium is drawn into the trachea and bronchi.

Access of air to the alveoli and the lungs may thus be prevented after birth.

The essential element in the asphyctic condition is the venous stasis superinduced in the thoracic circulation by premature respiratory efforts. On expansion of the thorax in the first respiratory movements the capillaries of the lungs are filled by force of aspiration. In the absence of air, blood stasis is developed and congestion of the entire intrathoracic venous circulation. A secondary venous congestion is frequently developed in the general circulation.

Prolonged compression of the brain during spontaneous labor in narrow pelvis, or by the forceps in artificial extraction, may retard and arrest the action of the fetal heart in the absence of attempts at respiration through irritation of the pneumogastric nerve. For a full exposition of the pathology of asphyxia neonatorum the reader is referred to Lusk's *Science and Art of Midwifery*. The appearances found after death by asphyxia are described under Infanticide by Suffocation.

Accidents and Injuries.—The new-born child may die from accidental injuries sustained at the time of birth or soon after. Cases are frequently reported in which owing to unexpected delivery the child has fallen upon the floor or has been expelled into a water-closet.

Injuries sustained by falls owing to sudden expulsion of the child in dangerous places, as has been already stated, are not often severe enough to be fatal. Precipitation into a privy vault exposes the child not only to mechanical injuries but to the dangers of drowning, or of suffocation by noxious gases. In laceration of the umbilical cord death may take place from hemorrhage. Bouchut cites a case in which a stout cord had parted during delivery by forceps and the child had bled to death before birth. Yet the division of the cord without ligation is by no means necessarily followed by much bleeding. The funic stump is less likely to bleed when torn than when cut.

Umbilical or other hemorrhages may occur with a fatal result from other causes than non-ligation of the cord. Even when the funis is securely ligated, persistent and uncontrollable hemorrhage may take place from the umbilicus and from other regions of the body, owing to hemophilia or other causes.

In hemorrhage due to placenta prævia, or premature separation of a normally placed placenta, the child is frequently born dead or in a non-viable condition from asphyxia. In difficult breech extraction fatal injury may be done to the cervical portion of the spinal cord. In instrumental labors the fetal mortality is increased. Intracranial injuries may arise from compression of the head in difficult spontaneous births, especially in narrow pelvis.

In delivery in the absence of the physician the child is sometimes suffocated from lying with its face in a pool of blood and liquor amnii. In very rare instances the child is born with the membranes unbroken. This occurrence is much less frequent at term than in premature delivery. Though alive at birth, without interference the child dies by suffocation. The chest expands in the effort to breathe, but no air can enter the lungs. Deaths of new-born children from overlying are occasionally reported, the mother rolling over unconsciously upon the child in her sleep.

It is the duty, therefore, of the medical jurist in passing upon a case

of alleged child-murder to examine the child for marks of violence attributable to the birth, and for other accidental causes of death, as well as for the evidence of crime.

Maternal Disease.—Many acute diseases of the mother are liable to result in the death and premature expulsion of the fetus. The child may die by the direct influence of the disease poison, by the effects of the disease upon the maternal pelvic circulation, or from excessively high temperature. In case of the death of the mother during gestation the child dies *in utero*. In protracted sickness the death of the fetus usually precedes that of the mother. When the mother dies suddenly, the child generally survives her by a period seldom exceeding five or six minutes.

It is the duty of the physician when present at the death of the mother during pregnancy to immediately extract the child if it gives evidence of being alive and viable. Post-mortem delivery may be rapidly accomplished by deep cervical incisions and extraction with the forceps or by the feet. A post-mortem Cæsarean section, however, if the consent of the friends can be had, is the preferable method. Delivery by abdominal incision is more rapid than is ordinarily possible by the natural passages, and the child is less exposed to injury. The operation must generally be done within six minutes after the death of the mother; yet cases have been reported in which the child lived four or five hours after the mother's death, and living deliveries have been accomplished after an interval of thirty minutes.

Pathological conditions of the placenta liable to result in the death of the fetus by interruption of its nutrition are degeneration of the chorial villi, apoplexy, thrombosis, and retro-placental hemorrhage. Exceptionally, hydramnios is attended with intra-uterine death of the child.

CRIMINAL CAUSES OF DEATH.

Infanticide by Suffocation.—A common method of infanticide is by suffocation. A handkerchief or cloth may be thrust into the mouth either before or after the establishment of respiration, or the nose and mouth may be forcibly held till death ensues. Cotton, feathers, and other similar materials, and even liquid substances, have been used for the purpose of obstructing the respiratory passages. The child may be smothered by covering it closely under the bedclothes. The vapors of chloroform, illuminating gas, and other poisonous gases have been administered by inhalation with criminal intent.

The post-mortem appearances after fatal suffocation are the same in the new-born as in adults. The skin is of a general livid color and studded with ecchymotic patches, the face is swollen, and the superficial veins turgid. The conjunctivæ are injected and the eyeballs protruding, yet the fullness of the superficial blood-vessels subsides in great measure within a few hours after death.

If the child had breathed, blood and frothy mucus exude from the mouth and nostrils.

Ecchymoses and imprints of the fingers or nails on the nose and mouth may be present. The presence of poisonous gases in the respiratory tract is usually betrayed by their odor.

In fatal asphyxia by smothering under the bedclothing it is rare to find other than internal lesions.

Foreign bodies should be looked for in the air-passages. The blood is generally fluid. The principal viscera are more or less hyperæmic.

The lungs usually present the marks of blood stasis. A fairly constant condition is the presence of small subpleural hemorrhages. They may be few in number or may be thickly diffused over the surface of the lungs. They occur most frequently at the root and lower border of the lungs. (Plate VI., Fig. A.) Similar hemorrhages are found in the thymus gland, the pericardium, endocardium, and in the pericranial cellular structure. Yet subpleural ecchymoses are of common occurrence in death from other causes than suffocation. They are significant of death by violence only when the child has breathed, since they are sometimes found when the lungs are still in the fetal state. They occur in death during birth, from compression of the umbilical cord. They are to be attributed to efforts made to breathe. They are of value as indicating the mode of death only when taken in connection with other post-mortem findings.

The ecchymotic spots of suffocation must be distinguished from those of cholera, purpura, and grave forms of eruptive fevers. In the former the ecchymoses present a dotted appearance, and the spots are rounded, clear-cut, and distinctly circumscribed. In the latter they are irregular effusions of a purplish color, and are associated with the characteristic lesions of the disease.

In poisoning by phosphorus, strychnine, or prussic acid, ecchymoses are found resembling those last described, and the presence of the toxic substance is revealed by chemical analyses.

If it is claimed by the defense that the child was suffocated during the birth then little or no air should be found in the lungs. Evidence that respiration had taken place increases the probability of death from homicidal causes.

A child may be buried alive, the mother claiming that it was buried after death. In asphyxia by burying the characteristic lesions of suffocation are observed, and portions of the same kind of material that surrounds the body will generally be found in the esophagus and stomach. After death, it may get into the mouth or throat but no farther.

Infanticide by Strangulation.—Among the different methods most frequently employed for the destruction of new-born infants is strangulation. The neck is constricted by ligature or by manual compression. Cases have been recorded in which the fatal ligation was accomplished by tying the umbilical cord about the throat.

The most conclusive signs of death by strangulation are the appearances at the site of ligation. The mark of constriction is frequently apparent, and the superficial structures above and below are ecchymosed and edematous. The imprints of the fingers and nails may be perceptible. When great violence has been used, the skin at the seat of constriction may be abraded and torn and the muscular structures contused and lacerated.

The face is usually congested and edematous and the eyes protruded. Ecchymotic spots are present upon the conjunctivæ; they are seen, however, after death from other causes than strangulation. Extravasations of blood are frequently found in the deeper structures on dissection, when not visible to any extent upon the surface. There is usually great vascular engorgement in the lungs, though in a certain proportion of cases these

organs present a normal appearance. Emphysematous areas in the lungs and pulmonary apoplexies are frequently observed. The brain and meninges are violently congested. In general the post-mortem findings are the same as in the adult after death by strangulation. The lesions of strangulation, however, are not easily differentiated from those of suffocation.

Little confusion need arise from the existence of other marks upon the body resembling those of strangulation. The mottling of the skin which is common after death from other causes is not attended with ecchymoses. The absence of edema and venous engorgement in suffocation serves to distinguish it from strangulation.

If it be urged that the injuries sustained were innocently inflicted by the mother in attempts to deliver herself, the answer will be that at the time when such efforts would be required, while the body of the child was still partly in the uterus, the respiratory function would have been maintained through the placenta, and strangulation would at that time be impossible. Again, if the child had died in the act of birth little or no air would be found in the lungs by the usual test. Nearly the same argument would apply in refutation of the claim that the child had died during birth from the winding of the cord about the neck. Furthermore, it is very rarely that the coiling around the neck, when accidental, is sufficiently tight to strangulate the cord.

Infanticide by Precipitation into a Privy Vault.—Infanticide by precipitation into the vault of a privy must be distinguished from cases in which the body has been deposited in the privy after death for the purpose of concealment. The presence of night-soil in the air-passages and stomach may generally be regarded as evidence that the child was living when it was placed in the vault. If it be claimed that the woman, unaware that the birth was so near completion, had innocently expelled the child into the water-closet, the medical facts should accord with this explanation. If, for example, the cord be found to have been cut instead of torn the defense will be discredited. In some instances a close inspection of the ends of the divided cord may be required to determine whether it was sundered by incision or by laceration. The post-mortem appearances usually present after death by drowning should be looked for.

Infanticide by Drowning.—The methods of child-murder most commonly employed are those already discussed. Drowning is a mode of infanticide but seldom practiced, yet a case is mentioned in which a woman caused the death of her child by getting into the bath-tub partially filled with water, as the birth was about to be completed, and forcibly holding the head under water. Accidental drowning, as already stated, may result from sudden and unexpected delivery, by the expulsion of the child into a privy vault. Not uncommonly the body of the child, after destruction by other means, is thrown into the water for the purpose of concealing the evidence of crime.

In all cases of drowning it is extremely difficult to determine by the medical evidence alone whether death was due to accidental or criminal causes. In case of alleged drowning careful search should be made for marks of violence such as obtain in other homicidal methods. The body should be examined for proofs of suffocation or strangulation, and for other evidence of violence, accidental or criminal. The fauces and

trachea should be searched for obstructing material which may have been placed there with criminal intent, as well as for the usual causes of asphyxia by accident in the new-born. The presence in the stomach of liquid or other material like that contained in the vault would be proof positive that the child was living when thrown into it. These substances could have gained access to the stomach only by the act of swallowing. In the dead body they could go no farther than the mouth and nares.

Infanticide by Wounds.—When wounds are found on the body in cases of alleged infanticide, the medical witness will be called upon to testify whether or not the existing wounds were competent to cause death, and whether they were inflicted upon the living child or were post-mortem injuries. The first question will be determined on general medical grounds by the location and extent of the injury. To answer the second is sometimes difficult. Discolored patches upon the skin should be dissected to distinguish ecchymoses from the simple blue coloration which is commonly seen about the lips and nose of the new-born after death. Wounds resulting from labor usually occupy the presenting part of the fetus. Yet the death of the child may result from luxation of the cervical vertebræ in unskillful delivery. Abrasions, ecchymoses, and even lacerations of the skin, are frequently found after difficult births, even in the absence of instrumental interference.

Wounds inflicted during life are usually distinguished by the evidence of hemorrhage, and, if the child lives sufficiently long after the infliction of the injury, by signs of repair or of inflammatory action. Apparently insignificant wounds, and even so small as to escape any but the closest scrutiny, may be fatal where vital organs are involved. The wound may pass undetected when the puncture is made through the mouth, the navel, the orbital cavities, or other natural openings. These cavities, as well as the fontanelles and the surfaces overlying other vital organs of the body, should be carefully scrutinized. In death by extensive wounds the body may present the marks of extreme anemia from acute hemorrhage. In case of suspected complicity of the medical attendant in the crime, the fetus and the pelvis should be examined for evidence of any condition that may have justified the mutilation of the child.

Fractures of the Skull.—Fractures of the skull in the new-born are not necessarily evidence of homicidal violence. They sometimes occur from accidents of difficult or precipitate labor. It is not always possible to distinguish fractures produced after from those occurring before death. A distinguishing mark in post-mortem fractures is the almost complete absence of bloody effusion. This is always present in such injuries when sustained during life. "Extravasation indicates movement of the blood toward the part affected." In case of wounds inflicted a sufficient length of time before death, the signs of inflammation will be observed. Fractures from the pressure of the pelvic walls upon the head during the birth are of extremely rare occurrence. Such cases, however, have been recorded. Depressions of the skull by the sacro-vertebral promontory in deformed pelvis are situated on the anterior part of one parietal bone or on the frontal or the temporal near the parietal. They are seldom fatal.

Skull fracture in the new-born from other causes than criminal, as has been seen, may result from unexpected delivery while the woman is in the standing posture. A full history of the confinement will obviously

form an essential part of the data upon which the conclusions of the expert are to be based.

Infanticide by Neglect.—Under this head are to be mentioned exposure to cold, starvation from willful omission to feed, and purposely neglected accidents.

Examination after death resulting from exposure to cold will reveal nothing pointing specifically to the fatal injury, yet it will be important for the purpose of deciding whether or not an explanation of the death may be founded on other grounds. In death from this cause the lungs contain air, showing that the child had breathed. The body presents no marks of violence. The entire absence of food in the digestive tract would raise the question of death by starvation. Death would not occur from the latter cause alone in less than a week, and the body would be greatly emaciated.

The child may die of asphyxia from willful neglect to remove the tightly coiled funis from the neck; it may purposely be allowed to lie with its face in a pool of liquids discharged from the birth canal; or umbilical hemorrhage may proceed to a fatal termination in consequence of omission to tie the cord. Even the failure to obtain medical aid in asphyxia, convulsions, or other maladies of the new-born, when they terminate fatally, must be classed among the criminal causes of death if willful neglect can be proven.

GENITO-URINARY AND VENEREAL AFFECTIONS IN THEIR MEDICO-LEGAL RELATIONS.

BY

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IN the article which has been assigned to me I propose to consider the affections of the genito-urinary organs in men and women in their bearing upon the marital relation, and the results which venereal diseases—and by these I mean gonorrhœa and syphilis—have upon the bearers of the diseases as well as upon their offspring. To properly discuss the effects of these diseases in their medico-legal relations I propose to divide them into the following groups:

First. Impotence in the male.

Second. Impotence in the female.

Third. Sterility in the male.

Fourth. Sterility in the female.

Fifth. The effects of gonorrhœa in its sexual relations; and

Sixth. The effects of syphilis upon the bearers of the disease and upon the children which may be born to them.

My portion of this article will be entirely confined to the medical side of these affections.

Impotence in the Male.—This affection is due to two causes, one physical, the other psychical, the first having its origin entirely in some physical malformation or physiological perversion, congenital or otherwise, and the other depending upon mental disturbances or impressions, whether originating from without or within the patient's mind. The physical causes are the ones which I shall first examine, and those of the penis are the foremost to invite attention.

Sometimes there is a congenital absence of the virile organ, while all the other parts are more or less perfect (entirely apart from any question of hermaphroditism), the man being in perfect health, with all the external symptoms of virility such as are apparent in the face and in the contour and shape of the body. The scrotum is present, with the testes in their normal place, but at the spot where the penis should be nothing is apparent. The urethra, in these conditions, usually opens behind the scrotum, in the perineum, as a small opening concealed by a fold of skin, sometimes seated behind a little excrescence, looking like a cockscomb, and communicates directly with the bladder, simulating somewhat the appearance of the female meatus. It will be noted that in this case there can be no question of hermaphroditism. There is no appearance

or simulation of any of the female genitalia, the subject being, to all intents and purposes, a man, except that he has no penis.

Sometimes, however, the condition of things does not go quite so far as entire absence. In this case the malformation may be simply in the diminutive size of the penis, which varies from half an inch to two inches in length, and is capable of more or less complete erection, unless it be tightly bound to the scrotum. Under such circumstances the subject need not necessarily be impotent. He is capable of intromission within a certain distance, and, providing the ejaculation of the spermatic fluid be complete, the man may be the father of a family. Excessive smallness of the penis is not, therefore, a bar to the completion of the sexual act nor to the exercise of marital duties; but the condition is different in those cases known as a palmate penis—that is to say, where the penis is adherent to the anterior raphe of the scrotum and where it is then bound down, mechanically, during any attempts at erection. This condition of affairs is, however, easily remedied by freeing the penis, when the physiological functions of the organ are restored to their normal condition.

The opposite condition may also act as a bar to the sexual act, where the penis is inordinately large—and I do not mean enlarged from elephantiasis, but where the whole organ seems to be abnormally and equally developed, and where intromission into any ordinary vagina is impossible. Under these circumstances the man, although capable of complete erection and of the performance of the sexual act, is impotent from the disparity between his genitals and those of the average woman.

Another cause of masculine impotence is due to the fact that the penis is sometimes double for a greater or less extent of its length, each organ having its own urethra. These unite posteriorly into one canal and one penis, finding their termination in a single bladder, both organs from their point of bifurcation emitting two streams of equal size during micturition and being capable of double seminal emission. Under such circumstances it is possible that a man may have connection, as is noted in the case of a patient reported by Isidor Geoffroy St. Hilaire. This man, it is stated in the report, never engendered anything but twins. This last statement I do not claim to pass judgment upon, as it seems to me, unless two ova were deposited in the uterus at the same time for fecundation, that it would make little difference how many virile organs entered the woman at the same connection.

Another reason for the non-performance of the sexual act is due to a curious malformation which has been noted by many writers, viz., that at some portion of the penis a deposit occurs in the corpora cavernosa which prevents the complete distention of the organ. Sometimes this results from calcareous deposits, from inflammation (gonorrhoeal or simple), or from an injury done to the organ by “breaking a chordee,” as it is called, and sometimes from syphilitic exudations. Where it results from gonorrhoea or syphilis it is, as a rule, curable, but where it is caused by violence or injury done to the canal, or where it occurs idiopathically, little can be done by treatment, although some cases are reported to have recovered spontaneously. Under these circumstances the penis is turned either to one side or the other, or, as I have seen it in one instance, where the exudation was annular, one half of the penis remained entirely flaccid while the posterior half was erect. Intromission and sexual intercourse are usually impossible, although if the penis be merely twisted,

while erection is complete, coitus, with a little management, may be accomplished.

Again, besides these pathological causes there may be complete torsion of the penis upon its axis during erection, as is noted in the case reported by Guerlain (*Bulletin de la Société Anatomique*, 1859, 2^e serie, t. iv., p. 27), in which the penis, during erection, was completely rotated in such a manner that the dorsum of the penis became the under-surface, looking backward toward the scrotum, while the urethral aspect was turned uppermost and a little to the left.

Sometimes the corpora cavernosa present anomalies, either being atrophied or even going so far as to be completely absent. Such a case is reported by Delbarrier (*Annales de la Médecine Belge*, 1842, Mai, 5^e Cahier, p. 10).

In most of the malformations considered above, it is apparent that the patient would be impotent from purely physical causes, without the mind exercising any influence as regards the sexual act. Another variety of physical deformity which sometimes acts as a bar to complete coitus is seen in cases of hypospadias. Epispadiacs, as a rule, are capable of copulating properly, notwithstanding that their sexual organs may not be perfectly normal, and the same is true, to a certain extent, among hypospadiacs. Provided that the hypospadias be in the anterior portion of the urethra, in such a position that during emission the semen can be ejaculated within the labia majora, coitus will be successful; but where the hypospadias is far back, say at the penoscrotal or behind the perineoscrotal angles, the emission which takes place of course does not reach the vagina, nor even probably the external vulvar lips in the female, and therefore becomes of no effect. Sometimes these cases are remediable, in others not; and of course when the latter condition obtains, the patient will have to be classed among those who are physically impotent.

Phimosis, particularly if congenital and adherent to the surface of the glans penis, or where the orifice is exceedingly small, may sometimes be the cause of impotence in the male, by preventing the emission of the semen into the vagina, the entire charge being pocketed in the elongated and distended prepuce and only being evacuated by the manual interference of the patient. In the majority of instances, unless the adhesions are exceedingly firm and extensive, the evil may be remedied by circumcision.

Stricture of the urethra, when seated far back and when tight, oftentimes acts as a bar toward the completion of the sexual act, and I have seen cases in which the stricture was so tight that during the excitement and turgescence consequent upon the copulation the entire seminal discharge was forced backward into the bladder, but a few drops escaping *per urethram* during the act. The first micturition after the act showed the urine full of spermatozoa. The patients in these cases always complain of a great fullness in the perineum, sometimes accompanied with a momentary sensation of sharp pain, probably due to the enormous distention of the urethra at a point where the obstruction was present, and which was relieved as soon as the semen found its way backward.

Anomalies of the testicle are another cause of impotence, and in these instances they may be such as to lead to a condition of azoöspERMATISM in which healthy spermatozoa are not secreted. This is especially noticed in the case of monorchids in whom the testicle is retained in the abdo-

men or at the inguinal ring. Where this occurs the patient is not only sterile, but he also is impotent: the erections are incomplete or evanescent, and whatever seminal discharge there is, ejaculation occurs so prematurely that frequently the patients have finished the sexual act before gaining entrance into the woman.

Sometimes the testes are found to be congenitally atrophied. In an interesting case given by Roubaud (*Traité de l'Impuissance et de la Stérilité*, p. 161), the patient, twenty years of age, showed a penis which, on erection, was about the size of a porcupine's quill and only two inches in length, and in whom the testes had only attained the size of a hazelnut; and these latter, upon contraction of the scrotum, would disappear entirely into the inguinal canals.

Atrophy may also result as a consequence of gonorrhœal epididymitis, varicocele, and syphilitic orchitis, and in all three affections the atrophy is usually permanent and past cure.

The question of hermaphroditism naturally presents itself in these cases of sexual perversion, but so far as their sexual aspects are concerned they need not concern the surgeon, for the simple reason that in nearly all instances the hermaphrodite may be classed as either male or female, and a careful examination should enable the surgeon to place the hermaphrodite as either a man or woman. The crucial tests in these cases are the presence or absence of the catamenia and the presence or absence of the sexual emissions; and where one or the other of these functions can be shown to exist the establishment of the patient's sex follows as a natural consequence. Some cases are spoken of as being neuters, in whom the sexual condition seems to be so evenly divided as to make it difficult of decision; but such cases are very rare indeed, and I am myself strongly disposed to doubt their existence. Occasionally, in the case of female hermaphrodites, the surgeon will be sometimes puzzled by being told that the catamenia have never appeared; but upon careful examination in these instances, where all other indications point toward the feminine sex of the patient, the monthly discharge of blood will be found to issue from some portion of the body outside of the sexual organ—in other words, they are cases of vicarious menstruation.

Besides the physical causes for impotence in the male just enumerated, the mental condition of the patient sometimes operates to prevent normal coitus. Those who have much to do with the treatment of sexual disorders in the male have been struck with the curious phases which this mental condition sometimes assumes. For example, some men who are perfectly well formed, vigorous, healthy, and capable, as has been shown by experience, of performing the sexual act, are rendered completely impotent unless the usual conditions to which they are accustomed are all fulfilled at the time of connection. One most curious instance of this mental condition is given by Roubaud (*op. cit.*, p. 439 *et seq.*), in which the patient, when a boy of fourteen years of age, was seduced by a female friend older than himself, a member of his family. The girl herself was a pronounced blonde, wore ringlets, and inasmuch as the forbidden pleasure had to be done by stealth their amorous relations were accomplished when both were fully dressed. These relations lasted for some time, and the young man finally left home and went into the army. Upon trying subsequently to perform the sexual act, he found to his extreme astonishment that every woman was repugnant to him un-

less she was a blonde, wore her hair in ringlets, and was fully dressed. Under these circumstances he could perform the sexual act with vigor and complete satisfaction, but for another kind of a woman, brunettes especially, and under any other conditions, as, for example, when undressed and in bed, he had such an aversion that he was practically impotent. Such was the force of imagination and of habit upon his sexual powers. Now the sequel is just as curious. With the perversity of human nature, he fell in love with a brunette, and it was this unfortunate condition of affairs that induced him to consult Roubaud, who gave him a potion which he told him to take, and bade him make an attempt at coitus with the brunette two hours after its ingestion, assuring him of success. The draft was taken, the man went to bed, and although no coitus was attempted at that time the patient had during the whole night a violent erection, with strong sexual desire. Apparently, from the history of the case, the reason why coitus was not attempted was from the fear that it would prove a failure. However, the next day he consulted M. Roubaud again and wished to know if he might use the draft a second time. Inasmuch as it contained a large dose of cantharides, M. Roubaud refused to give his permission, but substituted another one in which the amount of cantharides was very much reduced, and told the patient to take that. The man, having been convinced that he had at last obtained an agent which would at least overcome the physical results of his aversion to brunettes, took the second draft, and going to bed with the woman the second night accomplished his purpose and thus conquered his curious and seemingly irrational aversion to brunettes or to attempting the sexual act except when fully dressed.

This is an extreme instance of what mental impressions will do in causing perversion of the sexual functions; but not infrequently surgeons are consulted by patients who state that, while the sexual desire is strong up to the point of going to bed, the moment coitus is attempted the erection disappears and with it all possibility of intercourse. The same condition often ensues from the unreasonable fear that the attempted connection will end in failure. There is no physical reason for this dread: the patient is perfectly capable of performing the sexual act; and yet when he is with the woman he is perfectly useless as a bedfellow; and oftentimes the mere dread of failure, if failure has once occurred on attempting coitus, puts an end to all future attempts. There is often a physical cause for this mental disturbance, such, for instance, as hyperæsthesia of the deep portions of the urethra, slight and irritable urethral strictures, hemorrhoids, fissures of the anus and rectum, or a subacute inflammation of the neck of the bladder; and the well-informed surgeon will carefully search, in such cases, for any physical cause to account for the patient's sexual condition, and if such exists, by removing the physical cause cure the sexual disturbance.

Glycosuria is another of the causes which are mentioned as a possible source of impotence in the male, particularly in the latter stages, when all sexual desire and all sexual power seem to be either in abeyance or else completely lost, and in addition there also appears to be a diminution in the amount of the semen secreted.

Renal diseases, especially that condition of the kidneys known as atrophy, inflammation of the prostate, especially when associated with marked hypertrophy, and affections of the neck of the bladder, coexist-

ing or associated with the prostatic hypertrophy, may all be causes of impotence in the male and interfere materially with sexual desire as well as with erection.

Eversion of the bladder is another cause of impotence, not so much on account of the protrusion and eversion of this viscus, but from the fact that, associated with it, there is very often a malformation of the penis, usually either complete hypospadias or epispadias. In one instance which I have seen lately, the patient was entirely epispadiac, the lower portion of the penis being fairly well formed, but the upper portion was entirely wanting. The urine was secreted by the bladder and ran into a gutter which was formed of the inferior portion of the urethra. The corpora cavernosa were imperfect, and he never had any erections, although he stated that he occasionally had sexual desires, but, of course, without any possibility of gratifying them.

Sometimes the lack of erection appears due to an imperfect circulation of the blood in the penis, and I am of the opinion that it is generally associated with some congestion of the deeper portion of the urethra (usually prostatic), with prostatic enlargement or with some inflammation of the neck of the bladder.

Sexual debility and impotence have often been ascribed to masturbation, and undoubtedly, if the habit be resorted to intemperately, it may weaken the sexual power; but I am by no means in accord with those writers who regard the masturbation of early youth, as generally practiced by boys and adolescents, as a cause of serious sexual disorder later in life. A great deal of the functional disturbance which occurs in these cases is due to the mental impressions made by reading the various books and articles which describe, in glowing and fearful terms, the sexual penalties which the masturbator pays for his trifling amusement, and to the fact that masturbators very frequently suffer from deep-seated urethral inflammations, situated about the bulbous urethræ, and from there extending backward toward the bladder. These disorders are purely functional and generally yield to appropriate and rational treatment; though evanescent in character, they nevertheless are, to all intents and purposes, while they last, as serious a cause of impotence as though this latter was due to some organic defect.

Impotence in the Female.—The female being a passive agent in the copulative act, impotence in her plays a minor part as compared with that of her more active partner. The principal causes of impotence in the female are those of an organic nature, as, for example, where the vulva is absent, where the vagina is absent, or where the vagina ends, as it does in some instances, either in the bladder or in the rectum, constituting a vesicovaginal and rectovaginal malformation. Impotence, therefore, is partial or complete according to the nature of the organic lesion, being complete where there is absence of the vulva or vagina, and incomplete if the vagina be moderately developed—that is to say, if it be two inches in length; and instances have been known where coition has been complete in still more undeveloped vaginae. Of course connection is more complete in the instances where the vagina is more nearly normal in length, but ends, perhaps, in the bladder or rectum.

Absence of the uterus would not constitute a bar to perfect coitus so far as the female is concerned, but would constitute another kind of trouble which I shall consider when I speak of sterility.

In the woman, as in the man, extroversion of the bladder would also be a bar to intercourse, especially if, as is sometimes the case, there is an extroversion of the anterior vaginal wall, what would be the posterior wall of the bladder forming the anterior wall of the vagina; and in these cases very often there is an absence of the uterus, so that the canal is practically undeveloped.

Besides these causes of impotence in the female, the question arises how far an imperforate hymen may act as a bar to coitus. This membrane has been supposed to stand as the symbol of virginity, and its absence to be suspicious of antenuptial impurity; but such is by no means the case. Hymens differ very much with regard to their toughness and the completeness with which they protect the vaginal opening. Some are very slight, trifling bands of tissue placed at the entrance of the vagina, and are easily broken by an accident, such as a sudden fall, violent and excessive horseback-riding, physical exercise, etc.; others, again, are exceedingly tough and resistant, so much so that when the time arrives for the final consummation of the marriage the man finds himself baffled in every attempt to gain entrance. This resistance may be so marked that nothing short of a surgical operation will remove the difficulty, and it is mentioned here as it has occasionally been made the starting-point of proceedings for dissolving a marriage. But, fortunately, it need not proceed to this, because a simple surgical operation will usually suffice to obviate the difficulty.

Another symptom, which is more serious and important, is that which is known as vaginismus, a peculiarly irritable condition of the vulva and the introitus vaginae, which causes in the woman extreme pain upon every attempt at coitus, and this pain is sometimes so excessive as to induce a perfect horror at the idea of sexual intercourse, and terror at the approach of her husband. Under such circumstances, if the case, as occasionally happens, is incurable, the question might arise whether the man might not be justified in seeking a divorce on the ground of the wife's incapacity for carrying out the marital contract, and cases are on record in which such a view has been sustained.

Another curious malformation, which, however, need not necessarily be a bar to the complete consummation of the marriage, is that in some women the vagina and uterus are double, sometimes the vulva also; but in all these instances one of these passages seems to be more used than the other, sometimes entirely so, and the woman may even have children under those circumstances. Each vagina and each uterus seems to be perfect in itself, and appears to be analogous in the female to what a double penis is in the male, only that in the female there is less impediment to the sexual act.

There are occasional instances where hysteria, pure and simple, seems to play a part in preventing coitus, which are analogous to the psychical impotence of the male. Such cases, where unassociated with any physical defect or deformity in the female, are rare. They are usually conjoined with the condition of affairs which has been described under the head of vaginismus, and in many instances a cure of the physical defect is a key to the remedy of the entire trouble.

Sterility in the Male.—This occurs in all affections of the testes in which the secretion or elimination of the spermatozoa is interfered with. It may be due to the absence of these bodies, either congenital or acci-

dental (from injury or from ablation); but there are causes which interfere with the transmission of the fully formed spermatozoa from the testicle to the vesiculæ seminales, although the testes may be, to all outward appearances, perfectly sound and healthy, this interference being due to a blocking up of the vasa deferentia from the following causes:

1. The most frequent is gonorrhæal epididymitis.
2. Syphilitic epididymitis.
3. Tubercular epididymitis.
4. Syphilitic orchitis.
5. Tubercular orchitis.
6. Cancerous or sarcomatous orchitis.
7. Atrophy from an injury or a blow; and
8. Atrophy from a long-standing varicocele.

In addition, I think that varicocele, except in its earlier stages, interferes very markedly with the act of coition, and that it finally results in the production of both impotence and sterility; and I beg the reader to note—what perhaps I have not said in so many words—that there is a difference between impotence and sterility. A man may be impotent and yet perfectly fruitful, and, on the other hand, a man may be perfectly potent and yet unfruitful. Sterility is entirely separate from the question of impotence, and depends upon any cause, whatever its origin, which interferes either with the secretion of the spermatozoa or with their transmission from the testes to the natural receptacle for their storage.

Sterility may be temporary, as, for example, in cases where men indulge excessively in either masturbation or in venery, and in these cases the semen, if examined, will be found to become gradually diminished in quantity and less endowed with spermatozoa. These bodies are imperfectly formed and are oftentimes broken, and in cases where the debility is extreme the semen is composed of a thin, viscid fluid filled with colloid bodies and exhibiting no spermatozoa at all. This condition, unless the disorder is deep-seated, is usually amenable to treatment and one from which the patient, in time, recovers. Such cases need not have any important bearing so far as the medico-legal aspect of the case is concerned.

Sterility in the Female.—One of the chief factors of sterility in the female is absence of the ovaries, either congenital or acquired—that is to say, due to a surgical operation. Under such circumstances, of course, a woman is no longer fruitful and is incapable of bearing children.

Other causes of sterility in the female are extreme version or flexion of the uterus, in which the cervical canal is so much occluded that the spermatozoa are prevented from entering the uterine cavity.

Another source of sterility in the female seems to be due to an exceedingly acid condition of the uterine and vaginal secretions, in which the spermatozoa are killed almost immediately or shortly after being deposited in the vagina and in the cervical canal, and so fail either to find their way into the body of the uterus, or else, if they do find a lodging there, practically arrive in a dead or dying condition.

In these cases, both of impotence and sterility in the two sexes, some would undoubtedly, in a medico-legal sense, be a bar to any question of matrimony, and perhaps might be a just reason for divorce, where the

impotence or sterility was dependent upon causes impossible of removal. But in many cases these affections are remediable, and a return to health would ensue not only if these conditions supervene after marriage, but even if they are coincident with matrimony, particularly where the cause is complicated with sexual or nervous disturbance—I am getting more and more to regard these cases of mental disturbance as dependent upon a physical basis—and it then becomes a nice question to decide how far the surgeon is justified in advising matrimony as an assistance to the cure, and how far he is properly bound to counsel his patient against matrimony in order to prevent unhappiness to both parties to the marital contract.

Venerae Diseases of Both Sexes, in Adults and Children.—For the purposes of this article I shall consider only two venereal diseases, gonorrhoea and syphilis; and I shall take up first the consideration of the disease as it appears in the male, and its consequences; next, the malady as it appears in the female, and its consequences; and lastly, the results upon their offspring.

Gonorrhoea, or, as it is frequently called, urethritis, which is perhaps a better name, is simply a catarrhal inflammation of the urethral mucous membrane in the male and the urethral and vaginal mucous membranes in the female. Since the discovery, by Neisser, of the gonococcus which goes by his name, it has been believed by many writers upon venereal diseases that these bacteria are the cause of gonorrhoea, and that where these microscopic bodies are absent the disease is not gonorrhoea, but a simple urethritis. I am not ready to fully accept such a conclusion, as I have seen instances in which the gonococci were absent and yet the disease ran, to all intents and purposes, the same course precisely as an ordinary clap. I will, however, admit that, given the presence of the gonococcus of Neisser in the urethral or vaginal discharges, it would go far to prove the existence of gonorrhoeal infection and that the disease was not simply catarrhal in nature; but the absence of these gonococci in any given specimen of the so-called gonorrhoeal pus would not, I believe, authorize the surgeon to say that the disease was simply a catarrhal affection. The logical sequence of such an opinion would be disastrous, inasmuch as he would permit his patient to have intercourse with innocent people, to their detriment. The existence of these bodies, therefore, is of value only when they are present; but the reverse, that is to say when they are absent, does not prove that the character of the discharge is non-infectious.

Now as to the modes of infection. The time-honored and customary manner is by cohabitation with a gonorrhoeal person, be the same male or female. But there are other ways of catching a clap. Nearly all surgeons admit that the leucorrhoeal discharge in the female, apart from the question of gonorrhoea, will very frequently produce an irritation in the male urethra which, call it what you like, is, to all intents and purposes, a clap, and the same is also admitted, within certain limits of reserve, as possibly occurring from the menstrual discharge of a woman, particularly if the man have connection with the woman just before or after her flow. Of course every vaginal discharge in a woman is not necessarily gonorrhoeal, and it often becomes a nice question to decide whether any given secretion from a woman, which is said to have been the cause of disease in the male, is benign or otherwise. If the discharge

from the woman should be found full of gonococci, or if the secretion which comes from the vagina can also be pressed out of the urethra, the verdict would be rather against the woman, as I know of no disease except gonorrhœa which will produce a purulent discharge from the latter canal in the female. But if no gonococci are found the woman should receive the benefit of the doubt and be considered as one of those unhappy persons whose vaginal secretions are a standing menace to every male—no, not every male, because most men become accustomed to the vaginal secretions of their wives or mistresses and suffer no injury, where others who poach upon forbidden ground are the worse for it. To quote Ricord's famous dictum, the husbands are "acclimated."

Paradoxical as it may sound, it is possible for a man to contract an urethral discharge from a woman who absolutely shows no signs of disease. The man is the cause of his own clap. Many men, after intercourse, are straightway filled with a dread of impending infection and repair to the druggist for an injection "against clap." This they immediately use with assiduity, to find out, alas! that things are not what they seem; instead of preventing the clap, they have brought it on. Forthwith the old cry: "The woman did tempt me;" but when the woman is examined she is found to be entirely sound. If the man had waited to find out whether he really had a clap he might have escaped the necessity of treating one. There is an unique case given by Amédée Latour in a footnote to Ricord's *Lettres sur la Syphilis*, p. 51, in which a clap was stated to have been caught without intercourse with any female. Venereal surgeons are asked to believe many curious statements, but I frankly declare that if a patient offered such a story to me as the ostensible cause of his clap I should doubt him. The case is that of a young man who, from 10 A.M. to 7 P.M., was engaged in the delectable occupation of attempting to overcome a young woman's virtue. She proved the victor in the encounter, and the unfortunate man, having suffered violently from priapism during the time thus spent, later on nursed a severe clap which lasted for forty days. He is said to have been continent for six weeks previously.

I must mention one other source of contagion which is often presented to the surgeon's attention. A man comes to him and says that he has a discharge, which, upon examination, proves to be an active and healthy gonorrhœa. The surgeon so informs him, when the patient hastens to assure him that it cannot be, for he has had no intercourse, and then with an air of innocence inquires if it be possible to catch it in the water-closet. I know of no better reply to make than the time-honored gag that it is possible, but it is a nasty place to take a woman! Such a plea the surgeon may listen to from politeness, but he never seriously entertains the idea that a clap can be taken from the water-closet seat, any more than it can be derived from a pair of trousers borrowed from a friend "who had a running," which has been gravely advanced to me as the explanation for the existence of a clap.

There is really but one way of catching it—*per coitum gonorrhœa fit*; but when we come to speak of syphilis I shall show that it is possible to contract that disease in other ways besides copulation.

An interesting point comes up as to how far a clap is contagious in the male; that is, up to what stage in the course of the disease he is capable of conveying gonorrhœa. Broadly speaking, probably as long as

he has any discharge; most certainly as long as he has any purulent discharge, or as long as there are any gonococci to be found in the discharge. Many a man, after his clap has lasted for several weeks, has nothing to show except a little mucus or a slightly purulent discharge in the morning. During the daytime nothing is apparent and there seems to be no trouble whatever. Sexual connection, if moderately indulged in, seems to produce very little disturbance. The partner of his amorous joys is free from disease until the man, excited perhaps with wine or from whatever cause, overdoes the business, converts what was a comparatively innocuous discharge and mucous in character into an active and purulent one, and then the woman suffers. It is just such instances as this which make it difficult for the surgeon to determine how soon a man may resume his marital duties with safety to his wife, the patient being importunate in that respect in order to avert suspicions which perhaps have already been excited by his abstinence from his duties. Under these circumstances, it becomes exceedingly difficult, supposing that the wife contracts some disease, to be able always to determine as to whether its origin be leucorrhœal or simply gonorrhœal; first, because so many women suffer with "whites," and secondly, because the discharge in the patient may be of the very slightest and apparently mildest character. It is under these conditions that the microscopic examination for the gonococci becomes of importance and will go far toward establishing the verdict against the man; but it sometimes happens that gonococci are not detected, and then there is nothing left but the Scotch verdict of "non-proven."

The results of gonorrhœa in both male and female play a direct part in the medico-legal relations of the sexes during marriage. The most notable of these in the male is the inflammation of the epididymes, which produces blocking up and occlusion of the vasa deferentia, which lead from the testes into the urethra, and of which I have already made mention when speaking of sterility in the male. This inflammation does not lead to any difference whatever in the man's power or capacity for copulation, and so far as his sexual strength is concerned neither he nor his wife can see any difference; the only thing, perhaps, which attracts attention is that whereas, antecedent to his gonorrhœa, he was fruitful and capable of impregnating his wife, after his attack no children are born. This statement must, however, be modified by the proviso that for complete sterility to ensue the epididymitis must have been double, that is to say, both testicles must have been attacked. If one only is attacked and the other one is sound, the man is still fruitful, but of course he is injured in so far as he has only one sound testicle instead of two.

Prostatic hypertrophy, if it be chronic and continuous, may produce sterility by compressing the ducts which lead into the urethra from the testes, but this condition is more likely to occur late in life and is associated with the chronic hypertrophy which is met with in elderly men.

Inflammation of the vesiculi seminales, if it has gone on to suppuration and destruction of both vesiculi, will also produce sterility from the fact that the reservoirs intended for the reception of the seminal fluid are no longer present, and there is an obstruction in the course of the passage between the testes and the urethra; but unless destruction of these organs occur the patient is usually not much the worse for his inflammation.

Strictures of the urethra, as the result of gonorrhœa, I have already spoken of, but it is only rarely that strictures become so extremely tight as to cause regurgitation of the seminal fluid into the bladder, instead of anteriorly through the meatus. When this occurs the man is, to all intents and purposes, as sterile as though his vasa deferentia were blocked and no semen passed into the canal.

For the woman the results of gonorrhœa may be also disastrous. I by no means share the views of those gynecologists who consider that every woman who has had a clap is sterile, in consequence of inflammation of the Fallopian tubes or of the ovaries; but I think there is reasonable ground for believing that a certain proportion of women are rendered sterile in consequence of an inflammation of the ovaries, and in those women we oftentimes find great menstrual disturbance in the shape of diminished secretion of the catamenia, marked pain during the menstrual molimen, and perhaps the ejection of immature or undeveloped ova. I do not believe, however, that clap ever produces as bad results in the woman, or that she suffers as severely as the man in cases of gonorrhœal infection.

Sometimes gonorrhœa may produce so much inflammation as to cause a partial stenosis of the cervical canal, which would have an effect in a twofold way—first, in preventing the natural outflow of the catamenia, and second, in obstructing the passage of the spermatozoa into the uterine cavity; but this condition is usually easily remedied by an operation, and cannot be regarded as any serious derangement to the marital relations.

As regards the effect of gonorrhœa upon the offspring, it may be said to be almost nil. The only way in which the child suffers is from a form of ophthalmia known as ophthalmia neonatorum; but inasmuch as any vaginal discharge will produce the same inflammation, and inasmuch as many children acquire an ophthalmia from discharges entirely free from suspicion of gonorrhœa, the result upon children need not occupy attention.

A question here comes up upon which the surgeon is not infrequently consulted. A man desires to marry, and in the course of his confessions admits that he has had repeated attacks of clap and still is occasionally liable to some slight discharge, which, although not constant, is apt to appear if he over-indulges in the pleasures of the table, or drinks a little more wine than usual, or if he cohabits with a woman. This, the patient assures the surgeon, gives him no uneasiness physically; there is no impediment to the stream of urine; but the patient, knowing that it is not an entirely normal condition of things, wishes the surgeon's opinion before consummating his marriage. The surgeon examines his patient carefully and finds, in the majority of instances, a stricture of the urethra or granulations in the canal which keep up more or less irritation, not sufficiently so to produce a steady or constant discharge, and yet enough, on excitation, to cause a slight secretion. He then examines the secretion to find if there be any pus or any of the already mentioned gonococci in the discharge. If he finds these latter, as a prudent surgeon he counsels no marriage until they disappear, although he remembers this fact, that more women give claps than get them. The chance of a woman being infected under these circumstances perhaps is slight, but with even that in the man's favor the surgeon has no right to counsel matrimony until the man is physically fit.

But suppose he finds no gonococci and but very little pus, what shall he say? Some surgeons perhaps might say "Marry." I think that a prudent surgeon had better say "Don't," because by giving his assent he assumes a tremendous responsibility. Suppose any accident should happen, although it is quite likely that none would, he would be responsible for it; therefore the best plan for the surgeon to adopt is to recommend treatment until the patient is entirely well, before giving his formal consent to the marriage. In many instances, probably the majority of them, his advice will not be followed, the marriage will take place, and no accident happen; but if any ill results should follow he has perhaps the satisfaction of knowing not only that he had no hand in bringing it about, but had done his best to prevent it. It is better, therefore, to err on the side of prudence, and to regard any discharge from the urethra, unless it can be clearly demonstrated to be innocuous, as a possible source of danger and a bar to marriage.

Syphilis.—We now come to the most important of all diseases of a venereal or sexual nature: first, because it is capable of producing so much mischief and misery in the unfortunate bearers of the disease; second, because it is capable of producing premature death or a miserable and unhealthy life in the unfortunate offspring of the syphilitic parents; and third, because it can be contracted in such unexpected and apparently innocent ways that oftentimes a person who would not wittingly contaminate another is yet the unconscious instrument of spreading what may become a horrible disease. Of course the commonest way of contracting the disease is by copulation, but apart from that method it can be conveyed without any improper or immoral conduct in either the giver or the receiver. This disease differs from all the other venereal affections in being constitutional and in the fact that the secretions of some of the lesions which appear subsequent to the chancre will produce the infection almost as certainly as the chancre itself. I refer to the mucous patches and to the blood during the earlier stages of syphilis, both of which are capable of conveying the disease. Almost every surgeon has seen cases of young women, innocent and virtuous in every sense of the word, who have been brought for an opinion as to the nature of a peculiar lesion of the lip, the character of which is without question, which has been conveyed through the medium of a perfectly innocent and proper kiss by men who were the subject of mucous patches of the lips and tongue, the nature of which they were ignorant of, or which, owing to improper advice, they conceived to be innocuous and incapable of conveying the infection. But a short time since a young man was sent to me for consultation about the nature of some peculiar lesions of the lips and on the side of the tongue which he was inclined to attribute to smoking. He was paying attention to a young lady, and her father, who was a physician, having been consulted by this young man for these lesions, was suspicious and sent him to me for my opinion. There was no doubt as to the character of the lesions, and I so reported to the young man and to the gentleman who sent him. The young man himself was much astonished, as he had been continent for some time; but unfortunately he did not appreciate the fact that there was a long period of incubation between the time of the infection and the appearance of the first symptom—a period often of thirty days, usually, however, not so long. This was an instance in which trouble was averted.

But suppose the circumstances had been such that the prospective father-in-law, knowing nothing about these things, and naturally being unsuspecting, should give his consent to the engagement. The man would be accepted as the girl's suitor, and claiming the innocent privilege of an accepted lover, would convey by a kiss a disease which might produce untold misery and ill health to his future wife, and the sequel of immature and rotten abortions as offspring. Under these circumstances, how far would the man himself be responsible for having contaminated his *fiancée*? He might have done it unwittingly and without any knowledge whatever of his disease, and yet the results would be just as bad.

In addition to the possibility of this method of infection by direct contact, there is very good evidence to show that it may be contracted indirectly, through the medium of inanimate things, such as spoons, drinking-cups, pipes, and the like; and in factories, such as glass-blowing factories, where the blowpipe is handed from one workman to another in a gang, a syphilitic subject, the bearer of mucous patches, has been known to infect several of his fellow-workmen. Rollet gives an instance in which a woman was contaminated by her cook, the mistress being in the habit of going downstairs to assist in the cooking and tasting of the dishes with the same spoon that the cook used, who, without the knowledge of her unfortunate mistress, was the possessor of mucous patches of the mouth.

Again, in former days, when vaccination was practiced from arm to arm and when as much care was not exercised as at present, the scab or crust taken from the syphilitic baby or person has been the means of infecting an entire community, and the mischief, being started, was continued in various ways, by the contamination from the babies' lips to women suckling them, and from these women to their husbands or to their own babies, until, in this community of which I write (in Italy), the infection spread through the entire village and there were very few of the inhabitants but showed some manifestations of syphilis.

Nor are the symptoms in the acquired form the only ones which are contagious. In the congenital variety the mucous patches of the baby, notably of its mouth, are capable of conveying the disease to those persons about it who are free from syphilis, either by the process of suckling or by kissing; and nurses are not infrequently contaminated by giving the breast to children who may be, to all outward appearances, fairly healthy, and yet be syphilitic. In some instances the syphilitic baby is born apparently healthy, fairly well nourished, and free from any sign of syphilis. Shortly after birth manifestations of the disease appear upon it which, although not apparent to the unpracticed eye, are highly contagious and capable of infecting sound persons. Now in cases where both baby and nurse are undoubtedly syphilitic, the question often arises whether the baby has been the cause of the nurse's infection or whether the nurse has given the child the disease. The story usually told the surgeon is as follows: That the baby, apparently well at first, was put to the nurse's breast; that it gradually lost health and strength, and became, from a healthy child, a weak, puny, miserable brat. The nurse then exposes to the surgeon a breast the nipple of which is fissured and cracked, perhaps bearing upon its surface an ulceration, seated upon a raised base, indurated; and showing glandular indurations in the axilla. The nurse accuses the child of giving her the disease, the parents, on the other

hand, accuse the nurse, and the surgeon is called in to settle the question. The first glance tells him that the baby is the probable source of the trouble, for the reason that all cases of syphilis in which the disease is acquired, whether in the adult or in the infant, begin with an initial lesion (chancre); the only variety which is devoid of initial lesions, so far as known, is the congenital form. Mucous patches belong to a subsequent stage and do not appear until after a period of incubation varying from six to ten weeks. If, therefore, the nurse had been the source of the syphilis of the child, it is the child who should show an initial lesion and not the nurse. In addition, the nurse would probably show some eruption on the body, general induration of the glands all over the body, mucous patches of the mouth and elsewhere—in short, the usual symptoms of the so-called secondary stage, or the stage which follows the outbreak of the initial lesion. But instead of that it is the baby who shows these symptoms, symptoms which occur at a period later than the nurse's lesion, and which she, in turn, will show as the disease progresses in her. It is therefore the baby which is at fault and not the nurse, and it is important for the surgeon in all cases of syphilis to bear in mind the question of dates and what lesions are likely to occur in regular sequence; for unless these points are well borne in mind, error and confusion are apt to ensue.

Then, again, the baby may show other symptoms of disease which would prove it to be of congenital origin, such as the bullæ of pemphigus, with maceration and desquamation of the skin, these two latter being almost pathognomonic of congenital syphilis. It would also present the evidence of trouble in its throat, the hoarse, squeaking cry, the presence of ulcerations in the interior of the mouth, with fissures of the lips, and the emaciated, puny, weazened look which syphilitic babies show when profoundly poisoned. Under such conditions, when it is clearly the child which is at fault, it is the duty of the surgeon, when he is obliged to call in a wet-nurse for a syphilitic baby, to inform the prospective foster-mother of the child's condition. No matter what his relations to the parents may be, no surgeon should ever knowingly permit himself to be made the means of conveying the disease from the baby to the healthy woman, whose health is often the only thing she has to rely upon for a livelihood; it is far better that such a baby should die than that any woman should be exposed to the slightest risk so far as syphilis is concerned.

But notwithstanding all admonition, it is exceedingly difficult to impress people with the danger and the risk that they run in playing with or in fondling syphilitic children. Many women and girls are singularly fond of kissing every baby they come across, without taking into the slightest consideration the possibility of the child being diseased, and the only wonder is that more mischief does not ensue from this indiscriminate fondling of children. I recall one instance in which a small boy, three years of age, was sent to me for a diagnosis. This, oddly enough, was a case of acquired syphilis, the initial lesion (chancre) being seated on the inside of the lower eyelid. How the boy got it I never could find out. His father and mother and his immediate relations denied having the disease (the immediate relations consisted of his father and mother and a young aunt). The father and mother I examined, and could find nothing the matter with them; the young aunt I did not see;

but at any rate the fact existed—the boy had acquired syphilis. When the time arrived for subsequent lesions to make their appearance I cautioned the mother that all the family were in possible danger of contracting the disease. Inasmuch as it was not a congenital disease, she was just as much exposed to danger as the rest, and I particularly cautioned her not to let him play with or kiss his little sister, a girl between five and six years of age, who was very fond of him, and, like all little sisters, played with and kissed her baby brother. I thought I had impressed upon her mind the importance of my advice, when, to my astonishment, a few weeks later she brought the girl to see me with a beautiful chancre on the cheek, and the history was that the child had a little scratch on the cheek, they were allowed to play together as they formerly had been, the little boy had probably kissed his sister there, and the result was a fine chancre of the cheek. Both of them went through the subsequent lesions of syphilis, the boy slightly, the girl more severely.

The question may arise, How far are the symptoms of syphilis contagious? or, in other words, Is syphilis during its entire duration capable of being inoculated from one person to another? It is one of the peculiarities of this disease that the physiological secretions, the tears, the sweat, the milk, are incapable of conveying the disease, even though they be directly inoculated upon healthy people. The only exception which has been claimed to the rule that syphilis is not communicable through a physiological secretion is in the supposed cases of the infection of the wife by the semen. I am myself a disbeliever in this method of conveying syphilis, but for the information of my readers let me explain in a few words what the supposed *modus operandi* of infection is in these cases.

A previously syphilitic man marries a healthy woman, who remains seemingly healthy throughout her married life, provided no children are born. Suppose the woman becomes pregnant: straightway she begins to show symptoms of the disease. The baby, in due course of time, comes into the world with manifest syphilitic lesions. Query—How did the woman get her syphilis? The believers in the indirect method claim that the semen of the father is capable of conveying the disease through the ovum, which, becoming infected, is the focus of infection for the mother, who, contracting it through the uterine and placental vessels, for the first time becomes inoculated. This is what Ricord calls infection from *choc en retour*. The father himself may show no symptoms whatever of the disease, nor perhaps has he during his entire married life, and yet both mother and child are palpably syphilitic. There is nothing harder in the practice of venereal medicine than to establish the origin of such a woman's syphilis. Women often acquire syphilis in a most mysterious manner, and of course, unless absolutely obliged to, they seldom will confess even to their medical attendant the fact that they have ever had the disease. Many of them in perfectly good faith mislead the attending surgeon by positively declaring that they have never been exposed to contagion, and yet instances are not wanting where women have had the disease previous to marriage, have apparently entirely recovered from it, and show no subsequent evidences of their former syphilis, even at the time of the child's birth. A notable and most curious instance of this kind has been narrated by Dr. Keyes (*Venereal Diseases*, p. 71), in which a lady was under his care for a very mild and trifling

syphilis, apparently not contracted from her husband. Like most women, she was careless in pursuing treatment and seemingly entirely recovered. About that time she gave birth to a syphilitic child, which died. The father became syphilitic, and in the report of the case it is stated that the father's syphilis was claimed to have been derived from the child, who was said to have been poisoned by its wet-nurse. Matters went on in this way for some time until the woman became again pregnant in another city. She gave birth to an apparently healthy child, who was put by the attending physician under the care of a wet-nurse. The nurse shortly acquired a sore upon her nipple which turned out to be syphilis, and the baby also presented evidences of the same disease. The nurse was accused of having poisoned the child with syphilis and was discharged. The child was put under treatment, another nurse was obtained for it, and in due course of time this second nurse also developed a chancre on the nipple. The family shortly before that had returned to New York, and came again under the care of Dr. Keyes. The mother seemed to be perfectly well and presented no traces of syphilis; the father, on the other hand, still showed evidences of the disease. A third pregnancy followed; the woman still remained apparently perfectly well, and, although advised to follow treatment, neglected to do so. A still-born child was the result, which apparently had been dead for some time. The mother still showed no evidences of the disease.

Here is an instance where, if Dr. Keyes had not had the opportunity of seeing the woman in the early stage when she had the symptoms of her syphilis—mild, it is true—he would very easily have been misled into considering this as an instance of *infectio per patris seminem*. But besides that, it shows that a woman may for years enjoy good health, showing no evidence of the fact that she has been syphilitic, and still she can give birth during that time to syphilitic children.

Grefsborg (*Vierteljahresschrift für Dermatologie*, 1879, p. 102) gives a case of a woman who for two years suffered from syphilis, from which she apparently recovered. A year after recovery and three years after her attack she married a man who was not syphilitic, and in ten years of married life she had eleven miscarriages. At the twelfth pregnancy, thirteen and a half years after the initial lesion, she went to full term and was delivered of a syphilitic child. In this instance the period of apparent immunity was even longer than in that of Dr. Keyes, being practically eleven years in which the woman had seen no evidence of the syphilis, and yet there is no reason to doubt that her offspring were diseased or that the abortions which she had were due to her old trouble. It will be noted in this case that the father claims never to have contracted syphilis.

In the course of syphilis there are many periods, varying from a few weeks to many months, in which there is an entire absence of any syphilitic lesions—there is a lull in the activity of the disease. The patient is outwardly well, and, indeed, so far as can be told by any examination whaetver, is well; and yet this seeming immunity is no guaranty that syphilis will not crop out in the children. Many cases are found in venereal literature in support of this proposition.

The question might arise whether such a condition of affairs would be sufficient ground for a divorce. That aspect of the case, of course, I have nothing to do with, and I instance these cases merely to illustrate

the importance of the surgeon being upon his guard, when he is called upon for an opinion in cases of apparent immunity on the woman's side from syphilis, not to make too hasty a judgment that because nothing is apparent there is no danger of syphilis—a reversal of the adage that as to those things which are not apparent and those things which do not exist, the reasoning is the same.

Is there no way in which the surgeon can tell? I know none in which the point can be decided positively, but it may be decided inferentially in this manner: Continued and repeated abortions should always excite suspicion of syphilis, no matter who the parties may be. Syphilis is no respecter of persons, and, like the pale Death of the poet, invades both the palace of the rich and the cabin of the poor; so that where repeated miscarriages take place, the surgeon should bear in mind that one of the likeliest causes of the trouble is syphilis. Of course, with regard to histories, if neither man nor woman present any evidence of disease, it is hopeless to expect to get anything definite, and an examination of either one or both of them may end perfectly negatively, because a person can have had a mild form of syphilis, recover entirely from it, and present no evidences as to its previous existence.

There is one peculiar point—a curious fact, known as Colles's law—which is that the seemingly non-syphilitic mother cannot be infected by her syphilitic child *extra uterum*. The child may be a source of danger to everybody else around it who has not been protected by a previous attack of syphilis, but the mother may kiss her diseased offspring, suckle it, and permit the most intimate relations, without suffering in the slightest degree. And another singular thing is that such a woman is exempt from any attempt to inoculate her with the contagious secretions of syphilis. Such has been tried by Caspary of Berlin (*Vierteljahresschrift für Dermatologie*, 1875, p. 437), with a negative result.

Another of the singular features about syphilis is that the disease does not pursue a continuous course; the appearances of the lesions are interrupted by periods when the patient feels and is practically as well as he ever was. These intervals are called the periods of repose. Suppose a man were to marry in this interval, when all symptoms were absent, when he believed himself in good faith to be entirely well, how far would the appearance of subsequent symptoms later on be a ground for marital separation? And again, suppose that in this interval of repose a man engages himself to a woman, and before the marriage takes place finds that he is not entirely well and that symptoms of the disease are presenting themselves, how far would such a man be justified in breaking his engagement? I know of no cases bearing upon the first point, but on the second a case recently occurred which was tried in Kentucky and was finally decided in the Court of Appeals of that State in favor of the defendant, who was a man. The circumstances, as narrated to me by the physician who attended the man, were these: X contracted syphilis, from which he believed he was entirely well, and in this period of apparent recovery engaged himself to a young woman. Before the marriage took place he broke out with later symptoms of the disease, and, under the circumstances, broke off his engagement to the young woman, explaining, as I understand, to her lawyer the condition of affairs. The statement was not accepted and a suit followed. After being tried in the minor courts it went to the Court of Appeals in Ken-

tucky and was decided in the man's favor on the ground that, although at the time of his engagement he honestly believed himself to be well, on finding out his mistake later on, as an honorable man, rather than bring misery upon his future wife, he decided to break the engagement. The plaintiff's side attempted to show that the mere fact of his having these late lesions was no bar to his marriage, because they were probably not infectious, and quoted various authorities to show why the man should have carried out his contract; but the court decided otherwise, stating that, as long as there was a question, the man was justified in breaking off his engagement.*

A syphilitic patient, having run through the earlier manifestations of his disease, marries during an interval of repose, or during a period in the course of his disease when he believes himself to be perfectly well, and later on during the course of his married life shows symptoms of late or so-called tertiary syphilis. The question then arises whether there is any likelihood of these lesions proving contagious and capable of infecting either the wife or future children. The general opinion among venereal surgeons is that the late stages—so-called tertiary stages—of syphilis are not contagious nor capable of communicating the disease, and yet the surgeon may be confronted with cases which will put his belief to a severe test and may perhaps induce him to change his opinion as to the non-inoculability of the late lesions of syphilis. The difficulties in such a case as this are so very well exemplified in a case which is given by Dr. F. N. Otis (*Clinical Lectures on Physiological Pathology, and Treatment of Syphilis*, p. 107) that it may serve as an example, in the first place, of the difficulty in obtaining testimony, and, in the second place, of the danger of making up an opinion hurriedly and in the face of what would appear, perhaps, good evidence. The case was that of a young man who was under Dr. Otis's care for early syphilis, and after treatment apparently recovered entirely from his disease. The treatment was continued for about two years, and at the end of that time the patient, believing himself well, married. The wife gave birth to a child which was perfectly healthy and remained so up to its third year, when he died of tubercular meningitis, following scarlet fever, there not being then or previously any manifestations of syphilis. Later on the patient had a gummosis periostitis of his right tibia, for which he was treated and which disappeared entirely within a month. From that time, for nearly a year, both husband and wife were healthy, when one morning the husband came to announce that his wife had trouble in her mouth which looked like what he had had during his early syphilis. Dr. Otis doubted if it was syphilis, because the wife's character was above suspicion, and he did not believe that the late lesions of syphilis could convey the disease. The woman was sent to see him, and, to his utter astonishment, he found that she had syphilis, as was shown by mucous patches in her mouth, together with mucous tubercles on the inner border of the thigh and the right labium majus.

Here was the question: Was Dr. Otis wrong? Can syphilis be conveyed by the late lesions? Or was Dr. Otis right? and if so, then the woman contracted her syphilis from some one who had a recent syphilis,

* *Shackelford vs. Hamilton*. The Southwestern Reporter, Vol. 19, No. 1, May 2, 1892, p. 5.

evidently not her husband. The husband was allowed to believe that he was the source of the trouble, but the doctor kept his own counsel and at the right time asking permission of the husband to tell the wife what the matter was with her, after a little fencing and hard pushing, got from her a confession that a yachting excursion, an unexpected night at sea, exposure with an old lover three months before her outbreak, were the causes of her trouble; and the truth of this was substantiated by a letter received from the source of the trouble, stating that he had discovered himself to be syphilitic, expressing great regret, and inquiring if she had been lucky enough to have escaped the infection. I think the case hardly needs comment; it is peculiarly instructive and only shows how necessary it is for the surgeon, even at the risk of being considered cynical and suspicious, to suspect everybody connected with a case of syphilis, particularly if the history of the case requires acceptance of what is highly improbable or what is not in accordance with our present knowledge of the disease. The surgeon, of course, should not be dogmatic in his opinion; he should always remember that it is the unexpected that happens; but, on the other hand, he should carefully consider the fact that syphilis is a disease full of most unpleasant surprises, and that venereal patients, particularly when it comes to a question of expert employment, will tell the most unconscionable and unblushing falsehoods, and perhaps not unnaturally, for the reason that no person is bound to criminate himself, and it is for the doctor to find out how far they are telling the truth; and, though perhaps it may sound bitter, the surgeon should further remember that people who come into court with their venereal or sexual troubles have usually said good-by to both their reputation and to their capacity for truth-telling.

MARRIAGE AND DIVORCE.

BY

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MARRIAGE.

Definition of Marriage—Scope of this Article.—Marriage is a contract between persons of a different sex for cohabitation as man and wife, during their joint lives, whereby a new social relation is created between them, and a new legal status acquired by the woman. It is an institution of society in which the whole community have an interest, and which is everywhere regulated to some extent by positive law.

It is the object of this article to treat of marriage and its dissolution solely with reference to such points as may be of common interest both to the physician and the lawyer.

Statutory Regulation.—Each of the United States has its own law upon this subject, as to marriages contracted within its jurisdiction, or with a view to future residence there, though contracted elsewhere.

The United States, as such, have no law as to marriage which is operative within any State. Congress has made regulations with reference to those celebrated in the District of Columbia, in the several Territories of the United States, and abroad. Those of the latter class can be entered into between any persons who would be competent to marry if residing in the District of Columbia, before any Consular officer of the United States in any foreign country.

By an act of Congress passed in 1887, marriage is prohibited in any of the Territories between persons related within and not including the fourth degree of consanguinity, computed according to the rules of the civil law (of the old Roman Empire). Bigamy and polygamy are also prohibited in the Territories.

Age of Consent.—The age which must have been attained by the parties to a marriage is in most of the older States (following both the civil and the common law) fourteen for males and twelve for females. In the Middle and many of the Western States it is higher; often eighteen for males and fourteen for females; in some cases sixteen for females.*

Marriages of those under the prescribed age can be disaffirmed by either as soon as it is reached, or annulled by the courts prior to that time. It is of no importance whether the parties were or were not, when

* *Vide* Indecent Assault Upon Children, vol. i., and Rape, vol. ii.

married, physically capable of sexual intercourse. If they or either of them were not of the legal age for consent the marriage can be set aside.

Capacity to Consent—Insanity.—The parties to the marriage contract must not only be of sufficient age, but of sufficient mental capacity, in fact, to understand the general nature and consequences of the act.

Insanity or idiocy at the time of marriage is always and everywhere a legal impediment. Supervenient insanity was not a cause of divorce at common law, nor is it one under the statutes of most of our States. It is occasionally made the ground of a special act of divorce, granted by the legislature; but such a power is not vested in the legislatures of all the States. It does generally belong to the Territorial legislatures, under the laws of the United States.

Monomania or delusions, which do not disqualify a person for entering into the general transactions of life, and managing his affairs with ordinary prudence and skill, and do not affect his understanding of the marriage contract, or his ability to perform its obligations, will not defeat its validity.

Seated insanity defeats a marriage with the insane person, although it was celebrated during a lucid interval. On the other hand, a sane person may avoid a marriage contracted during temporary insanity, even if produced by drunkenness. A marriage contracted while insane may be confirmed by the party whose mind was so affected, should he regain his reason, and such confirmation may be established by continued cohabitation. In such a case no new celebration of the marriage is necessary. The original marriage will be treated as voidable, not void.*

Capacity to Consummate the Marriage.—Although the parties have reached the proper age and are of sufficient mental capacity, they cannot marry unless physically capable of sexual intercourse. This does not mean that the man must be able to beget children and the woman to conceive and bear them. It is enough if the physical condition of each at the time of marriage is such as to fulfill the conditions of copulation, though not of procreation.† This much each party may insist upon, as essential to the validity of the marriage, notwithstanding the woman was, at the time of its celebration, beyond the age of child-bearing. The right, however, is one which may be waived, and is waived when marriage is knowingly contracted with an impotent person, or one of so advanced an age that impotence might naturally be expected to exist.

Impotence, as above explained, while a cause of divorce in all our States, does not in most of them render the marriage absolutely void from the beginning. If it is due to a temporary cause, and is curable, it is no legal impediment to the marriage, unless after marriage the party refuses to submit, within a reasonable time, to the proper treatment for its removal.

A refusal on the part of either to participate in sexual intercourse, within a reasonable time after marriage, if unexplained, raises a presumption of incapacity.

If, while sexual intercourse is not physically impossible, it is practically so, because possible only under conditions to which the other party

* *Cole vs. Cole*, 5 Sneed's Tenn. Rep. 57; 70 Am. Dec. 275.

† Schouler on *Husband and Wife*, § 23; *J. G. vs. H. G.*, 33 Ind. Rep. 401.

ought not to be expected to submit, the case would be one of legal impotence, furnishing a sufficient ground for divorce.

Impotence is, in some States, made a cause of divorce on the ground of a fraud in inducing the petitioner to contract the marriage. It is generally rested, however, on the foundation of the want of capacity to conclude the contract; nor is the ignorance of the impotent party that impotence exists anywhere received as a defense. If, however, impotence exists, and is known to the party disabled by it, it may be an actual fraud in such party to contract marriage without disclosing the fact to the other party. Thus, if a woman, while of an age for child-bearing, should be rendered barren by submitting to the operation of ovariectomy, it would be a fraud on her part not to disclose the results of the operation to the intended husband.

Disqualifications from Relationship.—Blood relationship generally disqualifies those within the third degree, inclusive, computed according to the civil law; that is, those nearer to each other than first cousins, whether by the whole blood or half blood, by legitimate or illegitimate connection.

Some States also prohibit marriages between those connected by affinity, within certain degrees.

Effect of Disqualifications.—By the common law, canonical disabilities rendered a marriage voidable only; civil disabilities might render it void.* In the several States of the United States it is generally held that marriages by persons under any disability are simply voidable, and that the proper mode of avoiding them is by an application for a divorce. In some, however, the common law rule is still recognized.†

Paternity of Children.—A child born in wedlock is legally presumed to be legitimate. This presumption is not overcome by proof of adultery on the part of the wife at about the time of conception, unless it is also proved that the husband had no opportunities of intercourse with her at or about the same time. Such proof must be so strong as to put it beyond all reasonable doubt that the husband could not have been the father.‡ That the child must have been begotten before the marriage does not affect the question of its legitimacy.

DIVORCE.

Divorce Procedure.—Divorces are of two kinds, *a vinculo matrimonii*, or from the bond of matrimony, and *a mensa et thoro*, or from bed and board. In some States both these kinds of divorce are granted; in others, only the former. A separation is also not infrequently accomplished by mutual consent, upon terms and settlements arranged through the medium of trustees for the wife.

Divorces in the United States generally are granted only under conditions and for causes determined by the statute law of the State or Territory where one or both of the parties are domiciled. Some States, however, have entertained equitable proceedings to declare a marriage

* 2 Kent's Commentaries, 95.

† *Harrison vs. The State*, 22 Maryland Rep. 468; 85 Am. Dec. 658; *Browne's Digest of Divorce Laws*, 57.

‡ *Phillips vs. Allen*, 2 Allen's Rep. 454.

null because the parties were not of sufficient capacity to contract, or for fraud in procuring it.

Legislative divorces, by a special statute passed to meet the particular case, are also granted by some States in exceptional instances, for other than the ordinary statutory causes.*

The United States have no laws regulating divorces, except as to persons belonging to the District of Columbia. In some States provision is made by law for the intervention of a public prosecuting officer to make defense in uncontested divorce suits, when he thinks such a course demanded by the public interests.

Causes of Divorce Antecedent to the Marriage.—Want of sufficient age, or of mental or physical capacity, or relationship within the prohibited degrees, are causes of divorce antecedent to the marriage. So also is fraud in procuring the contract. The term "fraudulent contract" is sometimes used to denote only marriages where one of the parties is impotent, thus defrauding the other of one of the expected advantages of the union; or where both are so related as to make the contract one in fraud of the law.†

But while these are cases of constructive fraud, there may also be those of actual fraud. To constitute a cause of divorce for actual fraud, the fraud must be plain and the proof clear. Fraud is never presumed. An unchaste woman commits no legal fraud in marrying a man who is ignorant of her character. If, however, she marries when actually pregnant by another man, and the husband was ignorant of her condition and believed her chaste, he can claim a divorce on the ground of her fraud.‡ It is otherwise if he knew that she was unchaste, though he did not know that she was with child.§ Should she, however, while in this condition, under false representations of her chastity induce him to engage to marry her, and then entice him into sexual intercourse before and in contemplation of the marriage and for the very purpose of precluding him from afterward claiming a divorce, because he would then have married her knowing by his own act that she was unchaste, such active fraud on her part, coupled with her pregnancy, would be sufficient to give him a divorce.||

Divorces on the Ground of Impotence.—On an application for a divorce on the ground of impotence, the court may require the defendant to submit to a surgical examination, unless this has been done before the institution of the action, and the result can be shown by proper testimony. A certificate by the examining physician is not receivable in lieu of his appearance as a witness.¶

Long and unexplained delay on the part of the petitioner in seeking a divorce will bar the remedy. Ignorance of the existence of the defect will not excuse the delay, if there was the means of knowledge, and a want of reasonable diligence in seeking to obtain it.**

* *Maynard vs. Hill*, 125 U. S. Rep. 190; *Starr vs. Pease*, 8 Conn. Rep. 541.

† *Benton vs. Benton*, 1 Day's Rep. 114.

‡ *Scott vs. Shufelt*, 5 Paige's Rep. 43.

§ *Crehore vs. Crehore*, 97 Mass. Rep. 330.

|| *Seilheimer vs. Seilheimer*, 40 N. J. Eq. Rep. 412; 2 Atl. Rep. 376.

¶ *Devenbagh vs. Devenbagh*, 5 Paige's Chan. Rep. 554; *LeBarron vs. LeBarron*, 35 Vt. 365.

** *Newell vs. Newell*, 9 Paige's Chan. Rep. 25; *B—n vs. B—n*, 28 Eng. Law and Eq. Rep. 95.

It is not necessary to prove impotence generally, and as to all women. It is enough to establish its existence so far as the intercourse with the petitioner is concerned. A failure to consummate the marriage after three years of cohabitation is presumptive evidence of impotence.*

Causes of Divorce Arising after the Marriage—Insanity—Cruelty.

—We have already seen that loss of physical power, occurring after the marriage, is no ground for a divorce. The same is true in most States as to loss of reason, even if a permanent affection, though this is sometimes, in such jurisdictions, made the subject of a divorce by a special act of the legislature.†

It is not a cause of divorce on the ground of “intolerable cruelty” that a husband insists on sexual intercourse against the wishes and remonstrances of the wife, although, in consequence of her physical condition, this is indelicate, improper, unreasonable, and injurious to her health, unless he knew that her condition and health were such as to make the act unreasonable.‡ If he had such knowledge, his acts would violate his marital obligations. There is a duty of forbearance on the part of the husband at the reasonable request of the wife, as well as a duty of submission on her part at his reasonable request.§

The willful communication of venereal disease by one party to the other may amount to such an act of cruelty as to justify a divorce; and knowledge of the existence of the disease on the part of the party affected may be inferred from the mere fact of its existence.

It is not “cruel and abusive treatment” within the meaning of divorce statutes for a wife to refuse for years, without cause, to have any sexual intercourse with her husband.|| The old law of England gave a remedy in such a case, by a suit for the “restitution of conjugal rights,” resulting in the punishment of the offending party by imprisonment for contempt of court, should the refusal be continued after a judgment in favor of the petitioner; but this proceeding was founded on principles of ecclesiastical law, applicable to courts having in view the preservation of the morals of the parties before them, and acting *pro salute animæ*.

Divorces for Ill-treatment Injuring Health or Endangering Reason.—In some States divorces are granted for acts which, though not amounting to extreme cruelty in the legal sense, yet are such as seriously to injure the health or endanger the reason of the other party.

In applying such laws the temperament of the sufferer is to be regarded. The health or reason of a feeble or neurotic person might be endangered by such a slight degree of ill-treatment as would have little or no effect on a healthier subject. Divorce is not intended as a punishment of the offender, but as a relief to the party against whom the offense is committed.¶

If a man compels his wife to submit to sexual intercourse so frequently as to impair her health, it will be a sufficient ground of divorce, under a law of this character.**

* *Anonymous*, 22 Eng. Law and Eq. Rep. 637.

† See Cooley's edition of Blackstone's *Commentaries*, vol. i., p. 441, note 23.

‡ *Shaw vs. Shaw*, 17 Conn. Rep. 189.

§ *Mayhew vs. Mayhew*, 61 Conn. Rep. 235.

|| *Cowles vs. Cowles*, 112 Mass. Rep. 298.

¶ *Robinson vs. Robinson*, (New Hampshire) 23 Atl. Rep. 362.

** *Melvin vs. Melvin*, 58 N. H. Rep. 569; *Grant vs. Grant*, (Minnesota) 54 Northwest. Rep. 1059.

Divorces on Account of Loathsome Disease.—In some States it is a ground of divorce if either party was affected at the time of marriage with a loathsome and incurable disease (such as leprosy or syphilis), and failed to inform the other party of this fact.* If the knowledge of the disease, when gained, brought such mental anguish as to endanger health or create a reasonable apprehension of such danger, the act of concealment may be considered as such "cruel and abusive treatment" as to justify a divorce, under a statute embracing that as a sufficient cause.†

Divorces for Adultery.—To constitute adultery there must be a wrongful intent. If the woman is violated by force, or submits to sexual intercourse while insane, or with one whom she supposes to be her husband, there is no ground for a divorce.‡ It is, however, held in some States that insanity is no answer to a libel for adultery, and that the consequences of the act are to be regarded, rather than the guilty purpose of the wife.§ In no State would nymphomania be any excuse.

Proof that the husband has the venereal disease, and that it first became apparent some time after marriage, does not show that it was not contracted before the marriage, and is therefore not sufficient proof of the commission of adultery.

Divorces for Habitual Drunkenness.—Proof of occasional intoxication does not suffice to show habitual drunkenness. Indulgence in the use of chloroform, or of morphine by hypodermic injections or otherwise, though habitual and carried to excess, is not drunkenness. Intoxication by the immoderate and habitual use of "intoxicating liquors" as a beverage must be established.||

Divorces for Desertion.—The refusal of a wife to permit sexual intercourse, though unreasonably continued for a considerable period of years, does not constitute desertion of her husband, so long as she remains a member of his household and under his roof.¶

Divorces where One Party is Insane.—A petition for a divorce may be brought by an insane husband or wife, suing by a guardian or a committee appointed by a proper court;** and against an insane husband or wife, for an offense committed while sane, or for insanity existing at the date of the marriage. Such a petition is not supported by proof of the existence of temporary paroxysms of insanity before marriage, of which the petitioner had no knowledge, even though after marriage permanent insanity ensued.††

Divorces by Consent.—Any ordinary contract, as it is made by the mutual consent of the parties to it, can be also rescinded by their mutual consent. Marriage being, as already stated, something more than a contract, is not thus dissoluble. On the contrary, courts look with suspicion on any divorce proceeding, though good cause be shown, where there is ground for believing that both parties are willing that

* See *Maynard vs. Hill*, 125 U. S. Rep. 205.

† *Leach vs. Leach*, (Maine) 8 Atl. Rep. 349.

‡ Schouler on *Husband and Wife*, § 504.

§ *Machin vs. Machin*, 6 Barr's Penn. Rep. 332.

¶ *Youngs vs. Youngs*, 130 Ill. Rep. 230; 22 Northeast. Rep. 806.

¶ *Southwick vs. Southwick*, 97 Mass. Rep. 327.

** *Cowan vs. Cowan*, 139 Mass. Rep. 377.

†† *Hamaker vs. Hamaker*, 18 Ill. Rep. 137; 65 Am. Dec. 705.

the petition should be granted; and if such willingness amounts to collusion, a divorce will usually be refused.*

Recrimination as a Defense.—A petition grounded on adultery may be defeated by proof of adultery on the part of the petitioner. Denial by the wife of sexual intercourse, though long continued and without justification, is not a defense to a petition by her for a divorce on the ground of adultery. It has been held no defense to her petition grounded on desertion, and, on the other hand, desertion by the wife has been held a sufficient answer to her petition grounded on adultery.†

Extreme cruelty, if a statutory ground of divorce, may be shown, in most States, to defeat a petition brought for the cause of adultery.‡

Condonation as a Defense.—If either party to the marriage has a cause of divorce arising from the misconduct of the other, it can be waived or condoned by forgiveness. Occupying the same sleeping-apartment with the offender, after knowledge of the offense, is a sufficient condonation to bar the divorce.§ Occupying the same house affords a presumption of full marital cohabitation, but one that can be explained by evidence to the contrary. Condonation is less readily presumed on the part of the wife, since she is the weaker party, and in a position of greater dependence.

Testimony in Divorce Suits.—The rules of evidence in ordinary cases do not permit husband and wife to testify against each other. This doctrine is founded on public policy, to promote the peace of the household and support the institution of marriage.|| But in divorce proceedings, or in case of resort to the courts by one for protection against the violence of the other, each party, from the necessity of the case, is admissible as a witness.¶

The results of any physical examination made by experts must, in this country, be given by the examiners, testifying as witnesses under oath. We have not adopted the English practice of accepting a certificate of the result from official inspectors.

* *Danforth vs. Danforth*, 105 Ill. Rep. 603.

† Schouler on *Husband and Wife*, § 536.

‡ *Church vs. Church*, 16 Rhode Island Rep. 667; 19 Atl. Rep. 244.

§ *Rogers vs. Rogers*, 122 Mass. Rep. 423.

|| *Lucas vs. Brooks*, 18 Wallace's U. S. Rep. 436.

¶ 2 Bishop on *Marriage and Divorce*, § 287.

SEXUAL CRIMES.

BY

CHARLES GILBERT CHADDOCK, M.D.

RAPE.

Legal Considerations.—Rape constitutes an offense in common law, but its legal definition varies in the statutes and codes of various States, particularly with respect to the bearing of the age of consent upon the crime. Rape is carnal knowledge of a woman by a man, unlawfully and by means of force, against the will and without the consent of the woman. On the points of “will” and “consent” there have been decisions in Arkansas, Florida, Michigan, Nevada, and Wisconsin. Thus rape may be committed when, *in sensu strictiori*, the woman shows no will at all; as when she is narcotized, or in a state of *non compos mentis*. Carnal knowledge may also be rape where it takes place with consent that has been obtained through fear or fraud. Absence of consent is interpreted as equivalent to being against the will of the woman, in later English law. Rape is possible only in case of physical capacity in the direct male perpetrator; but impotence is no defense for *intent to commit rape* where it cannot be shown that the perpetrator was aware of his sexual incapacity. The age of the male, in its effect upon capacity to commit rape, may be of importance in determining the conditions constituting the crime. A male under the age of fourteen cannot commit rape, according to English law; but in the United States a few courts have held that there is no conclusive presumption of incapacity determined by age.* The crime of rape may be perpetrated upon the person of any female, no matter what her age, character, or capacity.

Since the question of consent is of primary importance in its bearing upon the crime, the age of the female, as affecting her legal capacity to give consent to sexual intercourse, is of the greatest importance. In common law, a child that has not attained the age of ten years is presumed to be incapable of giving consent. Therefore, in general, carnal knowledge of such a child is felony. But statutes in England and in many of the United States make carnal knowledge of a child between the ages of ten and twelve a misdemeanor. If, under such circumstances, the child consents, the offense is a misdemeanor, not an assault. The age of consent in a majority of the States is fourteen years. A New York statute makes it rape for a man to have sexual intercourse with a female to whom he is not married who is under the age of sixteen. It is felony

* New York, Ohio, Tennessee, Kentucky.

for a man to have carnal knowledge of a child who is under the age of ten, in Arkansas, Michigan, Mississippi, North Carolina, Wisconsin, and Texas. Intercourse with a child under the age of twelve years is rape under the Code of Louisiana. The age of consent is fixed at fifteen years in Nebraska; at thirteen in Iowa; at sixteen in Pennsylvania; at eighteen in Wyoming and Kansas. In Ohio, decisions have been less stringent; the knowledge of the child has been taken into consideration.

Actual carnal knowledge must be shown by direct or indirect evidence, in order to establish the crime of rape. Penetration, in the least extent, of the female genitals by the male organ, constitutes carnal knowledge. Force, actual or its equivalent, is necessary to the commission of rape; and the force must have been sufficient to accomplish the purpose. Submission obtained by means of fear or terror induced by threats or otherwise, is construed as the result of moral force equivalent to a compelling degree of physical force. In law, intercourse accomplished by means of fraud, where there was no intent to use violence, is not rape. Within the age of consent, where consent is given, no matter how reluctantly, there can be no rape. The female must have offered all possible resistance, or resistance must have been made impossible by terror or other means. Commonly, connection with a woman while she is unconscious, as during sleep or insensibility occasioned by alcohol or other narcotics, is rape; and the same is true in cases of idiocy and imbecility, though in New York this is merely a crime against the person.

The prosecutrix in a trial for rape is a competent witness; but in case the defendant denies guilt, her testimony must be corroborated as to material facts, though the fact of the rape need not be proved by other witnesses.

The foregoing paragraph shows that there will be many cases of the crime of rape in which no technical medical testimony will be required; but frequently medical evidence will be called for—not in any sense to define legally an act of sexual congress, but to assist in the determination of the question whether sexual contact has taken place or not. The physician may be required to give evidence concerning facts which indicate whether coitus has taken place or not; or he may be asked to give testimony concerning any evidences of physical force used in the accomplishment of sexual intercourse.

Conditions that Indicate that Coitus has Taken Place.—Physiologically, coitus consists of *immissio penis* and *emissio seminis*; but the latter is not essential to the crime of rape. Moreover, *immissio penis* need not have been complete, the slightest penetration of the female genitals by the male organ being sufficient in the legal sense. For the purposes of diagnosis, attention must, of course, be directed to the female; for examination of the male can reveal nothing, save in those cases where the demonstration in him of venereal disease or of marks on his person indicative of resistance offered by the female is of importance.

Examination of the female will have for its object the determination of the existence of anatomical conditions or changes affecting her genitals that indicate whether coitus has taken place or not; whether there are evidences of the ejaculation of semen in or about her genitals and clothing; whether her person presents signs of violence; and whether there is any existing venereal disease or evidence of its previous existence.

The Anatomical Changes of the Female Genitals Induced by the First Act of Coitus.—In females that have had coitus many times, and in those that have borne children, the changes that have taken place in the form and condition of the genitals are necessarily of such a nature that a single act of normal coition would leave no immediate anatomical evidence of its occurrence. The repetition of the act of sexual intercourse, and, much more, the occurrence of labor, enlarge the genital passage and render its tissues yielding, so that the single act of coitus takes place without leaving a change in the parts. Still, even under these circumstances, the act may be done with such brutality as to leave marks in the form of abrasions and lacerations. In the vast majority of instances of rape, however, the crime is committed on virgins; and often in such cases the questions the physician may be called upon to answer are: (1) Is the alleged victim a virgin? (2) Do the genitals present evidence of recent or remote defloration?

In a virgin, as a rule, the labia majora are firm, large, and well-rounded, their edges lying in intimate contact in the median line, and completely covering the labia minora; the labia minora present a bright-red color; the vestibule is narrow; the hymen is intact; the vagina is narrow, and presents prominent folds of its walls.

While the state of the *labia majora* mentioned usually accompanies virginity, it is not a sign of much determinate value. The size and position of the labia with relation to each other depend in great measure upon the character and amount of subcutaneous adipose tissue in the parts. In healthy virgins there is usually an abundance of subcutaneous fat, and in consequence, the labia are full, well-rounded, and in close contact. Even in such instances, however, the labia readily separate with separation of the thighs, and this must be remembered in any conclusions drawn from examination of the labia. Anything that leads to deficiency of subcutaneous adipose tissue may alter the relations of the labia and cause them to separate more or less completely. In thin subjects, whether children or virgins, the examiner must expect to find more or less deficiency of median contact of the labia; but, on the other hand, if a female is well-nourished and youthful, the labia may still be in close contact, even though coitus has been performed many times. Again, as age advances the subcutaneous areolar tissue loses that firmness characteristic of youth, and in consequence, though well-nourished and a virgin, a female beyond the years of youth may show marked separation of the labia. From these facts it will be seen that the conditions and relations of the labia depend more upon the general condition of health and age than upon whether coitus has taken place or not.

The condition of the *labia minora* depends largely upon the condition of the *labia majora*. As long as the nymphæ are covered by the latter, the membrane covering them retains its original characteristics; it is moist, and presents a rosy tint. After alteration of the position of the *labia majora* induces constant exposure of the nymphæ, the mucous membrane covering them undergoes changes which cause it to resemble epidermis. It is less moist, and the rosy hue changes to a distinct brown. This dependence of the condition of the *labia minora* upon the condition of the *labia majora* allows no absolute value to attach to the condition of the nymphæ in determining the question of virginity.

The condition of the *hymen* is of much greater value as evidence of

virginity or defloration. But even the state of this membrane will not always save from an erroneous conclusion. The hymen is not always ruptured in the first coitus; it has been found intact even after labor. Moreover, the hymen may be altered by other means than the penetration of the male organ.

The hymen frequently presents anomalies and defects, as well as variations of form of slighter degree; and an understanding of these possibilities is of great importance for a correct appreciation of the changes in the hymen induced by coitus.

The hymen is commonly regarded as merely a fold of mucous membrane closing, more or less perfectly, the entrance of the vagina; but Pozzi* has shown it to be a structure of much more definite morphology. The hymen makes its appearance somewhat late in fetal life, for it cannot be distinguished until after the fourth month, when the differentiation of the genital organs has become quite complete. At first it is seen as two folds which appear, one on each side, at the opening of the urogenital sinus. Advancing in development, these two folds meet and fuse in the median line, leaving at the vaginal orifice the hymeneal opening. The primitive folds of the hymen extend forward from the ostium vaginae to the base of the clitoris, forming a circular fold about the orifice of the urethra, and uniting in the median line of the vestibule to form the frenum masculinum. Thus, morphologically, the hymen is the representative of the male corpus spongiosum, and it is to be regarded as an organ modified by arrest of development.

In the infant the hymeneal folds are well developed and prominent, but the vestibule lies deeply between the labia. It is pointed out by Pozzi† that when the hymen has the labiated form (two lateral folds), in the infant it might be mistaken for the nymphæ, owing to the considerable size of the folds at an early period of life, and lead the observer to conclude that the hymen is absent or destroyed. The possible medico-legal importance of such an error is apparent. In children at birth, owing to the depth of the vestibule, the hymen is more deeply placed than later in life. However, this infantile peculiarity may persist in youth and be found even in adult life. Turnipseed‡ states that in the negro race this peculiarity is very marked. Such a deep situation of the hymen, especially in adults, might lead to the erroneous conclusion that it is absent.

Congenital absence of the hymen is certainly very rare. Modern observers are in accord in stating that they have never met with an instance of it. The cases of it reported by older writers are probably examples of erroneous conclusions due to a want of knowledge of the possible variations in form and situation to which the hymen is now known to be subject.

In structure the hymen is usually thin and membraniform. It is made up of the folds previously mentioned, which lie in apposition. These lateral folds may remain perfectly distinct; but usually they are fused together more or less perfectly, commonly leaving a single opening into the entrance of the vagina. In some cases, however, there are marked deviations from the ordinary structural characteristics. The

* S. Pozzi: "De la Bride Masc.," etc., *Bull. et Mem. Soc. Biolog.*, January 26 and February 16, 1884.

† *Gynecology*, vol. ii., p. 443.

‡ *Am. Jour. of Obstet.*, 1877, vol. x.

hymen may be found thick and fleshy; or it may be so dense and inelastic as to present an obstacle to normal coitus which the male organ cannot overcome. On the other hand, the hymen may be so elastic and yielding as to survive uninjured the strain of coitus, or even that of labor. However, instances of the latter kind must be exceedingly rare. The condition of an uninjured hymen might be of some value in determining the question of coitus. A dense, unyielding hymen would positively exclude complete penetration, providing its opening were sufficiently small to prevent *immissio penis*. On the contrary, an uninjured hymen of exceptional elasticity would not prove that the act of coition had not been performed. It should also be remembered that it is possible to dilate the hymeneal orifice gradually without gross injury to its tissues. By this means rupture of the hymen is avoided in the gynecological treatment of virgins. Exceptionally, the hymen is exceedingly vascular, and in such cases its rupture may be attended with alarming and even fatal hemorrhage. Cases of multiple hymen have been reported; but all such instances are to be explained as the results of pathological adhesion of the vaginal walls. Such adhesions usually occur early in life, if at all, and they may persist up to adult age.

Since the hymen is developed from two lateral laminae, as might be expected, in childhood it is usually found in the labiated form. Gradually these original laminae become fused in various ways, leading to a great variety of forms of the fully-developed hymen. In the adult the hymen is most commonly *annular* in form (Fig. 69); but this type has received various names in accordance with the variations of form produced by variations of the position of the hymeneal orifice. Infrequently the opening is found occupying a central position in the membrane. More commonly the orifice lies in the anterior half of the membrane. The shape of the hymen varies also in accordance with the size and form of the opening. The hymeneal aperture may be circular, but more commonly it is oval, with its long diameter lying antero-posteriorly. The diameter of the opening varies widely. It may be so narrow, both in children and adults, as merely to allow the passage of an ordinary sound (10 mm.); or it may be so large that the hymen forms scarcely any obstruction at the entrance of the vagina. *Imperforate hymen*, while occasionally observed, is certainly a rare condition; more commonly the atresia of the vagina, presumed to be due to imperforate hymen, is due to an imperforate condition of the vaginal canal itself. Under such circumstances, the hymen is found in close contact with the imperforate membrane derived from the fusion of the vaginal walls, the

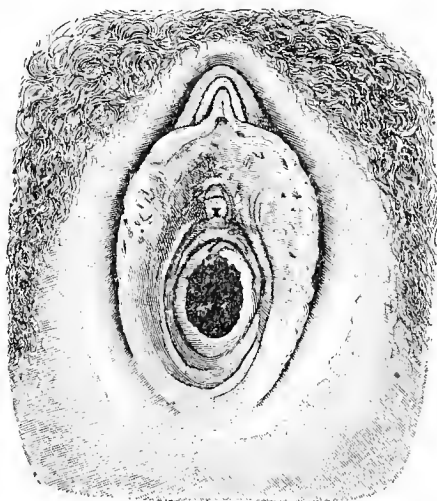


Fig. 69.—Annular hymen. (After Hofmann.)

hymen presenting its normal perforation. When the hymeneal opening is comparatively large, and anteriorly situated, the hymen has the *cre-scentic* form (also called *falciform*). (Figs. 70 and 71.) A crescentic hymen with the orifice lying posteriorly, and the membrane anteriorly, is un-

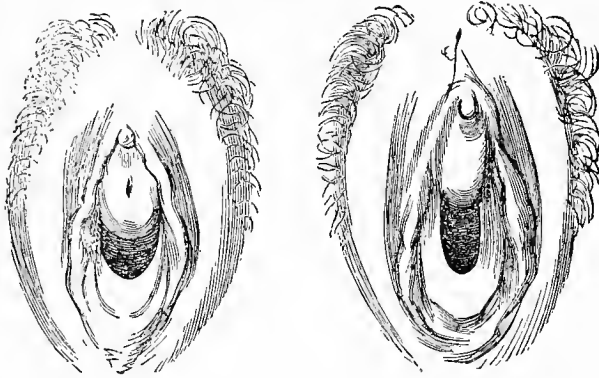


Fig. 70.—Crescentic hymen. (Roze.) Fig. 71.—Crescentic hymen, horseshoe. (Roze.)

known. When the opening is long and narrow, running antero-posteriorly, the membrane is practically made up of two symmetrical lateral halves, and the hymen is then said to be *labiated*—a persistence of the common infantile form.

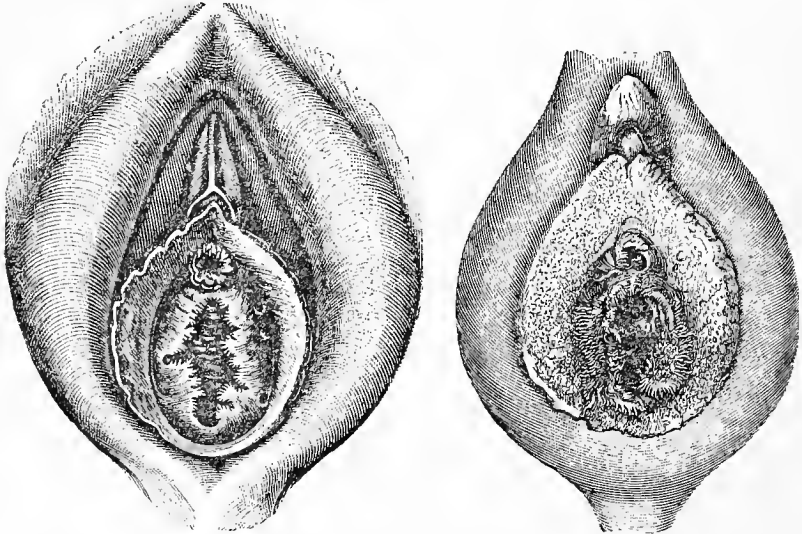


Fig. 72.—Hymen fimbriatus, intact. (After Hofmann.)

Fig. 73.—Ruptured hymen fimbriatus. (After Hofmann.)

The free edge of the hymen bounding its orifice is subject to much variation in form, and this occasions a variety of forms of hymens. In many cases, when the membrane is made tense, its free margin may be traced as an unbroken line, forming a ring or semicircle, as the case may be. Aside from variation in general outline, however, the free edge

may present various irregularities. It is frequently found notched. These indentations of the free margin may be situated anteriorly or posteriorly, but their most common seat is in the anterior part of the membrane. Usually the membrane is notched symmetrically on each side. The notches vary in depth, from a slight irregularity of the edge of the membrane to division of the membrane down to the vaginal wall. Thus two deep notches symmetrically placed, one on each side, may divide the hymen into four parts. There may be an anterior and a posterior notch on each side. These natural irregularities of the free margin of the hymen, when present, are of some medico-legal importance. Careless observation might mistake them for artificial tears that had healed. Close examination of such natural notches will show the absence of cicatricial tissue and the integrity of the mucous membrane covering them. In rare instances the free edge of the hymen presents a large number of shallow notches; and still more rarely it may be fringed (*hymen fimbriatus*, Figs. 72 and 73). The hymeneal orifice may be found divided by a narrow band of membrane (*hymen septus*). The membranous septum dividing the orifice usually extends antero-posteriorly, either in the median line or somewhat obliquely. The two hymeneal openings, under such circumstances, may be approximately equal, or very unequal, in size; commonly they are manifestly unequal. (Fig. 74.) The *hymen septus* has been looked upon as a proof of the origin of the hymen in the Müllerian structures; but, as previously shown, other considerations must cause the abandonment of

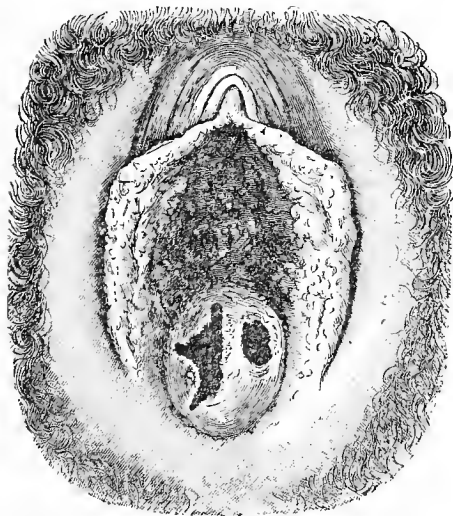


Fig. 74.—Hymen *septus*, with unequal openings. (After Hofmann.)

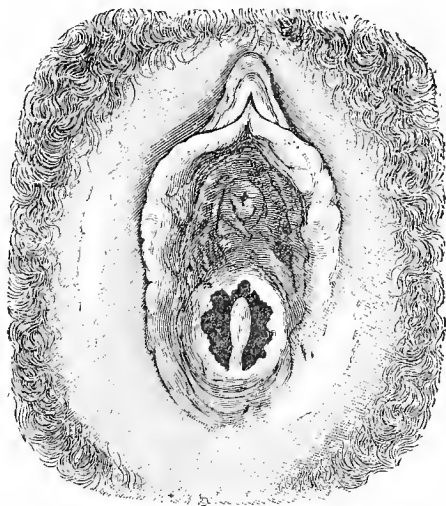


Fig. 75.—Hymen with posterior rudimentary septum. (After Hofmann.)

this view. In some instances but one lateral hymeneal orifice is found, the other having become closed. In other instances the septum is found attached to the edge of the hymen only at one point, so that it forms a long, slender process. (Fig. 75.) In very rare cases the hymen presents a large number of small perforations, constituting the variety called *cribiform*.

In the normal, unstrained position of the genitals, the hymen does not present at the opening of the vagina as a tense membrane; rather it

is seen folded on itself. The manner in which the hymen is folded, under such circumstances, varies somewhat in accordance with its form. The crescentic hymen presents a median antero-posterior fold, resembling a raphé; the edge of the circular hymen is folded in such a way as to form the wrinkled apex of a cone directed externally. With wide separation of the thighs and labia, these conditions are altered; the membrane becomes more or less tense. This is more especially true in adults; in children separation of the thighs and labia does not so readily affect the state of the hymen, because, in early years, it is of greater area than the introitus vaginae.

The presence of an uninjured and intact hymen is in itself strong presumptive proof that the normal and complete act of coitus has never taken place. Such a hymen does not, however, exclude, in any case, the possibility that partial penetration, as into the recess between the labia and into the vestibule, has taken place. Furthermore, notwithstanding the intact condition of the hymen, its physical peculiarities are of importance, as has been previously mentioned. An uninjured hymen might exhibit such a marked degree of elasticity as to raise the question of its possible distention without rupture in the act of coitus. Again, the size of the hymeneal orifice might have some bearing upon this point: an opening unusually large would require less elasticity in the narrow membrane to permit penetration by the male organ without rupture; an opening of small diameter would speak against the possibility of complete penetration without rupture, notwithstanding marked elasticity of the hymen. Of course, in all questions on these points the size of the male organ must be considered.

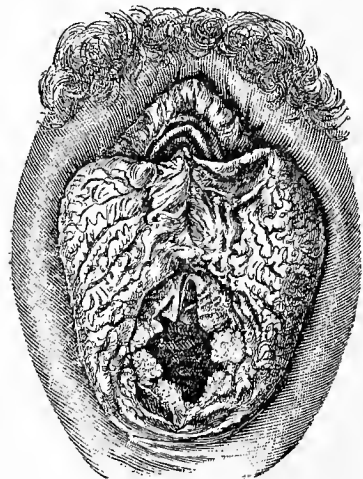
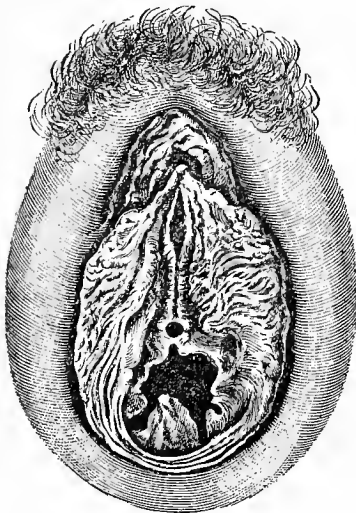


Fig. 76.—Ruptured crescentic hymen, with two lateral lacerations. (After Hofmann.) Fig. 77.—Circular hymen, torn in several places. (After Hofmann.)

As a rule the hymen is torn more or less in the first act of coitus. The resulting lacerations of the membrane vary in character, in part owing to the variations in its form and structural character. Usually

such lacerations start from the free margin of the hymen and extend through the membrane to its junction with the vaginal tissues. Usually the labiated hymen is found torn posteriorly in the median line, the tear dividing the hymen into two perfectly distinct lateral valves. The crescentic hymen commonly tears on each side in such a way as to leave an approximately triangular median valve attached along the posterior edge of the vaginal entrance. (Fig. 76.) The circular or annular hymen tears in four or more places, dividing the hymen into several valvular remnants. (Fig. 77.) The structure of the hymen may determine departures from these rules. Relative weakness of one part may influence the direction and extent of the laceration. The hymen *septus* is peculiar in this respect, that laceration of but one side may take place, the septum and opposite side remaining intact.

In recent cases it cannot be difficult to recognize that rupture of the hymen has taken place. There will be the history of hemorrhage, and perhaps the evidences of it. The membrane will present the unhealed edges of the lacerations; and the remaining tissue of the hymen will probably show some degree of inflammatory hyperemia and swelling. As a rule hemorrhage is insignificant where the laceration is confined to the hymen itself, but it may be, as already mentioned, so considerable as to call for surgical interference.

Profuse hemorrhage following a first coitus, or, more especially, an attempt at rape, is usually due to laceration of other parts than the hymen, either directly or by extension of the laceration of the hymen into the vaginal wall.

Repair of the ordinary lacerations of the hymen takes place in two or three days, but the severer and more extensive tears may require a considerable period to complete healing. The presence of inflammatory redness and swelling and exudation about the edges of the wounds of the hymen makes the diagnosis of recent hymeneal rupture easy. To recognize that the hymen has at one time been lacerated, after repair has been completed, is much more difficult in some cases. If the laceration has been extensive, with consequent imperfection of repair, the case presents no difficulty. It is otherwise, however, where the lacerations have involved merely the free edge of the hymen. In such a case repair may have left nothing more than slight notching of the margin of the membrane, and very careful examination may be necessary to differentiate between cicatricial and natural notching of the free edge of the membrane. Marked cicatrices result only where the laceration has been considerable. The slighter artificial notching may be distinguished from that

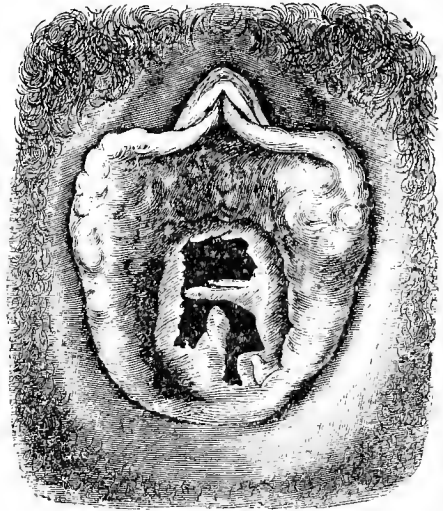


Fig. 78.—Ruptured hymen *septus* (after Hofmann).

normally present in some cases by the superficial deficiency of the mucous membrane; by the peculiarity of the outline of the edge of the notches, irregularity being characteristic of those due to laceration; and by the presence of cicatricial tissue. The examination of the hymen for laceration must be very carefully conducted, especially in children, with a view to the avoidance of injury to it at the hands of the examiner; for an injury inflicted in this way might mislead at a subsequent examination.

Coitus, though the commonest, is but one of many ways in which injury of the hymen may originate; and in any case it may become important to exclude or establish the influence of other causes than coitus to which an existing injury of the hymen might be attributable. Injury of the hymen by forcible separation of the thighs is scarcely possible, save as a feature of a laceration of the perineal structures, which could occur only as the result of force sufficient to accomplish dismemberment. In children the most extreme separation of the thighs compatible with integrity of the limbs and perineum would still have no lacerating effect on the hymen, owing to the fact that the infantile hymen is of greater extent than the dilated introitus vaginae. Falls on the perineum, with impact upon objects capable of exerting localized pressure and partial penetration directly between the labia, or of driving the soft parts upward into the pelvic outlet, might lacerate the hymen; but isolated rupture of the hymen by accident of this nature would be possible only under most peculiar circumstances. It is thought that the practice of masturbation commonly leads to injury or alteration of the hymen; this may be true in youthful and mature females, but quite the contrary is the fact in the case of young children. Undoubtedly manustupration is a very common practice among female children, as it is among boys; but the manipulations are usually confined to friction and titillation of the clitoris and inner surfaces of the labia. These parts early have an erogenous power, while the introitus vaginae and other parts do not become erogenous until quite late; not until puberty, and in some cases not until after the first act of coitus. In children it is common to find that attempts have been made to pass objects into the urethra. In case the finger or other objects have been passed into the vagina, the insertion has been gradually accomplished and the hymeneal orifice dilated rather than the membrane ruptured. Pruritus from any cause in children might occasion so severe rubbing and scratching as to lead to injury of the hymen. This is a more frequent cause of injury to the hymen in children than simple manustupration. Cicatrices may be found on the hymen that have resulted from disease-processes like diphtheria, noma, and smallpox; but in such cases the character of the scars and the history will usually make the diagnosis of their nature easy. Venereal disease may also give rise to cicatrices on the hymen, and that too when no rupture of the membrane has taken place.

The first coitus may occasion injury of other parts besides the hymen. The fourchette is, with the hymen, the part most frequently involved; but laceration of the nymphæ and even rupture of the perineum have been known to result from it. However, such injuries are unusual, and could but seldom be caused by simple coitus in a fully developed female. In children it is otherwise. Forcible penetration of the adult male organ into the vagina of a child or immature girl might cause rupture of the fourchette, the perineum, and even the vagina. The cases reported

in which such extensive injury was inflicted are, for the most part, those of children under the age of fourteen. Where such extensive lacerations are present, especially in mature females, there is always great probability that they have been brought about by other means than the penis. Insertion of the finger is capable of occasioning rupture of the hymen like that due to penetration of the penis, but the finger may inflict much greater injury than the male organ, if used with any great force or misdirection. Laceration of other parts than the hymen, even in small children, is more frequently due to attempts at manual dilatation on the part of the rapist than to forcible attempts to introduce the penis. Injury of the vestibule and urethra, under such circumstances, is almost invariably due to manual effort.

The state of the vaginal wall and mucous membrane in themselves in mature females, aside from gross injury, can afford no evidence as to whether primary coitus has taken place or not; in children, however, the vaginal passage, which is narrow, may, after distention by an adult penis, present evidence of its having been dilated. On the other hand, habitual repetition of the act of coitus does induce quite characteristic alterations of the vagina; it loses the folds characteristic of its virgin state, and the mucous membrane loses its primitive delicacy of structure; and the tissues and muscles about the introitus vaginae become relaxed. These changes, secondary to repeated coitus and labor, are of interest here only as circumstances which render impossible anything like anatomical evidence of the single act of normal coitus.

Proof of the presence of semen in or about the genitals of the female, or on her clothing, may be of great importance in some cases of alleged rape. The secretions found in the vagina and uterus a short time after the alleged perpetration of rape may afford incontestible proof of sexual contact. For purposes of examination, a small quantity of the secretions should be taken from the parts and preserved between glass slides or otherwise for microscopical examination. Dried secretions found on the external genitals or genital hair may afford the same proof of male contact or proximity. Such dried secretions should be carefully scraped from the parts, or removed by severing the hair to which they are found attached, and carefully preserved. Stains found upon the linen should also be taken for microscopic examination. Stains may be preserved for examination by cutting out the parts of the garments that present them. When possible, such specimens should be submitted to an expert microscopist for examination and report; but it may be necessary for the examining physician to give his opinion upon the nature of such findings.

The only distinctly characteristic constituent of semen is the spermatozoön; all other organic bodies found in the seminal fluid are of too little definiteness of form to permit a just conclusion as to the nature of a specimen in which spermatozoa are not found. On the other hand, failure to find spermatozoa in suspected fluid or stains is not proof that they are not of seminal origin. Spermatozoa are not infrequently absent from the semen of men given to sexual excesses, and of those that have suffered with epididymitis.

The examination of a fluid suspected to contain spermatozoa is simple. A drop of the fluid placed on a glass slide is covered with a cover-glass and examined through a lens of high power. If the specimen

contain living spermatozoa they will be seen moving about in the field as cell-like objects, the tail-like processes, owing to their rapid vibratory movement, being all but invisible. When the spermatozoa are lifeless the processes are readily distinguished. To prepare a specimen of dried secretions for examination, a drop of distilled water is placed on a glass slide and a particle of the dried matter dropped in it. As the particle imbibes water it should be gently teased with needles until it is quite broken up and diffused. Covered with a glass, the specimen is then ready for examination. For examination of a stain on linen, a portion of the stained fabric should be soaked in a drop or two of distilled water, and the resulting solution may then be examined in the manner described. It is remarkable how long, under favoring circumstances, spermatozoa retain their characteristic form. They have been demonstrated in secretions that have remained desiccated many months, even years. Water quickly kills spermatozoa; therefore, to demonstrate their comparatively recent deposition in the female genitals by finding them active, it is necessary to examine secretions almost immediately after their removal, and that without the addition of water to them. Formerly certain peculiarities of seminal stains were held to be characteristic; but their presence could establish nothing more than a presumption that the stains were of seminal origin in the absence of microscopic demonstration.*

Venereal disease frequently plays an important part in cases of alleged rape, as evidence that sexual contact or coitus has taken place. In a medico-legal case where the question of the existence of venereal disease in the plaintiff calls for an answer, the greatest care and accuracy in diagnosis are demanded of the medical witness called upon to answer the question. Fortunately, in the case of gonorrhœa, the bacteriological examination is capable of giving positive evidence of the nature of a genital discharge in certain cases. The gonococcus, when found, is an absolute demonstration of the venereal nature of a genital catarrh; its absence, or failure to find it, however, does not constitute negative evidence of like value. It is mainly in the acute stage of gonorrhœa that the presence of the gonococcus is easily demonstrable in the discharge. At an acute stage, it will be found in the vaginal secretions, and, in children especially, in the moist secretion bathing the mucous surfaces of the vulva. In the chronic stages of the disease it is less apt to be discovered in the vaginal secretion, but may still be found in the cervical mucus, and in the secretions expressed from the urethra, which is the preferred habitat of the specific microorganism. What is true of the gonococcus in the female is also applicable to the male. It is found easily in the discharge from the male urethra during the acute stage of gonorrhœa; in a chronic stage its habitat is the deeper portion of the urethra, and it is difficult to demonstrate its presence in the gleet discharge. With reference to the value of the bacteriological examination of discharges suspected to be gonorrhœal, it may be said that the discovery of the gonococcus is an absolute demonstration of the venereal nature of a discharge; that failure to find it in the discharge from an acutely inflamed genital surface constitutes presumptive evidence that the inflammation is non-venereal in nature; that failure to find it in a discharge of a chronic character is of no value as an aid in the determination of the real nature of the disease.

* Cf. *Seminal Stains*, vol. i., p. 184.

There is neither space nor need here to give the technical details of the bacteriological examination for the determination of the specific nature of discharges; such an examination, for medico-legal purposes, must needs be made by an expert bacteriologist.

The necessity for accurate determination of the nature of a malady affecting the female genitals is shown especially in those cases where the existence of the disease constitutes the basis for the institution of criminal proceedings; and such cases have not been rare, especially in Europe. There is a belief more or less prevalent among some of the more ignorant peasantry of Europe that obstinate gonorrhœa in the male is to be cured by sexual intercourse with a virgin—hence, with a child. This leads, not infrequently, to the allegation that a simple vaginal catarrh in a child is the result of infection at the hands of some infected male. Such a belief is nowhere prevalent in the United States; but, owing to the immigration of the peasant classes of Europe, the possible operation of such an idea in the production of sexual assault on children, and in the preferment of charges of rape, based upon simple genital disease in them, should be kept in mind.

Important as the proof of venereal disease is as an evidence of sexual contact, it is never of absolute value in itself. The genitals may become infected with venereal disease in many other ways. A case* is on record where two female children were infected with gonorrhœa by means of a sponge used in the bath, the sponge having been previously used by a man suffering with the disease. Genital infection might be brought about by the hand of an infected masturbator; or a child might infect its own genitals with its own hands, after manipulation of the diseased genitals of another person. Again, one infected female might infect another, were mutual genital manipulation, or genital contact, to be practiced. The latter possibility will seem less improbable if it is remembered that there is a record of the transference of seminal fluid from one female to another, resulting in the pregnancy of a woman who had never known male contact. It is also conceivable that a female presenting signs of the secondary stage of syphilis might make them the basis of criminal accusation. With syphilis, as with gonorrhœa, the possibilities of infection are not exclusively genital. Kissing is a very frequent manner of communicating the disease; and genital osculation, or cunnilingus, is another possible source of genital infection.

A genital discharge due to simple inflammation of some portion of the genito-urinary tract of females, both adults and children, may be due to a variety of causes. It is very common for the virgin to have a simple leucorrhœa; and the existence of it may predispose to the development of an intense muco-purulent inflammation immediately upon the performance of the first coitus; and that without specific infection of any kind. This possibility is capable of raising more than one important medico-legal question. A bride has been known to sue for divorce on the ground that she had been infected by her newly made husband, when the disease was due only to the mechanical irritation of the first coitus. Again, in females that have been raped, it is common to find such a non-specific discharge from the genitals when they are examined shortly after the crime; and it is important not

* Ryan, cited by Hofmann, *Gerichtliche Med.*, p. 137.

to mistake this for gonorrhœa. For gonorrhœa may not be found in the alleged ravisher, and thus a false ground for defense might be established. Among the more common causes of muco-purulent genital discharges in females are disordered menstruation; masturbation, however practiced; skin diseases; oxyuris vermicularis, alone or in conjunction with manual irritation. Genital catarrh may also be an accompaniment of a general enfeebled state of the organism, as in tuberculosis and chlorosis. Vulvo-vaginal catarrh sometimes occurs in an epidemic form. The possibility of diphtheritic inflammation of the genital mucous membrane is also to be remembered.

The close resemblance of venereal inflammation to simple inflammation of the genital mucous membrane has led designing mothers to excite the latter in their young daughters, by mechanical means, for the purpose of blackmail or revenge.

In a given case it may become essential to determine the relation between the alleged time of infection with specific venereal disease and the stage of the malady indicated by conditions found upon examination. It is necessary, therefore, to consider the periods of incubation more or less characteristic of such affections. Great care must be exercised in giving medico-legal opinions concerning ulcerative processes affecting the female genitals. The differentiation of such processes from syphilitic sores does not present much difficulty; but errors may be made if it is not remembered that ulcers of other kinds may simulate the hard chancre, owing to some induration of their bases; that syphilitic induration is not always typical. The diagnosis is not to be made until after thorough consideration of all the evidence. The diagnosis of soft chancre is to be made more especially from its course than from its character and seat. To be sure, soft chancre can be diagnosticated by inoculation on the person affected, but such a means will rarely be expedient. It may be necessary to distinguish soft chancre from herpes. Ulcerative and gangrenous processes of various kinds affecting the genitals may be mistaken for venereal affections; more especially noma and diphtheritic ulceration, which sometimes affect the genitals of female children after scarlet fever, typhoid fever, and measles. For the expression of a medico-legal opinion in cases where the question of venereal disease is a matter for decision, it will be seen that a thorough acquaintance with all the characteristics of the venereal affections is essential; however, such knowledge is to be gained best in works devoted specially to them, and it does not fall properly within the scope of this article to enumerate diagnostic criteria.

In any case where the existence of venereal disease is accessory evidence of rape, examination of the person of the accused will give additional evidence of great importance. It is impossible to do this, however, without the consent of the accused. The presence of similar disease in the person accused becomes strong circumstantial evidence against him. It is to be remembered how chronic gonorrhœa in the male may easily escape observation, and precautions are to be taken to guard against such an error. The urethra is to be examined some hours after the last act of urination. A gleet, while on the whole less infectious than a gonorrhœa in its active stage, may infect, and that the more readily in case of genital contact with virgins and children. On the other hand, the existence of disease in the female and its absence in the male accused is evidence of his innocence and of her lewdness. Still,

there may be sexual contact under such circumstances without infection. However, a diseased prostitute accusing a man of rape would with difficulty sustain her charge in case the accused were free from infection. Again, the absence of disease in the accusing female and its presence in the accused male would constitute strong evidence that sexual contact had not taken place, especially were the female a virgin or a child, and the disease gonorrhœa; at the same time, these conditions would not actually disprove sexual contact.

The Physical Evidences of Force.—Since there can be no rape where there has been no force, actual or constructive, it may become the duty of the medical witness in a trial for rape to give testimony concerning tangible evidence of the use of physical force. Severe injuries, such as might result from blows, choking, brutal violence to the genitals, etc., do not present any difficulties; where injuries are slighter, the question of their self-infliction by the alleged victim must be considered. Signs of force may speak as well for the degree of resistance of the victim. The old question whether it is possible for a single man to force a woman of good physical development, while in full possession of her senses, to submit to coitus, is quite beside the mark in cases of actual rape. Under such circumstances, though a woman might appear to be physically capable of successfully resisting the sexual approach of a man, her failure to do so would be no evidence that she had not offered all the resistance possible for her at the time. Even though the man were proportionately weaker than the woman the same would hold true; for the psychological excitement induced in the woman by the attack might be sufficient to make her physical resistance less effectual than it would otherwise be. When a woman is attacked by a man with intent to compel her submission to coitus, no matter what her physical strength, the initial energetic resistance she offers will probably grow less under the influence of pain inflicted by the ravisher in his efforts, and as a result of the woman's psychological excitement and fear that the greatest bodily harm may be inflicted. The woman's mental condition may, through apprehension, finally become such as to make physical resistance no longer possible. However, remembering the frequency with which false charges of rape are made, it may become necessary to consider the comparative strength of accused and accuser. In case it seems that the woman were capable of offering effectual physical resistance, it is proper to direct attention to the discovery of conditions that may have prevented its exercise.

Where strenuous resistance has been offered by a woman, physical evidences of the force used by the man will rarely be wanting; always provided that they are sought before sufficient time has elapsed to allow their removal by natural processes. The physical evidences of force will be the more obvious the more strenuous and long-continued resistance has been. Scratches, bruises, and more serious injuries on the person of the woman may be in evidence. These injuries may be found on almost any part of the body, but they are most frequently seated on the limbs, especially the thighs. The external genitals often present evidence of violent treatment.

Some caution is necessary in determining the nature of marks presumed to be the evidence of the infliction of violence. Natural pigmentations of the skin have been mistaken for suggillations. Self-inflicted marks and injuries are usually slight, and to be found only on parts of

the person easily reached by the hands. The genitals are usually the parts chosen for injury by a woman seeking to deceive. In any case, injuries presented as evidence of force used in the accomplishment of rape are to be considered with respect to the relations their aspect at the time of examination bears to the time they are asserted to have been inflicted. The person of the accused may also give evidence of a physical kind of the resistance offered by the victim. Scratches, bruises, and wounds made by biting, may be found. Injuries of the male genitals are not unusual.

Moral Force.—When coitus is accomplished by means of threats of violence, the resistance of the female being thus precluded by fear, the act is none the less rape; but under such circumstances the evidence that resistance was thus obviated requires no medical interpretation. The threats used may be directed against the woman's own person or against others. Thus, a mother might be forced to submit to coitus by threats directed against her children. Resistance to sexual attack may be precluded by physical or mental conditions. A female in an invalid condition might be incapable of offering any physical resistance.

Fraud.—In law, intercourse accomplished through fraud, without intention to use violence, is not rape; but unlawful connection with a woman while she is asleep, unconscious, or insensible as a result of intoxication by alcohol or other narcotics, is commonly rape. Where coitus is accomplished upon a woman by a man who takes advantage of circumstances—darkness, etc.—to have himself mistaken by her for her husband, the act is one of fraud; and if there were no intention on the part of the man to use violence, such a crime could not be legally held to be rape. At the same time, a sense of strict justice could but regard such a crime as much a rape as coitus performed with a female whose senses have been befogged by intoxicants. Again, for example, coitus performed by a physician with a patient on the pretext that the act is a necessary part of medical treatment is not rape, but fraud; though it is possible that such a crime could be made rape in law by proving the imbecility of the victim; or her want of adequate knowledge of the nature of the act, if such could be shown, should establish the same degree of irresponsibility for consent that obtains in cases of children.

States of Unconsciousness.—It has been a mooted question whether coitus could be performed on a female sleeping normally without awakening her. That such a thing is possible must be admitted; but there would needs be a rare combination of circumstances to make the possibility an actuality. A married female might be subjected to the sexual act without rousing from slumber; but a female who had never performed coitus would certainly be awakened from any normal sleep by the unusual manipulations and pain necessarily attendant upon the act. Sleep and a favoring position, with absence of impeding garments, might make the commission of rape easier, and permit the perpetrator to gain such advantage that the female, on awaking, would find all her resistive efforts futile.

States of unconsciousness differing from that of normal sleep, in that they are deeper and less easily overcome, may be used as aids in the performance of unlawful coitus. Such unconscious conditions may be purposely induced for an ultimate sexual object; or being present, they may be utilized for such a purpose. A woman might be purposely in-

duced to take alcohol to intoxication, and her condition utilized for a sexual purpose. If, while intoxicated in this way, a woman still offered resistance to the sexual approach, or if she were so far unconscious as to know or remember nothing of the act, the crime would be rape. However, if under such circumstances a woman were to give consent, the criminal sexual act would not be rape, notwithstanding the contributing effect of the intoxicant, unless unconsciousness of the acquiescence could be proved. In such a case, where an adult female is concerned, it would be assumed that she were more or less acquainted with the effects of alcohol, and that she knowingly took that which would lower her moral resistive power. With a youthful female unacquainted with the effects of alcohol in the ordinary forms in which it is taken, the case would be quite different; and consent under such circumstances might not, or should not, qualify the crime.

Other narcotics might be purposely or secretly administered for the purpose of removing the possibility of resistance to sexual approaches. The most important of these are chloroform, ether, nitrous oxide, opium and its alkaloids, and chloral hydrate; but there are many other substances that might eventually be used to serve such a purpose. There are but very few cases on record in which the more powerful narcotics and anæsthetics have been used primarily with the purpose to induce a condition that would render resistance to coitus impossible; but there have been numerous instances in which the effects of these agents having been induced for other purposes, the opportunity has been used for sexual approach. This is especially true of anæsthetics administered for surgical procedures. Not infrequently the complaint is made that unconsciousness has been suddenly induced by the sudden and unexpected use of chloroform or similar agents. Such statements are to be accepted only with the greatest caution; for such substances do not produce immediate unconsciousness.

The question of the possibility of chloroforming a sleeping person without disturbing the slumber may call for an answer. Experimentation to test this problem has shown that it is possible to induce anæsthesia with chloroform without interrupting normal sleep; but to do this successfully, knowledge of chloroform and skill in its administration are required; and even with every scientific precaution the chance of failure is as good as that of success. Therefore, the probabilities are much against the success of an attempt by an unskilled operator to chloroform a sleeping person without breaking the sleep. Where other narcotics are in question, an appeal to known physiological actions will often prove valuable in determining the nature of testimony.

Other states of temporary unconsciousness seldom afford opportunity for sexual approach. Maschka records the case of an epileptic girl who accused a man of having had sexual intercourse with her while she was unconscious after a seizure; but the details she gave of the events that took place during her unconsciousness were sufficient to invalidate her testimony.

Hypnosis might be used as a means to prevent resistance to sexual approach; but all cases in which accusations are made upon this basis should be scrutinized with the greatest caution. In such a case, it may not be difficult to prove that the female is amenable or not to hypnosis, or to detect malingering; but it may be impossible to show that she was

in an hypnotic state at the time of the alleged sexual assault. In the cases of this kind thus far reported, the females have been invariably hysterical. Again, the hypnotic state is in itself an abnormal state of consciousness, and any statements based upon perceptions of events had during such a condition should be accepted only with a full understanding of that fact. The hypnotic state is one preëminently hallucinatory, and therefore prone to originate false ideas, especially in the hysterical subject. For this reason, there can be no excuse for the induction of the hypnotic state in a female by a man without the presence of witnesses.

Certain autohypnotic or cataleptic states that sometimes occur in hysterical females might be used for sexual purposes; but here, as in states of hypnosis induced by a second person, testimony given by the subject should be corroborated by more objective evidence than alleged perceptions of events during such an abnormal state of consciousness.

False Accusations.—Women frequently accuse physicians and dentists of having taken improper liberties with them while under the influence of an anæsthetic. Experience teaches that such accusations are to be taken only with the greatest caution. In the majority of such cases, the statements are the outcome of illusions or hallucinations to which the female was subject during the period of temporary unconsciousness. Usually the alleged victim asserts that unconsciousness was incomplete; that while robbed of all power to make any resistance, there was still consciousness of all that was taking place. Where testimony of this character is offered, it should never be given weight without other independent evidence; for it is testimony concerning events confessedly experienced or observed during an abnormal state of consciousness. This consideration alone should be sufficient to exclude it as trustworthy testimony. The best proof of the justification of this position with regard to such testimony is offered by the numerous cases in which such accusations have been made in the face of the contrary testimony of other persons who were present at the time of the alleged sexual assault—even of the parents of the accusing female. In the face of the frequency with which such accusations are made, no circumstances can justify the administration of an anæsthetic to a female by a physician without the presence of others.

Accusations of a sexual nature against physicians and others are frequently made as a result of more obvious mental anomalies in the accusers; but in such cases, the very nature of the accusations, with other evidences of mental disturbance, are usually sufficient to establish their true character. Designing females have taken advantage of the physician for purposes of blackmail, by lodging accusations of improper relations at times of consultation in the absence of witnesses. The frequent necessity for unwitnessed conference between physician and patient affords excellent opportunity for a designing woman. The possibility of trouble of this kind is so great that the physician jealous of his reputation cannot afford to take risks, more especially in the practice of gynecology; it is his duty to himself, as to his patient, to have a female witness at hand in all cases of genital examination, etc.

False accusations founded upon genital disease in children, and upon such disease induced for the purpose of blackmail, have been already alluded to in preceding pages.

States of Non Compos Mentis.—Unlawful intercourse with a female idiot or imbecile, or with an insane female, is commonly rape. In such a case resistance and force may have been in play, as in any other; but, under such circumstances, ordinarily the question of the crime of rape hangs upon the irresponsibility of the female for the assent she may have accorded. The proof of the mental condition of the prosecutrix then becomes indispensable; and this must follow on general psychiatric lines. At the same time, in case consent has been given by an irresponsible female, it would also be obligatory on the part of the prosecution to show that the accused was aware of the irresponsibility of the female, in order to bring the crime within the legal definition of rape.

Actual and Apparent Age.—Sexual intercourse with a female under the age of consent is, under all circumstances, rape. It would seem, however, that where the age of consent is high (fourteen years) there might be conditions which would mitigate the crime. Though under the age of consent, a girl might be so fully developed as to make her appear much older; and her consent to a sexual approach, or invitation of one, should then, in the ignorance of the man, be given the weight of the consent of one of the age which she appears. Such a case is considered by the Austrian law.

Sexual Assault of Children.—Rape of children is the most frequent form of sexual crime. The majority of children thus abused are of tender years; even babyhood is not exempt. The age in recorded cases ranges from eight months upward. There are no statistics showing the number of cases of rape and the proportion of children concerned in America, but statistics show that in France from 1851 to 1875 inclusive there were 22,017 cases of rape brought to trial. Of this number, but 4360 concerned adult females; the remainder, children. (Tardieu.) Of 406 cases of alleged rape examined by Casper and Liman, 84 percent. of the females were under the age of fourteen, and 70 percent. below the age of twelve; and in 248 cases reported by Maschka, the age was below fourteen in 171 instances.

It is but natural to seek soem reason for the great preponderance of such sexual assaults of children. The superstitious ignorance which fosters a belief that gonorrhœa is cured by intercourse with a virgin or child would have an influence to increase sexual assaults on children where it prevailed. Many times children are approached because they can be persuaded more readily than others to submit to embraces of the nature of which they are ignorant; or because, if need be, their resistance can be easily overcome. Similarly, old women may become victims by reason of their presumed lack of power to offer physical resistance. In some instances children fall victims to men who have not the courage (fear of impotence) to attempt intercourse with adult females. Through fear of possible failure with an adult, and consequent ridicule, a young man may first essay sexual contact with a child. Intercourse may be attempted with a child with the thought to seek a new stimulus to sexual power exhausted in sexual debauchery with women. Sexual assaults upon children by aged men are especially frequent. In such cases, in the male there is usually a coincidence of impotence and libido: sexual desire prompts to the sexual act; but consciousness of impotence, and the impossibility of gaining the consent of an adult to sexual approach,

cause such old men to seek children, in whose ignorance they would conceal their deficiency. In such men mental failure is an invariable accompaniment of such acts. Sexual perversion (erotic fetichism) might lead to an unnatural preference for children. Finally, in a certain proportion of cases, children fall victims to the sexual appetite of males through the accidental coincidence of association, inordinate passion in the male, and favoring circumstances.

In cases of alleged rape of children, consideration of the physical condition of the genitals of both parties becomes very important. The younger and more undeveloped the child, the smaller the possibility of actual penetration by the adult male organ. As a rule, owing to the common disproportion of size, the sexual contact is confined to the vulvar fissure. Where this disproportion exists, and the forced entrance of the penis is attempted, laceration of the child's genitals is almost inevitable, owing to the delicacy of the infantile tissues. Still, where lacerations of a child's genitals are found, the question arises at once whether they could have been caused by the erected male organ. Owing to the limited power of the penis to overcome resistance, where serious or extensive lacerations of a child's genitals are found they are to be attributed to brutal attempts to bring about dilatation by the fingers or other unyielding object. It should be remembered that even a child's genital passage may be enormously dilated by persistent gentle efforts, without the production of lesions; and marked disproportion between the age and the size of the genital passage of a child should be given weight as evidence that she has been used for sexual purposes.*

Secondary Consequences.—Medico-legal questions may arise concerning the ultimate consequences of rape to the victim. Impregnation may result, and place additional liability on the ravisher. Injuries inflicted by the rape may, aside from the effects of venereal infection, seriously affect the health of the female; and such injuries may even cause death, as numerous cases reported by Tardieu, Taylor, Casper, and others attest. Such cases show that death, under such circumstances, may result early or late, in accordance with the immediate cause. Thus it may be due to shock, hemorrhage, sepsis through wounds inflicted in the immediate sexual act, and to hemorrhages into the central nervous system. Genital wounds may directly or indirectly implicate the peritoneal cavity and lead to a fatal peritonitis. Since sepsis may play a very important part in these cases, it becomes of the greatest importance that the physician examining such an injured female exclude by the most rigid asepsis in his examination the possibility of a defense based on the assumption that he made secondary sepsis possible by his manipulations and instruments.

Rape of Male Children.—The English common law does not recognize rape of male children by mature females, but such an offense is recognized by the law of some Continental nations. In the United States such crimes are punishable under the laws of some States, as indecent assault. The most serious consequences to such children is venereal disease, aside from moral injury, and cases of this kind are not of great rarity.

* Cf. *Indecent Assault upon Children*, vol. i., p. 649.

SEXUAL ABUSE OF CHILDREN.*

Closely related to the crime of rape, but widely separated from it in a legal sense, is sexual abuse of children. The common law does not recognize sexual abuse of this nature as such, but such immoral acts may become the basis of legal proceedings, and various medico-legal questions may be raised in such cases.

Sexual abuse, in the sense in which it is here employed, signifies sexual manipulations which are unrelated to the normal sexual act. Masturbation may be practiced upon the person of a male or female child by a man or woman; or children may be induced to perform such an act on one another as an exhibition; or, again, they may be persuaded to manipulate the genitals of the seducer, male or female.

For the most part, the cases of this kind that have the greatest medico-legal importance are those in which female children are abused by men. In such cases, questions arise similar to those that are of such importance in instances of rape under like circumstances. The age of the alleged victim would be determinate. It would be essential to consider any evidences the female genitals might afford of the nature of abuse. The presence of coarse anatomical changes will depend, of course, upon the force or brutality of the manipulations to which the parts have been subjected, and as well upon the frequency with which they have been repeated. Merely gentle titillation would leave no sign behind, unless frequently repeated; and it would be necessary to emphasize the impossibility of distinguishing a condition of irritation induced at the hands of a second person from that due to self-abuse. At the same time, the child is apt to confine her manipulations to the vestibule; a second person of maturer years would be almost certain to attempt to enter the vagina. The state of the hymen and the hymeneal opening, as well as the capacity of the vagina, might give evidence of laceration or dilatation. Where gross anatomical changes of the genitals of a female child are found, the question of rape arises; but it must be remembered that such changes are much more commonly the result of manipulations made preparatory to an attempt to introduce the penis than the result of the primary introduction of that organ. Too, injuries may be found which could not possibly have been induced by the male organ.

Other forms of sexual abuse of children can seldom afford physical evidence of their practice in effects left in the genitals. Medico-legal questions in relation to such crimes will oftenest arise in respect to the mental condition of the perpetrators.

SODOMY.

In English common law, sodomy is a very broad term, covering pederasty, buggery, and bestiality. The common law defines sodomy as carnal knowledge committed against the common order of nature by man with man, or with woman; or by man or woman with a beast. In early times in England the offense was regarded as highly penal. Gradually it came to be looked upon as less heinous, until by statute it was

* *Loc. cit.*

again declared to be a felony in the reign of Henry VIII. This statute was repealed and again revived in the time of Elizabeth. Thus, by the common law of the States sodomy is an offense; but whether it is a crime or a misdemeanor is uncertain. In England it was formerly the custom to burn or bury the offender alive. In the reign of Richard I. it was customary to hang a man and drown a woman proved guilty of the crime. The punishment now in England is penal servitude for ten years or more.

With sodomy, as with rape, it is necessary to have proof of penetration in order to establish the fact of carnal intercourse. The evidence of a prosecuting witness, if an accomplice, is not alone sufficient. The English common law takes no cognizance of the common form in which coitus is imitated by males between the thighs—*coitus inter femora*; and it makes no reference to an unnatural sexual act that women indulge in—namely, Lesbian love, or tribadism.

Pederasty in law is the act of *inmissio penis in anum*. Both parties to the act, where both are voluntary participants, and both have reached the age or condition of legal responsibility, are punishable. As indicated by the legal understanding of the term, pederasty may be accomplished by male with male or female.

Pederasty is both active and passive. The active part is always taken by a male; the passive rôle may be enacted by a male or female. The active party may perform the act upon the person of the passive party by force and without the consent of the latter; and under such circumstances pederasty becomes similar to rape. On the other hand, the act may be permitted by the passive party, who may be legally incapable of consent. Again, a passive party may persuade a legally irresponsible active party to the crime. However, the majority of the instances of the crime are cases where there has been mutual consent of both parties, with mutual responsibility, and consent of the passive party, with legal irresponsibility. Forcible performance of the act by the active party without the consent and against the will of the passive party is rare.

As in rape, so in pederasty, owing to the paramount importance of physical evidence, there has been a persistent effort made to discover pathognomonic physical signs left after performance of the act. Many such signs have been described by various observers, but they are of no trustworthy diagnostic value. They call for notice here, if for no other reason than to have their worthlessness pointed out. It is clear that the person of the active pederast could offer no unequivocal evidence that he had performed pederasty. Tardieu thought, however, that habitual indulgence in the act led to a change in the form of the glans penis, at least in some instances. In some pederasts he found the organ pointed. Such a peculiarity of form, however, could be justly attributed only to a developmental defect. The same may be said of constriction of the body of the penis at some distance behind the glans, which might be presumed to be due to pressure by the contracted sphincter ani of the passive party to the act. Abrasions of the penis might result from its forcible introduction into the anus, but such signs could, of course, have no diagnostic value.

Passive pederasty would seem capable of inducing more determinate anatomical changes in the person given to it; but practically such pos-

sible alterations are of little positive value save in a few instances. Where the *immissio penis in anum* has been forced, especially in children, abrasions, lacerations of the mucous membrane, and even more extensive tears, with accompanying signs of inflammation, might result; but in such cases, even more than in cases of rape, there would be the presumption that such wounds were caused by a more unyielding object than the penis. In adults the sphincter ani is more readily capable of dilatation than in children; and for this reason, where an adult permitted the act of pederasty, there might be no evidence of it found in the subsequent condition of the tissues about the anus. There are certain conditions of the anus and surrounding parts that have been considered diagnostic of habitual passive pederasty since the time of the Romans. Consideration of these signs will show, however, that they are not of unequivocal significance. Relaxation of the tissues about the anus, with conical deepening of the normal anal depression; dilatation of the anal orifice; relaxation of the sphincter ani; obliteration of the creases of the mucous membrane and skin which usually radiate from the anus; and hypertrophic growths of the mucous membrane, are some of the signs of passive pederasty enumerated by observers. Their slight independent importance as signs of pederasty is at once apparent; and the same is true of the various forms of proctitis that might be caused by the vice.

Demonstration of the presence of spermatozoa in the person of the passive party might afford valuable evidence. Should they be found in the rectum, the proof would be conclusive; found elsewhere about the person, they would be of no value as evidence, save in cases where the male individuals concerned were demonstrably below the age of puberty. Venereal diseases might be communicated by pederasty. Where such disease is seated in the rectum and about the anus exclusively, it is of some value as indicating the vice; but it is to be remembered that such parts may become the seats of venereal diseases communicated in other ways than by means of pederasty.

Bestiality cannot well afford anatomical evidences of its practice as far as the male or female criminal is concerned; but under favorable circumstances, the animals made use of by males may present signs about the genitals of the treatment to which they have been subjected, and human spermatozoa might be demonstrated in the genital passages or in the dried accretions about the genitals of the animal.

Tribadism, *immissio clitoridis in vaginam*, likewise leaves no distinctive evidence behind. Though such a vice, long practiced, would ultimately lead to more or less change about the female genitals, these alterations would not necessarily be different from those that follow repeated manual irritation. In females given to the practice of tribadism an enlarged clitoris is usually found; but enlargement of the clitoris in itself could indicate nothing with regard to such an unnatural vice. Its medico-legal importance is slight.

The psychological aspect of pederasty and other unnatural sexual acts is considered under Sexual Perversion.

INCEST.

Incest is the carnal copulation of a man and a woman related to each other in any of the degrees within which marriage is prohibited by law.

This offense is unknown to the common law, and is merely a statutory crime. By most of the States it is punished as felony.

In some cases of incest, questions might arise for solution not unlike those met in cases of rape of children, where the sexual act might be performed under such circumstances as to constitute at once the crimes of incest and rape.

The crime of incest, in its most aggravated forms, as between parent and child or brother and sister, is so repugnant to the moral sense that it is difficult to conceive it as occurring save as an expression of a psychopathological state; and in many recorded instances of incest it has been possible to establish the influence of such a factor in its causation.

In relation to the possible rôle of an anomalous psychical state in the causation of this repugnant crime, it is of interest to note the source of the universal aversion there is among mankind to the marriage of blood relations. Von Krafft-Ebing* says that "the preservation of the moral purity of family life is one of the fruits of development in culture (*cultur-entwicklung*)."² He regards it as a product of evolutionary development. In the sense in which this is meant, it does not account for the fact. Ethnologists have advanced many ingenious theories to account for this feeling of aversion to sexual relations with near kindred, which is well-nigh universal among mankind, savage as well as civilized; but all these explanations resolve themselves into the statement that incest is avoided as a result of teaching. When a phenomenon like this is practically of universal manifestation, its occurrence must depend upon something more fixed and unalterable than accidental instruction, or a general recognition of the evil effects of consanguineous marriages; it must arise from some inherent psychophysiological peculiarity common to the race.

This inherent aversion to marriage with a relation, it may be said, is an *instinct*, but this does not explain the matter. The origin of the instinct must still be explained. There is no inherent repugnance to marriage with a relation dependent upon the mere fact of consanguinity; the aversion exists to sexual union of males and females that have lived in the closest and most intimate association from early childhood. This aversion has been naturally extended by analogy to include repugnance to marriage between persons of the same blood. What we have to account for, then, is not aversion to marriage of relations *per se*, but the repugnance to mutual sexual congress there is in those that have developed in intimate association.

The origin of this instinctive aversion to incest is to be found in a study of the psychology of sexual development. Normally, in human beings, sexuality is acquired late; the child passes through a long period of development before the distinctive sexual characteristics make their appearance. During the primary period of asexual life the most intimate and definite mental associations are formed, and these are related to those persons with whom the child is in constant social (family) contact. In the nature of normal circumstances, the child must first acquire a fixed asexual relationship to those in the intimate society of whom it develops. With the oncoming of puberty, emotional longings of a new and unknown character are experienced by the individual which are

* *Psychopathia Sexualis*, p. 431.

directed normally toward persons of the opposite sex; this, we believe, largely, if not exclusively, by reason of suggestion and example made operative before sexuality has asserted itself. But those of the opposite sex in the same family (mother, sisters), standing as they do in the precedent fixed mental relation to the developing youth, and being subjectively in a mental attitude identical with his own, are the last persons toward whom these new emotions can be directed. Those of the opposite sex that have been reared with the maturing individual have so long occupied an asexual place in his thought that they naturally fail to enter into association with the new experience. The new longings—incomprehensible and indefinite at first—become by very necessity directed toward persons who, by virtue of their being comparative or absolute strangers, are the more readily brought into a causal relationship with the strange emotions. Or, to state the matter in a different way, the sexual feelings, under normal circumstances, are directed toward comparative strangers because intimate associates (in the family) through infancy and childhood have filled up the measure of the individual's mental associations possible in relation to them. Under normal circumstances, then, new and strange sexual feelings, when arising spontaneously, are directed, according to an evident psychophysiological law, toward those persons that have not impressed the developing child in the ways necessarily attendant upon prolonged primary intimacy. Though oftentimes arising spontaneously, the primary sexual emotions are ordinarily excited into activity through the influence of external impressions. Association with the members of a family, however, is attended by the ultimate development of certain fixed forms of intellectual and emotional reaction in the child; so that persons who, by association with an individual through the asexual period of development, had come to exert certain fixed influences, would be the less capable of exciting new emotions; impressions made by them would excite the accustomed paths of neuropsychical association; and when that period of life in which sexual stimuli become effectual had been reached, they would necessarily be derived from an individual who had stood in no intimate and fixed relation to the child. The manner of the first sexual stimulation is largely determinate for the future direction of sexual desire. Once projected outside the family circle, it is never changed save in obedience to anomalous circumstances.

As sexuality develops, it comes to exercise the most powerful influences over the individual, finally leading to the severance of the associations of childhood through the establishment of sexual relations with the person who has excited sexual feeling of sufficient intensity to overcome primary ties of intimacy. As a result of peculiar or anomalous circumstances, like those of comparative isolation of a family, incestuous relations would almost certainly arise; or too early and too intense development of the sexual instinct might preclude the development, or acquisition, of the normal (or usual) psychophysiological aversion, and lead to incestuous instinct and practice; again, the aversion primarily acquired might be lost as a result of mental disease, or temporarily suppressed by the dominance of pathological hyperexcitation of sexual desire.

It might be urged that to prove the validity of this explanation of the universal prevalence of human aversion to incestuous relations, it

would be necessary to show the operation of such a tendency in the lower orders of animals. We should expect to find such a psychosexual law operative only in lower animals having a long period of asexual development and presenting a great variety of psychosocial associations other than those of a true sexual character. Such a law could be operative only in animals manifesting the beginnings, at least, of the more complicated psychosocial relations.

These considerations place the normal aversion to incest upon a psychophysiological basis, and emphasize the need there is to investigate the mental condition of the criminal in all aggravated cases of this crime.

EXHIBITION—INDECENT EXPOSURE.

Indecent exposure is such intentional exhibition, in a public place, of the naked human body, or such exposure of the private members, as is calculated to shock the feelings of chastity or corrupt the morals of those who witness it. This offense must be committed in a public place and in the sight of more than one person in order to be punishable under the common law. However, the statutory provisions of various States are broader. The chief medico-legal interest that attaches to this minor sexual crime is in regard to the mental condition of the perpetrators of it. There is nothing in the crime that precludes the possibility of its being committed by normal individuals, but under all circumstances the act of genital exposure is in itself so obviously silly and purposeless that it cannot fail to give rise to the presumption of the influence of anomalous mental factors in its causation. The records of cases that have come to trial bear out this view. Indeed it is seldom that the crime is not the result of congenital mental deficiency or acquired insanity; and this fact should be clearly understood and given weight in trials for such a crime.

SEXUAL PERVERSION.

The sexual crimes have been considered chiefly with respect to the evidence that might be invoked to establish the fact of the perpetration of them; here the purpose is to examine a psychical factor which frequently becomes the cause of various criminal sexual acts—namely, *sexual perversion*.

To Westphal,* Tarnowsky,† von Krafft-Ebing,‡ and Moll§ we are indebted for a systematic study of the psychosexual anomalies; but von Krafft-Ebing has done by far the most toward elucidating them. Here nothing more than a *résumé* of the established facts and prevalent theories can be attempted.

All manifestations of the sexual instinct that are not in accord, directly or indirectly, with the physiological provisions of nature for the propagation of the race may justly be regarded as anomalous, as perversions; but

* *Archiv f. Psychiatrie*, vol. i., p. 651.

† *Die krankhaften Erscheinungen des Geschlechtssinnes*, Berlin, 1886.

‡ *Psychopathia Sexualis*, Philadelphia, 1892.

§ *Conträre Sexualempfindung*.

it becomes of the greatest importance to determine in how far such phenomena are due to disease, or to what extent they are the result of vice. For a correct comprehension of the various deviations to which the sexual instinct is subject a thorough knowledge of the normal sexual manifestations is necessary.

Psychosexual Development.—Owing to the fact that the majority of males feel sexually attracted by females, and *vice versa*, it is concluded that the expression of this desire is the normal manifestation: more than this, it is assumed that this desire of each sex for the other is inherent and conditioned by the anatomical peculiarities which determine sex; that when an individual is given distinctive sexual organs there are simultaneously implanted the germs of corresponding psychosexual characteristics which subsequently, in spite of any external influence, will distinguish the individual as a sexual being. Following this method of reasoning, in cases which present a deviation from this normal relation of anatomical and psychical endowment the peculiar phenomenon is explained by the assumption that the want of correspondence is due to the congenital implantation of an inappropriate sexual instinct; or the want of normal correspondence between instinct and sex is regarded as due to external influences that have disturbed the once normal relation—that is, the sexual perversion is an acquired characteristic. Thus there are theoretically two categories of sexual perversion—the *congenital* and the *acquired*. It is still an open question whether we are justified in making a hard-and-fast line of demarcation between these psychosexual anomalies; certain it is that with our present means of differential diagnosis we are often left in doubt as to whether a given case is to be placed in one or the other of these categories. The many sources of error inherent in the diagnosis of such anomalies are due in the main to the subjective nature of the data upon which the physician must depend for information and ultimate judgment.

Anatomical differentiation of the sexes preceded the development of the complementary sexual instincts characteristic of the two sexes. Sexual desire, whether ultimately arising from the primitive sense of hunger or not, sprang directly from pleasurable sensation experienced under circumstances of peculiar contact of two organisms. Such contact could be essentially peculiar only after the development of organs possessed of peculiar sensibility. With the attainment of this stage of evolutionary development the contact (conjugation) of organisms of complementary sex is the only contact that could be influential in the further development and differentiation of the sexes; for the conjugation of organisms of like sex could but have been devoid of results beyond the immediate influence exerted by it upon the organisms concerned. With the limitation of fruitfulness to the conjugation of organisms mutually complementary arose the conditions for a more distinct differentiation of sexual organs, and the acquisition of the psychical supplements of sexual differentiation; that is, the intuitive recognition of sex, which comprises self-recognition sexually and its complement, and the intuitive impulse to a definite form of action and sensory stimulation. The anatomical and functional differences which accompanied sexual differentiation were determinate in supplying the conditions necessary for the origin and development of distinctive psychosexual characteristics, which in their turn served to render sexual differences in general more marked. Thus the conditions that must have attended the gradual evolution of the sexes anatomically, and

the gradual acquisition of a sexual instinct appropriate to each sex, were such that though the instinct must have reached full development secondarily to the evolution of complementary generative organs, the fully developed desire for the *opposite* sex was but remotely connected with the sexual organs *per se*. In its primitive nature the sexual instinct or desire must have been an impulse to a stimulus arising from the mechanical irritation of contact of the sexual organs with which the organism was endowed. The fact that only those organisms that had found contact with their sexual complements would be instrumental in propagation must necessarily have ultimately evolved the secondary psychosexual characteristics of sexual instinct; that is, sexual desire for the opposite sex. The fully developed sexual desire for the opposite sex is thus exclusively a secondary evolution from the primitive sexual impulse to mere contact. Necessarily comparatively a longer period of evolutionary development would be required for its perfection than for the development of that part of the instinct directly connected with the sexual organs. Owing to the nature of this desire for union with the opposite sex—its independent character—when evolved to its highest development it is purely psychological, and therefore quite independent of the sexual organs *per se*. Once developed to this degree of comparative independence the sexual instinct becomes capable of hereditary transmission quite independently of the anatomical nature of the sexual organs of the inheriting organism. In higher organisms, where psychological character is transmitted independently of physical peculiarities, we thus find that there may be lack of harmony between the fundamental and the secondary or psychological elements of the sexual instinct. Commonly the fundamental elements of sexual desire, including especially the impulse to stimulation of the sexual organs, are infinitely more powerful than the secondary psychological elements, because they are dependent upon lower nervous centers, and they are manifested much earlier in the life of the organism. An inherited psychological instinct for union with the opposite sex cannot attain expression until development has taken place to a degree that permits recognition of sexual difference; it is therefore of secondary and subsequent development with respect to the fundamental elements of sexual desire.

Anomalies of the fundamental element of sexual desire (impulse to genital stimulation) occur only where there are also marked anomalies of physical (peripheral) and nervous organization; but the secondary elements (psychical), owing to their dependence upon the higher nervous organization (cerebral cortex), are, in a sense, less definite in character. Purely psychological characteristics in higher animals, and especially in man, are commonly less truly and perfectly reproduced in offspring by inheritance than are the more definite organic characteristics; and by reason of this imperfection or variation of psychological inheritance, education becomes of prime importance in determining the psychological characteristics which distinguish the mature individual. In the nature of things, since the higher psychological characteristics are of gradual development in the lifetime of the individual organism, they are the more subject to favorable or unfavorable influence from without, and thus such inherited potentialities might be emphasized, altered, or obscured.

Such considerations as these should lead us to expect the fundamental element of sexual desire to be a fairly constant quantity in inheritance in the physically normal man; on the other hand, we should expect more

variation in the secondary or psychical element. Relatively independent of the sexual organs as we have seen this secondary element to be, we can conceive that it might be well developed in an individual whose genitals were so markedly defective as to be incapable of normal functions. The rule is, of course, the transmission of distinctive sexual organs, with the virtual transmission of an appropriate sexual instinct; but remembering the independence of the psychical element of sexual appetite, and always the possibilities of inheritance from the male and female, theoretically we should expect, also, the occasional transmission of definite sexual organs together with an inappropriate or opposite sexual instinct. In such a case the inappropriate sexual instinct might be as strong as in cases where it and genital conformation were entirely in harmony. Between these two possible extremes there may be all degrees of variation in the perfection of the transmitted psychical instinct. In the extreme case of either kind the inherited instinct would attain its predestined expression in spite of all opposing influence exerted from without; but in the cases between the extremes the final expression of the sexual impulse would be determined more or less by external circumstances—in other words, influenced by education. Thus, if the inherited instinct for the opposite sex were weak, it might be strengthened by appropriate education; on the other hand, it might be perverted by circumstances exerting an opposite influence. And the same would be true of cases in which the sexual organs and sexual inclinations were out of harmony. The incongruous or inverted sexual impulse might be so strong as to reach its predestined expression in spite of all opposing influences; or, less strongly implanted, it might be altered in direction by force of educating influences.

Such considerations but lead us to a recognition of the fact that the primary or fundamental sexual instinct is not determinate in its direction toward sex; that the secondary or higher psychical element is the determining factor; and that since the latter is psychical, it is subject to wider variations within ordinarily normal limits than the former. The transmission of the higher psychical elements of sexual instinct must be subject to wider variations, also, for the reason that the inheritance of a definite sexual inclination must take place from one of two parents rather than from two; for the necessary conjunction of possible inheritance of opposite sexual inclinations from both parents would necessarily weaken the probability of direct inheritance from one parent of a definite sexual inclination for one or the other sex. We know that anatomically each sex has in embryo the morphological possibility of representing the opposite sex; and likewise each individual must have within his organization the possibility of the ultimate development of the two secondary (psychical) instincts. Anatomically, ordinarily one set of generative organs attains complete development, with dwarfing of the complementary set, and thus renders the sex definite. This process takes place as a result of hidden organic causes, though these causes are probably intimately connected with the process of nutrition. With the psychical side of sexuality the case is somewhat different. As has been shown, there are many possible sources of variation in the development of the sexual instinct; and more than that, actual observation has disclosed the fact that in the human race the development of the psychical part of sexuality is profoundly influenced by a definite education, which is usually in harmony with the

anatomical sex. With the recognition of a child's sex this sexual education begins, and under normal circumstances it is always in harmony with the sex represented by the child. Moreover, that the educational factor is of vast importance in determining an abnormal direction of sexual inclination is abundantly shown by many reported cases.

Allowing the importance of education in determining the character of the developed sexual instinct, we may consider the manner in which its influence is exerted. A long period of the life of the human being is normally asexual. During this asexual period the developing child learns the outward distinguishing marks of the two sexes; the more perfectly the less sexual concealment there is. Thus, in a savage state the human being, learning at once the sexual (anatomical) distinction of the persons around him, and recognizing his own classification, would almost inevitably conform to the manner of his sex. The only exception to this is where cultivation at the hands of others brings about a deviation. And the comparative ease with which such a deviation can be brought about by directed effort in early years but emphasizes the fact that there the inheritance is usually only of the primitive sexual instinct (for contact). In a higher state of civilization the distinctions between the sexes are less obvious physically, and more obvious in dress and occupation. Under such circumstances the child learns only comparatively late to classify himself sexually; and, in consequence, the possibility of sexual perversion is increased. A male child thus might early show a preference for feminine dress and feminine play. This tendency would have in itself no sexual meaning; but the proclivity might take so strong a hold of the mind as to be determinate and serve in itself to pervert (or prevent the normal expression of) the sexual inclination. There would be sexual desire, but it would be guided and directed by the inclinations (asexual) previously acquired, provided opposite influences were not brought to bear. Example and imitation are factors which direct the development of the child's mind, and its tastes are determined thus before puberty has awakened sexual feelings.

Since education, example, and imitation develop in us all the secondary and higher characteristics of sexuality appropriate to each sex, it would seem that the term *congenital* as applied to sexual perversions should be used sparingly.

However, the accepted classification of psychosexual anomalies, in its separation of so-called *congenital* and *acquired* cases, justly recognizes an important distinction, namely, the separation of cases dating back to childhood from those of later origin. The importance of this differentiation depends upon the fact that a tendency arising and developing in childhood is apt to become so strong and unalterable that it persists as a dominant characteristic throughout life, in spite of all artificial efforts to correct or alter it after maturity. This is especially true of the sexual tendency. Should a child develop any kind of sexual perversion, aside from the inherent tendency for it to persist, circumstances would favor its continuance. Thus the modesty of cultivated society prevents the recognition of such an anomaly early; the affected child goes on in the perverse direction unenlightened; at last, with experience only in the perverse direction, when the normal sexual relations are learned they are not comprehended, or they fail to give satisfaction equal to that experienced in perverse sexual indulgence, and they make no impression on the individual. On the other hand, a sexual perversion acquired late is far more subject to change.

In such a case normal sexual inclinations have been primarily exercised, and they continue the stronger; perversion has taken place under peculiar circumstances, and with a restoration of normal circumstances the normal inclination reasserts itself. Another important fact in psychosexual pathology is the relation of sexual perversion to *neuropsychical degeneracy*. Observation shows that for the most part psychosexual anomalies are developed upon a degenerate constitution which may commonly be traced to a neuropathic disposition inherited from ancestors. This relation must be given due consideration in estimating the significance of any psychosexual abnormality.

Paræsthesia sexualis is a general designation covering all cases of genuine sexual perversion. It signifies a departure from the normal direction of sexual feeling, and as a general term it includes several distinct varieties of sexual perversion, namely, *sadism*, *passivism*, *fetichism*, and *contrary sexual instinct* in all its varieties. *Paræsthesia sexualis* is frequently associated with other anomalies of sexual feeling, especially *hyperæsthesia sexualis*; and for the sake of completeness, before consideration of *paræsthesia sexualis* in detail, we may briefly review these related sexual anomalies, which, in accordance with the classification of von Krafft-Ebing, may be divided into *sexual paradoxia*, *sexual anæsthesia*, and *sexual hyperæsthesia*.

Sexual Paradoxia.—Like all these anomalies, *paradoxia sexualis* is referable to a cerebral neurosis. The term covers those manifestations of sexual desire which occur during periods of life when sexual inclination is normally absent; i.e., when reproductive power has not been attained, or has been extinguished as a result of advanced years.

The paradoxical expression of sexual appetite in childhood is chiefly of medical interest, especially in its relation to neuropsychopathic disposition and the psychosexual anomalies of maturity; its immediate medico-legal importance is small, owing to its association with moral and legal irresponsibility. *Paradoxia sexualis* manifested during senility, after the sexual glands and organs have become functionless, is a psychopathological phenomenon of great medico-legal interest. It is the most frequent motive for the commission of sexual crimes by old men, and in all cases of this character the perpetrator should be given the justice of a psychiatric examination.

Sexual desire in old men is not in itself a pathological phenomenon. There are many instances of the retention of procreative power by men up to a very advanced age; but where sexual power and desire have once been extinguished in the course of advancing years, and sexual desire is reawakened and manifested in ways unknown to the individual during his period of virility, there is at once a presumption that this change is the result of pathological causes. Accompanying senile sexual desire there is, if the intellect be not too seriously impaired, recognition of the absence of power to perform normal sexual acts, and such victims of senile decrepitude are therefore driven to the performance of various acts as equivalents. In the impossibility of obtaining the consent of mature individuals to the performance of perverse acts with them, they are forced to avail themselves of others whom, through ignorance or innocence, they are able to influence or force into submission. In this way children frequently become their victims. Still such individuals are not incapable of a formal sexual assault upon more mature females.

These anomalous psychosexual phenomena are commonly manifested after other obvious mental symptoms of senile organic changes in the brain have become apparent, and under such circumstances the diagnosis is sufficiently easy; but in many cases the paradoxical sexual desire is apparent before there are any marked signs of intellectual decay. Even here it will not be difficult to establish the pathological character of the sexual impulse upon careful examination. It will usually be found that the man's moral character has been undergoing a more or less marked deterioration, as indicated by changes of occupation, manner, and thought, and by unwonted irritability and lack of sympathy—a marked intensification of selfishness. Before dementia has become pronounced there may be sufficient mind to allow recognition of the necessity for privacy in sexual acts, but with increasing mental decay all restraining ideas are lost, and immoral acts are performed impulsively and without the slightest consideration of consequences. In such a condition, with the total lack of power to perform coitus, psychosexual excitement is sure to lead to perverse acts as substitutes. The sexual crimes possible under such circumstances are very numerous. Rape may be attempted and carried out; exhibition is very frequently indulged in; and the various forms of sexual abuse of children, aside from rape, are very frequent. Indecent acts of various kinds not sexual in themselves may be performed as equivalents, and even acts of cruelty may thus result. There may be formal perversion or inversion of the sexual desire, leading to sodomy, or to pederasty, active or passive. This paradoxical manifestation of sexual impulse may also arise in aged women, but in them it is less frequent and of less medico-legal importance.

The following case illustrates a senile attempt at rape:

X, aged sixty, wife living, and father of grown children, previously moral, was convicted of an attempt at rape on the person of a girl aged eighteen, and sentenced to imprisonment. Examination showed him to be decrepit both physically and mentally. He looked ten years older than his age. In confinement he was given to religious enthusiasm and a demented remorse for his crime. The circumstances under which the attempt was made clearly showed the demented lack of appreciation of the certainty of conviction for the assault. A psychiatric examination was not allowed before conviction.

The following case is one of senile exhibition: *

X, aged sixty, widower, and father of a family. He repeatedly exhibited his genitals at his window to a little girl living opposite. He acknowledged the depravity of his actions, but could offer no excuse. He died in a year of cerebral disease.

Often the sexual offense of senile dementia consists of genital manipulations. Children are thus abused, or induced to fondle the genitals of the seducer in various disgusting ways. Senile sexual excitement may find satisfaction in the infliction of pain (*vide* Sadism), and thus seek expression in flagellation and even lust-murder (q.v.). A case reported by Tarnowsky illustrates the possibility of the most disgusting equivalents for the sexual act. An aged man seized an opportunity to defecate on the exposed bosom of a woman. During the act he experienced a feeling of ejaculation. The possibility of senile sexual inversion is illustrated by the following case reported by von Krafft-Ebing: †

* Lasègue, *Union Médicale*, May, 1877.

† *Psychopathia Sexualis*, p. 41.

X, male, aged eighty. For fourteen months it had been noticed that he manifested affection for male servants, especially for a boy. He would surfeit his favorite with favors, and command that he be shown the greatest respect. The acts practiced with the boy and other male servants were exhibition, genital manipulations, and mutual masturbation. X was devoid of all inclination toward the opposite sex.

Sexual Anæsthesia.—Absence of sexual inclination occurs as an original and an acquired anomaly.

The original form is exceedingly rare. It is represented by the entire failure to develop sexual desire in the presence of sexual organs normal in structure and function. In itself it is a sign of imperfect development of cerebral function. It may be present without other indications of psychical defect, or it may be accompanied by various degrees of mental imperfection up to idiocy. Some deficiency is more common than total absence, and it is much more frequently observed in women than in men. Its direct medico-legal importance is small, but it is a frequent cause of marital unhappiness. Not infrequently wives manifesting sexual anæsthesia are also subject to decided psychopathic tendencies.

Acquired sexual anæsthesia is, as an isolated condition, of slight medico-legal interest; but as a factor in cases of sexual perversion its relation to the latter should be understood. Normally, *libido sexualis* is diminished temporarily after the sexual act, and it declines gradually as age advances. *Libido* is more or less closely related to the functional activity of the generative glands (male and female); in exceptional cases, however, desire outlasts the functional life of these organs; for example, some women retain lively sexual desire after the climacteric, and some eunuchs have been known to manifest sexual appetite. The common peripheral causes of acquired anæsthesia *sexualis* are castration, degeneration of the ovaries and testes, general wasting, chronic intoxications, and sexual excesses in the normal manner or in masturbation. Sexual excess in onanism is perhaps the most frequent cause; and in cases where masturbation has induced anæsthesia for normal sexual stimuli it is not infrequent to have the sexual impulse find some perverted manner of expression and lead to acts which become of medico-legal importance. Indeed it may be said that masturbation is one of the most potent causes of sexual perversion, and that through its effect to induce psychical anæsthesia for all normal sexual stimuli. Sexual anæsthesia acquired early is often associated with mental disease, where any acts to which it might lead, in case they were of a criminal nature, would call for investigation on the basis of the accompanying mental anomaly.

Sexual Hyperæsthesia.—This term signifies a pathological intensification of sexual desire. In the milder degrees of intensification of the sexual inclination it is always difficult and often impossible to satisfactorily determine whether the phenomenon is pathological or not; in its more marked degrees, however, we have no trouble in recognizing its pathological character. In estimating the intensity of sexual inclination it must be remembered that it varies much in individuals as well as in the sexes. It may be said that sexual appetite is usually proportionate to the general physical development, but there are many exceptions to this. Normally, women manifest much less intensity of sexual inclination than do men; and therefore when a woman shows a predominant sexual inclination the suspicion that it is pathological is at once excited.

Observation shows that in both sexes hyperæsthesia sexualis is frequently manifested by persons having a neuropathic constitution; this symptomatic manifestation may be, indeed, the most obvious sign of such a constitutional deficiency. Von Krafft-Ebing points out very justly that in such individuals satisfaction of the sexual impulse may become an organic necessity and thus endanger responsibility. In females sexual desire is temporarily intensified immediately after menstruation, and in neuropathic women this normal intensification frequently reaches a pathological degree. Pathological intensification of libido sexualis may be brought about by peripheral or central causes, the former being more frequently operative. Certain drugs, as cantharides, are capable of exciting it. The period of the climacteric in females is one in which hyperæsthesia sexualis may be markedly exhibited, especially in those of neuropathic constitution. Sexual hyperæsthesia of central (cerebral) origin is most frequently observed in neurotic individuals, and is frequently associated with hysteria and states of general mental exaltation.

Where there is hyperæsthesia sexualis there is an impulse to indulge in some sexual act, and if the impulse be powerful enough, or if there is a simultaneous removal of inhibitory influences, it finds expression. The sexual acts possible under such circumstances are coitus—which may take the form of rape—masturbation, pederasty, and bestiality. The special form of sexual indulgence practiced will, of course, depend upon surrounding circumstances, previous habits, and the individual's moral sense and possible moral self-control. As a rule, hyperæsthesia sexualis is a condition accompanying the various forms of sexual perversion, and its manifestation will be best illustrated in such cases; however, we may here cite briefly simple cases of it which will make its independent medico-legal bearing clear.

The following case is given by von Krafft-Ebing:*

C. was arrested for an attempt to rape a woman aged seventy, whom he found alone. Examination of the culprit showed him to be in a state of high nervous excitement, and he gave the impression of one in the incipient stage of alcoholic insanity. There were still signs of sexual excitement. He made a statement to the effect that his criminal act was the result of an uncontrollable impulse to sexual indulgence; and in substantiation of his assertion he gave the following history: He was forty-five years old; at the age of seven he had developed a peculiar partiality for men, and he fell in love with certain men. He began to masturbate at the age of fourteen; first intercourse at seventeen. Then his earlier tendency to sexual inversion disappeared. At that time he passed through a peculiar psychopathic state. He developed hemorrhoids at fifteen. He was at this time in a state of constant sexual excitement, which was temporarily relieved by the occasional occurrence of profuse hemorrhoidal hemorrhage. His sexual excitement he satisfied in onanism and coitus. Every woman he met excited him; even with his female relatives he was unable to control his impulse, and thus often brought disgrace on himself. He married at thirty-six, and became a burden to his wife because of his sexual needs. Three years later he had an attack of mania, and he was treated in asylums until his forty-second year. His mental symptoms were those of recurrent mania

* *Loc. cit.*, p. 51.

with great sexual excitement. After his recovery he still suffered with inordinate sexual desire, and at the height of sexual excitement he was indifferent as to whether it was satisfied with human being or beast. His last sexual attack had followed sexual abstinence, and he was at the time on his way to join his wife in Vienna. In his excitement and confusion he had left the train, and meeting a woman had exposed himself and sought to embrace her.

Sexual hyperæsthesia may also be manifested intermittently or periodically, and then it is either a neurosis *per se* or the symptom of general mental excitement. (Von Krafft-Ebing.)

The following case, which von Krafft-Ebing* takes from Trélat's *Folie Lucide*, is of great interest as illustrating pure sexual hyperæsthesia:

Mrs. V. had always had a passion for men. She was well-bred, pleasant, and modest, but a terror to her family from childhood on account of her sexual inclinations. She could not be left alone with a man, because of her passion to have sexual relations with every one she met. Nothing cured her of this. Marriage was of no avail. When a grandmother she attempted to seduce a boy. Confinement in a convent did no good save during the time of her detention. Banished by her family, she earned money to purchase lovers. She was finally placed in an asylum, where she died in her seventy-third year. During her treatment there she showed no sign of mental abnormality, but her uncontrollable sexual impulse was manifested shortly before she died.

Sexual Paræsthesia.—This term covers those cases in which the sexual feeling and inclination are more or less out of harmony with the natural purpose of the sexual instinct. As already noted, sexual hyperæsthesia is a frequent accompaniment of sexual paræsthesia, and it then becomes the active factor in inducing the affected individual to indulge in perverse sexual acts. The sexual acts prompted by the association of these two pathological conditions are the most important of all sexual crimes, from a medico-legal standpoint; and it becomes of the greatest importance to determine in how far such crimes are the results of disease or vice.

The recent establishment of paræsthesia sexualis on a pathological foundation makes it imperative to take this aspect of the matter into consideration. It may be said at the outset of such inquiries that the question of the pathological basis of a perverse sexual act can in no case be determined by the act *per se*; no more than can a case of insanity be diagnosed scientifically by means of some isolated mental symptom. The sexual acts springing from disease and those prompted by vice may be in many cases identical. The distinction between pathological and vicious sexual acts is to be made only upon a thorough understanding of the nature of the motive of which the specific sexual act is the expression; and this can only be accomplished by a thorough investigation of the history and the physical and mental peculiarities of the individual—an inquiry which must often be extended to educational influences that may have been effective, and to ancestry, just as in all cases of neuropsychical maladies.

The normal direction of sexual feeling is toward the opposite; but sexual desire may be so altered in direction that the sexual inclination is

* *Loc. cit.*, p. 55.

actually inverted and becomes directed toward the same sex. Such an alteration of sexual feeling is a variety of sexual paræsthesia, a sexual perversion; but owing to its distinctness, and to separate it from other varieties of perversion, it is best to designate it as sexual inversion or contrary sexual instinct. Moreover it is found that contrary sexual instinct is subject to various perversions, like the normal sexual instinct. Where sexual feeling is normal in direction it is called heterosexual; where it is directed toward the same sex it is called homosexual. For convenience we may consider the sexual perversions that occur apart from sexual inversion, remembering that these anomalies may occur in conjunction with the latter.

Sadism is the term applied to sexual lust that finds expression in the infliction of cruelty on others. This word is derived from the name of a writer of obscene fiction, the Marquis de Sade, whose theme was lust and cruelty. A synonym for sadism, proposed by von Schrenck-Notzing,* is *active algolagny*, which is derived from Greek words signifying love of pain. The perverse sexual gratification in the infliction of cruelty may affect male or female, but it is far more commonly observed in males. This pathological association of sexual lust and pleasure in the infliction of pain, with its predominance in males, is to be understood only by means of psychophysiological associations. Psychosexual emotion and the emotion (anger) which normally impels to injury of another are alike in their objective direction and in their dependence upon intense excitement of the psychomotor sphere. Owing to this common characteristic and this common dependence, there is a very close association between the acts of love at its greatest intensity and the acts of anger. Within physiological limits intense excitement during the sexual act is thus apt to lead to the performance of acts which are ordinarily expressive of anger; and, on the other hand, the objective activity of angry emotion is apt to excite lustful feeling. The male sexual rôle is the aggressive one, and male sexual excitement is more intense than that of the female; hence the greater frequency of sadism in the male. This psychophysiological association reaches pathological intensity and then finds expression in acts of cruelty of various degrees up to the commission of murder. It is not always necessary that actual pain be inflicted; often an act symbolic of cruelty is sufficient to satisfy the individual. Sadistic acts also vary in their relation to the sexual act. They may be indulged in at the height of sexual excitement during the sexual act; after the sexual act, when this has not diminished the primary psychosexual excitement; before the sexual act as a stimulus to virility, when virile power is diminished; and to induce ejaculation, when this is impossible in coitus.

Sexual hyperæsthesia is always the basis upon which sadistic acts rest. Practically it is found that most persons manifesting sadism are originally more or less psychopathic. Von Krafft-Ebing is inclined to believe that this perversion is always congenital; but such an assumption does not seem necessary. In psychopathic individuals, where there is frequently a hypersensitive nervous organization, psychical associations are most readily formed, and substitution, primarily at least, most readily occurs; hence in such persons there would be special proclivity to the

* *Suggestions hy. Therapie*, 1892.

development of an intense and lasting association of lust with acts of cruelty, to which they are predisposed by the readiness with which they react with intense psychomotor excitement to stimuli normally inadequate. However we seek to explain this association of lust and cruelty theoretically, the actual association is most clearly shown by recorded cases, and the monstrous crimes it leads to make this particular form of sexual perversion of the greatest medico-legal interest.

Lust-murder.—Only murder committed in association with sexual excitement or for sexual gratification is properly lust-murder. The lust may also lead to horrible mutilation of the body after the death of the victim. Lombroso* reports the case of a man named Grassi, who was suddenly seized with a sexual desire for a relative. When she resisted he stabbed her several times with a knife, and also her father and uncle, who sought to restrain him. He then repaired to a prostitute to cool his sexual desire; returning, he killed his father and slaughtered several oxen in their stalls. The case of Andreas Bichel, reported by Feuerbach, is also instructive. He killed and dissected prostitutes. Concerning one of his victims he said: "I opened her breast and cut through the fleshy parts of her body with a knife. I then arranged her body as a butcher does a beef. . . . While opening the body I was so greedy that I trembled and could have cut out a piece and eaten it." Another case is that of a man who was examined by Lasègue, Brouardel, and Motet, and executed: Menesclou, aged twenty, murdered a girl aged four. One of her forearms was found in his pocket. The head and entrails, in a half-burned state, were taken from the stove, and other parts of the body were found in the water-closet, but the genitals could not be found. M. became embarrassed when questioned about the latter. His sexual history was to the effect that he did not indulge in intercourse with women, but practiced masturbation and sodomy. His mother and an uncle were insane. M.'s own history was otherwise that of a psychopath.

How unbridled lust may lead to anthropophagy is shown by the following case, reported by Gorget: L., aged twenty-four, caught a girl of twelve in the woods and violated her. He mutilated her genitals, tore out her heart and ate of it, drank her blood, and buried the remains. He confessed his crime and was executed.

In some cases sexual violation is omitted, the mutilation of the victim being a full sexual equivalent. The case of Verzeni, reported by Lombroso, was such an one. He made several unsuccessful attempts to strangle women, and in the same way murdered three young women. The confession of this degenerate creature is especially interesting for the light it throws upon this association of lust and cruelty. The commission of the murders by strangulation gave him an intense lustful pleasure, accompanied by erection and ejaculation. He experienced sexual pleasure immediately upon grasping the neck of his victim. Ordinarily, merely choking his victim was sufficient to induce sexual pleasure; but if the orgasm were delayed he continued the strangulation until death ensued. In one instance he had found great satisfaction in sucking his victim's blood, and he tore out a piece of the calf to roast and eat at home, but hid it. He delighted in smelling and touching the clothes and intestines. While in the act he was in a perfect furor of

* *The Criminal.*

excitement and oblivious to everything else. The female genitals were a matter of indifference to him, and he never had inclination for normal sexual indulgence. His perverse inclination was first shown in his twelfth year, when he experienced a peculiar feeling of pleasure while wringing the necks of chickens. He did this frequently with no other purpose than the induction of sexual excitement, and the early accidental association remained determinate and became an uncontrollable impulse. He was sentenced for life.

Mutilation of the dead body out of lust is allied to actual lust-murder in that the mere act of mutilation of a corpse affords the sexual gratification that in lust-murder is attendant upon the actual infliction of pain. It is an act of symbolic sadism, performed by a sadistic individual whose moral sense is still strong enough to restrain him from doing violence to the living female. This form of sadism may be combined with an inclination to actual sexual gratification with the body. The case of Sergeant Bertrand is a celebrated instance. He was of delicate constitution and peculiar character. At the age of thirteen his sexual desire became manifest and he began to practice masturbation, in the act surrounding himself with imaginary women. He would fancy having intercourse with them and then killing them; then he would think of violating the corpses. At last he experienced the desire to make his fancies actual. First he made use of the bodies of animals, opening the abdomen and tearing out the entrails while masturbating; next he killed and mutilated dogs; and finally he came to exhume female corpses to mutilate them and masturbate. On three occasions he first performed the sexual act on the bodies of females, but he never omitted subsequent mutilation, which was the only act that gave complete gratification.

Allied to this symbolic sadism is true *nerophilia*, in which a female corpse is preferred to a living woman for the performance of coitus. In such cases there is not pure sadism, but it would seem that the idea of feminine submission, which is so strong a sexual stimulus for the male, becomes so intensified as to see its objective perfection only where there is no possibility of resistance, as in death. Still such cases may also be dependent upon *fetichism* (q.v.), i.e., pathological association of first sexual excitement and the idea of a female corpse.

The sadistic impulse is often expressed in acts of cruelty that stop short of murder or very serious bodily injury of the victim. Lust is experienced in the mere infliction of pain or at the sight of blood. The Marquis de Sade took pleasure in coitus only when he could draw blood on his consort by pricking her; and a man mentioned by de Boismont forced his consort to make her genitals bloody by means of leeches before coitus. The latter instance may have been a pure case of *fetichism* originating in an early coitus with a menstruating woman. The slighter bodily injuries inflicted on women by sadists for the purpose of sexual gratification vary. It is frequent to observe a desire to draw blood; but flagellation of the female often suffices.

It is to be noted that in all the cases of sadism reported in literature the subjects have been more or less markedly psychopathic; there has always been observed a basis of hyperæsthesia, upon which the perversion has been developed by accidental association of ideas. The variations in the manner of expression of the sadistic impulse show how much it is determined by accident of experience. With an original psycho-

pathic basis and sexual hyperæsthesia the conditions are favorable for the development of sadism, as they are for the development of all other forms of psychosexual perversion.

The case of a young man reported by von Krafft-Ebing illustrates lustful pleasure at the sight of blood. The patient *remembered* his lustful delight at the sight of blood as early as his tenth year. He cut and pricked himself to gain this pleasure. The sight of the bleeding finger of a female gave his impulse objective direction, and he masturbated while reveling in the fancy of bleeding girls. Finally his sadistic fancy extended to the most horrible slaughter of human beings. The act of masturbation banished such ideas. He was always able to keep himself from attempting to make his fancies actual. Neuropathic though he was, his sadistic ideas were finally replaced by natural sexual indulgence. The girl-stabber of Bozen was a man who destroyed his sexual powers by masturbation, and finally developed a substitute for coitus in the act of stabbing with a knife the girls he met on the street. His satisfaction was intensified by the sight of blood on the blade. A similar case is reported from Augsburg. The offender had stabbed about fifty girls, but was always careful to avoid doing serious injury. He also found sexual gratification in looking at his collection of knives, swords, etc. A case reported by Dr. Moll is an instance in which flagellation of the female nates and humiliation of the female were substitutes for the sexual act.

The sadistic impulse may be directed only to humiliation of the female, and thus find expression in acts of defilement of the female person. Frequently this defilement is of the most disgusting character—with urine, fæces, etc. It seems highly probable that the motive which leads to the defilement of women by ink, etc., is a sadistic impulse; at least all such cases should hereafter be examined with a view to discover any possible sexual factor where the perpetrators are men and their victims women. The cutting off of women's hair by force or stealth may possibly have some relation to sadism, but more frequently it is to be referred to erotic fetichism, which is described later.

The literature shows that there may be merely a *symbolic* satisfaction of the sadistic impulse. Thus the sexual gratification sought may be found in acts and situations which suggest the infliction of pain or humiliation, but in which there is no actual suffering. In such cases the mere idea of suffering endured by the passive person, suggested by a situation artificially created, suffices to give sexual satisfaction. Cases of this kind can seldom give cause for medico-legal investigation, but where such situations were forced on a person legal questions might arise, as in a case reported by von Krafft-Ebing, where a certain Austrian count was convicted of giving public offense by forcing a young girl who accompanied him into a public garden to kneel down, implore him with folded hands, and lick his boots, at the same time demanding that she actually kiss him *ad nates*.

The sadistic inclination may be directed toward any living object, whether the affected individual is aware of its sexual coloring or not. Thus there have been many cases of sadistic whipping of children by male teachers; and the torture of animals has not infrequently been found to depend upon sexual gratification experienced in this wanton infliction of cruelty. In young persons innocent of knowledge of the sexual relations the latter tendency may be indulged with unconscious-

ness of its true significance; in more experienced men it may be practiced as a substitute for the satisfaction experienced in cruelty practiced on females. Von Krafft-Ebing regards cases in which the mere sight of blood, death, etc., excites sexual feeling as instances of such original constitution of the *vita sexualis* that the relation between these impressions and lustful feeling is a direct or immediate one; but to exclude pathological association, even in these cases, is impossible; and it seems superfluous to assume the existence of an unnecessary factor to explain the phenomenon.

Though sadism is distinctly foreign to the psychical character of women, it is occasionally observed in them. The tendency of women to bite at the height of sexual excitement is well known, and that this may become intensified to a pathological degree is illustrated by the case reported by Moll, where a young wife found her most intense pleasure in biting her husband until the blood came, and who was best satisfied if she bit her husband and he bit her. As von Krafft-Ebing points out, many of the Messalinas of history were celebrated for their lust and cruelty; and in some of these instances the conditions suggest that there was complete inversion of the feminine character, with excessive development of the sexual characteristics normal to men.

In order to prove the sadistic nature of acts of cruelty it is always necessary to demonstrate distinctly their association with true sexual excitement. We know that cruelty is a very frequent manifestation, and that it is ordinarily an independent psychological phenomenon; therefore it cannot be presumed that the sexual factor is operative, save in those cases where peculiar circumstances indicate the existence of this remarkable pathological association. Where atrocious or peculiar acts of cruelty can be explained upon no ground of sane motive, and the individual is to all intents sane, there would be some reason to suspect the hidden influence of a sexual impulse, more especially if the acts were in any way related to sexual ideas.

Passivism.—This term is applied to a psychosexual condition that is the counterpart of sadism: sexual gratification is sought and experienced in suffering personal pain or violence, or their psychological equivalents, at the hands of a person of the opposite sex. In this perversion of the sexual instinct the idea of subjection to the will of another becomes the most intense stimulus to sexual feeling, to the partial or entire exclusion of all normal stimuli. Where this subjection is experienced, sexual orgasm is induced partially or completely.

Passivism is most striking when it is exhibited by men; for it is to be regarded as one of the psychical characteristics of women, whose sexual rôle is physiologically a passive one, with which the idea of subjection to the masculine will is a natural psychical association. Daily experience is sufficient to show that woman finds her completest sexual satiety in being subjected to the masculine sexual domination, and the degree to which this characteristic is exhibited by females within reasonable limits may be taken as a measure of their femininity. Such a characteristic manifested by a man, however, is strikingly abnormal, and it can but be regarded as one variety of perversion on the way to complete psychosexual inversion. However, the many cases thus far observed in men have been but infrequently associated with fully developed sexual inversion; as a rule, men thus affected experience a desire for subjection,

humiliation, and abuse, going to the extent of violence and cruelty, at the hands of women. With this there may be various degrees of impairment of virility up to complete psychical impotence. The satisfaction of this strange sexual inclination is usually sought by inducing women to perform the part necessary to insure satisfaction: prostitutes are hired to perform flagellation or to carry out various comedies in which the individual is placed in the rôle of one subjected to the grossest violence and indecencies, or one humiliated by a mistress to an extreme degree.

Von Krafft-Ebing regards cases of passivism as psychologically distinct from cases of so-called simple flagellation. Pleasure in being flagellated may be something quite different from passivism. Passivism is essentially a psychosexual anomaly of early origin in the life of the individual; pleasure in being flagellated may arise secondarily as a result of cultivation, through experience of its reflex effect or as a stimulus to sexual powers weakened by prolonged excesses in normal venery or onanism. Cases of passivism thus far reported lead to the conclusion that this psychical peculiarity is a congenital characteristic in a certain number of instances. This conclusion is reached mainly through a study of the facts presented by the autobiographies of such individuals; but it must always be remembered that statements made by mature individuals concerning events of their early childhood can but rarely, if at all, be freed from unconscious errors of memory; and it would seem that to prove the congenital origin of such an anomaly merely by statements which are so confessedly open to the possibility of being unintentionally erroneous, especially in the face of so many cases where such anomalies can be shown to be acquired, is far from being strictly scientific. Furthermore, in many cases of pure passivism the anomaly is purely psychical, and finds its field of activity only in the imagination, realization of the imagined situation, with suffering of punishment, being attended only with pain and no sexual satisfaction whatever. To account for such cases by assuming an inborn idea, or material substratum for the spontaneous origin of such an idea, independently of experience, is to do violence to scientific methods of observation and advance into the realm of pure and unprofitable speculation.

Passivism often occurs in association with sadism, and evidence of its existence in a given case might be of value as indicative of the existence of suspected sadism where the latter might be of medico-legal importance. Passivism is of much less direct medico-legal interest than sadism, for, in the nature of its tendencies, it can seldom lead to acts that will bring the affected individual within the view of the law. However, there are several possible results to which passivism may lead that may call for medico-legal investigations. Thus it is conceivable that a passivist might cause himself to be subjected to violence that might result in his serious injury or death, and that through accident or unintended severity in the active party; or, concealing his anomaly, he might seek legal damages at the hands of the person he had hired to maltreat him. That serious accidental injury might occur in this way will be understood when it is remembered that this pleasure in pain, punishment, and abuse is satisfied in many violent procedures. Thus a passivist may find satisfaction in having his naked person flagellated with a heavy whip; in being trod upon by powerful women wearing heavy shoes; in being hanged in farce, etc.

Passivism is frequently combined with some variety of fetichism, especially that which has for its object female shoes. In some cases the individuals are affected with larvated passivism. Here the idea of humiliation is satisfied in personal subjection to the most disgusting and indecent treatment at the hands of women. These cases are a counterpart of symbolic sadists. The most disgusting class of this variety find satisfaction in being defiled in various ways by feminine excrement, etc.

Erotic Fetichism.—Just as sadism and passivism can be regarded as pathological exaggerations of psychical characteristics normal to the majority of persons, so can the relationship of erotic fetichism be traced back to normal or physiological sexual preferences. In any case of disease it is well-nigh impossible to establish the dividing-line that marks the departure from health; so in erotic fetichism it is sometimes difficult to determine where physiological phenomena of sexual preference have become pathological erotic fetichism. Technically, erotic fetichism signifies a psychosexual peculiarity by virtue of which the individual exhibiting it finds sexual satisfaction more or less complete in objects which under physiological conditions are incapable of affording sexual gratification.

Physiologically, the characteristic marks, physical, mental, and artificial, of each sex come to have a psychosexual meaning for the opposite sex, and on this basis is developed that endless variety of individual sexual preferences which we observe in men and women. When this sexual preference has attained such force or particularity of expression as to be in any degree exclusively directed toward an object which can normally serve as merely a step in the play of sexual attraction, and when this affords complete sexual satisfaction by the side or to the exclusion of the normal means of sexual satiety, the preference has become a pathological phenomenon and is an example of erotic fetichism. This display of sexual preference may have for its object the physical (corporeal) characteristics of the opposite sex or objects artificially associated with them by custom, such as articles of wearing-apparel; in still other cases the object giving erotic pleasure may have no relation to the opposite sex.

Erotic fetichism is regarded by all authorities as an acquired anomaly; but it, like all the sexual perversions, is closely related to a psychopathic constitution, and for the most part this constitutional weakness is inherited. Erotic fetichism may arise in cases of mental disease. Owing to this relation to a constitutional psychopathic deficiency, erotic fetichism is often but one of various sexual anomalies exhibited by the individual; thus it occurs with sadism, passivism, and contrary sexuality. The explanation offered for the origin of erotic fetichism is that of early psychical association. Where sexual feeling is exclusively directed toward some object normally incapable of exciting lustful pleasure, it is presumed that the primary experience of lustful feeling has occurred simultaneously with some strong mental impression of that particular object, and that this initial association remained determinate for the future *vita sexualis*. In many recorded cases it has been possible to demonstrate this mode of origin beyond all doubt; its frequency in neuropathic persons is accounted for by the fact that in such individuals the awakening of sexual instinct is frequently early, and thus associations are formed which have but imperfect relation to normal sexual activities

because the child is more or less ignorant of the true sexual relations. The persistence of such an early association is in great measure dependent upon the fact that early psychological associations are the deepest and most enduring. Erotic fetichism may lead to the commission of crime, and therefore it is of much medico-legal interest. The recorded cases of erotic fetichism are in males, though the possibility of female fetichism is to be remembered.

Body-fetichism.—It is convenient to consider under this term those cases of erotic fetichism where the object affording sexual gratification is some physical peculiarity of the female. Normally men are sexually attracted by feminine peculiarities of person, such as the eyes, the hands, the feet, the hair, the bust, and other sexual marks of femininity; and any of these may become the particular pathological fetich. The determination whether such a sexual preference is really pathological is to be made by its relation to the activity of the sexual functions. If the object of erotic fetichism constitutes a *sine qua non* in some relation for normal sexual gratification, the case may be unhesitatingly pronounced pathological; and there can be no doubt of the pathological nature of cases in which the object giving sexual pleasure occupies the sexual attention entirely to the exclusion of all other sexual ideas. In cases of the latter kind, woman sinks to insignificance as a representative of sex, and the sexual act loses or has no meaning, while sexual pleasure is found only in some physical or ideal relation with the particular object. It is the comparative or absolute exclusion of the action of normal sexual stimuli by the particular object of sexual desire that is the measure of disease. The female hand is frequently the object of sexual preference, but hand-fetichists are seldom led to acts which attain medico-legal importance. The concentration of sexual interest on the feminine hand is entirely like that manifested in other cases of which illustrations follow. The greatest medico-legal interest attaches to those cases of body-fetichism in which the particular object of sexual interest is capable of easy removal, like the hair. It is conceivable, however, that cases might arise in which for the sake of entire possession of the hand, the foot, etc., of a female, the fetichist might resort to acts of a criminal nature; for example, a combination of hand-fetichism and sadism might lead to murder, or to the mutilation of corpses, for the possession of the member.

The following case, reported in the *Annales d'Hygiène*, April, 1890, and cited by von Krafft-Ebing,* will clearly illustrate the nature of erotic fetichism and the nature of the crimes to which it may lead:

August 28, 1889, P. was arrested at the Trocadéro, Paris, in the act of robbing a young girl of her hair by cutting it from her head. He had the hair in his hand and also the scissors with which he had cut it off. He explained his act by asserting that he was at the moment mentally confused and had acted in obedience to an irresistible impulse born of an unfortunate passion he had for women's hair. He confessed that he had cut off hair many times before. He took great delight in keeping his booty at home. On examination of his apartments sixty-five switches and locks of hair were found assorted in packets. It was ascertained that he had been arrested on a similar charge three years before,

* *Op. cit.*, p. 163.

but had been dismissed for lack of evidence. He was aged forty; his father had been temporarily insane and his mother was very nervous. P. developed well and was intelligent, but he early exhibited *tics* and imperative ideas. He had never practiced onanism. His sexual inclination had been rather Platonic; he had had sexual relations with prostitutes, but very infrequently, and had never experienced any real pleasure in coitus. Three years previously financial ruin had come, and this was followed by a febrile disease attended with delirium. Since that time he had been subject to anxiety when alone in his room at night, and at such times he felt an impulse to fondle female hair. When he could touch a girl's hair he became greatly excited sexually, and had erection and ejaculation without other contact with her person. This pleasure grew to be more and more intense, and previous sexual intercourse had never given him any such pleasure. At last he could not resist the impulse to cut off a girl's hair and take it home to fondle. Here he repeated the process of inducing sexual orgasm: he rubbed his person with the hair, etc. After this he could not trust himself to venture out for several days. After some months he was again unable to resist a new impulse to repeat his experience. Driven by this impulse he went out to possess himself of some girl's hair. This was frequently repeated until he had a collection of packets of hair. If he were unsuccessful in an attempt to get a new lot of hair, he would hurry home and revel in his possessions there. He was accustomed to comb and fondle it and simultaneously practice masturbation. Hair exposed for sale had no effect on him; he was excited only by that hanging from a woman's head. When he touched the hair with the scissors it induced erection, and ejaculation took place at the instant of cutting it. The opinion of the medico-legal examiners (Voisin, Socquet, Motet) was to the effect that P. was a psychopathic person subject to imperative impulses, of which his impulse to steal hair was one accompanied with a simultaneous excitation of sexual feeling of abnormal character and intensity. He was sent to an asylum.

A similar case is reported by Magnan,* in which it was possible to trace the origin of the impulse to association of the sight of a woman combing her hair with a primary experience of spontaneous sexual excitement.

When some particular part of the female person is the object of erotic interest, the fetishist may be driven to illegal measures to satisfy his desire. Thus the rounded hips of a woman possess such attraction for some men that they seek to place themselves in contact with women secretly in crowds. Such indecent acts have frequently been the subject of legal investigation.

Dress-fetichism.—By a kind of psychological substitution, or through pathological association, material objects may come to be the erogenous fetiches. The process of substitution is for the most part effectual with articles of female wearing-apparel: from enthusiasm for a part of the female person the corresponding customary covering may become the cause of erotic excitement. Thus the hand-fetichist might develop a love of female gloves; or the foot-fetichist, of female shoes. Often the fetich is some particular costume or some special article of

* *Psychopathia Sexualis*, p. 165.

attire. In these cases, as well as frequently in those where a possibility of transference of original sexual interest in parts of the female person is suggested, psychological association of primary sexual excitement with the particular object is the only possible explanation of the origin of the pathological manifestation. The more the object of erotic excitement is foreign to the normal sexual stimulus the more serious is its pathological significance.

The limits of this article will not permit details of illustrative cases. The articles most likely to become the objects of exclusive erotic interest are shoes, gloves, petticoats and other female under-garments, and handkerchiefs. The possibilities of pathological association are such that any object of female dress may eventually become a fetich. When such objects are erotic fetiches they may lead the individuals to commit theft to obtain them. The following case, reported by Zippe,* illustrates this tendency :

X, aged thirty-two, was arrested for stealing a handkerchief from a lady. He confessed that he had stolen a great number, but that it was not for gain that he took them. He cared only for handkerchiefs belonging to ladies that attracted him. He showed marked mental weakness. The act of stealing the handkerchief was accompanied by true sexual satisfaction, and this gave him more pleasure than normal sexual congress. He looked upon this theft as an equivalent for coitus.

The following case by Lombroso, cited by von Krafft-Ebing,† is an example of shoe-fetichism combined with passivism and sadism: X, male, aged twenty-six. He is sexually excited by nothing but the shoes of the opposite sex. The shoes must be handsome, of black leather, and have high heels. The shoes alone suffice. This peculiarity had existed from childhood. X is potent, but the female during the act must have on dainty shoes. At the height of sensual excitement he has cruel thoughts connected with the shoes: he thinks of the death-agony of the animal from which the leather came. At times he takes animals (chickens) to have his consort tread on them with her shoes; at other times he has the woman walk on him with the shoes. Caressing of women's shoes caused erection and ejaculation. Erotic fetichism may have for its object some special material such as fur and velvet. The cases of this character are usually examples of association independently of the relation of the special material to the opposite sex. In such cases there is experience of primary sexual excitement when handling velvet, for example, and thereafter this association is maintained. A partiality for furs might arise from experience of sexual excitement when fondling furry animals.

Contrary Sexuality or Sexual Inversion.—The cases of sexual perversion falling under this head, as previously indicated, are divided by von Krafft Ebing into two classes, namely, *acquired* and *congenital*. We have seen, however, that such a division is more or less difficult, if not impossible, and that a more practical and less prejudicial means of classification is to separate them into *late* (acquired) and *early* (congenital) cases, in accordance with the period of the first manifestation of the inversion.

* *Wiener Med. Wochenschrift*, 1879, No. 23; *Psychopathia Sexualis*, p. 172.

† *Op. cit.*, p. 131.

All observers agree in the conclusion that a neuropathic nervous system, congenital or acquired, is a prerequisite for the development of sexual instinct for the same sex (homosexuality). To this predisposing neuropathic condition some exciting cause is added. The most important exciting or contributing causes are excessive masturbation, fear of pregnancy, and venereal infection. According to von Krafft-Ebing, the signs of a neuropathic constitution which may lead to sexual inversion are premature development of sexual desire; sexual hyperæsthesia; functional and anatomical signs of degeneration; neuroses (hysteria neurasthenia, epileptoid symptoms); psychical anomalies even to degrees of weak-mindedness and moral insanity; neuroses and psychoses in progenitors. The same author differentiates four degrees in the development of the inversion, applicable alike to early and late cases: 1. With predominating homosexual feeling there is a trace of feeling (heterosexual) for the opposite sex (psychosexual hermaphroditism); 2. Exclusive homosexuality limited to the *vita sexualis*; 3. The whole character corresponds with the incongruous sexual feeling; 4. The form of the body, aside from the genitals, corresponds with the anomalous sexual inclination.

Since in any case sexual inversion is but a phenomenon arising from a neuropsychopathic condition, as previously indicated, it is seldom an isolated manifestation, but is most frequently observed in combination with other sexual perversions. In accordance with this, the medico-legal questions arising in sexual inversion may be identical with those raised in the sexual perversions previously considered. The further possibilities of a criminal character are related to the crimes of pederasty. The individual affected with contrary sexuality satisfies himself with men by means of passive or mutual onanism, or by coitus-like acts (*coitus inter femora*); if active pederasty is performed, it is only as a result of intense sexual desire, or out of wish to please another. Passive pederasty may be performed by contrary sexual individuals to please the active party, or out of lust where they feel themselves entirely in the feminine rôle. To distinguish such cases from pederasty not dependent upon a pathological condition, it is but necessary to exclude the existence of psychosexual inversion, and to remember that where this crime is performed apart from perversion it is as a means of sexual indulgence in the absence of opportunity for natural satisfaction, and as a new means of sexual gratification where natural methods of sexual pleasure have been exhausted by excess. Non-pathological passive pederasty is practiced only for gain.

The following unpublished autobiography will illustrate a case of sexual inversion of early development:

"From my earliest childhood I have exhibited an abnormal sexual tendency. I have never loved a woman—never experienced a trace of sexual feeling for a woman. Yet I cannot say that I have a *horror feminarum*. I do not associate with ladies, not because I dread them, but knowing my condition I feel so inexpressibly unhappy by reason of it that I avoid their society. I have never attempted coitus with a woman, because I have no desire, and then again I know it would be impossible. Neither do I consort criminally with men. My desires are for men exclusively, but they have never yet been so strong that I was unable to control my actions. Of course I avoid temptation. In all my thoughts

(sexually) I regard myself in a passive rôle. I am effeminate in action and appearance, though I am told I am less so than formerly. My voice is a good baritone, beard abundant, height five feet six inches, weight one hundred and seventy-two pounds, genitals well formed (as far as I can judge), but somewhat under size, and as far as I know they are in a healthy state. I do not practice masturbation, and have no desire to do so. I did practice masturbation for many years—probably as early as my tenth year, and from that time more or less frequently until I left the university in my twenty-third year. I do not think I ever practiced it oftener than once in four or five days. Now, however, I have abandoned the habit and never feel any inclination to renew it. Indeed I never think of it, and it seems incomprehensible to me that any one should care to indulge in it. I seldom have nocturnal emissions—perhaps once a month—but they are always accompanied by lascivious dreams in which men are substituted for women. I am inclined to believe that my condition is congenital, although my early practice of masturbation may be responsible for it. I always as a child was fond of dolls and sewing and other feminine things. This was even prior to forming the habit of masturbation. I do not think either of my parents had any abnormal sexual feelings. My mother died when I was thirteen years old, of asthma—nervous asthma, I think. My father still survives. My father never seemed to me to care for ladies' society. I never knew him to visit a lady unless on business, and his reputation for morality is of the highest. Neither does he ever touch liquor or even smoke. If my failing is inherited it must be from my father, and that I cannot believe. My mother's family are all more or less nervous, but are considered very bright mentally. However that may be, I have this abnormal tendency—or rather not tendency, but appetite; for it is more than a tendency—and the knowledge that I am so unlike others makes me very miserable. I form no acquaintances outside of business, keep mostly to myself, and, as I said before, do not indulge my sexual feelings. I am at times exceedingly melancholy, owing, I suppose, to my unhappy condition and the great difference between myself and others. Whenever I go into society this difference is impressed upon me, and causes me such deep distress that I do not go more than I can help. I do not want to create the impression that my feelings for my own sex are weak, for they are strong; but I have heretofore had sufficient will-power to restrain them. On one occasion, some three or four years ago, I permitted a young man to take a liberty with me, at his request, not because I could not resist or because the fellow had any attraction for me, but merely out of curiosity, as I wanted to see what he would do. I took no liberty with him and merely submitted to him while he put my penis *in os suum*. The whole thing was unpleasant to me and I have never repeated it. I have already stated that I do not indulge in sexual improprieties. My desire in this matter has always been to handle the genitals of those for whom I feel affection and to have them do the same to me. I am therefore somewhat uncertain as to whether I should consider myself in an active or passive rôle, but probably passive. This, with embraces, seems to be the extent of my desire. But the most serious feature to my mind is the total and utter absence of any feeling for women. I did once dream of having connection with a woman—not a woman I had ever seen, but an imaginary creature—and my recollection is that I had

an emission at that time. This dream, I think, was caused by my firm resolution made about that time to try to concentrate my mind on women to the exclusion of men. But never have I had such a thought awake, and never since when asleep."

The following abridged autobiography illustrates a late case in which there are distinct evidences of psychosexual hermaphroditism :

"I am twenty-nine, and born of healthy parents. My sister and brothers are normal. As far back as I can remember I masturbated—long before I reached puberty. I practiced mutual masturbation with but three men, all older than myself—this before I was eighteen. Since then I have masturbated alone. I practiced self-abuse very frequently until eighteen; from that time until my twenty-fifth year about once a month; since then but three times in all. I have frequent pollutions at night, and I occasionally awake to find myself masturbating. With these emissions I mostly have men connected in my dreams—occasionally, however, women. From my earliest recollection I have had sexual thoughts of men and also of women. From fourteen to eighteen I had coitus occasionally, which I enjoyed, but not so much as the pleasure in onanism. I always took men for my object while masturbating. Men of fine figure exert a great sexual effect on me. I have never yielded to this tendency. My attempts at coitus for some years have been very unsatisfactory. I fear I am impotent with women, but I have no trouble in having an erection at the thought of men. There are times when this love of men is absolutely obnoxious to me, but, alas! they are only too infrequent."

Responsibility.—Since all forms of sexual perversion may lead to criminal acts, the most important question from a medico-legal standpoint is that which concerns responsibility. On this point it may be said that the fact that an individual is subject to a perversion of the sexual instinct is not sufficient to establish personal irresponsibility. Many persons—in fact, the majority—thus affected are able to control their abnormal sexual impulses. When such a person has committed a crime which can be shown to be the expression of his peculiar anomaly, in order to justify a judgment of irresponsibility it is necessary to show that the crime was the result of organic necessity; that owing to a neuropsychical constitution the individual was incapable of developing or acquiring ideas and feelings which act in opposition to animal impulses; or, these having been developed or acquired, that pathological conditions have been influential in overcoming them. Thus the question of responsibility for crimes committed by sexual perverts falls within the lines which guide in the determination of responsibility in general.

SURGICAL MALPRACTICE.

BY

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Definition.—Malpractice is defined as bad or unskillful practice on the part of a medical attendant, whereby the results are such as to injure the health of the patient or destroy his life. The administration of medicines or the performance of an operation which the practitioner knows or expects will result in damage to the patient's health, needlessly endanger his life, or cause his death, is defined as willful malpractice, while negligent malpractice includes those instances in which a criminal or dishonest object or intention is absent, but in which there is gross negligence or failure to render that attention to the patient which the exigencies of his illness require. The administration of medicines or the performance of an operation if the medical attendant is incapable of properly appreciating its effects, either in regard to the medicine or the operative procedure, through any fault of his own—such as would exist, for instance, when he was in a state of intoxication—the effect being to inflict injury rather than to benefit the patient, would come under the latter head. Ignorant malpractice, on the other hand, consists in the administration of medicines or the performance of operations which do harm, and which a well-educated and scientific medical practitioner would recognize as inappropriate in the case and likely to be followed by injurious consequences.

The passive malpractice involved in allowing a patient to bleed to death without ascertaining the source of the hemorrhage or taking proper measures to arrest it is quite as reprehensible, *ceteris paribus*, as the active malpractice involved in causing a dangerous hemorrhage for want of proper care. Errors of omission, however, are of as great importance as those of commission, yet the former are apt to be judged less harshly than the latter. But it would be better, viewing the matter from a purely professional and scientific standpoint, to reject all artificial distinctions, and consider only the behavior of the surgeon with relation to the nature of the disease, the condition of the patient, and the particular procedure claimed to be at fault.

Measure of Responsibility.—It is extremely difficult to accurately estimate the measure of the surgeon's responsibility at all times and under all circumstances. This has varied greatly in times past and among different nations. In the days when priests assumed the functions of medical practitioners and performed surgical operations, their knowledge, being then considered as derived from God, was looked upon

as infallible. On the other hand, among the Egyptians the surgeon who ventured beyond the boundaries of the rules which were regarded as established was liable to suffer corporal punishment, even though his practice was successful. In Roumania the mere fact that a physician's or a surgeon's efforts were unsuccessful made him responsible at law for pecuniary damages. Among the western Goths the unsuccessful ministrations of the surgeon, if resulting in death, were followed by the turning over of the latter to the vengeance of the relatives of the deceased patient. In Germany, at the present day, both the Civil and Criminal Code hold to a strict accountability all those whose office, profession, calling, or trade demands the exercise of care, in case death or injury results from the want of proper precautionary measures. In England there are no special statutory provisions laid down defining malpractice, and no criminal law bearing upon the subject save the common law. All cases of this character are treated in processes before jurors. The latter course is likewise pursued in the United States, as regards both civil and criminal processes; but in this country there is a statutory provision on the subject of criminal liability for negligence or misconduct. In Germany, Austria, and France the trial process is not had before jurors.

In Germany the superior courts hold to the principle that every medical practitioner who, by a culpable want of attention and care, or by the absence of a competent degree of skill and knowledge, causes injury to a patient is liable to a civil action for damages, even where the patient either employed him or agreed to pay him, unless the patient has by his own carelessness directly contributed to such injury. A surgeon does not stipulate to perform a cure, neither does he undertake to use the highest possible degree of skill, but he does undertake to bring a fair and reasonably competent degree of skill and knowledge to his aid in the case. In an action brought to recover damages the question is whether the injury is to be referred to the want of a proper degree of skill and care on the part of the defendant or not. A medical man who is guilty of gross negligence or evinces a gross want of knowledge of his profession is criminally responsible, but he is not liable to criminal investigation for every instance in which an unfortunate termination of the case follows his efforts. The distinction between actionable and criminal negligence cannot be defined, except so far as to say that to constitute the latter there must be such a degree of complete negligence as the law means by the word "felonious." The American courts hold similar views, except that the responsibility of physicians and surgeons is not to be measured by the same rules that apply to mechanics and artisans.

Malpractice, therefore, has come to be an offense punishable by fine and imprisonment as well as financial loss to the defendant from actions brought by patients or their legal representatives. Under the common law the latter cannot recover in case of death, inasmuch as the act of malpractice constitutes a tort, unless some property interest is involved.

That exact justice demands that physicians and surgeons should be held responsible for their actions as well as their omissions, both morally and legally, should untoward results follow their willful acts as well as their failure to act promptly under circumstances demanding such action and the intelligent application of ordinary skill and care, there can scarcely be two opinions. But the fact should not be lost sight of that

members of the profession of healing should not be restricted in the selection of what may seem to them the proper procedure in a given case, lest the development and progress of their humane science be unnecessarily restricted or repressed.

To the fair and impartial mind it is easily apparent that, until medicine becomes an exact science, in a certain proportion of cases failure must follow the efforts of the best-informed men, the failure being attributable to the conditions for which the treatment was applied as well as to errors of judgment on the part of the practitioner. The errors, however, need not necessarily be culpable *à priori*, as surgeons are but human, and are liable to error in common with others of the race.

The public at large can scarcely be justified in requiring from every individual surgeon the highest grade of knowledge and ability, but, rather, a general average must be struck, this average being employed with whatever especial care, precaution, and attention are required by the particular case in hand. Medical knowledge advances by stages, and besides the improvements which each decade brings to the profession, one individual member thereby, either because of especial opportunities for observation, the possession of a gift of genius, or as the result of an exceptionally large experience in a particular field of work, may outstrip his fellows and attain a degree of proficiency which, if established as a standard, it would be impossible for the majority of his professional brethren to reach.

The Principles of the Art of Surgery.—The general truths and maxims which authority has established constitute the principles of an art; but these can never become permanently fixed in the art of surgery, with its constant advance in methods and scientific improvements. Until the changes, therefore, which necessarily follow upon the latter receive the sanction of recognized authority they cannot attain the weight and importance of principles, and hence changes in established principles occur but very slowly. A sufficient knowledge of the principles upon which the practice of the art of surgery is grounded, and an intelligent application of those principles, therefore, becomes the standard by means of which a judicial estimate of the responsibilities and obligations of the surgical practitioner may be arrived at.

Opinions of Experts.—In an art like that of the operative portion of surgery, the principles of which are undergoing constant improvements, and which are susceptible of still further improvements, in order to determine the civil obligations of the surgeon, and form a judicial estimate as to how far he has availed himself of trustworthy knowledge upon the subject and diligently and intelligently applied the same, it is necessary to obtain the opinions of the acknowledged exponents of the science and art whose practice and experience extend over the particular period of time under review.

Unexpected and Unfortunate Results of Operations.—Although the operating surgeon may perform the most difficult and extensive operations many times and with quite a uniform degree of success, and those of considerably less magnitude will occasionally be followed by unfortunate and unexpected results from causes not easily foreseen or guarded against, it is nevertheless true that the results of operations generally depend upon the qualifications of the operator. From the judicial standpoint, therefore, the surgeon who undertakes to perform an operation

assumes an obligation which, though only implied, has all the force of a formal contract drawn and signed in the presence of witnesses. And further, this legal construction of the obligation requires that the surgeon shall possess ordinary skill and that degree of knowledge which is the common property of those who practice the same art and science, intelligently apply those principles which are deemed essential, under the circumstances, by the leaders of the profession, and for the best interests of the patient, and employ a reasonable degree of care and judgment in the exercise of his skill and in the application of the principles to which allusion has been made.*

The Criteria of Malpractice.—Speaking in a general way, it may be stated that the three criteria of malpractice, and upon the establishment of which actions at law must depend in order to be successful, are embraced in the following questions: First, Has injury been inflicted or has death been caused by the act of the surgeon? Second, Did the attendant in his treatment of the case exhibit a want of knowledge of those rules which are the common property of the profession, or which have been sufficiently long established to become known to him with ordinary watchfulness of the advances of his art on his part? Third, Did the attendant depart from the established rules bearing upon the particular case in an unjustifiable or extraordinary degree? In other words, did he omit, either through carelessness or ignorance, to do that which might have been of benefit or have saved the life of the patient; or did he administer a remedy or perform an operation which resulted in injury or death, without sufficient reason for so doing, from the scientific standpoint as judged by his peers in the profession?

Errors in Diagnosis.—The particular direction which the error committed takes should also have some bearing upon the case. For instance, a diagnostic error in an obscure case, the treatment being properly based upon such error, should be deemed less culpable than either wrong or correct diagnosis followed by treatment calculated to be of no service or absolutely harmful in either case.

Diagnostic mistakes have been made by the most eminent practitioners and consultants, and upon his ability as a diagnostician the entire reputation of a surgeon frequently depends. An error in diagnosis, therefore, should be viewed in a more charitable light by his *confrères*, and also by the community, than errors in treatment which caused disaster. This is fortunate for the practitioner, for the reason that when a correct recognition of the case on his part has been proved it is difficult to prove that a wrong treatment has been pursued; and from the further fact that the diagnosis in a large number of instances can only be cleared up by observing the results of treatment. Under these circumstances, therefore, the treatment must be largely experimental and consequently more or less at variance with any set of hard and fast rules which might be urged as applicable to the case.

Errors of Judgment.—While the surgeon is bound to give his patients the benefit of his best judgment, he is not liable for a mere error of judgment, unless it can be shown that the latter is so gross as to be inconsistent with reasonable care, skill, and diligence. †

* 14 Am. & Eng. Encycl. of Law, 76.

† *West vs. Martin*, 31 Mo. 375; *Howard vs. Grover*, 28 Me. 97.

Unusual and Extraordinary Emergencies and Surroundings.—The surgeon is compelled occasionally to act under circumstances of the most trying and extraordinary character. His own safety may be imperiled at the very moment he is called upon to act in behalf of another. The surroundings upon a battle-field or a railroad wreck are not conducive to an even balance of mind, or calculated to assist in bringing a cool and calm judgment of the necessities of the case to the aid of the attendant. Local, temporal, and external conditions of various kinds, as well as the necessity for acting at once; the exigencies of a case demanding prompt action, and that perhaps with material of a hastily improvised character and ill-adapted to the emergency, may prevent the surgeon from making use of knowledge which he really possesses, or from showing that ability which under more favorable circumstances he would exhibit. Moreover, the necessity at times for the rapid performance of an operation, as, for instance, tracheotomy, or the prompt application of a remedy in an emergency, may be absolutely incompatible with the exercise of due care and precaution against accident. In addition, the importunities or expostulations of the patient or his friends may serve to bias, or at all events to disturb, the judgment of the surgeon and tend to lead him into error.

Latest Methods and Appliances.—Where the exigencies of the case will permit, and where there exist no extenuating circumstances such as have been already dwelt upon, the surgeon, in the performance of all surgical operations, is bound to bring at least the ordinary care and skill possessed by those who practice in the same locality or have access to the same sources of information which he can avail himself of.* He must possess and exercise in an intelligent and practical manner that degree and amount of knowledge and science which the best authorities have declared to be the result of their observation, experience, or research, up to within a reasonable time of the date of the error of commission or omission which is at issue.†

Response to a Call and Duration of Attendance.—Reproach is sometimes cast upon the surgeon for failure to respond to a call for professional services in urgent cases. It is his implied duty, if he is the regular attendant, to properly attend the case so long as it requires attention, unless his services should be no longer acceptable to the patient, in which case a formal dismissal will be in order. He may likewise voluntarily cease his attendance upon the case at any time upon giving reasonable notice of his intention to do so, if further care is necessary. It is also within his province to determine when attendance may be safely and properly discontinued, but the same rule in regard to the exercise of ordinary care and skill likewise holds good in this connection. Special contracts may be made, however, between the surgeon and the patient, limiting the attendance to a longer or shorter period, or to a single visit, or governing the frequency of the visits.‡

* *Gramm vs. Boener*, 56 Ind. 497; *Kelsey vs. Hay*, 84 Ind. 189.

† *Elwell on Malpractice*; Am. Law Reg. (N. S.) 774; 8 East (Eng.), 347; 1 H. Bl. (Eng.) 61; *McCandless vs. McWha*, 22 Pa. St. 261; 27 N. H. 460; 13 B. Mon. 219; *Shearman & Redfield*, § 440; *McLalon vs. Adams*, 19 Pick. (Mass.) 333; *Carpenter vs. Blake*, 60 Barb. 448; *Patten vs. Wiggim*, 51 Me. 594; *Rex vs. Long*, 4 C. & P. (Eng.) 423; *Slater vs. Baker*, 2 Wille (Eng.), 259.

‡ See *Ballou vs. Prescott*, 64 Me. 305; *Todd vs. Meyers*, 40 Cal. 357.

No Implied Warranty to Cure—Express Stipulation.—The mere employment of a surgeon does not, in the legal sense, imply a contract to cure,* although the surgeon may, at his discretion, contract to perform a cure absolutely, in which case he can be held as a guarantor of success.† The profession, however, has always looked upon such bargains with disfavor. The surgeon, when he enters upon the charge of a case with dignity and a due regard for his professional standing, is not in any sense supposed to insure a cure, and hence is not to be tried for the result of his efforts, providing he treats the case with reasonable diligence, care, and skill. More than this may be expected and demanded if an express stipulation exists, precisely as in common contracts between individuals in commercial life. The mere fact that the surgeon attends for a fee simply implies that he shall exercise care, diligence, and skill in all his acts, and that these shall be such as are best calculated to restore the patient to health, and least likely to injuriously affect him.

Equal Amount of Time and Attention.—The surgeon is not always bound to bestow an equal amount of time or degree of attention and skill upon all who come under his care, much less is it necessary that he should carry these to the same extent as some other medical man might have done. In order to render him liable it must be shown that damage has been inflicted and that there has been a want of competent and ordinary care or skill, or an indifference to the patient's best interests. Even an admission on the part of the surgeon himself that there has been a lack of care on his part does not alter the case so far as is concerned the necessity of proving that there was such lack of care, and that the patient suffered in consequence thereof.

The proposition that the surgeon is not bound to give the same or equal care and attention to all cases is based upon the fact that each case is to be individualized, and that the peculiar mental qualities of one patient, although not very ill, will demand more attention than required by another who is more seriously ill, yet not so profoundly impressed mentally as to require oft-repeated assurances of continued well-being. So many factors may enter into the consideration of the case in this connection that it would be absurd to permit a standard to be set up based upon the patient's own preferences. It is not sufficient that the patient asserts that he did not get as much care as he desired: he must show that he was damaged by insufficient care or inefficient treatment, and that these were avoidable on the part of the attendant.

Gratuitous Services.—The fact that a surgeon renders services gratuitously does not affect his duty to exercise reasonable and ordinary care, skill, and diligence.‡ Treating a patient gratuitously does not give the surgeon license to treat him other than in a scientific and careful manner and with due regard to his best interests. In fact, failure on the part of a surgeon to render a bill or make some claim for compensa-

* *Taft vs. Wilcox*, 6 Kan. 446; *Heese vs. Knippel*, 1 Mich. N. P. 109; *Getchel vs. Hill*, 21 Minn. 464; *O'Hara vs. Wells*, 14 Neb. 403; *Leighton vs. Sargent*, 27 N. H. 460; *Craig vs. Chambers*, 17 Ohio St. 253; *Bliss vs. Long*, Wright (Ohio), 351; *Grindle vs. Rush*, 7 Ohio, pl. 2, 123.

† *Ely vs. Wilbur*, 49 N. J. L. 685; *Gallaher vs. Thompson*, Wright (Ohio), 466; *Smith vs. Hyde*, 19 Vt. 54.

‡ *McNevin vs. Lowe*, 40 Ill. 209.

tion for the treatment of a case, and the inability on his part to explain this otherwise than upon the ground that the patient was a hospital or dispensary patient case which came under his care as such, might, in an action for malpractice, and especially in a doubtful or balanced case, be urged with great force as in the nature of an admission of neglect or want of skill on the part of the surgeon—as evidence of a consciousness that he was not entitled to pay for his services, and that the latter were worthless.*

Experience and Instruction Will Vary.—The law does not demand the most thorough education or the most extensive experience on the part of the surgeon—evidently it cannot, because experience and instruction will vary—but it will not countenance quackery. An uneducated or ignorant person who attempts, under pretense of being a qualified medical practitioner, to perform surgical operations is to be held accountable, both criminally and civilly, for the results of his actions. If, however, there is an understanding between the patient and the surgeon, who frankly confesses his want of skill, or even if the patient is made fully aware in some other way of the lack of knowledge and ability on the part of the practitioner, he cannot complain of the bad result, since this depends upon the lack of those qualities which he was informed did not exist.†

Effects of Locality upon Standard of Care and Skill.—The standard of skill may not only vary under the varying circumstances already mentioned, but it may differ in different portions of the same country or even State. Thus, for instance, medical practitioners in rural districts, or even in towns of considerable size remote from medical centers, although well read and grounded in the theory of the profession, are comparatively seldom called upon to assume charge of grave surgical conditions or perform difficult operations. These men do not enjoy the opportunities which the more fortunate city practitioner does, of daily observation and more or less of constant practice, and it would be most unreasonable to demand from them the same degree of skill which hospital practice or daily work in a larger field, with the opportunities for consultation with recognized authorities and of listening to or participating in discussions at the medical societies upon subjects in which those who take part are particularly interested and have therefore studied with particular care, would imply.

The Surgeon is Bound to Use the Best that he can Command.—Peculiarities of environment may demand of a surgeon, although comparatively unlearned, unskillful, or inexperienced, in an emergency, or where the patient cannot, from one reason or another, be transported to a hospital or medical center, or pay a skillful surgeon to visit him, the rendering of such services as he may be able to give. Under such circumstances he may undertake an operation which he has never seen performed, or the application of apparatus with the mechanism or *rationale*

* 14 Am. & Eng. Encycl. of Law, 81; *Baird vs. Gillette*, 47 N. Y. 186.

† *Shearman & Redfield on Negligence*, §§ 433-435; *Leighton vs. Sargent*, 27 Me. (7 Fost.) 468; *Reynolds vs. Graves*, 3 Wis. 416; *Carpenter vs. Blake*, 60 Barb. (N. Y.) 488; *Patten vs. Wiggan*, 51 Me. 594; *Briggs vs. Taylor*, 28 Vt. 180; *Landon vs. Humphrey*, 9 Conn. 209; *McNevin vs. Lowe*, 40 Ill. 209; *Smothers vs. Hanks*, 34 Ia. 286; *Taft vs. Wilcox*, 6 Kan. 46; *Howard vs. Grover*, 28 Me. 97; *Long vs. Morrison*, 14 Ind. 595; 11 Am. Rep. 363.

of which he is unfamiliar or unacquainted, and yet be perfectly justified in giving such aid as he can. All that the law requires in this connection is that he shall use the best that he has at his command, whether of knowledge as to what to do, skill in doing it, or of apparatus or instruments.

Experimental Surgery.—The question of experimental surgery as applied to human beings is one of much importance. The law is rather explicit on the subject, and decisions have agreed that a medical man cannot experiment upon his patients without liability to damages, should injury or death follow, and be due to such experiment.* It would be a question for careful consideration on the part of a jury whether or not the experiment, under the circumstances, was a justifiable one. For instance, in a condition which would ordinarily be easily cured by simple means, and which, if uncured, would not give rise to great discomfort, disability, or danger, it would follow that the application of a dangerous or heretofore untried remedy or operation which left the patient in a worse condition than before, or resulted in his death, would be followed by severe condemnation, even with a jury of medical men. On the other hand, with a patient suffering from an incurable and necessarily fatal malady, and in whom all known remedies have failed to bring relief, a much wider latitude of action may be permitted the practitioner.

Experimental Treatment not Necessarily Culpable.—Condemnation of experimental treatment, strictly speaking (for all treatment is more or less experimental in a general sense), may be carried so far as to constitute a serious bar to progress in medical science. An experiment is not always to be regarded as culpable of itself, for the reason that there is not, nor can there ever be, a legal code containing the rules of medical science. On the contrary, the thoughtful and scientific physician will always endeavor to individualize each case in its treatment, and proceed in accordance with the dictates of his own judgment. He is therefore often justified in acting in opposition to established rules. Progress in medical science depends upon independent research and the free selection of methods of procedure. Therefore not even an untoward result of a course of treatment differing from that which is ordinarily pursued need necessarily, as has been assumed, be construed as malpractice. Even good results do not always protect the surgeon against reproach.

A new and, therefore, untried procedure may, despite the fact that the patient died in consequence of its employment, be regarded as reasonable and justifiable. This is just as true as the proposition that a standard operative procedure in which all the rules laid down by authorities are followed frequently fails to save the patient, and may even be directly held responsible for his death. If the surgeon is able to give such reasons for his course as are satisfactory to scientific men, and has employed the new procedure with care and due attention to all of the possibilities in the case, and in good faith, then he is not to be mulcted in damages because of an unfortunate outcome of his effort to improve upon older, and probably not more satisfactory, methods.

Improper Introduction of Non-Professional Persons into a Case.—The introduction of a non-professional person into a case, and in which

* *Patten vs. Wiggin*, 51 Me. 594.

no necessity exists for his presence or assistance, may render the practitioner and the intruder liable for whatever damages may have been sustained by the patient. In the recorded instances in which the parties committing the offense were held liable, the patients were women in confinement. The offense was not mitigated nor the right to recover affected by the fact that both the patient and her husband supposed the intruder to be a medical man and therefore made no objection to his presence.* The fact that the intruder was an unmarried as well as a non-professional man seems to have affected the question, so far as the cases cited are concerned. But there are other considerations aside from those of shame and modesty which would serve as a basis for a suit for damages, such, for instance, as those relating to privileged communications, the presence of venereal eruptions upon the skin, etc.

Burden of Proof and Matters in Defense.—As to the burden of proof, this follows a general rule with which attorneys are familiar, and which need only be casually alluded to in this connection: "As to the order of the production of evidence, it is held that the burden of proving any fact lies upon the party who substantially asserts the affirmative of the issue."† Where the surgeon is put upon the defensive and enters a denial of the claim for damages, the plaintiff must prove in an affirmative manner all of the essential and material elements entering into the negligence as specifically charged. Not only this, but there must be a preponderance of evidence, not only in these respects, but particularly where want of skill or knowledge is charged, before the verdict of a jury can be claimed in favor of the plaintiff. Most especially is it necessary for the plaintiff to establish an exact etiological relation between the result of the alleged malpractice and the negligent, careless, or willful maltreatment. In addition to this it falls within the province of the inquiry whether there are not causes other than those relating to the procedure complained of which may be held partly or wholly responsible for the failure of the treatment. Furthermore, the question arises as to whether or not the methods employed and alleged to be faulty have been followed by successful results in analogous cases. Finally, the justifiability of the procedure, providing it be a new one, should be discussed upon a purely scientific basis, the question as to the propriety of its employment depending largely upon whether or not its *rationale* can be explained upon scientific principles, or appeals to the unprejudiced minds of scientific men.

Contributory Negligence.—It is a well-defined principle of law that upon each person devolves the duty of exercising reasonable care, diligence, and prudence in avoiding personal injuries as well as damages or losses resulting from the wrongful acts of others. Persons who are ill and under the care of a professional attendant can no more escape the responsibility arising from failure to observe this rule than he who walks the street. Hence it follows that if there is shown any want of ordinary and proper care and diligence on the part of the patient to avoid the consequences which may arise from malpractice, he may be chargeable with contributory negligence, and this plea may be set up in defense of the action or in mitigation of the damages claimed. The plaintiff, if this

* *De May vs. Roberts*, 46 Mich. 160; 41 Am. Rep. 154.

† *Field's Medico-Legal Guide*, p. 218; *Field's Briefs*, § 310.

contributory negligence on his part is proved—and the burden of proof of this is upon the defendant*—will be debarred from recovering, or, at the most, it will be found that he can recover only to a limited extent. The limit to be placed upon the amount which he will be able to recover will be governed by the extent to which it was in his power to prevent the damage inflicted, by the exercise of ordinary and reasonable care and diligence.† Therefore, while a surgeon is liable for any injury caused the patient by the want of that ordinary skill and diligence which an intelligent and reputable member of the profession would use under the same circumstances, and which the laws of the country require, yet if the patient neglects or refuses to make use of the remedies prescribed, or declines to permit a necessary operation to be performed, it goes without saying that he thereby absolves the attending surgeon from all responsibility for any injurious consequences that may occur, if such neglect or refusal can be shown to be a proximate cause of the injury; even though the surgeon may have failed to employ that degree of ordinary skill and diligence which is demanded under the law, still, if the patient contributes to the injury by any failure on his own part or on that of his attendants to properly coöperate with the medical attendant, it has been held that he cannot recover damages for such injury.‡

The proposition last stated does not hold good in mitigation of damages where one person has received a personal injury from negligence on the part of another; in other words, the ordinary personal-damage suits of the courts are not criteria in these cases. Under these circumstances the claim for damages on the part of the plaintiff cannot be offset or the amount reduced by reason of his failure to secure the most skillful professional aid, providing he has used reasonable and ordinary care. §

Elements of Pecuniary Damages.—The elements of the pecuniary damages which may be sustained in any given case have been classified as: (1) loss of time and labor arising from the injury sustained by the malpractice; (2) the reasonable expenses incurred for surgical, medical, and other attendance; (3) diminished capacity to work at the trade or business of the injured party in consequence thereof; (4) bodily pain and mental anguish in consequence thereof. In addition to these a jury may take into consideration the fact of permanent disability and probable future disability and suffering, the principle here being the same as that which is applied in estimating damages for personal injury. || In fact, when the elements of fraud, malice, gross negligence, or oppression are introduced into the controversy the case permits the jury to give punitive, vindictive, or exemplary damages. ¶

The plaintiff in an action for malpractice is not entitled to, nor should he be permitted to recover, damages on account of the pain and suffering

* *Gramm vs. Boener*, 56 Ind. 497. A contrary rule is adopted in Iowa: *Baird vs. Morford*, 29 Ia., 531.

† *Field's Lawyers' Briefs*, §§ 445, 446; *Field's Medico-Legal Guide*, p. 221.

‡ *Geiselman vs. Scott*, 25 Ohio St. 86; *Lower vs. Franks*, 115 Ind. 334; *Chamberlain vs. Porter*, 9 Minn. 260; *Hibbard vs. Thompson*, 109 Mass. 286; 36 Am. Rep. 668; *Potter vs. Warner*, 91 Pa. St. 362; *West vs. Martin*, 31 Mo. 375; *Jones vs. Angell*, 95 Ind. 376; *O'Hara vs. Wells*, 14 Neb. 403.

§ 32 Ia. 324; 7 Am. Rep. 200.

|| *Field's Medico-Legal Guide*, p. 225.

¶ *Seg. on Damages*, p. 38; *Field on Damages*, § 26; *Brooke vs. Clarke*, 57 Tex. 105.

resulting from the disease itself. These are to be limited to the additional pain and suffering caused by the negligence or want of proper care and skill on the part of the defendant.*

Partnership Liability.—In case two or more surgeons are associated together in practice as partners all are liable for malpractice by any member of the firm.†

Action Barred by Recovery for Services.—A recovery by a surgeon for his services will bar a future action for malpractice, as a rule. Exceptions to this will be found in some States where it is held that if the recovery be by confession or default it is not a bar.‡

CRIMINAL LIABILITY FOR NEGLIGENCE OR MISCONDUCT UNDER SPECIAL STATUTORY PROVISIONS.

As previously stated, in the United States there are penal statutes, differing somewhat in the different States, which provide for the punishment of medical practitioners for negligence or misconduct, in their professional capacity or in the course of their employment or business, which causes death. The law is held to apply, in some States, to dealers in drugs and medicines who by carelessly labeling a deadly poison as a harmless medicine inflict an injury or damage to persons without fault on their part.

The following extracts bear upon the point of criminal liability for negligence :

“A person who, by any act of negligence or misconduct in a business or employment in which he is engaged, . . . or by any unlawful, negligent, or reckless act, . . . occasions the death of a human being, is guilty of manslaughter in the second degree.”

The above paragraph has been held to apply to druggists as well as to practitioners. §

“A physician or surgeon, or person practicing as such, who, being in a state of intoxication, without design to cause death administers a poisonous drug or medicine, or does any other act as a physician or surgeon to another person which causes the death of the latter, is guilty of manslaughter in the second degree.” ||

GENERAL CRIMINAL LIABILITY AT COMMON LAW.

Under the common law, as well as under special statutory enactments, a physician or surgeon who, by his culpable negligence, causes the death of his patient is guilty of manslaughter. A person who unlawfully engages in the practice of the profession of medicine and causes death by the application of means which he may even believe will be of benefit to

* *Wenger vs. Calder*, 78 Ill. 275.

† *Hyrne vs. Erwin*, 27 S. C. 226; 55 Am. Rep. 15; *Whittaker vs. Collins*, 34 Minn. 299.

‡ *Ressequie vs. Byers*, 52 Wis. 650; 38 Am. Rep. 775; *Skyes vs. Bonner*, 1 Cin. Sup. Ct. 464; *Goble vs. Dillon*, 86 Ind. 327; 44 Am. Rep. 308; 14 Am. and Eng. Encycl. of Law, 83.

§ Penal Code of New York, § 195; *Thomas vs. Winchester*, 6 N. Y. 397.

|| Penal Code, § 200.

the patient, would be guilty of manslaughter.* Gross ignorance, gross carelessness, rashness, or want of proper precaution on the part of such a pretender constitutes manslaughter at common law.†

A person who may assume to act as a physician or surgeon is not criminally liable for the death of a patient caused by the medicines which he administers, provided he acts in good faith and to the best of his abilities, and does not pretend to be a physician, and is known not to be such.‡

In the absence of statutory provisions upon the subject, the general rule applies. Under this a regularly qualified physician and surgeon legally authorized to practice his profession cannot be held criminally responsible for an honest error of judgment in the treatment of his patient, although such treatment may cause his death.§ Failure on his part, however, to meet the requirements of ordinary skill and diligence, the death of the patient resulting from his gross ignorance, inattention, or carelessness, or from criminal misconduct, being shown, he would be held guilty of manslaughter at common law, if not under statutes.||

Punishment through a Criminal Action not a Bar to Recovery in a Civil Action.—Finally, it is to be noticed that in case a physician or surgeon suffers trial and punishment for malpractice, either under special statutory enactments or at common law, this does not constitute a bar to a civil action which the patient may bring against him for damages arising from such malpractice. The fact that the defendant had already suffered punishment for the offense would not even affect the rights of the plaintiff in such an action in recovering punitive damages, where, under the circumstances, such damages are allowable.¶

THE MISHAPS OF SURGICAL PRACTICE.

GENERAL CONSIDERATIONS.

There are certain accidents occurring after injuries and operations which may be looked upon as unavoidable to a great extent. Among these are to be included traumatic delirium, delirium tremens, fat embolism, and intoxication by fibrinous ferments. Among the accidents which may be considered as unavoidable under some circumstances and avoidable under others, may be mentioned tetanus, hemorrhage, sepsis, and those relating to the use of anæsthetics.

Traumatic Delirium.—Traumatic delirium may attack old and enfeebled patients as well as those who were in perfect health prior to the occurrence of the accident. It may resemble the somewhat peculiar form of delirium which attacks drunkards following an injury, the symp-

* *Marsh vs. Davidson*, 9 Paige (N. Y.), 579.

† 1 Hales, P. C. (Eng.) 429; 4 Bl. Com. 197; *Rex vs. St. John Long*, 4 C. & P. (Eng.) 432; *Rex vs. Van Butchel*, 3 C. & P. 333; *Rex vs. Ellis*, 2 C. & K. Eng. 479; *Rex vs. Spiller*, 5 C. & P. 333; *Rex vs. Williams*, 3 C. & P. 633.

‡ *State vs. Shultz*, 55 Ia. 628; 39 Am. Rep. 187.

§ *Field's Medico-Legal Guide*, p. 192.

|| *Wheeler's Criminal Reports* (N. Y.), p. 312; *Commonwealth vs. Thompson*, 6 Mass. 134; 11 Am. Rep. 122.

¶ *Hendrickson vs. Kingsbury*, 21 Ia. 379; *Corwin vs. Walton*, 18 Mo. 71; *Hadley vs. Watson*, 45 Vt. 289; *Roberts vs. Mason*, 10 Ohio St. 277; *Childs vs. Drake*, 2 Met. (Ky.) 146; *Field on Damages*, §§ 436-439.

toms of inability to sleep, anorexia, and delusions being present in both. Prominent among the latter may be mentioned the grasping at imaginary small animals and attempts to escape from imaginary dangers. The latter are much more pronounced in delirium tremens, however, than in traumatic delirium.

Fat Embolism.—Fat embolism occurs probably in almost all fractures to a greater or lesser extent; in addition it may occur where there is injury to the stomach or bowels while fat which is undergoing digestion forms a portion of the contents of the latter. In the case of fractures the fat is derived mainly from the medullary cavity, and in addition to this source it may be derived, to a certain extent, from the subcutaneous connective tissue. The fat is forced into the opened venous channels and is taken up and carried along by the blood-current. Even in patients who die almost immediately following injuries involving fracture of bones, the drops of fat may be demonstrated in the lungs by post-mortem examination. The particles of fat are broken up as they pass through the capillaries, becoming reunited in the larger trunks, until at last they are excreted by the kidneys. (Mansell Moulin.) While in the vast majority of cases no symptoms may arise, it occasionally happens that collapse comes on, too late to be attributed to shock, but supervening after an interval of several hours. Dyspnoea and syncope, with rapid fall of temperature, are the characteristic symptoms.

Intoxication from Fibrin Ferment.—The causes of intoxication from fibrin ferment are obscure. This is looked upon as one of the fever-producing agents not necessarily of a septic character in the sense that they depend upon an infective organism. The source of the fibrin ferment is the broken-down blood-clot following hemorrhages. It follows subcutaneous injuries in which decomposition in the sense of putrefaction does not take place. It produces one of the varieties of traumatic fever, the temperature rising in proportion to the amount of the extravasation. It is more than probable that other substances, set free from crushed and bruised tissues, likewise give rise to traumatic fever. The height of the fever is reached in about twenty-four hours; its duration depends upon the amount of irritant material present and the extent of its absorption. In the average cases the fever subsides in about forty-eight hours, but it may last for a week or more, the fever, however, steadily falling after the first twenty-four to thirty-six hours. It may assume a remittent type.

Tetanus occurs most frequently in wounds accidentally inflicted, particularly in punctured and penetrating wounds, and in those in which a foreign body remains behind. Its existence is now believed to depend upon the presence of a special organism, the *Bacillus tetani*. A variable length of time is occupied in the period of incubation, according to the number of bacilli introduced (Watson Cheyne), the location of the point of infection, the anatomical characteristics of the surrounding tissues, and the capacity of the different tissues to yield the ptomaines under the influence of the bacillus. It is also probable that the degree of virulence governs, to a certain extent, both the duration of the stage of incubation and the severity of the attack.

The question is sometimes raised as to the propriety of removing foreign bodies which have remained *in situ* for perhaps months in those patients in whom these bodies are supposed to be the cause of the dis-

ease. The first impulse is to remove the foreign body at once, but there is reason for believing that this is not always necessary, and in some instances may do harm, the disease being greatly aggravated by even the slightest external impressions. The modern methods of treatment of the disease are based, in fact, upon an endeavor to absolutely abolish everything which in any way can produce an impression upon the nerves of special sense, or the sensory nerves in general. If the foreign body is encapsulated and an incision is necessary for its removal, this course would be more than likely to increase the dangers of the disease in the manner indicated. This rule, however, does not apply to the removal of the foreign body as a preventive measure; and as the bacillus of tetanus requires the exclusion of oxygen in order to grow, it is evident that a punctured wound quickly closed offers just the conditions appropriate for the reproduction of the germ, if it has been introduced into the depths of the wound. In wounds of this character, particularly if they have been received in a locality where tetanus frequently follows trivial wounds, as on the south side of Long Island, the wound should be well cleansed, and enlarged if necessary for this purpose, and treated with tampons of gauze wrung out of a 1-1000 bichloride-of-mercury solution, and healing by granulation encouraged, rather than union by first intention.

Uncontrollable Hemorrhage.—This is among the most unfortunate accidents of surgery. Rigidity and brittleness of an artery, or its retraction beyond our reach, in spite of dilatation or even enlargement of the wound, may bring about this result. Hemorrhages from large venous trunks are the most dangerous. Before the fact that hemorrhage from a large vein could be influenced by ligature of the corresponding artery was established, bleeding from the internal jugular or femoral veins was considered as almost necessarily fatal.

In hemophiliacs the slightest operation may cause an almost uncontrollable hemorrhage. The application of the actual cautery is most useful, and compression is sometimes efficient. If the compressing medium is such as to imitate the finger, i. e., impermeable, elastic, and easily cleansed, a great advantage may be gained by its use. A bunch of cotton or a soft sponge, wrapped in rubber tissue, the layers of the latter being gummed together by moistening their edges with chloroform and pressing the moistened surfaces firmly upon each other, answers an excellent purpose. Such a tampon, if kept applied so as to make firm compression and to dam back the flow of blood from the point at which it escapes, will be found an efficient means in a certain proportion of cases.

The most rapidly fatal cases of hemorrhage are those in which septic processes—gangrene, etc.—invade the structures of the vessels themselves.

The operation of transfusion of blood requires, in order to carry out the necessary precautions and technique, the consumption of so much time that surgeons are coming to have less and less confidence in this procedure as an available means of combating the evil results of excessive loss of blood. Without due preparation and the employment of proper instruments, and even with all these conditions fulfilled, there will occasionally occur such accidents as the injection of coagula or of air with the transfused blood. While the first-named may be avoided in saline infusion, without due care the second may occur. As to how much

benefit may be derived from transfusion of blood, or saline infusion in a given case, or how much the surgeon may be held responsible from the scientific standpoint for failure to employ it in fatal cases, is yet a matter of doubt. As far as my own experience goes I have never seen a case of acute anæmia benefited by either of these procedures that, in all probability, would not have done well without such interference. Certainly a much larger percentage of recoveries in extreme cases must be recorded before a surgeon can be justly blamed for omitting to use them.

Sepsis.—Within the last quarter of a century there have been discoveries made and principles established in the treatment of so-called wound diseases, or sequelæ of wounds, which have almost completely changed the science and art of surgery, and increased the responsibility of the surgeon to an extraordinary degree. Discoveries in the treatment of internal diseases, or of methods of preventing them, can never bring to the medical practitioner that degree of increased responsibility which has characterized the introduction of those new principles in the treatment of wounds to which I refer. The reason for this is obvious: the medical practitioner never produces the conditions which render possible the presence of the disease which he has been called upon to treat, and hence his measure of responsibility does not extend, to an extreme degree, to the prevention of the disease. The only exception to this, perhaps, will be found in those comparatively rare instances in which, during the prevalence of an epidemic, such a demand is made upon the medical man. But, as a rule, he finds the enemy already present and intrenched, perhaps, behind what may seem an impregnable line of defenses, and, feeling no responsibility for his presence there, his duty is simply to dislodge him.

The same remarks might apply to the surgical practitioner in his relation to wound treatment if it were a fact that the wounds which he is called upon to treat were the result of accident, or were made by others than himself. But, as a matter of fact, two thirds of the wounds which come under the care of operating surgeons are made by the surgeons themselves, and hence his responsibility for their treatment. Further than this, it has been demonstrated that almost all disturbances of the repair of the wound itself, and in addition those of the general system with their dread results, known under the general term of blood-poisoning, are due to putrefactive processes which have their origin in fermentative conditions which have been familiar to us for many years. With the discovery of this fact, and the means of preventing the occurrence of the train of events leading up to its full development, began new obligations and responsibilities.

From the earliest times, without exactly knowing why, surgeons practiced occlusion of wounds, and in true empirical fashion lauded first this and then that ointment or lotion, always, however, clinging to the idea that the latter must cover the parts and "protect" them. When the idea that contact with the air caused mischief in the wound was thought of, the temperature of the air was generally considered to be the origin of the trouble; and even now, among the laity, it will be found, as the result of the teachings of earlier authorities, that any mishap, such as erysipelas, occurring in a wound is attributed to "catching cold." Ambroise Paré added to the theory of cold the belief that the air carried with it certain miasms; and Benjamin Bell, in later times, taught that gases, mingled

with the air, were a potent source of evil. Undoubtedly the large and varied experiences of these older surgeons led them to plan and adopt many methods which in the light of our present knowledge would pass fairly well for antiseptic procedures; and without doubt the use of wine, turpentine, brandy, alum, common salt, etc., relatively efficient antiseptics in their way, was by them considered the essential portions of the balsams and ointments then in use, although they scarcely dared to omit what we now regard as the superstitious and ridiculous elements of these compounds, such as serpents, earthworms, human fat, etc.

In the earliest times one thing seems to have been entirely lost sight of, namely, the intrinsic tendency on the part of wounds to heal if left alone. No one dared trust anything to nature, and, in the absence of the usual and popular measures directed toward making the flesh grow and the wound cicatrize, it was imagined that all sorts of evil would certainly occur, and that healing would not take place. In those times, likewise, there seems to have been a dread of healing by first intention or immediate union. Tents or pledgets of lint were crowded constantly into wounds to keep their edges apart, for fear of pent-up humors giving rise to constitutional disturbance—fever, etc. Thus it will be seen that the importance of drainage to the parts was not overlooked. Among the common people of some country districts, it is considered a great advantage to have a wound “heal from the bottom,” as they express it.

At the present day the putrefaction of discharges in wounds constitutes what is known as a septic condition of a wound. This putrefaction depends upon a fermentation, which may or may not be accompanied by the development of offensive odors. Fermentation, according to Fownes, may be defined as a “new arrangement of the elements of an organic compound, and the consequent formation of new products.” Changes coming under the head of this definition are known as the result of what is termed catalysis. Ferments are divided into two classes, one receiving the name of “chemical ferments,” while the term “vital” is usually applied to the other.

In the catalytic change known as chemical fermentation the decomposition of one body is effected by the mere presence of another, the latter remaining unchanged. These ferments, as has been again and again demonstrated, have not the power of self-multiplication. Familiar examples of chemical fermentation may be cited in the action of the pepsin of gastric juice, the ptyaline of saliva, etc. On the other hand, the ferments known as vital ferments possess the power of self-multiplication in a remarkable and unlimited degree. The yeast-plant is the most familiar example of this last-mentioned class. In 1831 Braconnet advanced the opinion that microorganisms acted as vital ferments, or that they produced in the process of self-multiplication virulent principles which acted as such, although this had been suggested in the beginning of this century. In the next five years followed Downes's discovery of the presence of microscopic organisms in the secretions of certain venereal sores, and during the following fifteen years Fuchs and Pollender demonstrated the presence of bacteria in the blood of some of the lower animals suffering with septic diseases, notably of cattle dying of the disease known as charbon. But it was reserved for Louis Pasteur, in 1861, to bring out from the mass of imperfect knowledge of the sub-

ject at that time available, and to add thereto as the result of his own brilliant work, facts which led at once to a proper conception of the rôle played by these microorganisms in the production of disease. The theory of the relation of putrefaction to fermentative processes was naturally applied to pathological conditions at once, and the genius of Lister applied the principle to the explanation of certain phenomena following wounds involving the surface of the body. The beautiful and simple experiment of Tyndall of imprisoning in a glass tube dust from the atmosphere, and showing its presence by the aid of a fugitive sun-beam impressed into the service for the time being, suggested the source of the putrefactive agents. Thus was started a train of scientific research which has almost completely revolutionized the surgical world. The literature of the last twenty years has been literally teeming with the results of experiments, until there has sprung up a class of special workers known as bacteriologists, whose further researches, by means of positive methods and instruments of the greatest precision, have all tended to confirm the principle laid down by Lister, and upon which is founded the modern treatment of wounds.

Accessory Wound Diseases.—A number of conditions may be grouped together under the head of accessory wound diseases, any one of which may occur as a complication following the infliction of a wound. In this grouping together of these disorders it will be understood that, as a rule, they have nothing in common except the fact that they are due to the presence of microorganisms. As before stated, these microorganisms play the part of the ferment, and set up changes resulting in putrefaction; a multiplication of the original ferment, or, in other words, an increase of the microbes, occurring at the same time. To this putrefaction or growth of bacteria are due the much-dreaded diseases erysipelas, pyæmia, septicæmia, hospital gangrene, etc. Starting with the propositions that subcutaneous injuries rarely suppurate, and likewise that they heal rapidly compared to open wounds, that putrefactive changes in wounds always retard their healing, and that it has been shown by carefully conducted experiments that the injection of putrid fluids into the blood of healthy animals will produce symptoms which can only be compared to those pathognomonic of septic infection as we meet it in wound diseases, these conditions led Lister to apply the knowledge thus placed at his disposal to the development of the method of wound protection which bears his name. His distinct aim, as shown by his earliest writings upon the subject, was to place a barrier against the entrance of germs, from whatever source, including the air, into and about wounds, and his were the first systematic attempts to formulate and put into practice a method of wound treatment based upon the germ theory of the origin of wound diseases. True, carbolic acid, which he first employed for the purpose of destroying the germs, as well as other substances now known to be antiseptic agents, were in use in the treatment of wounds, but not as germicides.

Lister's first attempt simply brought ridicule upon him from his colleagues; he worked steadily on, however, modifying and perfecting his plans, making use of common putty mixed with carbolized oil as a dressing, and operating under the inadequate protection of a large carbolized sponge, until at last he arrived at the procedure now generally known as the Listerian. Less cumbersome dressings and troublesome details have

made antiseptic and aseptic surgery a less formidable undertaking than in the past, yet the results obtained by those who followed rigorously his teachings have brought us well beyond the threshold of a new era in surgery. A point worthy of note in this connection relates to the existence of microbes upon and about the wound and its discharges, in spite of the application of antiseptic dressings, and, coincidentally, an uninterrupted course of healing on the part of the wound. Cheyne, who brought out this point very fully, seems to regard these microbes as innocent, so long as they belong only to a certain class. Certain it is that fermentation leading to putrefaction does not always follow upon the presence of microorganisms. There can be no reasonable doubt that the investigator of the future, with improved means of investigation, will demonstrate as many points of difference between these minute organisms as are now known to exist between vertebrate animals. If they were all equally harmless no amount of exposure of wound surface to their influence could be productive of evil; while, on the other hand, if they were all equally hurtful, none would be found in the aseptic wounds.

The surgeon of bygone times performed the needful operations as skillfully, perhaps, as it could be done to-day, but he thereafter relied for the final recovery of the patient mainly upon good fortune and means which we now look upon as inefficient, if not positively harmful. As a result the measure of his success was too often beyond his control and independent of his own efforts. The surgeon of to-day, however, assumes, in the main, the responsibility for the after-course of the wound he inflicts: the occurrence of any accident having its origin in the wound, and the result of these diseases, may be found to be due to conditions to a great extent within his control. The development during the past twenty years of the *modus operandi* of a successful method of wound treatment, based upon a principle which previous to that time had never entered into the history of surgery, has arrived at such a state of perfection that in most cases of carefully planned and premeditated operation a fatal result should not occur, directly traceable to the wound itself. Most surgeons will agree that, provided a wound does not involve some organ of vital importance, and does not prove fatal from shock or hemorrhage, and is treated with rigid regard to the exclusion of germs, a favorable immediate result may be expected. Its edges are not inflamed and the surrounding parts are not greatly swollen nor infiltrated. The discharge is slight and is generally the oozing of a clear or but slightly turbid fluid, for the appearance of pus containing bacteria indicates that it is not strictly antiseptic. Provided the edges of the wound are well coaptated immediate union will follow, unless the surrounding parts are bruised, or the vessels supplying the parts prevented from performing their function, these latter conditions favoring death of the tissues or sloughing.

The aphorisms of aseptic and antiseptic surgery have been generally approved and accepted by all the leaders of surgical thought—in other words, the authorities of the present day. They, therefore, must be regarded as principles of practice firmly established, and be respected as such until new theories and procedures are advanced and accepted regarding the undoubted favorable influences which aseptic measures and antiseptic agents exert over the process of wound healing. From the first moment that a surgical operative case involving the production of a

wound comes under the care of the surgeon until the case is concluded and the last piece of bandage is removed, these principles of aseptic and antiseptic surgery should govern the action of the surgeon. Not only will they control the question as to the justifiability of operating at all, but as to the particular kind of operation best adapted to maintain a proper condition of the wound as regards protection and drainage, as well as the methods to be pursued in the conduct of the operation itself. In explanation of the assertion that these principles should control the question of the justifiability, or otherwise, of operating at all, it may be said that operations are now successfully performed which heretofore were either unknown or condemned almost in the same breath in which they were suggested. Surgical diseases and the results of injuries, as a consequence of the development of the principles of aseptic and antiseptic surgery, are now amenable to operative procedures which formerly were considered as eminently of a fatal character, or which doomed their subjects to lifelong invalidism. The surgeon who fails to resort to these new operations because of their danger when performed according to the older methods to which he still adheres, or who, performing them, fails to give his patient the advantages of the protection from suppuration and its consequences which the proper carrying out of aseptic measures, antiseptic precautions and treatment assures, as well as all other recognized means at his command for the furtherance of his patient's interests, cannot escape the responsibility for any ill results that may follow. The surgeon who fails to give his patient the benefit of the immunity from danger which the aseptic and antiseptic methods secure is certainly responsible for what follows. The responsibility is growing year by year, as evinced by the uttered opinion of one of the first surgical authorities of Europe, the late Professor Billroth, of Vienna, who has said that failures in the treatment of wounds at a well-ordered surgical clinic have become as rare as accidents on a well-managed railway.

The Surgeon's Responsibility for Failure when Aseptic and Antiseptic Principles are Violated.—The rule that the surgeon is in a great measure responsible for the evil results due to a failure to apply the aseptic and antiseptic principles to the treatment of the wounds made by himself will not be invalidated by the assertion occasionally made, that there are still surgeons who do not subscribe to the claims made on behalf of aseptic or antiseptic principles, nor use methods of any kind based thereon, and who, nevertheless, obtain quite as good results as do those who claim to follow these rigidly. A study of the methods employed by these surgeons will frequently reveal the fact that they are most scrupulously clean and careful in all their procedures, in striking contrast to those pursued before the advent of antiseptic surgery. The plentiful use of soap and water to cleanse the parts to be operated upon and the instruments employed, as well as the care of the surroundings generally, evince a belief, if it is not definitely expressed, in the importance of excluding noxious matters from the possibility of contact with wound surfaces. Notwithstanding their disclaimers, these surgeons virtually practice aseptic surgery. Those exceptional instances in which the utter disregard of the employment of antiseptics is noticeable occur in the practice of certain specialists in abdominal surgery; and it is in the class of cases coming under the care of these most expert and rapid operators, in which cleanliness is assumed, and wound surfaces are

exposed but for a comparatively short time to the action of germs, that most phenomenal successes occur. But that this will follow in general surgery and among general surgical practitioners it would be most absurd to claim; and until surgeons who pursue the course of simple cleanliness shall establish this or some other procedure as the safest to pursue in the different branches of surgical art, the antiseptic as well as aseptic principles of wound treatment, established by the sanction and practice of the highest authorities in the world, must remain, as they do to-day, the proper basis of a judicial estimation of the extent of the responsibility and civil obligation of the operating surgeon.

Nothing can lessen the force of the civil obligation, or relieve the responsibility of the practitioner who, either through want of familiarity with the principles and practice of the method, or a failure to supply himself with the necessary appliances, fails to give to every patient committed to his care, to become the subject of an operation, if ever so trifling, the benefit of the greatest measure of success which is possible. There is scarcely any condition in life, or any circumstances, under which the application of these principles is not possible, provided they are thoroughly understood. Certainly in operations which are deliberately planned there can be no question about the truth of this statement. Only in the case of wounds accidentally received can exception be taken to this rule. Difficulties of technique, cumberdom of materials, and the possible harm to the patient from the use of the poisonous antiseptic agents employed, have all been urged as reasons for not adopting the antiseptic treatment, in addition to the expressed disbelief in its advantages and in the truth of the statements made by its advocates. But complicated typical Lister dressings have been replaced by much simpler means, without losing any of the advantages to be derived from the original methods, and antiseptics of a non-poisonous nature are available to those who fear to use the more powerful germicides. In short, the rules are so simple and concise, and the principle so easily applied, that no surgeon, located even at a point remote from the sources of supply of the dressings themselves, can have any valid excuse for failing to follow them, even if it involves the improvising of dressings from such crude materials as can be readily obtained in the humblest abodes of the poor.

It is, therefore, the duty of every surgeon, when treating a wound or performing an operation, to use a rigorous aseptic procedure, i. e., to prevent sepsis, and employ antiseptic measures in addition, in cases in which septic conditions already exist. The selection of the methods to be employed in individual cases must be left to his own discretion, however, and this will be directed by his own scientific convictions, and also, perhaps, to some extent, by accidental surrounding circumstances arising from peculiarities of environment of the patient.

The Surgeon is not Bound to Follow any Specially Planned Procedure.—The principles being established, no special procedure can be insisted upon. The mere covering of a wound with a piece of protective or a layer of antiseptic gauze does not constitute an aseptic or an antiseptic procedure, however, if the surgeon does not use them correctly. The selection of a recognized method and its application in such a manner as to offer a barrier against infection will protect the surgeon from reproach and punishment in case of failure.

In protesting against holding the surgeon responsible in case he does

not follow a specially planned method which has given apparently perfect results in the hands of other surgeons, no more forcible argument can be employed than that which calls attention to the personal-equation factors as they relate to the operator as well as to the individuality of the case itself. In the refinements of art the artist, individually, takes the prominent part himself—“*Si duo faci unit, idem non est idem.*”

Circumstances may arise which render a perfect aseptic or antiseptic procedure impossible, such, for instance, as the occurrence of a severe hemorrhage or a dangerous narcosis, where all other considerations must be laid aside in order to meet the existing exigencies and save the patient from the immediately threatening dangers.

Accidental Wounds.—In the case of accidental wounds already inflicted, and at a depth which would necessitate a grave operative procedure in order to insure complete disinfection, the question of the justifiability of carrying this out must be left to the surgeon. In compound fractures, for instance, with but a small wound forming a communication between the external air and the injury to the bone and surrounding soft parts, it is often a very serious question whether the effort to reach the depths of the wound may not open up new channels of infection and inflict new damage upon structures whose vital resistance, without the infliction of this added traumatism, might be able to withstand the effects of already existing infection. The question becomes a still more important one when the problem is presented of opening into important cavities of the body, such as the cranial or thoracic, thus invading and jeopardizing vital organs.

Aseptic Precautionary Measures.—Aside from these extreme instances, however, the duty of the surgeon is plain. To cleanse with soap and water, to shave and even scrub the parts surrounding the wound, is his bounden duty. That he shall apply dressings which are free from all suspicion of infection is but an additional reasonable demand. With the expenditure of a little time and slight pains the first requirement, i.e., the cleansing, can be accomplished. Water, with the addition of a teaspoonful of common salt to each pint, will thoroughly sterilize dressing materials after ten minutes' boiling, if these be only strips of domestic cotton or linen articles torn up for the purpose. Where, however, trustworthy antiseptic agents are at hand or obtainable, they are desirable, in addition, when cleansing the wound. Failure to employ the latter, however, may not necessarily lead to infection, for the reason that all accidentally inflicted wounds, even when exposed for a time to accidental influences, are not necessarily infected wounds. The infection is a matter of pure accident, and even when it exists the tissues may be in a condition to resist its evil influence. Again, Schimmelbusch has shown that once a wound has become invaded by microorganisms, it becomes, not a question of getting rid of them, but rather of preventing the occurrence of further infection. The getting rid of such culture material as the accumulated wound secretions furnish, by means of proper drainage, and thus preventing the proliferation of noxious agents, constitutes a means to this end, in addition to taking such precautions to prevent further infection from without as are comprehended in proper cleansing of the surrounding parts and the application of sterile dressings.

Anæsthesia.—Frequent attempts to punish surgeons for deaths occurring while an anæsthetic is being administered tend to damage, not only

the profession, but society at large. The great benefit which humanity has received from the use of these agents has been in danger of being nullified by fear on the part of the administrator, not only of damage to his professional reputation, but of being punished as well. Given a case in which a pure article of chloroform or ether was employed, and it would be difficult, in view of the fact that differences of opinion exist as to the exact manner in which anæsthetics act, to state the precise mechanism of the fatal issue, and hence the extent of the responsibility of the surgeon. Nélaton even advised, in view of the difficulties involved in determining beforehand the conditions under which the administration of anæsthetics could be safely undertaken, in case surgeons were mulcted in civil processes under circumstances where the anæsthetic agent was of good quality and properly employed, that they should combine to renounce the use of anæsthetics altogether. Velpeau declared that to abandon the use of anæsthetics would injuriously affect society at large more than it would the surgeons.

An Anæsthetic should not be Administered without an Assistant.

—An anæsthetic should not be administered without an assistant except under circumstances of emergency. When the operator is compelled to accept the services of a non-professional person he must take the entire responsibility of the administration. When the assistant administering the anæsthetic is a regularly qualified practitioner, the responsibility, from the professional standpoint, should be shared by both. If, however, the operating surgeon can be justly accused of selecting an assistant who has not had sufficient experience to enable him to give the anæsthetic properly, and was so engaged in the operation as to be unable to personally supervise the administration, then, in case of accident, he could be held liable under the general rule.

Where malpractice is charged because of death under an anæsthetic, the fact should be borne in mind that, before the discovery of anæsthetic agents, patients suddenly perished just before or during operative procedures. These deaths have been attributed to various causes. When no other cause could be assigned it was said that the patient died from fear if death took place before the operation had really commenced. Of those deaths which have occurred during or soon after the operation, the entrance of air into a vein, exhaustion, the result of debilitating diseases or great loss of blood, and shock are to be held accountable. The element of fear may have also entered largely into the last-named class of cases, before the introduction of chloroform or ether. It cannot be denied that some of those cases which have perished almost in the very commencement of the administration of an anæsthetic, and before a sufficient amount had been inhaled to reasonably account for the sudden lethal exit, may have been unfavorably influenced by the same causes. Those who have had a large experience in the use of anæsthetics believe that, under these circumstances, the anæsthetic failed to prevent the death of the patient, rather than produced it. In the present era of anæmic and nervous women such instances are not as infrequent as one would suppose; yet, occurring under such circumstances, the almost universal verdict, in the popular mind, is that the case is one of death from the anæsthetic. Dupuytren, the famous French surgeon, lost no less than nine patients during operations without the use of anæsthetics, and Nussbaum, of Munich, lost two patients just prior to the intended operation.

One died from suffocation. If this had happened during the anæsthetization it would have been very difficult to convince a jury of laymen that the death was not due to the anæsthetic. A collapse of the thinned cartilages of the trachea was the cause of the suffocation. Nussbaum relates an instance in which a professional friend essayed to examine a strong countrywoman with the uterine sound. She closed her eyes and was found to be dead. A curious instance is related of a dentist who intended to administer an anæsthetic to a patient for the extraction of a tooth. This was so loosely attached that an anæsthetic was not thought to be necessary. He held a cupping-glass under her nose with the pretense that it was an anæsthetizing apparatus, and after a moment proceeded to remove the tooth. As his hand approached her mouth she was found to be dead.

Witnesses to Anæsthetization of Female Patients.—The necessity of always having witnesses at hand when anæsthetics are administered to female patients has been more than once insisted upon. Experience shows that young women often have voluptuous sensations while under the influence of an anæsthetic, during which time their clothing may become soiled with mucus. Upon awakening they will affirm, with the greatest positiveness, that they have been violated sexually during the anæsthesia. This may arise in part from the fact that women fear that the person administering the anæsthetic might take advantage of their helplessness. The impression may continue after awakening, the fear being changed into a belief of the impression as a reality. The importance of observations upon this point is apparent when the fact is borne in mind that more than a few persons thus accused have suffered punishment, although in the light of subsequent events it was deemed more than probable that they were innocent.

Cause of Death Difficult to Establish when Anæsthetics are Employed.—Owing to the difficulties of excluding other causes of death in a particular case, fatal anæsthesia narcosis is not easy to establish. This is particularly true where the operation has advanced sufficiently far to allow the element of shock to enter into the case. Reflex irritation of the cardiac centers, giving rise to lessened force combined with acceleration and intermittency, this eventuating in the arrest of the heart's action, occurs, especially when chloroform is administered. The sudden breaking up of adhesions within a joint, or dilatation of the anal sphincters, has, not infrequently, been followed by the development of dangerous symptoms. In the case of the latter it is advised to withdraw the anæsthetic beforehand, in order that the few spasmodic inspirations which the patient takes immediately following the forcible stretching of the sphincter may not carry into the circulation through the vessels of the pulmonary system a sudden and overwhelming dose of the anæsthetic.

Where the element of shock enters largely into the condition there can be no question as to the freedom of the surgeon from responsibility in the sudden collapse. Reflex paralysis of the respiratory or cardiac centers, the first from ether and the second from chloroform, has been thought to be produced by irritation, primarily, of the distribution of the trigeminous and pneumogastric nerves, particularly when large quantities of the anæsthetic have been employed at the very commencement of the administration. In view of the fact that the use of an anæsthetic in a hurried manner, or "crowding the anæsthetic," as it is called, at the

very commencement, is but rarely called for, the responsibility of the surgeon is greater if death follows such a method. The drop-by-drop method insures, to a great extent at least, immunity from danger from these sources.

Infliction of Pain when Patient is but Partially Anæsthetized.—

While profound narcosis is not deemed essential for every operation, notably those of comparatively short duration, yet the sudden infliction of great pain, the patient being but slightly under the influence of the anæsthetic, has resulted in the sudden supervention of reflex cardiac paralysis. This is more apt to occur when chloroform instead of ether is used. This has likewise been considered a cause of death, even when the patient has been, to all appearances, completely under the influence of the anæsthetic. It must appear at a glance that the surgeon could scarcely be held accountable under such circumstances.

Post-mortem Appearances in Fatal Chloroform Narcosis.—Among the causes of death which are said to be demonstrable anatomically in those who have perished from alleged overdoses of chloroform that of fatty degeneration of the heart is most prominent, yet even here there is room for reasonable doubt. Patients have taken anæsthetics even under these circumstances, and during the following fortnight died of heart failure due to an apparently slight but sudden movement of the body.

Indirect Causes of Death from Anæsthetics.—The indirect causes of death in fatal narcosis from chloroform or ether are somewhat numerous. Aspiration of vomited material or blood-coagula, in operations about the mouth and throat, these finding their way into the air-passages, may result in suffocation. These do not properly belong in the category of cases of fatal narcosis, yet the question may arise as to whether or not proper precautions in the way of having ordered that no food be taken for a sufficient length of time beforehand, and in how far a proper position of the head (Rose's dependent head position), or the aid of competent assistants in keeping the glottis clear of blood-clot by sponging, or the performance of preliminary tracheotomy, might have averted the catastrophe. Unless the person engaged for the administration of the anæsthetic has been likewise intrusted with the proper preparation of the patient, the surgeon can scarcely be held negligent if death be due to the aspiration of vomitted material. The operator himself must see to it that the passage of blood coagula into the larynx is avoided, if possible. In neither case can the manner or method employed in administering the anæsthetic be held responsible, although it is true that patients will have violent retching attacks when coming out from under the ether; hence by keeping them well under the anæsthetic influence these retching efforts will be avoided. These latter, unless there is food in the patient's stomach, will do but little harm beyond embarrassing the operator in his work. The respirations may fail from convulsive closure of the glottis, from falling backward of the tongue during profound narcosis, or from the latter being drawn convulsively backward. Spasmodic closure of the lips and jaws must also be guarded against, and should not escape the attention of the anæsthetizer, as asphyxia may result from this want of precaution.

Cases of fatal suffocation by artificial teeth, chewing-tobacco, and even mucus have been reported. An inflammatory swelling, following the passage of a portion of the anæsthetic in a liquid state into the respiratory passages, flexion of the trachea from torsion of the neck, and

mechanical pressure upon the thorax or abdomen may likewise cause asphyxia.

Death under Anæsthesia Following Severe Traumatism or during a Chronic Disease.—A fatal result occurring in connection with a severe traumatism, as, for instance, a severe head injury, rupture of intestine, intraperitoneal hemorrhage, or a neglected intestinal obstruction, the strength of the patient being already greatly decreased—even though he perishes almost immediately after anæsthesia is established—the surgeon is not to be held responsible. On the other hand, a patient suffering from a chronic disease, as, for instance, phthisis pulmonalis, and to whom an anæsthetic is given, say, for the reduction of a dislocation, if a fatal result follow immediately upon the administration he must be considered as having died from the effects of the anæsthetic, although the operator may be held blameless.

Direct Cause of Death in Chloroform Narcosis.—The direct cause of death when chloroform is employed as an anæsthetic is paralysis of the heart with subsequent asphyxia, and anæmia of the brain. In addition to the sudden paralysis of the heart, occurring with or without the common degenerative changes, long-continued narcosis with chloroform may induce degenerative changes in the heart muscle. Furthermore, repeated chloroformization has been accused of producing fatty degeneration of the heart muscle. In those suffering previously from pulmonary affections, bronchopneumonia may develop from defective heart action; circulatory disturbances, edema, and inability to rid the bronchi of accumulated secretions contributing thereto. Ether as well as chloroform may tend to produce this condition, the former, in addition, leading to increased secretion along the respiratory tract.

Effects of Anæsthetics upon the Kidneys.—Renal affections may result from either chloroform or ether. Contrary to what has been generally supposed, Wunderlich* has shown that the latter agent is not alone in its supposed damaging effects upon the kidneys. From his extended observations of the effects of the two anæsthetics upon the renal organs, he makes the following deductions: (1) An already existing albuminuria is often increased by etherization. (2) Albuminuria can be caused by narcotization with both chloroform and ether, but more frequently with chloroform. With the latter this resulted in 11.5 percent. of the cases; with ether it occurred in only 6.9 percent. (3) Casts appeared in the urine after both chloroform and ether, but more frequently following the former. This occurred after chloroform in 34.8 percent. of the cases, and followed ether in 24.6 percent. of the cases. (4) When casts are already present, both ether and chloroform have the effect of increasing the number. It follows, therefore, that both anæsthetics must be used cautiously, as both have the power of setting up degenerative changes in the renal epithelia. Anæsthetics in general and chloroform in particular should be avoided in persons who turn suddenly pale, with dilated pupils, or who are excessively timid and faint easily. According to Bardeleben, excitement and fear before and during the administration of the anæsthetic do more harm than the latter, whatever its nature.

Respiratory and Cardiac Indications.—As far as the respiratory and cardiac indications are concerned, Kocher recommends to employ ether

* *Beiträge zur klinischen Chirurgie*, Band xi.

exclusively in cases of affections of the heart not combined with respiratory disturbances, and chloroform in affections of the respiratory organs with hyperæmia of the tracheal and bronchial mucous membranes, or other obstacles to respiration.

Every such contraindication, however, is only relative, each case being carefully considered in relation to the special conditions present. In urgent cases, such, for instance, as strangulated hernia, it may occur that either one or the other may be employed from force of circumstances. While the question of proper selection of the anæsthetic may be of importance from the scientific standpoint, its relations to possible charges of negligence, in the present state of our knowledge, can scarcely enter into the controversy.

Chloroform Idiosyncrasy.—There is a condition known as the chloroform idiosyncrasy, which, however, can only be recognized during the attempt to administer this anæsthetic. Soon after the first inspiration the patient becomes pale and springs from the table with terror and great anxiety, declaring that he is suffocating. Almost immediately he passes into a swoon, from which he is aroused with difficulty. At the same time the pupils become dilated, and strabismus may occur, with clonic convulsions of the upper and lower extremities. On the other hand, some patients exhibit a sort of chloroform or ether hunger, inhaling immense quantities in a short time by means of extraordinarily vigorous respiratory efforts. Both of these classes of cases require careful watching on the part of the anæsthetizer. In the first the anæsthetic agent should be changed to ether, and it may be necessary to abandon for the time being all efforts at anæsthetization.

Patients should be watched carefully for several hours after anæsthetization, particularly when chloroform has been employed. Dyspnœa and cardiac failure may demand attention.

Quantity of Anæsthetic Employed.—When accusations are made that unusually large quantities of the anæsthetic agent have been used, it would be well to bear in mind Mair's* statements bearing upon this point. This author states that patients have inhaled 160 grams of chloroform in seven hours; 1023 grams in twenty-four hours in another case; in another, suffering from tetanus, 700 grams in twenty-four hours; in another, 1000 grams in twelve hours; a woman in the puerperal state remained chloroformed for thirteen hours, 200 grams being used. Instances are recorded where patients habitually took 500 grams daily for five or six days without injury. A case is related by Nussbaum in which this surgeon anæsthetized with chloroform a patient fifty-three times for the purpose of passing urethral sounds. This patient succumbed to the fifty-fourth anæsthetization. Upon this occasion laughing-gas was employed. The post-mortem examination showed disintegration of the blood-corpuscles, etc.

Methods of Anæsthetization.—As to methods of anæsthetization by means of chloroform, authorities are agreed that this agent should be given largely diluted with atmospheric air, and that it should never be poured but always dropped upon the napkin or mask. The pulse should be carefully watched, and note made of any change of color in the face, the occurrence of superficial breathing, or the supervention of loud snor-

* *Gerichtlich-medizinische Casuistic der Kunstfehler.*

ing. If the pulse becomes weak, the respirations shallow or stertorous, or the color pale or livid, the chloroform must be at once withdrawn. Complete narcosis is announced by relaxation of the muscles and the absence of ocular reflex.

Precautionary Measures.—Precautionary measures consist in placing the patient in the horizontal position; by some surgeons it is even required that the head be lowered, the body assuming an angle of forty-five degrees. The precaution relating to an empty condition of the stomach has already been alluded to. Obstructions to full respiration, such as the presence of a collar, or a cravat, or a tight neck-band of the shirt, etc., should be removed or loosened.

Treatment of Dangerous Chloroform Narcosis.—In cases of dangerous narcosis from chloroform the air is to be permitted to pass freely about the patient, who should also be violently shaken and perhaps Nélatonized (suspended by the feet); water dashed into the face; artificial respiration instituted; perhaps a catheter introduced into the larynx, or a tracheotomy performed; mouth-to-mouth breathing practiced; the phrenic nerve faradized, one pole being placed over the scaleni, low down in the neck, and the other at the lower costal margin; the heart stimulated by means of hot cloths, and perhaps acupuncture; inhalation of oxygen. In order to permit the free access of air, the pharynx is to be cleaned and the tongue drawn forward by means of a tongue-forceps. A lateral gag in the mouth is useful in addition.

In Koenig's clinic at Göttingen, in cases of chloroform syncope, simple compression of the cardiac region is employed in place of the ordinary artificial respiration. Maas* reports two very striking cases illustrative of this method of treatment. In both the respiration had ceased, the radial pulse was absent, and the pupils were widely dilated. The movements were continued for over an hour. The compression is made by placing the foot upon the patient's left thorax and making quick movements of pressure over the cardiac region at the rate of one hundred and twenty times or more a minute. The right half of the chest is steadied at the same time.

Dangerous Vomiting Following an Anæsthetic.—The after-vomiting may prove a dangerous sequel to the administration of an anæsthetic, and should receive attention at the surgeon's hands. The taste of the anæsthetic increases the flow of saliva, and as the expelled air contains more or less of the anæsthetic agent for some time afterward, the secretions of the mouth, loaded with this, are swallowed and, irritating the gastric mucous membrane, provoke intense nausea and persistent vomiting. The patient should be encouraged to eject the accumulations in the mouth. Lavage with a one-half to two percent. carbonate-of-soda solution is frequently effectual in affording relief.

The Use of Chloroform at Night.—The use of chloroform at night is to be avoided as much as possible. It is a common experience under these circumstances to observe some peculiar effects, such as a tendency to vomit, an irritative cough with subsequent development of bronchitis and severe catarrhal pneumonia. These are supposed to be due to combinations between the vapor of the chloroform and the products of combustion.

* *Berliner Klin. Wochenschrift*, No. 12, 1892.

The Administration of an Anæsthetic to Pregnant Women.—The administration of an anæsthetic to pregnant women, for operations of convenience, or for such operations as can be readily performed without an anæsthetic, as the opening of an abscess or the extraction of a tooth, has been the subject of inquiry. In the opinion of some authorities the production of abortion, or the induction of premature labor, in this connection may result, even though the narcosis is of but short duration; while others are equally confident that the anæsthetization has nothing whatever to do with the untoward result, if any such follow, but that the latter is either a coincidence, or can be more properly attributed to the operative procedure. There are many difficulties in the way of deciding this question, inasmuch as anæsthesia is induced under conditions where some operative procedure is to be performed, and in patients peculiarly susceptible to mental influences; the anxieties incident to the administration of the anæsthetic, as well as those arising from fear as to the outcome of the operation, to say nothing of the fear of an interruption of the normal gestation, may all combine to bring about an unfortunate result, irrespective of the effects of the anæsthetic itself. The surgeon can have no choice but to subject the patient to the risks of the anæsthetic just as he would to the other risks of the operation, where this is one of necessity and involving great suffering should its performance be undertaken without an anæsthetic.

Unusually Prolonged Anæsthesia.—The possibility of an unusually prolonged anæsthetic effect cannot be denied, especially in the case of chloroform. These cases seem to resemble those in which the extreme effects of carbon dioxide have been suffered from. They are characterized by slow and incomplete return to consciousness and sensibility after from forty-eight hours to three days. Convulsions may occur.

In cases of chronic alcoholism, in which paralysis and extreme nerve exhaustion contribute largely to produce the fatal result, the latter may enter in such a manner as to simulate death from the protracted effects of chloroform.

Objections to Ether.—Ether, particularly if a pure article is not used, produces irritation of the mucous membrane of the respiratory passages to an extent sufficient to cause bronchitis or catarrhal pneumonia. As has been already shown by Wunderlich's studies, its influence upon the renal organs has been greatly overestimated in the past. The inflammability of the vapor of this anæsthetic agent introduces an element of danger when the operation is performed near an open flame, or where the thermocautery is employed in operations about the head.

Occasional Similarity of Dangerous Symptoms in Chloroform and Ether Narcoses.—The causes of death from chloroform are, to a certain extent, the same as those from ether. Distinctions have been made as to the manner in which the alarming symptoms enter, as well as the vital organs first affected. While in general it is true that heart failure characterizes dangerous chloroform narcosis, and failure of the respiratory function that from ether, yet the fact remains that in many cases patients will cease to breathe under chloroform while the heart is in no wise disturbed in either its force or frequency, on the one hand, while, on the other, it is not infrequently observed that patients under ether will suffer from failure of the cardiac impulse while the respiratory movements are but slightly, if at all, affected. If the person administering

the anæsthetic were to wait for the pallor of the surface which is supposed to be the signal of danger in chloroform narcosis, he would be deceived as to the condition of the patient, for the reason that this is seldom observed, and is but transient when it does occur. The patient is much more likely to exhibit the appearances of carbon-dioxide intoxication, with somewhat pronounced cyanosis, than the symptom of pallor.

In general terms, however, it may be stated that while the symptom of cyanosis is present in both cases, in so far as our present knowledge of the action of these agents goes, in chloroform narcosis this depends upon deficient oxygenation of the blood from stasis, while with ether it is dependent upon true asphyxia from respiratory obstruction or failure. That there are numerous exceptions to this rule, however, as before stated, there can be no question. The fact nevertheless remains that, while this cyanosis occurring in the course of the administration of ether comes on gradually, it is quite readily remedied by the free access of air for a short time, and is not an alarming symptom unless it persists in spite of the removal of the anæsthetic. If it becomes a pronounced symptom in chloroform narcosis, the patient is usually beyond hope of resuscitation. As long as the heart's action is sufficient to carry the blood-current to the important cerebral centers an extreme cyanosis is not incompatible with prompt resuscitation. No amount of forcing of air into the lungs, however, can bring about this result if the carbon-dioxide accumulation is the result of cardiac failure.

Ether the Anæsthetic of Choice.—We must be forced to the conclusion, in making selection of an anæsthetic, that ether, where it can be employed, is the anæsthetic of choice. Since Wunderlich has shown that the immunity from renal sequelæ formerly supposed to exist in chloroform narcosis has no foundation in fact, the last argument in favor of the employment of chloroform in place of ether, when the latter is not positively contraindicated—as, for instance, by actually existing pulmonary conditions or in intracranial operations, in which class of cases ether seems to increase, while chloroform decreases, the cerebral congestion; and in certain operations about the mouth and face where the galvanic or thermocautery must be used or the mask frequently removed in the progress of the work—falls to the ground, when statistics showing the unquestioned safety of this anæsthetic agent as compared with chloroform are considered.

A collection of yearly reports* of narcosis covering 62 reports, making a total of 61,526 cases, shows, after the deduction of 11,464 cases of nitrous-oxide anæsthesia, that there were 11 deaths in the remaining 50,062, or one in 4551 cases.

The number of cases of anæsthesia collected during the past three years amounts to 161,800, in which number there were 52 fatal cases, or one death in 3111 cases. Of 133,729 cases of chloroform anæsthesia there were 46 deaths, or one in 2907 cases. In 14,646 cases of ether narcosis there was not a single death. Of mixtures of chloroform and ether there were 4118 cases, with one fatal case. Mixtures of chloroform, ether, and alcohol (Billroth's) show in 3440 cases no fatality. In 4555 cases of

* Gurlt, "Berichterstattung über die Sammelforschung zur Narkotisirungsstatistik," *Centralblatt für Chirurgie*, No. 30, 1893.

bromide-of-ethyl anæsthesia there occurred one death. Of 597 cases of pental anæsthesia 3 were fatal.

To sum up, therefore, it may be said that every patient to whom an anæsthetic is administered takes thereby some risk, but that this risk is less in ether than in chloroform narcosis. Each possesses especial advantages, but those claimed for chloroform relate chiefly to convenience, while those claimed for ether relate to comparative safety. The warning signals of approaching danger in ether can be recognized before the patient is beyond recall; in chloroform he is frequently already within the valley of the shadow of death before the anæsthetizer is aware that anything is wrong. The surgeon, therefore, who at the present day selects chloroform as the anæsthetic of choice would do well to fortify himself with facts to show that ether is contraindicated in the particular case; otherwise the accusation may be made that an unnecessary risk was assumed in employing chloroform rather than ether, the patient dying from indubitable chloroform narcosis.

More skill is required to produce ether narcosis than chloroform narcosis; more skill is required, also, to prevent the patient from dying from chloroform than from ether. An indifferently skillful anæsthetizer can easily kill a patient with chloroform, but he will not be able to anæsthetize properly with ether, much less destroy the patient without some warning which the operator himself would be likely to observe. With blood before him of a healthy hue, and the rhythm of regular and full respirations in his ears, the latter will feel safe as he proceeds in his work, if ether is used. Either of these failing, a word of caution to the anæsthetizer suffices to correct the undesirable condition. But if chloroform is employed the experienced operator knows only too well that the dark blood and absence of respiration mean that the heart has failed in its action, perhaps for several seconds or a considerable fraction of a minute, before the dark blood and failing respiration occurred, and from this time on the most vigorous efforts must be made, with the chances greatly against him, to rescue the patient from death.

Failure to Produce Anæsthesia.—Occasionally it occurs that the attempt to etherize a patient fails, and chloroform is substituted. It is more than probable that in the great majority of cases the fault lies with the anæsthetizer, and not with the patient or the anæsthetic. In the rare instances in which, either from the extraordinarily excited condition of the patient, or the occurrence of convulsive or even tetanic respiratory movements, there is a failure to anæsthetize referable to the agent selected, it will be found that the patient has been in the habit of indulging largely in alcoholic stimulants. A change to chloroform is here indicated, the ether, however, being resumed when narcosis has been established.

Protection of the Patient's Face.—Complaints of negligence may be made where the anæsthetizer fails to protect the patient's face from contact with the anæsthetic by the application of some unctuous material. Vaseline answers the purpose very well and is usually employed. Movements of the patient's head may lead to the accidental entrance of ether or chloroform into the patient's eyes, but beyond the temporary burning sensation no harm usually results from this. It should be provided against by placing a folded towel or napkin over the eyes.

Hydrobromic ether (bromide of ethyl) has been employed to some extent for short operations. It would seem, however, that this agent is not altogether free from danger.* From 5 to 10 grams usually suffice for complete narcosis, although from 15 to 20 grams may be used. In one case 40 and in another 50 grams were employed with fatal results in healthy persons. It is a dangerous agent to employ for long operations, profound narcosis leading to destruction of the blood-corpuscles, with bloody diarrhœa. It is particularly contraindicated in anæmic and hysterical women. In one instance of this kind 7.5 grams proved fatal. There was no cyanosis, but the respirations failed completely, only two ineffectual respiratory efforts being made after narcosis was established, when death took place. In Billroth's clinic 400 anæsthetizations were made with bromide of ethyl; in one case a fatal result followed the sudden elevation of the patient to the upright position for the purposes of the dressing. In this case cyanosis was observed after some seconds. Three minutes after the establishment of the narcosis both heart and respiration had failed. The post-mortem showed degenerative changes in both the heart and renal organs.

It is now generally agreed that bromide of ethyl is less dangerous than chloroform, but that while it possesses some advantages as to convenience, etc.—patients coming out from under its influence very much as from nitrous oxide or laughing-gas—yet it must be used cautiously as regards the quantity employed. The stage of excitement occurring in connection with its use corresponds closely to the amount used. The quantity to be used in a given case is poured upon a cone similar to that used for ether and covered with a napkin.

Pental has recently been introduced as an anæsthetic agent. Experience with it has been thus far too limited to admit of any definite opinion as to its merits. The stage of excitement is said to be very short; in alcoholics, however, it may be longer. From 10 to 20 grams are needed. The effect is said not to be unpleasant, and patients do not struggle against its administration as with other anæsthetics. Sensibility is abolished after about 50 seconds, and the stage of deep analgesia is reached after from 10 to 20 seconds longer, this lasting for a further 50 seconds. The vapor of pental is easily inflammable, and the same precautions are requisite in this respect as during the administration of ether. The patient comes out from under its influence slowly. Bronchial and cardiac affections contraindicate its use. A peculiar odor, comparable to that of asafetida, pervades the room after its use.

Nitrous Oxide.—Probably the safest of all general anæsthetics is nitrogen monoxide, or laughing-gas. Its use is greatly restricted, however, by the fact that under ordinary circumstances an anæsthetic effect of but short duration is obtained, although Dr. G. W. Brush, of Brooklyn, kept a patient, upon whom the writer performed a laryngectomy for carcinoma of the larynx, under its influence for an hour and forty minutes.† Special skill, however, arising from a long experience with the agent is necessary in order to successfully accomplish such a result. Bert's method involves the use of a specially constructed inhalation chamber,

* *München. Medic. Wochenschrift*, No. 15, 1890, p. 267; 1891, p. 544.

† *American Journal of the Medical Sciences*, October, 1889.

and is not applicable for general use. It would appear that this chamber is not at all necessary for the purpose.

Matters in Defense in Cases of Fatal Narcosis.—The difficulties in the way of exactly regulating the dose, because of the fact that all general anæsthetics are exhibited in the form of gas or vapor, has not been overcome by any of the so-called safe inhalation apparatus introduced for this purpose. And even if this were not true the maximum dose for anæsthetic agents has not as yet been established, as in the case of other powerful drugs. The quantity to be employed in any given case, therefore, must depend entirely upon the surgeon's subjective judgment. What is more than all other things necessary, therefore, is that the surgeon must be familiar with the particular agent which he is using, and, especially in the case of chloroform, with the deteriorations which this agent is subjected to when kept for a long time and exposed to influences, such as sunlight, that tend to alter its physical qualities. For such changes occurring prior to the chloroform coming into the hands of the surgeon the manufacturer or dealer is to be held responsible. He must likewise be familiar with and have at hand approved means of resuscitation, as well as drugs of an antidotal character, such as strychnia, tincture of digitalis, amyl nitrite, etc., to administer should danger threaten the patient. With these conditions fulfilled, and no easily demonstrable conditions present to contraindicate its employment, general anæsthesia may be established even for the performance of unimportant or slight operations. The omission to at least auscult the patient's chest beforehand would be considered culpable negligence, even when such auscultation, if employed, has demonstrated the presence of a heart murmur, in a case in which it is absolutely necessary that the anæsthetization be proceeded with. The information acquired, although perhaps it would not prevent the use of the anæsthetic, would tend to induce a measure of watchfulness and caution which, it might be claimed, would not otherwise be employed. Examination of the chest organs, however, does not always afford trustworthy data, but this does not excuse the omission of this precaution, except in the face of grave emergencies. On the other hand, as before stated, the indubitable evidences of existing disease, the circumstances of the case requiring the use of the anæsthetic, may permit this within proper limits, and with the usually employed restoratives at hand. It will usually be sufficient for the surgeon's protection (1) that the use of the anæsthetic was necessary; (2) that the agent employed was adapted to the particular case; (3) that a watchful care was exercised during the administration; (4) that the usual restoratives were at hand, and that these were intelligently applied if they were required.

SPECIAL OR REGIONAL CONSIDERATIONS.

In reviewing the accidental complications and unfortunate sequelæ which may occur in surgical operations and affections, it is to be observed that there is scarcely any procedure that may not lead, either from individual carelessness or pure accident, to misfortune. It is intended in this connection, however, to only call attention to some of the more prominent accidents in which there may be a question as to the avoidability or otherwise of the unfortunate termination.

Opening an Abscess.—Even opening an abscess has been the occasion of accidentally wounding an important vessel. Aneurisms have been mistaken for abscesses and opened with fatal results from hemorrhage.

Venesection.—This operation is now rarely performed, but this very fact tends to lessen our estimate of the importance of carrying out the procedure in a proper manner. The median cephalic vein, selected for the purpose, is sometimes perforated completely, and the adjacent artery is injured as well. The artery should be accurately located before placing the constricting band upon the arm. The surgeon recognizes the occurrence of this accident by the simultaneous steady flow of dark venous blood and the pulsating stream of bright arterial blood. If he bears in mind the fact that the remote injurious effects of this accident relate mainly to the resulting communication which is established between the artery and the vein, and takes immediate steps to prevent this by occluding the artery by means of a graduated compress applied to it at a point central to the place of injury, in a large majority of cases no permanent harm will result.

Embolism from Injection of Vascular Tumors, Varices, etc.—Attempts to obliterate vascular tumors and varices by the injection of certain substances, such as ferric chloride, carbolic acid, etc., have been followed by rapidly fatal results. Usually an elastic bandage is placed above and below the point of injection as a precautionary measure. The object of the injection is to produce an obliteration of the enlarged vessels by coagulating the blood. The premature removal of one of the bandages, particularly that one between the seat of coagulation and the heart, has resulted in the occurrence of coagulation in the vessels within the thorax, and rapid death.

Aneurism.—Aneurism may at times present the most difficult problem in the art of diagnosis. This is due to the fact that the disease is marked by varying conditions and instability of symptoms, as a result of the different varieties and particular stages of each variety, as well as to the fact that the contents may be entirely fluid, semi-fluid, or nearly or quite solid.

Any or all of the symptoms may be misleading and bring the surgeon into disrepute because of failure to recognize an aneurism when present, or of mistaking another form of tumor for aneurism and instituting dangerous measures of treatment, such as incision, ligature of the main vessel of an extremity, the application of continuous pressure, etc. For instance; (a) every tumor situated in the course of an artery is not an aneurism; (b) pulsation may be absent when an aneurism is present, and expansive pulsation may be present in an abscess surrounding an artery; (c) the pulsation may cease in a tumor or swelling situated upon or in the neighborhood of an artery when compression is made upon the cardiac side, on the one hand, while, on the other, subsidence of the swelling may not occur and yet an aneurism be present; (d) a bruit may be absent in aneurism and be present in the case of an abscess or tumor surrounding or situated upon a vessel; (e) even exploratory puncture may result in the withdrawal of bright arterial blood in several varieties of tumor, and in aneurism this means may fail to give exit to blood.

The history of the case is of great value, and errors in diagnosis arise most frequently from failure on the part of the surgeon to carefully inquire into the early symptoms, the length of time of their existence, etc.

Under these circumstances the practitioner may be justly regarded as having been culpably negligent. The most eminent surgeons, however, have failed to make a correct diagnosis, even when the history has been taken into account, the symptoms methodically studied, and the value of the latter carefully weighed in the particular case.

Many instances are recorded in which an aneurism existed when the history and symptoms indicated an abscess. (Sir Charles Bell, Dupuytren, Cooper.*) Again, the early history may indicate an aneurism, all the symptoms pointing to the existence of an abscess. Finally, an aneurism and abscess may coexist. The former may follow and be dependent upon the latter, in which case the early history and symptoms point to abscess, while the later ones indicate the existence of an aneurism. Or the aneurism may occur first, followed by inflammation in the connective tissue about the tumor, terminating in suppuration. (Deschamps.) Under these circumstances the early history is that of aneurism, the later symptoms those of abscess. The symptoms of aneurism, however, continue to be the more prominent, as a rule, and errors of diagnosis are not necessarily of a serious character, for the reason that the careful and intelligent surgeon will always take into account the symptom of pulsation and apply such scientific tests as may serve to clear up the diagnosis. If he is finally impelled to incise the swelling he will do so with such precautionary measures as will permit him to either retrace his steps before great harm has been done, or operate for the cure of the aneurism.

Puncturing an aneurism by mistake for an abscess has not infrequently occurred. These are among the most serious of the mishaps of surgical practice, and if expansive pulsation is present, they are certainly among the most inexcusable. Two such cases came under the care of Mr. Erichsen, and both succumbed to the operative procedure instituted to correct the mistakes of the practitioners who were guilty of the errors. In a third case there was some excuse for the error for the reason that the symptoms of popliteal aneurism were not well defined. (*Lancet*, 1858.)

The error of mistaking an abscess for an aneurism in a locality where, if the latter existed, it would be almost necessarily incurable, while an abscess would imperatively demand operative interference, is sometimes made. The following case is offered in illustration:

Miss B., of Rockville Center, L. I., aged twenty-two years, a school-teacher by occupation, was referred to me by her attending physician for diagnosis. She had noticed a tender spot over the third rib upon the left side for about two months, following which swelling occurred, and fever of an intermittent type. There had been no symptoms of cardiac disturbance, no dyspnea, nor had the present tumor, the size of a fist, been preceded in its development by the usual extreme pains incident to the progress, in an outward direction, of thoracic aneurism. Before presenting to me the letter of introduction from her physician she visited some friends in the city, who persuaded her to consult two other surgeons. The first of these introduced an exploring needle and withdrew a small quantity of blood. She then consulted the other surgeon, who pronounced the case to be one of aneurism and strongly advised her not to permit, under any circumstances, any surgeon to interfere with the

* Stephen Smith, *American Journal of the Medical Sciences*, April, 1873.

tumor, but to proceed at once to her parents' home in western New York, there to await her inevitable fate.

Upon examining the tumor I found it to be the site of a well-marked but not expansive pulsation. There was no bruit present. The skin over the tumor was reddened and tender. The age of the patient, the history of the development of the tumor, and the accompanying febrile symptoms all impelled me to the diagnosis of abscess, and I proposed to her to enter the Methodist Episcopal Hospital for exploration at least. So impressed was she, however, by the warning of the gentleman who had pronounced the case to be one of aneurism that she decided to go home to die.

Six months later I learned from the physician who had referred her to me that the local practitioner who had her in charge at her parents' home had become convinced that she was suffering from an abscess, and had persuaded her to permit a surgeon from a neighboring city to operate. More than a quart of pus was evacuated, and extensive necrosis of the chest wall discovered. No aneurism was present.

Gunshot Injuries.—The greatest possible diversity will be found to exist in different cases of gunshot injuries. Differences in velocity, projectile force, angle, articles perforated before the ball reaches the body, and tissues traversed, all have an influence in determining the character of the injury. A ball may strike a bone, glance off, and bury itself into the surrounding structures. Although the injury to the soft parts, together with its sequelæ, will occupy the attention of the surgeon, the fact is not to be lost sight of that certain changes may take place in the bone itself, such, for instance, as infectious periostitis and osteitis, the infection finding its way into these structures either directly from foreign substances carried in with the ball itself, or from suppurative processes having their point of commencement in the soft parts and subsequently extending to the bony structures.

The immediate complications most to be dreaded in gunshot injuries relate to important vessels and nerves. While hemorrhage from vessels in the torn and lacerated muscular structures may be at first profuse, the irritability of the latter, producing involuntary muscular contractions, together with the tendency on the part of the bruised and irregularly divided walls of the vessels to favor coagulation, lead to rather prompt arrest of the bleeding. But the surgeon should not overlook the possibility of a contusion of the wall of a large vessel having occurred, which may lead in the course of a week or ten days to a most profuse and dangerous secondary hemorrhage. Failure to provide against the possibility of this accident may become a source of reproach to the attendant, or even become the basis for a suit for malpractice.

More or less damage to important nerve structures may occur in gunshot injuries, which in the excitement of the moment may be overlooked. Such injuries are most frequently found where the extremities are involved, either from the direct blow of the ball, by force transmitted through the medium of a fragment of bone, or by muscular contraction forcing pointed or sharp-edged spiculæ against the nerve trunk. Injury to important nerves, when sufficiently severe, leads at once to complete paralysis of their peripheral distribution. In addition, injury to large nerves greatly increases the surgical shock, which may become so profound as to bring about fatal inhibition of vital functions.

If a fracture has taken place as the result of a gunshot injury, the bone may be completely shattered, and the resulting deformity will be at once apparent. But if a portion of bone has been simply carried away by the ball in its passage, nothing short of an exploration, and this preferably with the surgeon's finger, properly cleansed and disinfected for the purpose, will suffice in establishing the diagnosis. Neglect of this in the case of a gunshot wound of an extremity, or in fact in all portions of the body, with the exception of penetrating wounds of the great cavities, may lead to error as to the extent of the injury inflicted.

The surgeon's first investigation will be directed as to whether the missile is still located in the tissues or not. He will therefore seek to ascertain if there is present a wound of exit as well as one of entrance. Several fallacies may enter at this point, against which the surgeon must be on his guard. The existence of but one wound does not always determine the question affirmatively, any more than the presence of two wounds can decide it negatively. In the first instance the ball may have dropped out in transporting the patient, or may have been dragged out in undressing the patient by a portion of clothing which was carried into the wound with the ball. An accurate inspection of the surroundings, including the clothing of the patient, should therefore be made, in order that needless injury be not inflicted in an unnecessary probing of the wound in searching for the ball. Failing to thus find the ball, attention should be directed to the possibility of the ball being superficially located. To this end every portion of the adjacent and even remote parts which could have possibly been in the line of the projectile is to be carefully examined. Next, the possibility of the ball having been deviated from its course by contact with bone or by dense planes of intermuscular aponeurotic structures after its force was partially spent should be taken into account. Careful palpation should be performed, in order to be certain that the missile does not lie directly beneath the skin at some point easily accessible for purposes of removal, before instituting a formal and perhaps dangerous exploration or extensive dissection for its removal. All suspicious elevations of the skin should be carefully examined by the surgeon, and failing to thus locate the bullet the question as to whether further search should be instituted or not should be discussed. In cases in which two wounds exist, one representing the point of entry and the other that at which the ball left the body, there may still exist a doubt as to the absence or presence of the missile, or at least a portion thereof, in the tissues. The wisdom of examining the clothing is here again manifest. A ball may have been split or divided by contact with a sharp bony edge, and in its further passage a portion may have left the body by the wound of exit, while the rest still remained lodged in the tissues. The portion which escaped may sometimes be found in the clothing, and, its divided condition being apparent, form the basis for further search.

The justifiability of risking injury to important parts in attempting to remove the ball, after having located the latter, should be decided only with reference to the patient's own interests. The dangers to be feared from its presence in the tissues should be weighed against the risks attending its removal. It is a grave error to mutilate a limb or to invade one of the great cavities of the body in the search for or removal of a ball whose presence would, in all probability, do less harm than the operative procedure itself. Where, however, as for instance in the peri-

toneal cavity, serious complications may arise—not necessarily from the continued presence of the ball, but rather from damage done to important structures by the escape of fecal matter from the intestinal canal, hemorrhage, etc.—explorative operative procedures are not only warranted but imperatively demanded. Under these circumstances merely tentative measures such as probing are not only contraindicated, but are apt to do more harm than good. The passage of a probe cannot give trustworthy information as to whether intestine has been wounded or hemorrhage is going on in the abdominal cavity, any more than it can determine the probable course of the ball beyond its passage through the abdominal parietes. On the other hand, probing may carry infection into the peritoneal cavity, or, if it chance to pass into a perforation of intestine, may, in withdrawing, smear fecal matter upon the peritoneal surfaces.

In gunshot wounds of the head meddlesome surgery is always bad surgery. While turning back a flap of the scalp in order to determine whether or not the ball has entered the cavity of the skull, and the incidental removal of accessible spiculæ of bone which have been driven into the cerebral tissues, are proper procedures in selected cases, failure to institute further interference than this will never bring reproach to the surgeon. Under these circumstances his conservatism will be commended by his professional brethren. Aimless probing, on the other hand, will be almost certain to inflict further damage.

THE HEAD AND NECK.

Atheroma of the Scalp.—These so-called “wens” are frequently regarded as simple affairs, and operated upon by those who have had but slight experience in surgical operative work. While the operation is usually a simple one, this very fact sometimes leads to a neglect of precautions which would be taken in more serious operations. In pre-antiseptic times many of these cases perished from erysipelatous inflammation, to which the region of the face and scalp seems to be especially prone. Patients, especially women, will frequently object to the removal of the hair necessary to a complete aseptic course of technique, and the surgeon will be inclined to listen to their entreaties. If the practitioner has a due regard for the patient's best interests as well as for his own reputation he will insist upon the necessary steps of preparation, or decline the responsibility of the operation.

Trephining.—This operation has not infrequently been performed with the expectation of finding an abscess of the brain, or a coagulum, when neither was found. Exploratory trephining in cases diagnosed as hemorrhage from the middle meningeal artery is followed, even in the best of hands, by the discovery that the blood is furnished, not by the artery, but by one of the sinuses of the dura mater.

Operations for Harelip.—Few realize the intrinsic dangers of the operative procedure for the correction of this congenital deformity. It is estimated that fully one third of the cases submitted to the operation die (Nussbaum), as an immediate result from suffocation consequent upon the enforced closure of the mouth. Following the loss of considerable blood, the little patients easily succumb to slight causes. The infec-

tion of a suture track, due to the neglect of aseptic precautions, leads to erysipelatous inflammation, which in its turn produces pain and restlessness. Fear of failure of the operation leads to the administration of opium, which the little patients bear badly in their weakened condition. Without the administration of opium the continued acts of crying lead to straining upon and finally the tearing out of the sutures. The deformity is thus frequently made worse than at first.

The cosmetic result in cases of harelip is frequently unfavorable even after the best-conducted antiseptic procedures, for the reason that the operator does not fully appreciate the necessity of a decided projection upon the vermilion border at the point where the incision terminates, to allow for subsequent contraction of the cicatrix when perfectly healed. This contraction may go on for a long time, and unless the precaution alluded to is observed an unsightly notch will appear at the point where, at first, the lip was perfectly symmetrical. A further unsightliness following the operation results from the injudicious removal of the prominent intermaxillary bone. A comparison of the faces of two persons operated upon in early life for harelip, in one of whom the intermaxillary bone was removed, while in the other it was allowed to remain, shows such striking differences as to stamp the former procedure as most unjustifiable and cruel.

The selection of the proper age for the operation is of importance. While single harelip may be operated upon at almost any time, in double harelip it is better to postpone the operation until the second year of life.

Cleft Palate.—In cleft-palate operations the same dangers threaten the child as in harelip, but to a greater degree. Very young children do not bear the loss of blood at all well, and therefore it is better to defer interference until they arrive at an age when they can undergo the necessarily extensive operative procedures with less fear of an immediately fatal result. The mortality in early infancy is almost fifty percent. The most favorable period for the operation so far as danger to life is concerned is at the fifth year. (Schede.) On account of the extent to which uranoplasty interferes with the development of the arch of the palate, it may be postponed until the period of the second dentition, or between the tenth and twelfth years. (Ehrmann.)

Failure in the immediate result is less frequently due to an insufficiency of blood-supply from injury to the arterial branches than to the fact that too few veins are present in the pedicles to maintain the return-circulation. The cicatricial tissue left, however, after the mucoperiosteal flaps have sloughed away, can frequently be utilized for a second operation.

Failure in the functional result is more frequent and important. The voice is not greatly, if at all, improved, and the surgeon is frequently blamed because of the disappointment in this respect by both the patient, when old enough to realize the extent of his misfortune, and by the friends. In undertaking an operation of this kind the surgeon should bear in mind that a congenital cleft in the palate is not merely a slit in the parts, but that an actual deficiency of tissue exists. Hence even after a most skillfully performed operation for closure of the cleft the velum still remains as a tight curtain stretched across between the oral and pharyngeal cavities and the posterior nares, which is too short to reach the posterior pharyngeal wall, and past which the air rushes

from the pharynx through the posterior nares; the peculiar nasal twang is, therefore, still present. While certain vocal exercises are not without value in obviating this, a perfect production of normal voice and speech has probably never been produced by uranoplasty and staphylorrhaphy.

The Teeth.—The accidental extraction of the wrong tooth has sometimes brought reproach upon the operator. This occurs more frequently since the introduction of anæsthetics. The patient will not always be able to point out the tooth which is at fault, and even if able to identify it he may place his finger upon two or even three in the attempt to indicate the one which causes the difficulty. Again, two teeth may be so closely attached as to make it impossible to remove one without the other. Luxation of the lower jaw has occurred when great force has been necessary in the extraction. Fracture of the jaw, considerable portions of the alveolar process being brought away with the tooth, has been the basis of malpractice suits. Such accidents will occur in the most skillful hands, but if the mouth be carefully kept clean and septic complications avoided, the patient can scarcely have been sufficiently damaged to warrant a suit. While replacing the broken-off part may sometimes be followed by complete union, yet the pressure of a loose and perhaps pointed or sharp-edged piece of bone in the oral cavity invites dangers from irritation of the adjoining cheek and tongue which far outweigh any advantages to be derived from the replacement and union of the bone itself.

Hemorrhage following the extraction may be alarming, and require the employment of the thermocautery for its arrest.

When dentures are attached to the patient's own teeth the latter may become worn at the point where the metal clasps are applied, with the result of allowing the plate and artificial teeth to fall back into the pharynx or esophagus. Cases are recorded (Nussbaum) in which a denture has been lodged in these positions for months without giving rise to dangerous consequences. Under these circumstances, for the reason that the treatment of a condition should not be more dangerous than the condition itself, surgeons have generally not advised interference before some direct indication had existed for this.

Tonsilotomy.—Several accidents may follow this apparently simple operation, for which the surgeon may be blamed. The slice of tonsil removed has fallen upon the glottic opening and caused suffocation. With the modern tonsil guillotine the risks of this accident are reduced to a minimum. The instrument also guards against injury of the larger vessels, which may occur when an ordinary scalpel is used. The presence of a calculus in the tonsil may prevent the use of the guillotine, and even break it, and necessitate the use of the scalpel or bistoury to disentangle the broken instrument, as well as to remove the tonsil. The surgeon may be compelled to adopt the use of the scalpel by force of circumstances. Hemorrhage following the operation of tonsilotomy has given rise to great anxiety, as regards both the patient and the surgeon's reputation. While ligature of the external carotid artery has been resorted to in this complication, the necessity for this must be exceptional. The application of the thermocautery or pure spirits of turpentine is frequently sufficient. These failing, suturing together of the pillars of the fauces over the bleeding stump of the tonsil will almost certainly arrest the hemorrhage.

Retropharyngeal Tumors.—In the osteoplastic resection of the upper jaw suggested by Langenbeck for the removal of retropharyngeal tumors, portions of the growth may become detached from the remainder and fall upon the glottic opening, producing death by suffocation.

Catheterization of the Eustachian Tube.—Fatal phlegmon of the neck has followed attempts at catheterization and inflation of the Eustachian tube, the air being forced into the cellular tissue of the neck.

Mastoid Disease.—In cases of suppurative disease of the middle ear the surgeon who fails to take note of the supervention of mastoid disease, when such well-marked evidences of this condition are present as are furnished by the occurrence of swelling and tenderness over the mastoid region, commits a serious error. The occurrence of gastric irritation in these cases should also arouse suspicion. The proximity of the cerebrum to the labyrinth, only a thin lamella of bone intervening, and the dangers of infection of the cerebellum through phlebitis of the lateral sinus, should be borne in mind. It is not a serious mistake to trephine the mastoid process and not find pus; but it is a most grave error to fail to apply such a comparatively simple procedure in cases in which the patient's life depends upon its performance.

Injury of the lateral sinus is a not infrequent accident in trephining the mastoid process. An exceedingly threatening or even fatal hemorrhage may follow. In performing this operation the surgeon should bear in mind the importance of not carrying the perforation of the bone, or the clearing out of the abscess cavity by means of the sharp spoon, too great a distance from the immediate neighborhood of the helix.

Tracheotomy.—Several accidents may occur in the course of a tracheotomy. There may be an alarming hemorrhage from the engorged vessels in the neck. The opening of the trachea, particularly if the case is an urgent one, need not be delayed until this has been arrested. The application of a few hemostatic forceps, and relief of the dyspnoea by the introduction of the cannula, will be almost always followed by an improvement.

The trachea may elude the operator and the esophagus be wounded, or the latter may occur from transfixion of the trachea, a tracheo-esophageal fistula becoming established. Or the trachea may be opened upon its antero-lateral or even its lateral surface, great difficulty being experienced in the introduction of the cannula.

These difficulties and accidents may usually be avoided by inserting a tenaculum into the trachea and steadying the latter while the incision into the anterior wall is deliberately made. The hold which the tenaculum has upon the trachea should not be relinquished until the cannula is in position and all hemorrhage arrested.

In the absence of the surgeon a piece of false membrane may become loosened and block up the cannula. Those left in charge of the patient must be instructed under these circumstances to remove the cannula entirely, rather than risk the delay incident to efforts at clearing its lumen. If the loosened piece is engaged in the tube it will probably come out with it; if not, the opening in the trachea affords a larger exit than the lumen of the cannula.

Thyroidectomy.—In addition to the dangers of the operative procedure itself—involving as it does extensive dissections in the neighborhood of important vessels and nerves, during which accidental injury to

these may result in destruction of the patient—and those arising from sudden bending of a trachea which has become thinned and flattened by pressure (scabbar'd trachea), in a certain proportion of cases a peculiar cachexia (cachexia strumipriva) supervenes in a few weeks or months. The affection is characterized by certain psychical and physical disturbances which correspond very closely to those in the idiopathic condition known as myxedema. A more acute form is known as tetany, a spasmodic affection somewhat resembling tetanus, but in which, however, there is no underlying infection.

Owing to the frequent occurrence of the unfortunate complications and sequelæ just alluded to, goitres are not to be totally removed. Even when the vital indications are present for operative interference, small portions may be left attached to the trachea, or even but one lobe removed. Cachexia strumipriva is thus avoided. Experience likewise teaches that the removal of a comparatively small portion of a thyroid tumor is sometimes followed by degenerative changes in the remainder.

Incisions in the Neck for Suppurative Conditions.—Fear of injuring the larger vessels in the neck frequently impels the practitioner to delay opening foci of suppuration in this neighborhood, such delay resulting in serious consequences. This, as well as undue risk to important structures, may be avoided by simply incising the skin and then completing the search for the pus cavity with a blunt dressing-forceps. The track thus made and leading to the purulent collection may be dilated sufficiently by spreading the blades of the forceps so as to permit the introduction of a drainage-tube. The blunt extremity of the forceps will not injure the vessels under ordinary circumstances.

Tumors in the Region of the Neck.—In addition to the accidents which may arise in the course of operations for the removal of tumors of the neck relating to injuries of the nerves and vessels, aspiration of air in wounds of the larger vessels, etc., the surgeon may be blamed for the needless infliction of deforming cicatrices in the case of young females. Lines of incision may be so planned as to turn back the overlying skin without bringing the resulting cicatrix into prominence and rendering this region unsightly. An incision with beveled edges, carried along the natural line of either the anterior or posterior border of the sternomastoid, is much less noticeable and hence less objectionable than incisions carried either directly across or in a vertical direction.

Incisions commencing somewhat posteriorly and curving downward and forward, and then carried along the line of the clavicle, in the great majority of cases will uncover tumors low down in the cervical region; and the incision along one or the other margin of the sternomastoid, if combined with an additional incision carried either anteriorly or posteriorly, as the case may be, will give ready access to those in the upper lateral cervical region. The maximum amount of room for the operative procedure, with the minimum of ultimate unsightliness, will be obtained by these lines of incision.

THE THORAX.

Amputation of the Breast.—An error may be charged against the surgeon in cases in which recurrence of carcinoma after amputation of the breast takes place. While every careful surgeon will see to it that

no suspicious indurations remain, and that the axillary cavity is opened up freely and all glandular tissues that can be identified as such are removed, yet it will not be possible for him to positively state, even after all of these precautionary measures, that every vestige of the disease is extirpated. In order to still further insure against possible infection through the medium of the pectoral fascia, with its rich supply of lymph-channels having free communication with the lymph-channels of the mammary gland, an additional precaution consists in removal of a portion or even all of the pectoral muscles of the corresponding side. Infected lymphatic glands are sometimes disclosed which without total removal of both the pectoralis major and minor muscles would have escaped detection and led to so-called regional recurrence.

Lacteal Fistula.—The occurrence of a milk fistula following incision for abscess of the female breast may be a source of reproach to the surgeon who overlooks the anatomical arrangement of the lactiferous tubules, and instead of making the incision parallel with these, crosses them to a greater or lesser extent. The resulting fistula is a source of extreme annoyance and is frequently difficult to cure.

Empyema.—Considerable anxiety is sometimes caused by the accidental disappearance of a rubber drainage-tube within the pleural cavity during the treatment of a case of empyema. Systematic dilatation of the original wound track by means of sponge-tents or laminaria digitata, and subsequent vigorous flushing of the cavity by copious injections, will frequently result in floating out the tube without instituting a formal operative procedure and thus greatly alarming the patient.

THE EXTREMITIES.

Fractures.—There are numerous complications and sequelæ which may occur in the course of the treatment of fractures, due to circumstances entirely beyond the control of the surgeon, but which are attributed by the patient and his friends to the unskillful treatment of the attendant. The existence of syphilis or some other disease may prevent the formation of proper callus, and an incomplete union, due to the formation of a cicatricial mass of connective-tissue origin, take place, or even a pseudarthrosis result. While the surgeon cannot be held responsible for the existence of the dyscrasia, yet he cannot be held entirely blameless if the dyscrasia is of such a character as to have been amenable to treatment.

The interposition of the soft parts about the site of the fracture is frequently the occasion of non-union in fractures. Here the surgeon is more at fault than in the former instance, particularly if he has not investigated the conditions and taken pains to provide against the possibility of this complication.

Deformity Following Fracture.—One of the most damaging sequelæ (to the surgeon's reputation, at least) of fractures is the occurrence of deformity following the union of a fracture, and the existence of shortening as compared with the opposite limb. A palpable bend or bow in an extremity is a constant reproach to the surgeon's art, sometimes unavoidable, it is true, so far as the surgeon is concerned, but, alas! too frequently the result of failure on his part to bear in mind the golden

rule never to permit the first dressing to remain during the entire process of repair, but to remove this at least once, and perhaps oftener, and that at a period of time sufficiently early to permit of correction of any existing malposition. Inspection of the injured parts at the "half-healing point" will save many crooked limbs, as well as regrets on the part of the surgeon, since even then the union is so soft as to permit of necessary correction of position.

Fracture of the Neck of the Humerus.—The mistake of diagnosing a fracture of the neck of the humerus as a dislocation is not infrequently made. The differential diagnosis is not always easily made, particularly where considerable swelling exists. The careful surgeon, in case of doubt, will prefer to delay his attempt at reduction until after the swelling has subsided, rather than risk the infliction of further damage by his manipulations.

The combination of a fracture of the neck of the humerus and a dislocation is sometimes observed. Even when this complicated condition is diagnosed the surgeon is at a loss to decide upon the proper methods of procedure. If he delays interference until complete solidification at the seat of the fracture is effected, the difficulties of reducing the dislocation are greatly increased over those encountered in uncomplicated dislocations. The method of McBurney, of exposing the head of the bone, drilling the latter, and inserting a traction-hook by means of which the displaced portion is replaced by directly applied force, probably offers the patient the very best chance of a useful arm.

Injury to the Circumflex Nerve Simulating Dislocation of the Shoulder.—The course which this nerve takes around the neck of the humerus, as well as its relations to the shoulder-joint, render it especially liable to injury from blows or falls upon the shoulder. Dislocations of the humerus are also occasionally followed by paralysis in the course of the distribution of the nerve. In chronic inflammatory conditions in the shoulder-joint the nerve may become involved in a neuritic process. As a result of interference with the supply of the circumflex nerve there is a noticeable wasting of the structures which clothe the joint; and suits for malpractice, based upon these appearances and a failure on the part of the surgeon to discover and reduce a supposed dislocation of the shoulder, have resulted. With extreme atrophy of the deltoid muscle there is a marked prominence at the acromion process and a decided groove perceptible through the atrophied muscle between the head of the humerus and the articular surface of the scapula. Under these circumstances the resemblance to a dislocation is striking, until manipulation discloses the real condition.

Fractures near the Elbow-joint.—Fractures in the neighborhood of or involving the elbow-joint are apt to give rise to contractures and ankylosis in this articulation, from inflammatory conditions the result of the injury. While these are frequently unavoidable, and no one may know beforehand in the individual case to what extent these may impair the usefulness of the arm, the extent of the loss of function, when it does occur, will depend, in great measure, on the care which the surgeon exercises in placing the member under conditions in which, should ankylosis follow, the patient may be able to perform certain needful movements. An arm ankylosed in the straight position, or nearly so, will be practically useless, and one sharply flexed will be nearly so. With the forearm

at right angles to the arm, a compensatory increase of the range of motion at the shoulder occurs, and the patient will be able to execute movements with the extremity to a surprising extent.

While the treatment of a fracture of the arm in this locality in the straight or extended position (ankylosis not occurring) gives a more symmetrically perfect arm, for the reason that the normal angle which the radius and ulna bear to the humerus is preserved and with it the so-called carrying function, yet, as before stated, no one may know beforehand whether or not the inflammatory changes will be such as to prevent free motion at the elbow-joint. Hence, in order to prevent this undesirable complication, the surgeon will do well to carefully study each case, and endeavor, in the event of the probability of ankylosis, as evinced by the presence of severe injury to the joint and extensive extravasation in the soft parts, to obtain early passive movements. The arm is to be retained at a right angle to the forearm in the intervals, if these movements produce increase in the inflammatory conditions to the extent to indicate their discontinuance. In other words, although rest is indicated when the inflammatory process is intra-articular in its location, motion is indicated if the inflammation is extra-articular. If the inflammation be both intra- and extra-articular, in order to meet the first-named, rest is indicated; but this prolonged to the period sometimes necessary to bring about complete restoration of the joint will lead to contracture of the muscular and tendinous structures and restriction of motion; at the same time adhesions will form within the joint itself.

It would seem that compromise measures, consisting of fixation of the joint at a right angle in the intervals by means of a splint, and the application of massage, serve best in these cases. It is also to be noted that after the intra-articular inflammation has subsided and some range of movement is accomplished, this is generally increased by the patient's own voluntary movements. This is particularly true in the case of young children.

The surgeon may remove the bandages and splints at the end of a week or ten days from the date of the injury, and practice massage himself. The application of this valuable therapeutic measure should not be intrusted to a lay person, or even a professional masseur, at this time, for the reason that an intelligent reapplication of the splint and bandages following the massage is necessary. Later on, when consolidation has progressed sufficiently far and improvement in the intra-articular inflammation will warrant it, passive movements are to be added. Should the latter increase the inflammatory action, they must be abandoned for the time being. All this requires the personal supervision of the surgeon, and failure to give this to the case may bring him reproach. He cannot be held responsible for ankylosis resulting from vicious callus.

Fractures at the Lower End of the Radius.—Impairment of function following fractures at the lower end of the radius results (1) from failure to properly disentangle the small portion of bone torn off by forcible extension of the hand, and which occurs because of the tough and unyielding character of the anterior radiocarpal ligament, or (2) the swelling and congestion consequent upon the injury inflicted upon the surrounding soft parts may pass from the stage of active hyperæmia to inflammation, and this, involving the adjoining muscular aponeuroses and tendinous sheaths, produce fixation of these. This is particularly

true if a splint apparatus that extends from the upper portion of the forearm to the finger-tips is employed and permitted to remain undisturbed during the entire period of repair.

In the majority of cases very slight if any retentive apparatus will be necessary from the first. The surgeon who omits to apply any apparatus whatever will be less frequently reproached than he who applies a fixation splint and removes it after the end of three or four weeks for the first time. In the first instance the normal movements of the wrist and finger joints are more quickly restored, and inflammatory adhesions are not so apt to bind down muscular and tendinous structures. In the second the parts are held rigidly in a position to favor contracture of the muscles and tendons as well as the occurrence of fibrous adhesions within and upon the sheaths of the latter.

Where the use of a simple roller-bandage does not suffice for support, a splint which shall hold the hand in the position of slight palmar flexion may be used. But whether the hand and forearm be enveloped in a simple roller bandage or supported upon a splint, the important point in the treatment is to avoid the impairment of function due to fixation of the tendons and to adhesions within the joints. The means best calculated to accomplish this is by the early and persistent use of daily massage and passive movements. As in the case of the elbow-joint, the surgeon should perform these for the first three weeks himself, at the end of which time he may intrust them to a professional masseur.

Gangrene of the Hand Following Fracture of the Radius.—Especial care should be exercised in the application of a plaster-of-Paris bandage to the forearm in fractures of this part which result from direct or indirect force. Surgeons, as a rule, avoid, as far as possible, such application, on account of the liability of the occurrence of rapid swelling and the danger of gangrene. The occurrence of blood stasis, as evinced by the failure of the blood to refill the vessels beneath the finger-nails promptly after it has been forced out by pressure, is an early and infallible test. The nail remains white; even if the color eventually returns, if it is delayed beyond a few seconds the surgeon will do well to take note of any complaints of pain on the part of the patient, and be prepared at short notice to remove the bandages.

Malposition of the fragments in fracture of the radius may produce gangrene of the hand where no bandage whatever has been applied, through pressure upon the blood-vessels. Changes in the walls of the blood-vessels may lead to thrombostasis, this extending to the capillary area.

Gangrene Following Fracture of a Lower Extremity.—This is an extremely unfortunate complication. With the rare exception of the cases in which the gangrene results from simultaneous contusion of the blood-vessels or pressure from displaced fragments, gangrene of a lower extremity, the site of a simple fracture, is due, in this class of cases, to the too early application of a fixed dressing, such as plaster-of-Paris, silicate of soda, or starch. It may also arise from the application of an ordinary splint. The occurrence of pain, with appeals on the part of the patient to remove the bandages, if unheeded, may lead to the most disastrous consequences. Under such circumstances the surgeon will be held responsible for the loss of the limb, which is the inevitable result.

The fact should never be lost sight of that the failure to apply any

sort of apparatus for the first ten days, save a pillow support, can never result in harm to the injured member. At the end of this time the swelling, which is the cause of the mischief, will have reached its maximum. Correction of malposition, and the application of fixed dressing or retentive apparatus, may now be employed. In about ten days from this time whatever swelling still remains will have subsided, and the dressings may be removed and applied. This will also afford an opportunity to inspect the parts and correct any undesirable conditions which may be present. These remarks are particularly applicable to fractures which are the result of direct force.*

Injuries to the Hip-joint.—This articulation is deeply placed, surrounded by large masses of muscular tissue, and is capable normally of a great variety of movements. In the young both the aponeurotic and ligamentous structures in and about the joint yield considerably, while the bony structures are in a condition to withstand considerable force before giving way. Later in life the fibrous structures become tough and unyielding, while the bone, owing to rarefying processes, is more or less brittle and easily broken. Hence it follows that in early and middle life dislocations occur most frequently, while in the later years of life fractures occur more commonly.

The points in the differential diagnosis of these two great classes of injury are easily made out in typical cases. Hence the error of mistaking a dislocation for a fracture, and *vice versa*, is not frequently made. In a given case of injury to the hip-joint, however, in which the existence of a dislocation can be taken out of the consideration, there may still be an absence of the usual signs of fracture, and the surgeon be led into error. This arises from the fact that a large proportion of cases occur from falls upon the trochanter, the effect of which is to force the distal into the proximal fragment, with consequent impaction. Under these circumstances the characteristic shortening and preternatural mobility will be absent. Crepitus will likewise be absent, although this symptom is of less value in the diagnosis of fractures in general, and particularly those in the neighborhood of the hip-joint, than is generally supposed. It cannot be obtained when impaction is present, and any attempt to elicit it by manipulation may result in breaking loose the impaction and producing a worse condition than previously existed.

The occurrence of impaction will depend to some extent upon the location of the line of fracture. This will most frequently be present when the bone gives way at the base of the neck, and this variety is the most common. It corresponds to the extracapsular fractures of the older writers. Impaction is rarely present in those fractures which cross the narrow part of the neck either transversely or obliquely, and which, in the main, are within the capsule.

An injury to the hip-joint in which there is loss of function, as shown by inability on the part of the patient to raise the limb from the level of the body while lying upon the back, slight shortening, and eversion of the foot which cannot be converted into a complete inversion, in the great majority of cases is an impacted fracture of the base of the neck of the femur. If the patient is past middle life and a woman the chances are still greater of this condition being present.

* Nussbaum, *Aerztl. Central Anzeiger*, 1887, No. 18.

The eversion of the limb present in impacted fracture of the base of the neck is usually comparatively slight, while that present in non-impacted fracture is greater. This is also true of the shortening. The entanglement of the fractured surfaces will limit the shortening, while the fact that the posterior surface of the neck is impacted to a greater extent than in front accounts for the partial but quite constant eversion, as well as the difficulty in overcoming the latter. Therefore slight shortening (less than an inch), combined with slight or only partial eversion, should awaken suspicion of this injury, and manipulation should be very carefully made. On the other hand, the presence of considerable shortening, together with decided or complete eversion, will suggest a fracture of the smaller portion of the neck of the femur. These two points, namely, the amount of shortening and the extent of the eversion, should be ascertained before manipulation of the limb for diagnostic purposes is made.

Failure of union in fracture of the neck of the femur will occur in a certain proportion of cases. This is more likely to be present in cases in which the fracture is at the narrow portion of the neck (intracapsular), for the reason that the nutrition of the proximal fragment is generally so interfered with as to prevent repair. In some instances the periosteum is not torn completely across and union follows. In fractures at the base of the neck (extracapsular) non-union may follow from those causes which produce the same conditions elsewhere, namely, failure to secure or maintain proper apposition of the broken surfaces, rarefying processes either preceding or following the injury, or arrest of the evolution of the callus before it has entered upon the stage of ossification.

Fracture of the neck of the femur has occurred during attempts at reduction of a dislocation. This is an unfortunate accident, inasmuch as it renders reduction practically impossible, and if intracapsular, is likely to be followed by necrosis of the head, for the reason that, the ligamentum teres being separated by the dislocation, the nutrition of bone at this point is destroyed.

Hip Disease in Children.—The importance of an early diagnosis of morbus coxarius can scarcely be overestimated. There are several conditions which may simulate this disease more or less closely, and which it behooves the surgeon to keep before him in examining cases in which the symptoms point to disease of the coxofemoral articulation.

In the first place, it is not an infrequent experience in the metropolis to have children suffering from hip disease brought to the surgeon's office with a knee-joint painted with tincture of iodine or marked by the peculiar discoloration following a blister, in which the diseased condition really exists in the hip-joint. The patient's complaints refer the pain to the region of the inside of the thigh just above the knee-joint, or even at the knee-joint itself. The explanation of this is furnished by the intimate relations and anastomoses of the sciatic, obturator, and anterior crural nerves.

An injury of the hip-joint in a child may give rise to *synovitis* without necessarily being followed by true hip disease. While it is desirable to make a proper diagnosis whenever possible, the error indicated is of but minor importance compared to some others that will be mentioned, provided the *synovitis* is treated properly, for the reason that this will involve rest, counter-irritation, and the other measures applicable to hip disease in its earliest stage.

Congenital dislocation of the hip is a more common condition than is usually considered, and may be mistaken by a careless observer for hip-joint disease. During the year ending September, 1891, twenty-five cases were presented at the New York Hospital for Ruptured and Crippled, or more than one for every ten cases of tubercular disease of the hip. A careful inquiry will usually elicit the fact that the child limped from the time that it began to walk, and examination will disclose the following objective symptoms: (1) a peculiar waddling gait in connection with the limp; (2) a shortening of a half-inch or more; (3) elevation of the trochanter (in fat children this is not always easily defined); (4) the limited motion is mechanical, and arises from the relations of the head of the femur to the rim of the acetabulum, and is not due to muscular spasm as in hip disease. In addition there will be absence of tenderness.

Children with hip disease are not infrequently treated for *rheumatism*. The careful practitioner will not fail to suspect the true nature of the affection at hand if he will but bear in mind that monarticular rheumatism in children is a very rare disease, and that the invasion of the latter is less insidious, the tenderness and pain are greater, and motion much more limited from the commencement, than in true hip disease. Surgical should replace purely medical treatment in a very few days, if decided improvement does not promptly follow the latter.

Inflamed inguinal glands, due either to tubercular infection or the accumulation of subpreputial secretions, may cause a limp and limitation of the movements of the joint. The error of mistaking this for hip disease is not a very serious one from the medico-legal standpoint, and should not continue longer than necessary to make a local examination.

Limitation of the movements of extension and consequent limp may be early symptoms in *osteitis* or *Pott's disease in the lumbar region*, and lead the surgeon into error. Every endeavor should be made to recognize and treat Pott's disease of the spine early in the affection, for the reason that if this be deferred until a protuberance appears, the disease will be well advanced, with no possible hope of overcoming the existing deformity, to say nothing of the dangers arising from the destructive bone-lesion. Save in those instances in which rest in the recumbent position is employed, as advocated by some surgeons in the treatment of early hip disease, the mistake of treating a case of low Pott's disease for hip disease would be a serious one, and likely to delay the proper treatment until either deformity or tubercular abscess, or both, complicate the case. If flexion, which is normal, be first employed in order to completely relax the psoas muscle, all other movements of the hip-joint will be found to be easily performed. Irritation of the psoas by any diseased condition of the lumbar vertebra will cause rigidity of this region instead of increased flexibility, as found upon attempts to produce complete extension of the thigh in hip disease.*

Resection of the Knee.—After exposure of the joint surfaces the popliteal artery may be wounded either while the surgeon is in the act of dividing the crucial ligaments or while removing the articular surfaces. The occurrence of this accident is most unfortunate, for the reason that, following as it does the division of the freely anastomosing articular ar-

* Dr. Walter C. Wood, *Brooklyn Medical Journal*, July, 1894.

teries, the only channel of supply to the leg is destroyed, and amputation is the only resource left in order to save the patient.

In resection of the knee-joint the operator should bear in mind the necessity of sparing the epiphysis whenever possible. In case of injury to this important structure, particularly in growing children, the limb becomes relatively shorter on account of the diminished rate of growth as compared with that of the opposite limb.

Tenotomies and Myotomies.—These have been the occasion of grave accidents. The deep peroneal nerve has been injured in tenotomy of the biceps femoris, and hemorrhage from the posterior tibial artery is a not infrequent accident occurring in connection with the common operation of the division of the tendo Achillis. In the division of the groups of muscles that move the head, for wryneck, it is often extremely difficult to determine just which muscles are at fault, and the operator may find himself in the position of having divided a number of these unnecessarily before he finally succeeds in rectifying the position of the head, if, indeed, he does not fail in accomplishing his object altogether, even after extensive mutilation.

Contracture and Ankylosis.—Accidents are likely to happen in the attempt to apply *brisement forcé* for overcoming ankylosis. Failure to divide muscular contractions preliminarily may result in the rupturing of these in localities in which harm may arise or even considerable damage be inflicted.

An unfortunate circumstance occurring while attempting to break up a bony ankylosis consists in an accidental fracture of the bone at some point in the diaphysis, instead of giving way at its adventitious attachments in the joint. A worse condition than that for which the operation was undertaken follows. Hence the importance of the precaution so rigidly insisted upon by some authorities to first forcibly flex the joint, thus breaking up adhesions by movements in a direction the least calculated to do harm, before attempting the more dangerous movements of extension.

An important artery may be embedded in the rigid mass of exudation about the joint, and this being ruptured, an enormous subcutaneous hemorrhage may occur, necessitating immediate amputation. The pressure of the surrounding mass may mask this symptom, and the surgeon be not aware of its presence until loss of sensation and natural warmth, and finally gangrene of the periphery of the limb, lead to an investigation.

Amputations.—In amputations the flaps may not be made sufficiently long, and an exceedingly sensitive condition of the stump arises from a tightly drawn line of cicatrix, which may be the occasion of great suffering to the patient for the remainder of his life. The neglect to draw down and divide the larger nerve trunks upon a higher level than the flaps frequently results in their imprisonment in the cicatricial tissue. The most excruciating pains, referable to the area of former distribution or the site of the nerve stumps themselves, may follow.

It would seem to be almost impossible that an accident such as the amputation of the wrong foot could occur, but this is said to have happened at a clinic in Europe during the last century. A man was suffering from extensive ulceration of both feet, one of which was condemned for amputation, while the other was deemed to be amenable to treatment. Both feet were bandaged. The bandages were removed from one foot,

and this was amputated. Upon removing the dressings from the other foot it was discovered that the one which had been thought to be curable had been removed, while that which had been regarded as incurable remained. The surgeon made every effort to cure the foot, and finally succeeded.

The late Dr. Daniel Ayres, of Brooklyn, related to the writer that he once witnessed an amputation of the hip-joint upon the battle-field during the late war, in which the operator, in the excitement of the moment, cut the flaps from the parts above the line of section of the muscular structures, and consequently removed them with the amputated limb.

THE ABDOMINAL AND PELVIC CAVITIES.

The Diagnosis of Tumors of the Abdomen and Pelvis.—Some of the most serious mishaps in surgical practice have occurred in connection with the differential diagnosis of abdominal and pelvic tumors. To enumerate all of the errors into which the surgeon may fall without due care would be impossible in this connection.

Hysterical contractions of isolated portions of the muscular wall of the abdomen may simulate a tumor, and repeated examinations may be necessary in order to escape this error. Once, however, the fact of the existence of a tumor has been established, many difficulties arise to baffle the surgeon in his attempts to differentiate between the various neoplasms which occur in these regions. For instance, an ascites having its origin in tubercular peritonitis, with adhesions of the intestines to the neighborhood of the vertebral column and the uterus fixed high up at the pelvic brim, very closely resembles, in its objective symptoms, an ovarian cyst. Instead of the intestines floating upon the surface of the fluid and the uterus forced downward, the reverse obtains; a flat percussion-note exists anteriorly, and the tympanitic note, due to the presence of the intestines, is heard posteriorly, as in ovarian cystoma.

Simpson mentions six cases in which the abdomen was opened and only a tympanitic condition of the bowels found. The writings of Maisonneuve, Lizars, King, Smith, McDowel, and Dolhof contain many similar operative errors.*

An hour-glass contraction of a distended urinary bladder has been mistaken for a cyst of the ovary; the diagnosis was only established by keeping up steady pressure upon the lower portion of the abdomen during catheterization. In another instance an ovarian cyst existed in conjunction with an hour-glass contraction of the bladder. (Nussbaum.) The operator in this case did not discover the true state of affairs until the bladder had been wounded.

Differentiation between a neoplasm and pregnancy, either normal or extra-uterine, is sometimes extremely difficult. No less an authority than Sir Spencer Wells once opened the abdomen for a supposed ovarian cystoma, and even proceeded so far as to puncture the uterus. He was compelled to empty the latter at once by reason of the protrusion of the fetus through the opening made by the large trocar. Attempts to force the contents of the uterus back through the opening only resulted in

* Spiegelberg, *Die Diagnose der Eierstocks-Tumoren*, etc.

rupture of its walls. Two similar cases, ending fatally, are recorded by Hogar and Kaltenbach.

A case is recorded in which a tubal pregnancy was mistaken for a retroversion of the uterus. Reduction was attempted, and was followed by death from peritonitis.

Hugier once diagnosticated an extra-uterine pregnancy, and brought the case before the Academy of Medicine in Paris. A commission appointed to investigate the case agreed with Hugier. Dubois, however, suggested the possibility of normal pregnancy. With the occurrence of labor abdominal section was determined upon. While the preparations for the operation were being made, Roux made an examination and found the head engaged. The child was born *per vias naturales*.

I have twice seen the pregnant uterus removed together with large uterine fibromata. Upon incising the tumor and uterus a three months' fetus was disclosed.

Some exceedingly sad instances have occurred in which, an abdominal tumor being present, unmarried patients have been accused of pregnancy.

Paracentesis Abdominis.—This operation is frequently performed by those who have very little experience in operations in general, and who fail utterly to appreciate the fact that there are certain precautions to be observed in spite of the apparent simplicity of the operation. The withdrawal of the entire quantity of ascitic fluid causes the vessels within the abdominal cavity to become overfilled in the attempt on the part of the circulating fluid to fill the vacuum. This may lead to rupture of some of these vessels, or to dangerous cerebral anæmia.

Where the abdominal walls are thick and edematous (combination of ascites and anasarca), the cannula may fail to reach the ascitic fluid; yet the escape of a small quantity of fluid from the connective tissue of the abdominal wall at first misleads the practitioner, and he is very much perplexed at the situation. He fails to realize that the cannula has not entered the peritoneum, and is led to believe either that a wrong diagnosis has been made or that a loop of intestine has fallen across the opening of the cannula. This will lead to either fruitless efforts to clear the cannula or an abandonment of the operation altogether. Replacing the trocar and making deeper penetration will clear up the mystery.

Intestinal Obstruction and Hernia.—Abdominal section not infrequently fails to disclose the cause of acute obstruction; not only this, but the manipulation of the intestines in the search sometimes removes the obstacle. Again, it sometimes happens that the obstacle is found but cannot be relieved, or, being relieved, as, for instance, a torsion in the long axis of the bowel, it recurs as soon as the restraining hand is removed. Under these circumstances an enterotomy is preferable, if the operation has been greatly prolonged in the search for and attempts at removal of the obstacle, to immediate resection or lateral anastomosis. The latter procedure may be instituted later on.

The mistaking of an inflamed strangulated hernia for an inguinal abscess may do incalculable harm and lead to most disastrous consequences; mistaking suppurating inguinal glands for hernia will scarcely result in damage to the patient. The attempt to reduce the inflamed mass by taxis in the latter case must soon be abandoned, and the careful dissection, layer by layer, of the tumor until an abscess cavity is reached is far preferable to thrusting a knife into the mass and being greeted

with gas of intestinal origin, further investigation revealing the presence of a loop of intestine. Following falls from a height, swellings in the groins have been mistaken for hematocele, when hernia has been present and the result of the accident. To carefully dissect down upon a hematocele under the impression that it is a hernia is an innocent mistake; to incise at a single stroke a hernia in the belief that it is a hematocele is a most grievous error.

Before the days of aseptic and antiseptic surgery it was the rule in performing herniotomy to endeavor to relieve the obstacle to reduction without opening the sac, on account of the dangers which the peritoneal section then involved. Sometimes the reduction *en masse* resulted in a failure to relieve the strangulation which still existed within the sac. Reduction by taxis likewise involves this danger, as well as the possibility of forcing the herniated mass between the abdominal walls, or of rupturing the gut at the point where the strangulation existed, fatal peritonitis resulting.

When the slight risks of a properly organized and conducted aseptic herniotomy, on the one hand, are weighed against the dangers of prolonged taxis on the other, the argument is in favor of a complete herniotomy. When the advantages of a radical cure of the hernia are added to the herniotomy of necessity, there can scarcely be two opinions regarding the greater desirability of the cutting operation.

During herniotomy the bowel has frequently been mistaken for the hernial sac, and incised. In order to clear up any doubt upon this point the surgeon may press aside the presenting surface with the blunt end of a probe or grooved director. If the bowel is presenting, the probe will easily enter the peritoneal cavity; but if it is the hernial sac the probe will be arrested by the neck of the sac at the constricting ring, or at Poupart's ligament, and cannot be made to advance farther without the employment of considerable force.

The difficulties of distinguishing the sac in umbilical hernia are very greatly increased by the fact that this structure is exceedingly thin and quite frequently firmly attached to the overlying skin.

Hysterical Atony Simulating Intestinal Obstruction.—A case of this kind occurred in my service at the Methodist Episcopal Hospital in Brooklyn. The patient, a neurotic female of forty years of age, had been the subject of increasing difficulty of obtaining movements for a year and a half. These were only finally obtained by attaching a rubber injection-tube to the house faucet, connected with one of the general city reservoirs, and turning the full force of the pressure on, which was estimated as not less than twenty pounds to the square inch. This was continued upon repeated occasions until the entire intestinal canal was forced full of water. The method finally failed altogether, and she was admitted to the hospital with the abdomen enormously distended. An abdominal section showed that no obstruction was present; the entire intestinal tube was distended to an enormous extent.

The Cure of Hernia by Subcutaneous Injection.—Heaton, Davenport, and Warren have attempted the radical cure of hernia without the necessity of an operative procedure, save that involved in the subcutaneous injection of fluid extracts of white-oak bark. For the same purpose Schwalbe has recommended the injection of alcohol. Great care, however, is necessary not to pass the point of the injecting-needle into a vein.

A glass-barreled syringe should be used. This may be partially filled with the solution to be injected, and introduced to the desired extent. The piston may be slightly withdrawn, when examination of the contents of the barrel will discover if a flow of blood has rushed into the syringe to fill the vacuum. Or the operator may pause for a full minute after introducing the needle, to see if there is a marked flow of blood alongside the syringe-point indicating that a vein has been wounded, before making the injection.

Disturbances of Function Following Operations about the Lower Bowel and Anus.—These disturbances may consist in either incontinence of fæces and gas from inability to contract the sphincter, or in the presence of a stricture.

The action of the sphincter may be entirely lost from multiple incisions across its substance in fistula operations, or from failure of the reparative process in tuberculous patients where but a single incision has been made. The process of stretching the sphincter, employed as a preliminary step in operations for the removal of hemorrhoidal tumors, may also be followed by degenerative changes and a more or less permanent weakening of the muscle. In addition to the stretching the surgeon may do still further damage by including portions of the muscular structure in the clamp or ligature, or by dissecting it away in the operation known as Whitehead's, or some of its modifications.

Stricture of the rectum may result from a too free application of the cautery in the clamp and cautery operation for the removal of hemorrhoids. In both this and the ligature operation the surgeon should be careful to leave well-defined areas of mucous membrane between the portions subjected to cauterization or included in the ligature. In the Whitehead operation, in which the attempt is made to excise the entire so-called pile-bearing area of the rectum, failure of union if the operation is not properly performed, as well as too great an encroachment upon the cutaneous surface of the anus, will result in stricture of the rectum.

Ventral Hernia.—Large wounds of the abdominal wall, whether operative or otherwise, are very liable to become subsequently the seat of a ventral hernia, and reflect upon the care and skill of the surgeon. In the prevention of this distressing condition it is necessary to obtain primary union of all of the divided structures, the different layers being united either by buried sutures, or some form of suture that will accomplish the same result and still be capable of removal.* When the latter is employed it should be allowed to remain *in situ* for at least three weeks. Whatever method is used the patient should not leave the recumbent position for four weeks at the earliest, some form of external bandage to support the weakened abdominal wall should be worn, and the patient cautioned not to engage in any violent exercise for several months.

THE GENITO-URINARY ORGANS.

In no one of the regions of the body occur so many surgical mishaps or complications, and unfortunate sequelæ to injuries and operations, as in the genito-urinary system of the male. Almost any accidental

* See article on the "crossed suture," by the writer, in the *Annals of Surgery*, vol. xv., p. 351.

injury or operative procedure is accompanied by accidents, both avoidable and unavoidable, and the careful practitioner who has much to do with the surgery of these parts must necessarily be constantly watchful, lest his patient's life and his own reputation are lost at one and the same time.

Catheterization.—The failure to thoroughly disinfect a catheter before using it is a most inexcusable error, and can only be committed by an ignorant or criminally careless surgeon. The contention of the great French surgeon Civiale, remarkable from the fact that it was made long before the introduction of antiseptics, that no person ever suffered from catarrhal cystitis in whose bladder a foreign body had not been introduced, should be well considered in this connection.

The making of a false passage by the unskillful or forcible use of a metal catheter or sound, in the presence of strictures or enlarged prostate, is one of the most common as well as most culpable mistakes in surgery. Even when the prostate has been safely reached an attempt to bore through the enlarged middle lobe is sometimes made, and profuse hemorrhage, and eventually abscess, is the result.

The young and inexperienced surgeon will sometimes fail in a case of retention to empty the bladder because the instrument employed was blocked up by a dried blood-clot or some débris resulting from its last previous use. Doubt then arises in the mind of the operator as to, first, whether or not the instrument is in the bladder at all, and secondly, whether the bladder contains any urine. To guard against the possibility of such mistakes the catheter should be thoroughly cleansed and cleared, and the suprapubic region percussed prior to the attempted catheterization. In paralytic cases the urine will sometimes refuse to flow, and in atony of the bladder walls from prolonged distention the same effect will be observed. Under these circumstances the doubt as to whether or not the catheter has been properly passed will be cleared up by making pressure with the hand over the region of the bladder.

Warnings against the use of cheap rubber catheters cannot be too often repeated. Again and again calculi have been removed from the bladder having as nuclei pieces of a broken-off catheter. Even a whole soft rubber catheter has been found in the bladder, which had slipped in when the patient had fallen asleep after having passed the catheter in the early hours of the morning and retired again. Subsequent search failed to discover the whereabouts of the instrument until symptoms of the presence of a calculus explained the mystery.

In speaking of forced catheterization and the production of false passages, it was not intended to convey the impression that in competent hands it is possible to reach the bladder in all cases, and without accident. It is true that if the skillful surgeon were to persist he would do as much harm as the novice. The former, however, will generally perceive when an unjustifiable degree of force is being employed, and desist, having at his command other means for accomplishing the desired object. The ignorant and careless practitioner, however, believing that he must enter the bladder with the catheter whether or no, proceeds to plow his way through with a metal instrument, regardless of consequences.

Other Methods of Emptying the Bladder.—When the difficulties in the way of emptying the bladder, in a case of retention of urine, are such as demand of the prudent surgeon the substitution of other means than

those having for their object the reaching of the urinary viscus by the natural channel, the question of the choice of other methods of emptying the bladder will arise.

Without doubt the first choice at this period will be the method of aspiration. It should be borne in mind in this connection that relief of the over-distended viscus by aspiration will frequently permit of the subsequent emptying of the latter by means of a catheter through the natural channel. The operation may be done above the pubes without injury to the peritoneum, and may be repeated two or three times in twenty-four hours, thus giving the patient relief until catheterization is possible or other measures are devised for his permanent relief.

The preference for aspiration over suprapubic puncture by a large trocar and cannula is based upon the fact that, with the latter, urinary infiltration of the abdominal walls may occur and lead to serious phlegmonous inflammation of these structures. Incision above the pubes may be done if the external wound be made sufficiently large to permit of ready escape of the urine; but this is an operation rarely performed for retention.

Permanent Catheterization.—The permanent retention of a catheter when once the bladder has been reached through the natural route also has its dangers. A metal instrument will rarely be tolerated for more than a few hours, and a soft rubber catheter cannot, as a rule, be employed in difficult catheterization. Whatever instrument is used, the concentrated character of the urine in these cases produces rapid incrustation from the deposit of the salts, and these, becoming displaced, form nuclei for vesical calculi.

Circumcision.—Both hemorrhage and sepsis follow this operation. In the ritual operation the mohl or rabbi not infrequently removes a slice of the glans also. In later life the scar resulting from this accident may be mistaken for that which has followed a chancre, the patient being wrongfully accused because of its presence. In the ritual operation the internal or mucous-membrane surface of the prepuce is torn instead of being incised, and the rent thus made may extend beyond the corona glandis upon the dorsum of the penis. In France the presence of a surgeon is required by law at all ritual circumcisions.

Failure to keep the prepuce well retracted after the operation may lead to the formation of a cicatricial ring of the mucocutaneous tissues about the glans beyond the corona glandis and necessitate a second operation. This mishap may also result from the removal of an insufficient portion of the prepuce.

Inexperienced operators sometimes become alarmed at the swelling along the suture-line, and make the attempt to remove still more of the prepuce after two or three days. The result of these attempts is usually such as to leave the parts in a much worse condition than before.

Hydrocele.—In the operation of tapping a hydrocele the most common accident consists of an injury to the testicle. Hematocele, orchitis, or even abscess, may result. Another accident is the slipping of the cannula from the sac of the tunica vaginalis, thus allowing the contents of the latter to flow into the cellular tissue, where it may cause a phlegmon or even terminate in gangrene of the entire scrotum.

The first-named accidents arise from a failure on the part of the operator to bear in mind that the testicle lies behind and upward, where,

under ordinary circumstances, with proper care it may almost always be avoided.

It has happened more than once that the practitioner who is little accustomed to operating and to the care of instruments cleanses the trocar after an operation and puts it away, overlooking the cannula. When next it is needed the trocar alone is plunged into the hydrocele. Again, it may happen that he neglects to ascertain if the trocar can be withdrawn from the cannula. After the puncture he essays to do so, but finds it so thoroughly fastened by corrosion or rust to the cannula that they cannot be separated.

Abscess of the Testicle.—Prolapse of the seminiferous tubules is an accident occurring in the course of an abscess of the testicle. An ugly, grayish-looking mass is seen projecting from the abscess cavity, which the inexperienced practitioner may mistake for an ordinary slough, and attempt to remove it with the dressing-forceps; removing thus meter after meter of the tubules until several or even all of the lobuli testes are evacuated, the effect being the same as castration. Cauterization of the prolapsed mass and crowding it by means of the dressings as much as possible into the lobule from which it projects, is the proper treatment.

Castration.—Separate ligation of the vessels of the cord, although apparently a typical procedure, is less to be relied upon than ligation *en masse*. Even with the latter method, unless the operator is careful to divide the structures of the cord for at least three fourths of an inch away from the point of ligation, the action of the cremaster may so retract the vessels as to cause troublesome hemorrhage. The vas deferens need not be included in the ligation. In malignant disease of the testicle and cord this extends along the seminal duct proper, and recurrence takes place sooner or later, as a rule. Avulsion of the vas deferens should be done in order to guard as much as possible against this result, the vas being twisted and withdrawn at the same time. In this manner the entire vas deferens, from the point where it joins the ejaculatory duct of the corresponding vesicula seminalis at the base of the prostate to the internal abdominal ring, may be removed.

Operations for Vesical Calculus.—All of the operations for the relief of stone in the bladder are liable to some mishap or accident. While the operation of suprapubic lithotomy possesses some advantages, particularly in the removal of large stones which cannot be crushed, yet there is always great risk of urinary infiltration if the wound is closed at once. If it is left open there is less risk of infiltration, although immunity from this cannot be assured in any case; yet the length of time required for healing is such as to severely tax the reparative powers of the aged and feeble, in whom, unfortunately, this operation is called for more frequently than in the young and vigorous. In addition to this the dangers attending the use of the rectal balloon of Petersen, which is used to facilitate the elevation of the bladder, are to be noted. In my own experience the use of the Petersen rubber balloon resulted in a rupture of the anterior wall of the rectum, although but eight ounces of fluid were used to distend it. (*Annals of Surgery*, vol. xii., 1890, p. 129.) Two other cases are reported (Cadge, *Proc. Royal Med. and Chir. Soc.*, London, 1886, p. 97; Nicaise, quoted by Keyes in *Annual of Universal Medical Sciences*, 1888, Section C, p. 27.) Median perineal lithotomy, on the other hand, admits of the removal of moderate-sized calculi only, and

hence its application in the treatment of calculous disease is limited. The combination of perineal section and lithotripsy (perineal lithotripsy: Nussbaum of Munich, Dolbeau of Paris) offers some advantages, but is limited in its application. Lateral lithotomy, while it admits of the removal of a rather larger stone than the median operation, has been accused of causing sterility because of injury to the seminal vesicles or to the ejaculatory ducts. Again, the rectum is more apt to be injured in lateral lithotomy, particularly if tenesmus and prolapse of the bowel have been prominent features in the history of the case. Urethro-rectal fistula results.

In lithotomy in a number of sittings, as practiced previous to the introduction of Bigelow's method of lithotomy at a single sitting and complete evacuation of the fragments through a large urethral tube (litholapaxy), it sometimes happened that pointed fragments remained in the bladder to torment the patient in the intervals between the *séances*. In addition to this the surgeon could never be sure that all of the small fragments had been passed, and patients have frequently returned with from four to eight stones, small fragments which had been left having served as nuclei of new stones.

Although these mishaps are prevented to a great extent by the method of litholapaxy, together with the use of Bigelow's large evacuating-tubes and force-pump apparatus for removing all fragments from the bladder, yet there is one accident which may occur in inexperienced hands in both lithotripsy and litholapaxy. This is the catching of a fold of the mucous membrane lining the bladder between the blades of the crushing instrument, and consequent injury to this structure. In order to avoid this the surgeon should never forget, after having seized the calculus, to rotate the instrument in order to ascertain whether or not it moves freely in the bladder.

A stone may be previously detected and its presence verified by the surgeon's colleagues, and yet not be discoverable at the time of the operation. This is due to the fact that the stone is small and falls into a recess of the bladder, the walls of the latter closing over it. In order to avoid this awkward predicament it is advisable for the surgeon to make sure that the stone is within reach just prior to the administration of the anæsthetic at the time of operation.

Extravasation of Urine.—This accident may follow the giving way of the urethra at a point behind an old stricture, from long-continued pressure and the changes which the mucous membrane undergoes in consequence; or it may result from injuries to the canal, occurring from the injudicious use of metal instruments in attempts at forced catheterization, and also from lacerated and contused wounds of the perineum from without. Crush injuries of the pelvis, with fracture of the bones of the latter, may also be complicated with rupture of the urethra and urinary extravasation. Fracture of the corpora cavernosa during erection, either from a sudden bending of the penis by the grasp of the hand or violent coitus, likewise gives rise to this condition.

Failure to recognize the occurrence of extravasation is a grave error, and is likely to result in most serious consequences. In case the solution of continuity is behind the bulb this will lead to infiltration of the scrotum, from which locality the extravasation will be directed between the spine of the pubes and the symphysis, finally reaching the abdo-

men. In the penile urethra the rupture will be followed by a swelling of the penis, which reaches its maximum in the neighborhood of the point of escape. At the membranous urethra the extravasated urine is confined between the layers of the triangular ligament, from which it subsequently escapes by processes of sloughing and suppuration. At the prostatic urethra, i.e., behind the posterior layer of the triangular ligament, the extravasation may find its way to the anal region in the perineum by following the course of the rectum; or the thin pelvic fascia may give way at its thinnest point near the puboprostatic ligament, thus permitting the extravasation to spread through the subperitoneal connective tissue.

In whatever direction the urine finds its way, its presence in the tissues gives rise, unless speedy measures of relief by free multiple incisions and thorough disinfection of the infected parts are instituted, to rapid sloughing of the connective tissue, gangrene, general sepsis, and death.

APPENDIX.*

EXTRACTS FROM THE LAWS OF THE DIFFERENT STATES AND TERRITORIES OF THE UNITED STATES WHICH RELATE TO THE GENERAL CARE OF THE INSANE.

The following pages relate more particularly to the duties and responsibilities of physicians and officers of the law in reference to committing insane persons to institutions for care and treatment, their general management while under treatment, and their discharge from institutions.

As the laws of the States differ very considerably in reference to the form of proceeding necessary to be followed in these several respects, it is thought desirable that from the great body of statutes relating to the management of the insane such extracts as relate to the duties of physicians should be compiled and made easy for reference. It is believed that the following arrangement will prove to be of service, especially to general practitioners.

ACTS OF ALABAMA, 1886-87.

Regulating the Admission and Discharge of Patients in the Alabama Insane Hospital.

SECTION 1.—Be it enacted by the General Assembly of Alabama that the word “insane,” where it occurs in the act incorporating the Alabama Insane Hospital, shall be construed to mean any person who, by reason of an unsound mind, resulting from disease of brain, is incapable of managing and caring for his own estate without danger to himself or others if permitted to go at large, or is in such condition of mind or body as to be a fit subject for care and treatment in the hospital for the insane; *provided*, that no person idiot or imbecile from birth, or whose mental development was arrested by disease or physical injury prior to the age of puberty, or any person who is afflicted with simple epilepsy, shall be regarded as insane, unless the manifestation of abnormal disability, violence, homicidal or suicidal impulses are such as to render his confinement in the hospital a proper protection to prevent him from injuring himself or others.

SEC. 2.—Be it further enacted that authority to discharge patients from the hospital is vested in the trustees, and may be delegated by them to the superintendent under such regulations as they may see proper to adopt. . . .

SEC. 3.—Be it further enacted that the superintendent of the hospital has authority to furlough, for a period not exceeding six months, such of the harmless and convalescent patients as in his opinion may be benefited by the change. . . . Proviso to effect that expenses of furlough be borne by the parties.

SEC. 4.—Be it further enacted that persons confined as insane shall be entitled to the benefit of a writ of habeas corpus. . . .

* This concise epitome of the laws relative to the insane has been made and published by Dr. H. P. Stearns, and is used with his kind permission.

REVISED CODE OF ALABAMA, 1886-87.

SEC. 1237.—*Order of Admission.*

In order of admission the indigent insane must have precedence of the rich, and recent cases of both classes must have precedence over those of long standing. The paying patients from other States may be received into the hospital should vacancies occur unclaimed by natives or residents of Alabama.

SEC. 1241.—*Investigation of Insanity and Admission to Hospital of Indigent Persons.*

When a person in indigent circumstances becomes insane, application can be made by his friends or any other person, in his behalf, to the judge of the Probate Court in the county where he resides, and such judge must without delay make application to the superintendent of the hospital for his admission. . . . When informed that the applicant can be received the judge must call one respectable physician and other trustworthy witnesses and fully investigate the facts in the case, and either with or without the verdict of a jury, at his discretion, must decide the case as to insanity and indigence; and if the judge believe that satisfactory evidence has been adduced showing the patient to be insane, and his estate insufficient to support him and his family (or himself alone, if he has no family) under the visitation of insanity, he must, upon the judge's certificate, be consigned within thirty days to the hospital, at the expense of the county, and be supported there at the expense of the State; and the superintendent shall be required to keep the vacancy for a period of thirty days after the date of notice that patient can be received. The judge in all such cases shall have the requisite power to compel the attendance of witnesses and jurors, and must file the certificate of the physician and other papers relating to the case, with a report of the proceedings and decision.

SEC. 1249.— . . . No patient must be received or discharged without suitable clothing, and if it cannot otherwise be obtained the steward must furnish it and charge the same to the county from which he was sent. The patient must also be furnished by the steward, if it is not otherwise to be had, with money sufficient, not to exceed twenty dollars, to pay his expenses until he reaches home; and the cost of clothing and money advanced must have precedence over other claims, and be repaid promptly, by the commissioners of the county from which the patient comes, into the county treasury.

REVISED STATUTES OF ARIZONA, 1887.

Insane Persons.

PARAGRAPH 2156, SECTION 1.—The probate judge of any county in this Territory, upon the application under oath setting forth that a person by reason of insanity is dangerous, being at large, shall cause such a person to be brought before him for examination, and shall cause to be summoned to appear at such examination two or more witnesses acquainted with the accused at the time of alleged insanity, who shall be examined on oath as to the conversation, manners, and general conduct of the accused upon which such charge of insanity is based; and shall also cause to appear before him one or more graduates of medicine, and known to be reputable practitioners thereof, who shall be present at such examination and personally examine accused, and shall set forth in written statement to be made by one of them, first, his or their judgment as to the insanity of the person charged; second, whether it be dangerous to the accused, to the person or property; third, whether such insanity is in his or their opinion likely to prove permanent or only temporary; and upon such a hearing and statement as to the aforesaid, if the proofs shall satisfy the judge before whom such hearing is had that such party is insane, and that by reason of his or her insanity he or she be in danger, if at liberty, of injuring himself or herself, or the person or property of others, he shall, by an order entered by record in a book kept for that purpose, direct the confinement of such person in the Territorial Insane Asylum, who shall be confined therein and not discharged until sufficiently restored to reason.

PAR. 2157, SEC. 2.—The principal supervisors of each county shall cause such

person to be conveyed to the Territorial Insane Asylum, and shall present for the safe confinement and care of such person suitable place in such asylum, and shall draw their warrants in payment of proper costs and charges therefor upon the county treasury; and the county treasury shall pay such warrants out of the general fund, as other warrants are paid from such fund; *provided*, that such insane person shall have no money or property from which said cost and charges may be paid, according to the provision of this act.

ACTS OF ARKANSAS, 1889.

SEC. 1.—*Female Attendant to be Provided.*

That all females who have been adjudged insane by proper authorities shall be accompanied from the county-seat, so adjudged, to the insane asylum by at least one female as an attendant or protector, and the said female attendant shall receive the same compensation as is now paid to male attendants for the same service.

ACT II.

SEC. 1.—*Privileges of Inmates in Correspondence.*

That from and after the passage of this act each and every inmate of each and every insane asylum, either public or private, in the State of Arkansas, shall be allowed to choose one individual from the outside world to whom he or she may write when and whatever he or she desires, and over these letters to this individual there shall be no censorship exercised or allowed by any of the asylum officials or employees, but their post-office rights, so far as this one individual is concerned, shall be as free and unrestrained as are those of any other resident or citizen of the United States, and shall be under the protection of the same postal laws; and each and every inmate shall have the right to make a choice of the individual party every three months, if he or she so desire to do. And it is here made the duty of the superintendent to furnish each and every inmate of every insane asylum, either public or private, in the State of Arkansas, with suitable material for writing, inclosing, sealing, stamping, and mailing letters, sufficient at least for writing of one letter per week, provided they request the same, unless they are otherwise furnished with such material, and all such letters shall be dropped by the writers thereof, accompanied by an attendant when necessary, into a post-office provided by Congress at the insane asylum and kept in some place of easy access to all patients; the attendant is required in all cases to see that this letter is directed to the patient's correspondent, and if it is not so directed it must be held subject to the superintendent's disposal; and the contents of these boxes must be collected once every week by an authorized person from the Post-office Department, and by him placed in the hands of the United States mail for delivery.

SEC. 2.—*Duties of Superintendent.*

That it is hereby made the duty of the superintendent to keep registered and posted, in some public place at the insane asylum, a true copy of the names of every individual chosen, and by whom chosen, and it is hereby made the duty of the superintendent to inform each individual of the name of the party choosing him or her, and he is to request him or her to write his or her own name on the outside of the envelope of every letter he or she writes to this individual; and all these letters bearing the individual writer's name on the outside he is required to deliver, without opening or reading the same, or allowing it to be opened or read, unless there is reason for believing the letter contains some foreign substance which might be used for medication, in which case the letter shall be required to be opened in the presence of a competent witness, and this substance shall be delivered as directed.

SEC. 3.—*Violation of the Act by Persons Connected with Asylums a Misdemeanor.*

That any person refusing or neglecting to comply with, or willfully and knowingly violating, any of these provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as the Civic Code of the State of Arkansas describes for misdemeanor, and by ineligibility to any office in the asylum afterward.

SEC. 4.—*Copy of this Act to be Posted in Wards of the Asylum.*

That a printed copy of this act shall be kept posted in every ward in every asylum, both public and private, in the State of Arkansas.

DIGEST OF THE STATUTES OF ARKANSAS, 1884.

SEC. 3811.—*Lunatic Previously Mad may be Confined.*

If any person who has been previously mad, or so far disordered in his mind as to endanger his own person or the person or property of others, shall again become insane, it shall be the duty of his guardian or person under whose care he may be, and who is bound to provide for his support, to confine him in some suitable place until the next term of the Probate Court for his county, which shall make such order for the restraint, support, and safe-keeping of such person as the circumstances of the case shall require.

SEC. 3812.—*Judge or Justice may Order Confinement.*

If any such person of unsound mind as in the last section specified shall not be confined by those having charge of him, or if there be no person having such charge, any judge of a court of record, or any two justices, may employ any person to confine him in some suitable place until the court shall make further order thereon, as in the preceding section specified.

SEC. 3814.—*Insane Persons Found at Large.*

Insane persons found at large and not in the care of some discreet person shall be arrested by any peace officer and taken before a magistrate of the county, city, or town in which the arrest is made.

CODES AND STATUTES OF CALIFORNIA, 1886.

Examination and Committal of Insane Persons.

SEC. 2210.—*Examined before Whom.*

Whenever it appears by affidavit to the satisfaction of the magistrate of the county that any person within the county is so far disordered in his mind as to endanger health, person, or property, he must issue and deliver to some officer, for service, a warrant directing that such person be arrested and taken before any judge of court of record within the county for examination.

SEC. 2211.—*Two Witnesses.*

When the person is taken before the judge he must issue subpoenas to two or more witnesses best acquainted with such insane person, to appear and testify before him at such examination.

SEC. 2212.—*Two Physicians.*

The judge will also issue subpoenas for at least two graduates of medicine to appear and attend such examination.

SEC. 2214.—*Duty of Physician.*

The physician must hear such testimony, and must make a personal examination of the alleged insane person.

SEC. 2215.—*Certificate of Physicians.*

The physicians, after hearing the testimony and making examination, must, if they believe such person to be dangerously insane, make a certificate showing as near as possible:

First, That such person is so far disordered in his mind as to endanger health, person, or property.

Second, The premonitory symptoms, apparent cause, the class of insanity, the duration and condition of disease.

Third, The nativity, age, residence, occupation, and previous habits of the person.

Fourth, The place from whence the person came, and the length of his residence in this State.

SEC. 2217.—*Duty of the Judge and Clerk on Commitment of Insane.*

The judge, after such examination and certificate made, if he believes the person so far disordered in his mind as to endanger health, person, or property, must make an order that he be confined in the insane asylum. A copy of such order shall be filed with a record by the clerk of the county. The clerk shall also keep in convenient form an index-book showing name, age, and sex of person so ordered to be confined in the insane asylum, with the date of the order and the name of the insane asylum in which the person is ordered to be confined. No fees shall be charged by the clerk for performing any duties provided for by this section.

SEC. 2222.—*Fees of Physicians.*

The physicians attending such examination of an insane person are allowed five dollars, which are to be paid by the treasurer of the county where the examination was had, on the order of the supervisors.

CODE OF COLORADO, 1883.

2281—SEC. 28.—(2) *Arrest of Various Lunatics—Inquest—Verdict—Commitment—Custody.*

Whenever any reputable person shall file with the county court a complaint, duly verified, alleging that any person is so insane or distracted in mind as to endanger his own person or property, or the person or property of any other or others, if allowed to go at large, the county court, or judge thereof, shall forthwith issue an order in the name of the people direct to any sheriff or constable of the county, for the apprehension of such alleged insane person; which order may be executed by any sheriff or constable of said county, or by any person especially appointed by said court to execute the same; *provided*, that when any sheriff or constable shall find within his county any such insane person at large, it shall be his duty to apprehend such insane person without an order of the court. And when any alleged insane person shall be arrested by or without an order of the court, he or she shall be taken forthwith before the county court, or judge thereof, and if the alleged insane person so elect, an inquest, as provided for in section 1, shall be held without delay; and until the determination of such inquest such alleged insane person shall be confined in the county jail or other convenient place. If upon such inquest it shall be found in the verdict of the jury that such alleged insane person is so insane or distracted in mind as to endanger his or her own personal property, or the person or property of any other or others, if allowed to go at large, it shall be the duty of the court to commit such insane person to the county jail or other convenient place, to be there confined until discharged on inquest or otherwise disposed of according to law. . . .

2237—SEC. 34.—*Definition of the Term "Lunatic."*

The term "lunatic," as used in this chapter, shall be construed to include idiots, insane and distracted persons, and every person who, by reason of intemperance or any disorder, or unsoundness of mind, shall be incapable of managing and caring for his own estate.

SEC. 2241.—*Superintendent and Commissioners to Report Annually.*

The superintendent of the Board of Commissioners shall make a report to the governor on or before the first day of December in each and every year, showing the condition of the asylum financially, number, age, sex, occupation, and residence, treatment and state of reform of persons admitted, from the date of opening of the asylum or from the date of the last report, together with such other facts as their experience and observation may approve and may deem in the interest of the public; the governor shall cause such reports to be published, and he shall present them to the next general assembly. . . .

ACTS OF CONNECTICUT, 1889.

CHAPTER 162, SECTION 1.—In this act the words and expressions following shall have the several meanings hereby assigned to them, unless there is something in the subject or context repugnant to such construction. That is to say, “asylum” means any public or private hospital, retreat, institution, house, or place in which any insane person is received or detained as a patient for compensation, but shall not include any State-prison, county jail, or poorhouse, nor any public reformatory or penal institution of this State. “Insane person” means and shall include every idiot, non compos, lunatic, insane, and distracted person. “Patient” means any person detained and taken care of as an insane person. The words “keeper of an asylum” mean any person, body of persons, or corporation who have the immediate superintendence, charge, management, and control of an asylum and the patients therein. Words importing the masculine gender may be applied to females.

SEC. 2.—Any judge of a Probate Court, within his probate district, shall have power to commit any insane person residing in said district to an asylum in this State, in the manner hereinafter provided.

SEC. 3.—Except when otherwise specially provided by law, no person shall be committed or admitted to an asylum without an order signed by a judge of probate, as hereinafter provided.

SEC. 4.—Whenever any person in this State shall be insane, or shall be supposed to be insane, any person may make complaint in writing to any judge of probate within whose district the person complained of shall reside, alleging that such person is insane and is a fit subject to be confined in an asylum; and when any insane person who ought to be confined shall go at large in any town, any person may, and the selectmen thereof shall, make a like complaint to the judge of probate within whose district such town is included. After receiving said complaint, the judge to whom it is made shall forthwith appoint a time, not later than ten days after receipt of said complaint, and a place within said district, for a hearing upon said complaint, and shall cause reasonable notice thereof to be given to said complainant, to the person complained of, and to such relative or relatives of said person, or to any person interested in said person, as said judge shall deem proper, and may adjourn said hearing from time to time for cause. Said judge may issue a warrant for the apprehension and bringing before him of said person complained of, and shall see and examine said person, if in his judgment the condition or conduct of such person renders it necessary and proper so to do, or state in his final order why it was not deemed necessary or advisable so to do.

SEC. 5.—In addition to such oral testimony as may be given before such judge, at said hearing, there shall be filed with such judge a certificate signed by two physicians, each of whom is a graduate of some legally organized medical institution and has practiced three years in this State, and neither of whom is connected with any asylum nor related to the person complained of by blood or marriage. Each must have personally examined said person alleged to be insane, within five days of signing said certificate, and each shall certify that, in his opinion, said person is insane and a proper subject for treatment in an asylum; and a copy of said certificate, attested by said judge, shall be attached to the final order of said judge and delivered with said order to the keeper of the asylum to which said insane person shall be committed.

SEC. 6.—If, on said hearing, the judge shall find that the said person is insane, and a fit subject for treatment in an asylum, or that he ought to be confined, he shall make an order in writing, stating that he so finds, and commanding some proper officer, or any fit person, to convey said insane person to the asylum named in said order, unless some person shall undertake, before said judge, and shall give bond to the State conditioned to confine such person in some suitable place of detention, not an asylum, in such manner as said judge shall order. . . .

SEC. 16.—All insane persons confined in any asylum in this State shall be entitled to the benefits of the writ of habeas corpus, and the question of insanity shall be determined by the court or judge issuing such writ, and if the court or judge before whom such case is brought shall decide that the person is insane, such decision shall be no bar to the issuing of said writ a second time, if it shall be claimed that said person has been restored to reason. Said writ may be applied for by said insane person, or on his behalf by any relative or friend, or person interested in his welfare.

SEC. 17.—The provisions of this act shall not extend to nor affect in any way the cases of persons convicted of or charged with crime, as provided for in the following

sections of the General Statutes—to wit, sections 1600, 1601, 1602, 1603, 3385, 3386, 3615, 3617, 3618, 3619, 3620, and 3621; nor shall they be construed as repealing sections 487, 3683, and 3684 of said General Statutes.

SEC. 18.—The keeper of any asylum in this State may receive and detain therein, as a patient, any person who is desirous of submitting himself to treatment and makes written application therefor, but whose mental condition is not such as to render it legal to grant an order of commitment as an insane person in his case, under the provisions of this act. No such patient shall be detained for more than three days after having given notice in writing of his intention or desire to leave said asylum.

SEC. 19.—An attorney at law regularly retained by, or on behalf of, any patient in an asylum, or any medical practitioner designated by such patient, or by any member of his family, or by some relative or friend of such patient, shall be admitted to visit such patient at all reasonable hours, if in the opinion of the keeper of said asylum such visit would not be injurious to said patient, or if a judge of the Superior Court first orders in writing that such visit be allowed.

SEC. 20.—All persons detained as insane shall at all times be furnished with materials for communicating with any suitable person without the asylum, and such communications shall be stamped and mailed daily. Should the patient desire it, all rational communications shall be written at his dictation and duly mailed to any relative or person named by the patient.

SEC. 22.—All asylums in this State shall be subject to the inspection and visitation of the State Board of Charities, and shall be so visited and inspected at least once in six months in each year.

SEC. 23.—Every person who willfully conspires with any other person unlawfully to commit to an asylum any person who is not insane, and any person who shall willfully and falsely certify to the insanity of any person in any certificate made and filed as provided for in this act, and any person who shall willfully and falsely report to any court or judge that any person is insane, shall be punished by a fine not exceeding one thousand dollars, or by imprisonment in the State-prison not exceeding five years, or both.

SEC. 24.—Every keeper of an asylum who shall willfully violate any of the provisions of sections 3, 18, 19, and 20 of this act shall be deemed guilty of a misdemeanor, and may be punished by a fine not exceeding two hundred dollars, or by imprisonment in a common jail not exceeding one year, or both, at the discretion of the court.

SEC. 25.—All acts or parts of acts inconsistent herewith are hereby repealed.

LAWS OF DAKOTA TERRITORY, 1887.

SEC. 2179.—*Appointment of Commissioners of Insanity.*

In each organized county of this Territory there shall be a board of commissioners, consisting of three persons, to be styled Commissioners of Insanity, two of whom shall constitute a quorum. . . .

SEC. 2182.—*Duties of the Commissioners and their Power.*

The said commissioners shall have cognizance of all applications for admission to the hospital, or for the safe-keeping otherwise of insane persons within their respective counties, except in cases otherwise specially provided for. For the purpose of discharging the duties required of them they shall have the power to issue subpoenas and compel obedience thereto, to demonstrate this and any act of the court necessary and proper in the premises.

SEC. 2183.—*Application for Admission to the Hospital.*

Application for admission to the hospital must be made in writing, in the nature of an information, verified by affidavit. Such information must allege that the person on whose behalf application is made is believed by the informant to be insane, and a fit subject for custody and treatment in the hospital; if such person is found in the county and has a legal settlement therein, if such is known to be the fact; and if such settlement is not in the county, where it is, if known, or where it is believed to be, if the informant is advised on the subject.

SEC. 2184.—*Investigation by Commissioners as to the Alleged Insanity—Physician's Certificate.*

On the filing of the information as above provided the commissioners shall at once take steps to investigate the grounds of the information. For this purpose they may require that the person for whom such admission is sought be brought before them, and that the examination be had in his or her presence, and they may issue their warrant therefor and provide for the suitable custody of such person until their investigation shall be concluded. . . . Any citizen of the county, or any friend of the person alleged to be insane, may appear and resist the application, and the parties may appear by counsel if they elect. The commissioners, whether they decide to dispense with the presence before them of such person or not, shall appoint some regular practicing physician of the county to visit or see such person and make personal examination touching the truth of the allegations in the information touching the actual condition of such person, and forthwith report to them thereon. Such physician may or may not be of their own number, and the physician so acting shall certify, under his hand, that he has, in pursuance of his appointment, made careful personal examination as required, and after such examination he found the person in question insane, if such be the fact, and, if otherwise, not insane; and in connection with this examination the said physician shall endeavor to obtain from the relatives of the person in question, or through other friends who know the facts, correct answers, as far as may be, to the interrogatories hereinafter required to be propounded in such cases, and such interrogations and answers shall be attached to this certificate.

SEC. 2185.—*How Patients should be Sent to the Hospital.*

On the return of the physician's certificate the commissioners shall, as soon as practicable, conclude their investigations, and having done so they shall find whether the person alleged to be insane is insane; whether, if insane, a fit subject for treatment and custody in the hospital; whether the alleged settlement of such person is in their county; if not in their county, where it is, if ascertained. If they find such person is not insane they shall order his or her discharge, if in custody. If they find such person insane and a fit subject for treatment and custody in the hospital, they shall forthwith issue their warrant and a duplicate thereof, stating such a finding, with the settlement of the person, if found, and, if not found, their information, if any, in regard thereto, authorizing the superintendent of the hospital to receive and keep such person therein. Such warrant and duplicate, with the finding and certificate of the physician, shall be delivered to the sheriff of the county, who shall execute the same by conveying such person to the hospital and delivering him or her, with the duplicate of the physician's certificate and finding, to the superintendent thereof. The superintendent, over his official signature, shall acknowledge such delivery on the original warrant, which the sheriff shall return to the clerk of the commissioners, with his cost and expenses indorsed thereon. . . .

SEC. 2190.—*Penalty for Cruelty to the Insane.*

Any person having care of any insane person and restraining such person, either with or without authority, who shall treat such person with wanton severity or harshness, or shall in any way abuse such person, shall be guilty of a misdemeanor, besides being liable to an action for damages.

SEC. 2199.—*Postal Privileges of Inmates.*

Henceforth each and every inmate of each and every insane asylum, both public and private, in the Territory of Dakota, shall be allowed to choose one individual from the outside world to whom he may write when or whatever he desires, and over these letters to this individual there shall be no censorship exercised or allowed by any asylum official or employee, but their post-office rights, so far as this one individual is concerned, shall be as free and unrestricted as are those of any other resident and citizen of the Territory of Dakota, and shall be under the protection of the same postal laws; and each and every inmate shall have the right to make a new choice of this individual party every three months if he so desires to do. And it is hereby made the duty of the superintendent to furnish each and every inmate of the insane asylum in this Territory, either public or private, with suitable material for

writing, inclosing, sealing, stamping, and mailing letters, sufficient at least for the writing of one letter a week, providing they request the same, unless they are otherwise furnished with such material, and all such letters shall be dropped by the writers thereof, accompanied by the attendant when necessary, into a post-office box provided at the insane asylum and kept in some place easy of access to all patients; the attendant is required in all cases to see that this letter is directed to the patient's correspondent, and if it is not so directed it must be held subject to the disposal of the superintendent; and the contents of this box shall be collected once every week by an authorized person of the Post-office Department, and by him placed in the hands of the United States mail for delivery.

LAWS OF DELAWARE, 1887.

TITLE 60, CHAPTER 92, SECTION 1.—*Proceedings in the Case of Indigent Lunatics.*

Be it enacted (etc.) that whenever the relatives or friends of an indigent lunatic or insane person, a citizen of this State, shall apply to the chancellor of this State, either personally or by petition, together with the certificate of two practicing physicians of the county wherein such lunatic or insane person shall reside, one of whom shall be the regular physician of the almshouse of said county, setting forth the facts of said lunacy or insanity, the cause or causes, if known, and the necessity, in their opinion, of a better and more efficient mode of medical treatment in such case than can be afforded in the almshouse wherein such lunatic or insane person may reside, the chancellor shall, if satisfied with the proofs offered of such lunacy or insanity, refer such applications to the trustees of the poor of said county for information as to indigency of said person for whom application is made, or any other matter; whereupon, if said reports be satisfactory, the chancellor shall recommend to the governor that such indigent lunatic or insane person be removed to the Insane Department of the New Castle County Almshouse; *provided*, that not more than ten indigent lunatic or insane persons from each of the counties of Kent and Sussex shall be in said asylum at the same time; and *provided further*, that this shall not prevent the trustees of the poor of either county of Sussex or Kent from placing any indigent lunatic or insane person that may be placed in their keeping in the said Insane Department of the New Castle County Almshouse for whom no application may be made, and who, in their opinion, may require special treatment.

SEC. 3.—*When Indigent Lunatics may be Returned.*

That whenever the principal physician of the Insane Department of the New Castle County Almshouse shall represent to the trustees of the poor of the county from which said indigent lunatic or insane person may have been entered that any such person has been cured by the treatment prescribed, or they are so far benefited and improved in condition as to render his or her further residence in said Insane Department unnecessary, or that the said person is, after full and sufficient opportunity, incurable, then he or she shall, upon the written request of said Insane Department, if cured or relieved as aforesaid, be discharged from said institution; or if incurable as aforesaid, be returned to the almshouse for cure and confinement.

LAWS OF DELAWARE, 1889.

CHAPTER 553, SECTION 9.—In all cases of application for the commitment of an insane person to the hospital the evidence and certificate of at least two respectable physicians, based upon due inquiry and personal examination of the person to whom insanity is imputed, shall be required to establish the fact of insanity, and a certified copy of the physician's certificate shall accompany the person to be committed, together with the written order of the trustees or chancellor, as provided in section 6 of this act.

DIGEST, LAWS OF FLORIDA, 1881.

CHAPTER 147.—*Lunatics.*

SEC. 3.—*Duty of the Circuit Judge.*

Whenever it shall be suggested, by petition or otherwise, to any judge of the Circuit Court of this State that there is any lunatic or insane person within the limits of the judicial circuit of said judge incapable of managing his or her own affairs, or of

taking care of himself or herself, it shall be the duty of said judge to issue a writ to the sheriff of the county wherein such lunatic or insane person is alleged to be, directing him to bring such person before him for the purpose of inquiring into the alleged lunacy or insanity.

SEC. 4.—If it is found upon investigation that such person is a lunatic or insane, the judge shall pass such order or decree as is usually necessary in such cases.

SEC. 6.—*Order for Lunatic to be Taken to the Asylum—Order for Private Care of Lunatic.*

If it shall appear that said lunatic or insane person is destitute, then the judge shall draw an order that the sheriff shall transport such lunatic or insane person to the Asylum for the Indigent Lunatics of the State of Florida, and there deliver the lunatic or insane person to the officer having charge of same, for the purpose of his care, custody, and treatment; *provided*, however, that the judge may, in his discretion, direct the said lunatic or insane person to be delivered to any other person for his care, custody, and maintenance, in which event the said insane person shall be so delivered, and it shall be the duty of the person to whom such delivery is made to provide for his care, custody, and maintenance. . . .

SEC. 12.—*Care of Lunatics for Pay.*

It shall be lawful for the physician in charge of the Asylum for Indigent Lunatics of the State of Florida, when directed by the Board of Commissioners of State Institutions, to receive into said asylum any lunatic, idiot, or insane person whose friends, parents, or guardians are able and willing to pay for the care and custody and maintenance of said lunatic, idiot, or insane person.

SEC. 13.—*Attention, etc.*

Such lunatic, idiot, or insane person shall receive all care, food, clothing, and medical attention as he or she may demand and require, from the physician and other employees of the asylum.

SEC. 17.—*Powers.*

The physician of the asylum shall have sole supervision of and immediate superintendence of the Asylum for Indigent Lunatics of the State, subject to the direction of the Board of Commissioners of State Institutions.

SEC. 19.—*Physician.*

The physician of the State-prison shall also be the physician for such asylum, and shall exercise such powers, in the matter of care of the inmates of such asylum, as may be prescribed by said Board of Commissioners.

ACTS OF FLORIDA, 1887.

CHAPTER 3706, SECTION 1.—*Physicians of Asylum to Keep Record of Patients, etc.*

That it shall be the duty of the physician in charge of the insane asylum of this State to thoroughly investigate the history of patients, and upon careful diagnosis of same make a record thereof in a book of sufficient magnitude, which book shall be termed the "Physician's Book of Record"; and such record shall contain the name of each person who may thus come under his treatment, the name of the disease to be treated and the date of beginning treatment, and each day's prescriptions while under treatment; which record shall be open for future reference by his successor, the cabinet officers, legislative committees, and all others interested.

ACTS OF 1883.

CHAPTER 3444, SECTION 1.—*Fee and Mileage.*

That hereafter any practicing physician who shall be called in by the circuit judge to testify on an investigation as to lunacy or insanity of an indigent person who shall be alleged to be a lunatic or insane shall be paid the sum of five dollars and ten cents

per mile by the State, out of appropriations for the maintenance of indigent lunatics and insane persons; the same shall be audited by the comptroller on the approval of the circuit judge, and paid by the treasurer on the comptroller's warrant.

CODE OF STATE OF GEORGIA, 1882.

SEC. 331 (5).—The State asylum is intended for the care of lunatics, idiots, epileptics, or demented inebriates. Inmates are divided into four classes: (1) Pay or pauper patients, residents of the State. (2) Pay-patients who are non-residents. (3) Insane penitentiary convicts. (4) Insane negroes, in certain cases. Citizens of Georgia have a preference over non-residents.

Resident pay-patients are admitted upon authentic evidence of lunacy according to law, or by a certificate of three respectable physicians and two respectable citizens. . . .

LAWS OF 1889,

Providing for the Appointment of Guardian or Commitment to Lunatic Asylum.

SEC. 1.—*To have Guardian Appointed or Subject Committed to Lunatic Asylum.*

Upon the petition of a person on oath, setting forth that another is liable to have a guardian appointed under the provision of this act (or is subject to be committed to the lunatic asylum of this State), the ordinary, upon the proof, if ten days' notice of such application has been given to the three nearest adult relatives of such person, or if there is no such relative within this State, shall issue a commission direct to any eighteen discreet and proper persons, one of whom shall be a physician, requiring any twelve of them, including the physician, to examine by inspection the person for whom guardianship (or commitment to asylum) is sought, and to hear and examine witnesses on oath, to make return of such examination and inquiry to said ordinary, specifying in such return under which such classes they found said person to come; such commission shall be sworn by any of the officers of this State authorized by the laws of this State to administer an oath, "well" and truly to execute said commission, to the best of their skill and "ability," which oath shall be returned with their verdict.

STATUTES OF IDAHO, 1887.

SEC. 750.—The Idaho Insane Asylum, located at Blackfoot, is under the management and control of a Board of Directors, consisting of three persons. . . .

SEC. 756.—The medical superintendent must be a graduate of medicine, and must have practiced in his profession five years after date of his diploma.

SEC. 757.—*Must Reside at and Give his Entire Time to the Asylum.*

He must reside at the asylum and give his entire time and attention to promote the best interests of the patients. His duties not specified in this chapter must be prescribed by the Board of Directors' by-laws.

SEC. 758.—*General Powers.*

He is the chief executive officer of the asylum, with powers and duties as follows:

To control the patients, prescribe the treatment, and prescribe and enforce the sundry regulations of the asylum.

SEC. 764.—*Discharge.*

Any person received in the asylum must, upon recovery, be discharged therefrom.

SEC. 767.—*Not Eligible for Admission.*

No person laboring under any contagious or infectious disease must be admitted into the asylum as a patient.

SEC. 769.—*Examination before Whom.*

When it appears by affidavit, to the satisfaction of a magistrate of a county, that any person within the county is so far disordered as to endanger health, person, or

property, he must issue and deliver to some peace officer, for service, a warrant directing that such person be arrested and taken before any judge of a court of record within the county for examination.

SEC. 771.—*One Physician.*

The judge may also issue subpoenas for at least one graduate of medicine to appear and attend such examination.

SEC. 773.—*Duty of Physician.*

The physician must hear such testimony and must make a personal examination of the alleged insane person.

SEC. 774.—*Certificate of Physician.*

The physician, after hearing the testimony and making the examination, must, if he believes the person to be dangerously insane, make a certificate in his own handwriting, showing, as near as possible:

(1) That such person is so far disordered in his mind as to endanger health, person, and property.

(2) The premonitory symptoms, apparent cause or class of insanity, and the condition of the disease.

(3) The nativity, age, residence, occupation, and previous habits of the person.

(4) The place from whence the person came and the length of his residence in this Territory.

SEC. 776.—*Order of the Judge.*

The judge, after such examination and certificate made, if he believes the person so far disordered in his mind as to endanger health, person, and property, must make an order that he shall be confined in the insane asylum.

SEC. 778.—*Money Found on Insane Persons must be Delivered to the Asylum.*

Any money found on the person of an insane person at the time of the arrest must be certified to by the judge, and sent with such person to the asylum, there to be delivered to the medical superintendent, who must deliver the same to the Territorial treasurer. If the sum exceed one hundred dollars the excess must be applied to the payment of expenses of such person while in the asylum, and delivered to the person when discharged, or applied to the payment of funeral expenses if the person dies at the asylum.

SEC. 781.—*Fee of Physician.*

The physician attending each examination of an insane person is allowed five dollars, to be paid by the county treasurer of the county where the examination was had, on the order of the Board of County Commissioners.

STATUTES OF ILLINOIS, 1881.

CHAPTER 85, page 950.—*Lunatics.*

SEC. 1.—*Petition.*

That when a person is supposed to be insane or distracted, any near relative, or, in case there be none, any respectable person residing in the county, may petition the judge of the County Court for proceedings to inquire into the alleged insanity or distraction. For the hearing of such applications and proceedings thereof the County Court shall be considered as always open.

SEC. 2.—*Writ Service.*

Upon the filing of such petition the judge shall order the clerk of the court to issue a writ, directed to the sheriff or any constable, or the person having custody of the alleged insane or distracted person, unless he shall be brought before the court without such writ, requiring the alleged insane or distracted person to be brought before him at a time and place to be appointed for the hearing of the matter. It shall be the

duty of the officer or person to whom the writ is directed to execute and return the same and bring the alleged insane person before the court as directed in the writ.

SEC. 4.—*Jury Trial.*

At the time fixed for the trial a jury of six persons, one of whom shall be a physician, shall be impaneled to try the case. The case shall be tried in the presence of the person alleged to be insane, who shall have the right to be assisted by counsel, and may challenge the jurors as in civil cases; the court may for good cause continue the case from time to time.

SEC. 5.—*Verdict.*

After hearing the evidence the jury shall render their verdict in writing, signed by them, which shall embody the substantial views shown by the evidence.

SEC. 6.—*Verdict Recorded—Order of Committal—Application.*

Upon the return of the verdict the same shall be recorded at large by the clerk, and if it appears that the person is insane, and is a fit person to be sent to the State Hospital for the Insane, the court shall enter an order that the insane person be committed to the State Hospital for the Insane; and thereupon it shall be the duty of the clerk of the court to make application to the superintendent of some of the State hospitals for the insane for the admission of such person.

SEC. 8.—*Warrant to Commit.*

Upon receiving notice at what time the patient will be received, the clerk shall, in due season for the conveyance of the person to the hospital by the appointed time, issue a warrant directed to the sheriff or any other suitable person, preferring some relative of the insane person when desired, commanding him to arrest such person and convey him to the hospital; and if the clerk is satisfied that it is necessary, he may authorize an assistant to be employed.

SEC. 18.—*Discharge of Patients—Notice—Removal.*

Whenever the trustees shall order any patients discharged the superintendent shall at once notify the clerk of the County Court of the proper county thereof (if the patient is a pauper [and if not, shall notify all the persons who signed the bonds required in section 15 of this act], and request the removal of the patient). If such patient be not removed within thirty days after such notice is received, then the superintendent may return him to the place from whence he came, and the reasonable expense thereof may be recovered by suit on the bond, or, in case of the pauper, shall be paid by the profit paid to the county.

SEC. 20.—*Restoration to Reason—Discharge.*

When any patient shall be restored to reason he shall have the right to leave the hospital at any time, and if detained therein contrary to his wishes after such restoration, shall have the privilege and right of habeas corpus at all times, either on his application or that of any other person in his behalf. If the patient is discharged on such writ, and if it shall appear that the superintendent has acted in bad faith or negligently, the superintendent shall pay all the costs of the proceedings. Such superintendent shall, moreover, be liable to civil action for false imprisonment.

SEC. 22.—*Trial by Jury Necessary.*

No superintendent or other officer, or person connected with either of the State hospitals for the insane, or with any other hospital or asylum for the insane or distracted persons in this State, shall receive, detain, or keep in custody at such hospital or asylum any person who shall not have been declared insane by the verdict of a jury, and authorized to be confined by the order of a court of competent jurisdiction; and no trial shall be had, questioning the sanity or insanity of any person before any judge or court, without the person being present alleged to be insane.

ACTS OF INDIANA, 1881.

SEC. 2835.—*Duties of the Trustees.*

The trustees shall be intrusted with the general control and management of the hospital. . . .

SEC. 2837.—*Proceedings.*

The trustees shall keep a full account of their proceedings in a book to be provided for that purpose. The officers of the institution shall make reports to the trustees as they may from time to time require. The superintendent and treasurer shall severally make full reports to be submitted at their annual meetings.

SEC. 2840.—*Powers and Duties.*

The superintendent shall be the chief executive officer of the hospital, and shall have the care and control of everything connected therewith. He shall see that the several officers of the institution faithfully and diligently discharge their respective duties. He shall employ such attendants, nurses, servants, and other persons he may think proper, and assign them to their duties, and may at pleasure discharge them. He shall receive from the proper persons the patients entitled to admission in the hospital, and when cured discharge them. In all cases, however, he shall be subject to the control of the trustees.

SEC. 2841.—*Reports.*

The superintendent shall make reports to the trustees as required by section 2837.

SEC. 2842.—*Admission of Patients.*

All insane persons residing in the State of Indiana, and having legal settlement in any county therein, shall be entitled to be maintained and receive medical treatment in the Indiana Hospital for the Insane at the expense of the State. . . .

SEC. 2844.—*Examination.*

The justice of the peace with whom said statements shall have been filed, together with another justice of the peace and a respectable practicing physician other than the medical attendant of the person alleged to be insane, who shall be elected by the aforesaid justice of the peace, and who shall reside in the proper county, shall immediately thereupon visit and examine the person alleged to be insane, in relation to his mental condition.

SEC. 2847.—*Medical Certificate.*

They shall require the medical attendant to make, on oath, a written statement of the medical history and treatment given to the case.

SEC. 2852.—*Superintendent's Duties.*

Upon receiving said application and transcribed statements and certificates, the superintendent of the hospital for the insane shall immediately, upon the information therein contained, determine whether the case is recent and presumably curable, or chronic and less curable, or idiotic and incurable. If the case be recent and curable, the superintendent shall at once notify the proper clerk of the acceptance of the application for admission. If the case be chronic, whether curable or incurable, an acceptance shall issue as above, provided that there be room in the hospital for more patients than are at present resident therein, together with those recently accepted but not admitted; otherwise the application shall be rejected. In the selection of chronic cases for admission, each county shall be entitled to a just proportion, according to its population, and priority of application shall have recognition.

SEC. 2862.—*Recurrence of Insanity.*

Any person who has ever been adjudged insane according to law, within the State of Indiana, and has been formally discharged from any hospital or asylum for

the insane within the State, shall not again be admitted to any such hospital or asylum, "except upon the affidavit of a respectable practicing physician of the county where the patient resides, that he knows the patient, that he has been adjudged insane, that he has been in a hospital, that he is insane and a proper subject for treatment." He must state the reasons of his opinion.

SEC. 2863.—*Discharge.*

Any patient may be discharged from the hospital by the superintendent upon restoration to health; and incurable and harmless patients shall be discharged whenever it is necessary to make room for recent cases. All dangerous patients shall be retained in the hospital.

CODE OF IOWA, 1889.

SEC. 1395.—In each county there shall be a board of three Commissioners of Insanity; the clerk of the Circuit Court shall be a member of such board and clerk of the same; the other members shall be appointed by the judge of said court. One of them shall be a respectable practicing physician, and the other a respectable practicing lawyer. . . .

SEC. 1399.—Application for admission to the hospital must be made in the form of information, verified by affidavit, alleging that the person in whose behalf the application is made is believed by the informant to be insane and a fit subject for custody and treatment in the hospital; that such person is found in the county and has a legal settlement therein, if such is known to be the fact; and if such settlement is not in the county, where it is, if known, or where it is believed to be, if the informant has advice on the subject.

SEC. 1400.—On the filing of such information the commissioners may examine the informant under oath, and if satisfied there is reasonable cause therefor shall investigate the ground thereof, and for this purpose they may require that the person for whom admission is sought be brought before them and that the examination be had in his presence; and they may issue their warrant therefor, and provide for the suitable custody of such person until their investigation shall be concluded. Such warrant may be executed by the sheriff or any constable of the county; or if they shall be of the opinion from such preliminary inquiries as they may make—and in making which they shall take the testimony of the informant, if they deem it necessary or desirable, and of other witnesses, if offered—that such course would probably be injurious to such person, or attended with no advantage, they may dispense with such person. In their examination they shall hear testimony for and against such application, if any is offered. Any citizen of the county, or any relative of the person alleged to be insane, may appear and resist the application, and the parties may appear by counsel if they elect. The commissioners, whether they dispense with the presence before them of such person or not, shall appoint some regularly practicing physician of the county to visit such person and make a personal examination touching the truth of the information and the mental condition of such person, and forthwith report to them thereon. Such physician may or may not be one of their own number; and the physician so appointed and acting shall certify, under his hand, that he has in pursuance of his appointment made a careful personal examination as required, and that on such examination he finds the person in question insane, if such is the fact; and, if otherwise, not insane; and in connection with his examination the said physician shall endeavor to obtain from the relatives of the person in question, or from others who know the facts, correct answers, as far as may be, to the interrogatories hereinafter required to be propounded in such cases; such interrogatories and answers to be attached to his certificate.

SEC. 1401.—On return of the physician's certificate the commissioners shall, as soon as practicable, conclude their investigation, and shall find whether the person alleged to be insane is insane; whether, if insane, a fit subject for treatment and custody in the hospital; whether the alleged settlement of such person is in their county, and, if not in their county, where it is, if ascertained. If they find that such person is not insane they shall order his immediate discharge, if in custody. If they find such person insane and a fit subject for custody and treatment in the hospital (they shall order said person to be committed to the hospital, unless said person so found to be insane [or some one in his or her behalf] shall appeal from the finding of the said commissioners) they shall forthwith issue their warrant and a duplicate thereof,

stating such finding, with the settlement of the person, if found; and, if not found, their information, if any, in regard thereto, authorizing the superintendent of the hospital to receive and keep such person as a patient therein: such warrant and duplicate, with the certificate and finding of the physician, shall be delivered to the sheriff of the county, who shall execute the same by conveying such person to the hospital, and delivering him, with such duplicate and physician's certificate and finding, to the superintendent thereof. . . .

SEC. 1424.—Any patient who is cured shall be immediately discharged by the superintendent. Upon such discharge the superintendent shall furnish the patient, unless otherwise supplied, with suitable clothing and a sum of money not exceeding twenty dollars, which shall be charged with the other expenses in the hospital of such patient. The relatives of any patient not susceptible of cure by remedial treatment in the hospital, and not dangerous to be at large, shall have the right to take charge of or remove such patient on consent of the Board of Trustees. In the intermediate meetings of the board the consent of two trustees shall be sufficient.

GENERAL STATUTES OF KANSAS, 1889.

SEC. 260 (6186).—*Government.*

The government of insane asylums of the State shall be vested in the Board of Trustees of the institutions for . . . insane.

SEC. 261 (6187).—*Application.*

The Board of Trustees shall designate the superintendent of one of the insane asylums, to whom all applications for the admission of insane persons shall be made, and who, under such rules as may be made by the Board of Trustees, shall designate to which asylum each applicant shall be admitted. . . .

SEC. 263 (6189).—*Medical and Executive Officer.*

The superintendent shall be the executive officer of the asylum and shall have control of all the affairs of the asylum, subject to the direction of the Board of Trustees. . . . He shall make to the Board of Trustees at least semi-annual reports showing the movements of the population and the operations of the asylum during the period embraced therein; and at the close of the biennial period he shall report in detail the conditions of the asylum and all of its concerns.

SEC. 266 (6192).—*Abstract of Correspondence.*

A full abstract of all correspondence relating to the admission of patients, their treatment, and all other matters of an official nature and the replies thereto, shall be kept by the superintendent. He shall also cause to be kept a complete record of each case and the treatment thereof, and prescription-book, with the date when it was appointed and administered, and such other records as may be necessary to give the board and the public a full knowledge of all prescriptions and business of the medical department.

STATE OF KENTUCKY, STATUTES, 1881.

CHAPTER 73, SECTION 4.—*Officers of the Asylum.*

There shall be for each asylum a medical superintendent, who shall be a skillful physician, and a steward; and for the Eastern Kentucky Asylum a first and a second assistant physician; and for the Central Kentucky Asylum one assistant physician. These officers shall reside in the asylum. . . .

SEC. 5.—*Duties of Medical Superintendent.*

A medical superintendent shall have general management, supervision, and control of patients and the asylum, subject to the regulations of the Board of Commissioners, and shall devote his entire time thereto. He shall keep a register of all

patients, showing their names, ages, residences, dates of reception and discharge or death, by whose authority received, and whether they are pay-patients or paupers.

The superintendent shall appoint all such other inferior officers and employees (not otherwise provided for in this act) as he may deem necessary for the proper management of the institution; and he may remove any of them at pleasure and fill their places with others.

SEC. 9.—*Presence of the Person Necessary.*

No inquest shall be held unless the person charged to be of unsound mind is in the court and personally in the presence of a jury. The personal presence of the person charged shall not be dispensed with unless it shall appear by the oath or affidavit of two physicians that they made personal examination of the individual charged to be of unsound mind, and that they verily believe him to be an idiot or lunatic, as the case may be, and that his condition is such that it may be unsafe to bring him into court.

SEC. 14.—*Discharge of Patients.*

No private patient who has not been found to be insane by regular inquest shall be received into either of the State asylums. Nor shall any patient be discharged as cured, or delivered to the custody of friends, whose friends have placed him in the asylum, but by permit of the superintendent and commissioners. Any cured patient who was committed to the asylum while in custody of the law upon a criminal charge shall be delivered to the keeper of the penitentiary or to the jailer of the county, as the case may require.

A cured pauper before being discharged shall have a good suit of clothes and be furnished with money enough to pay his traveling expenses back home, not exceeding twenty dollars.

SEC. 20.—*Report of Superintendent and Board.*

The superintendent and the Board of Commissioners shall, on or before the 1st of November of each year, make a report to the governor of the condition of the asylum in their charge, . . . number and names of patients (distinguishing pauper from pay patients and certifying the place from which they came), the number received and discharged each year, with such other facts and suggestions they may deem important, which report the governor shall communicate to the legislature at its next regular session.

STATUTES OF LOUISIANA, 1876.

SEC. 1768.—*Lunatics—How Admitted.*

Whenever it shall be known to the judge of a district or parish court, by the petition on oath of any individual, that any lunatic or insane person within his district ought to be sent or confined in the insane asylum of this State, it shall be the duty of said district or parish judge to issue a warrant to bring before him said lunatic or insane person, and after inquiry into all the facts and circumstances of the case, if in his opinion he ought to be sent or confined in said asylum, he shall make out his warrant to the sheriff of the parish, commanding him to convey the lunatic or insane person to the insane asylum. . . .

SEC. 1776.—*Examination by Physician.*

The physician of the asylum shall professionally examine the lunatic or insane person sent to the asylum by the authority of the district or parish judge, and if in his opinion said person is only feigning insane, being a person charged with felonious crime, he shall report to the board, who shall investigate the facts, and if in the judgment of the majority said person shall not be admitted as an inmate of the asylum, the president of said board shall cause said person feigning insanity, and who had been previously committed to prison for a crime, to be confined in the parish jail, and shall immediately inform the president of the police of the parish, or a proper authority in the parish of Orleans, where the rejected person has his domicile, of the fact and the reason of his rejection; and the provisions of this section shall also apply to such persons charged with a crime who afterward recover and become sane in said asylum.

ACTS OF LOUISIANA, 1888.

SEC. 1.—*Postal Rights of Inmates.*

Be it enacted by the General Assembly of Louisiana, that henceforth each and every inmate of each and every insane asylum, both public and private, in the State of Louisiana, shall be allowed to choose one individual to whom he or she may write when and whatever he or she desires, and over these letters to this individual there shall be no censorship exercised or allowed by any of the asylum officials or employees, but their post-office privileges shall, so far as this one individual is concerned, be as free and unrestricted as are those of any other resident or citizen of the State of Louisiana, and shall be under the protection of the same postal laws; and each and every inmate shall have the right to make a new choice of this individual every three months if he or she so desires. And it is here made the duty of the superintendent to furnish each and every inmate of every insane asylum in this State, either public or private, with suitable material for writing, inclosing, sealing, stamping, and mailing letters, sufficient at least for the writing of one letter a week, provided they request the same, unless they are otherwise furnished with such material; and all such letters shall be dropped by the writer thereof, accompanied by an attendant when necessary, into a post-office box of the State at the insane asylum and kept in some place easy of access to all patients. . . .

STATUTES OF MAINE, 1883.

SEC. 1.—*Government of the Asylum.*

The government of the Maine Insane Hospital is vested in a committee of six trustees, one of whom shall be a woman. . . .

SEC. 4.—*The Trustees may Examine and Discharge Patients.*

There shall be a thorough examination of the hospital monthly by two of the trustees, quarterly by three, and annually by a majority of the full board; and at any other time when they deem it necessary or the superintendent requests it. At each visit a written account of the state of the institution shall be drawn up by the visitors, recorded, and presented at the annual meeting of the trustees, at which meeting they, with the superintendent, shall make a particular examination of the condition of each patient, and discharge any one so far restored that his comfort and safety and that of the public no longer require his confinement. . . .

SEC. 7.—*Duties and Powers of the Superintendent.*

The superintendent shall be the physician, reside constantly at the hospital, have general superintendence of the hospital and grounds, receive all patients legally sent to the hospital, unless the number exceeds its accommodation, and have charge of them, and control of all persons therein, subject to the regulations of the Board of Trustees; and annually on the last day of November report to the trustees the condition and prospects of the institution, with such remarks and suggestions relative to its management and the general subject, of interest, as he thinks will promote the cause of science and humanity.

SEC. 29.—*Rules should be Kept Posted.*

The superintendent shall keep posted, in conspicuous places about said hospital, printed cards containing the rules prescribed for the government of the attendants in charge of patients.

SEC. 34.—*Certificate of Physicians.*

In the case of preliminary proceedings for the commitment of an insane person to the hospital, the evidence and certificate of at least two respectable physicians, based upon due inquiry and personal examination of the person to whom insanity is imputed, shall be required to establish the fact of insanity, and a certified copy of the physicians' certificate shall accompany the person to be committed.

SEC. 36.—*Postal Rights of the Inmates.*

The names of the Committee of Examiners and the post-office address of each shall be kept posted in every ward of the hospital, and every inmate shall be allowed to write when and whatever he pleases to them, or either of them, unless otherwise ordered by a majority of the committee in writing, which order shall continue in force until countermanded in writing by said committee. For this purpose every patient not otherwise ordered as aforesaid shall be furnished by the superintendent, on request, with suitable materials for writing, inclosing, and sealing letters. The superintendent shall provide, at the expense of the State, securely locked letter-boxes, easily accessible to all inmates, to be placed in the hospital, into which such letters can be dropped by the writer. No officer, attendant, or employee of the hospital shall have the means of reaching the contents of these boxes, but the letters in them shall be collected weekly by some member of the committee, or by such person as the committee authorizes for the purpose, who shall prepay such only as are addressed to some of the committee, and deposit them in the post-office without delay.

LAWS OF MARYLAND, 1888.

SEC. 1.—When any person is alleged to be a lunatic or insane, the Circuit Court of the county in which such person may reside, or a criminal court of Baltimore (if such person reside in the city of Baltimore), shall cause a jury of twelve good and lawful men to be impaneled forthwith, and shall charge the said jury to inquire whether such person is insane or lunatic; and if found so it shall be the duty of the court to cause such person to be sent to the almshouse of the county, or to a hospital, or to some other place better situated, in the judgment of the court, for his condition, there to be confined at the expense of the county or State until he shall recover and be discharged in due course of law. . . .

SEC. 26.—The superintendent or other officer or keeper of any institution, public, corporate, or private, or almshouse, where the insane may be kept, shall be required to keep a record of all patients in such form as the commissioners shall direct; also a record in which shall be entered the incidents and accidents that may occur; also the number and kinds of restraints used, with details of them, to be reported to the commissioners.

SEC. 30.—The Board of Managers or superintendent of any institution, public, corporate, or private, or almshouse, which may be duly authorized to hold in custody any insane person in accordance with the law, may appoint one or more attendants or other employees of such places, as policeman or policemen, whose duty it shall be, under the orders of said superintendent or manager or keeper, to arrest and return to such asylum, or other institution for the treatment of the insane, or insane persons who may escape therefrom.

SEC. 31.—No person shall be put or confined as a patient in any institution, public, corporate, or private, or almshouse, or other house for the care and custody of the insane or idiotic, except upon the rendering of a certificate of two qualified physicians, made within one week after the examination by them of said alleged lunatic, and setting forth the insanity or idiocy of such person, and the reason for such opinion. . . .

SEC. 33.—The superintendent or other officer of any asylum or other institution where the insane are kept in custody or received for treatment, whether public, corporate, or private, or almshouse, shall within ten days after the reception of such patient or person make, or cause to be made, a description of such case in a book kept exclusively for the purpose; they shall also make entries from time to time of the mental condition of such patient or person so confined.

SEC. 35.—Every person confined in such place as hereinbefore mentioned shall be furnished at all times with paper, envelopes, stamps, pen and ink, or pencil; shall at all times have access for correspondence with the Lunacy Commission, and some one other person whom such lunatic may designate every month, under seal, which communication shall be forwarded by the officer, superintendent, or keeper who may be in charge of such person or place. . . .

ACTS OF MASSACHUSETTS, 1882.

CHAPTER 87, SECTION 11.—*Judges may Commit Insane Persons to the State Hospital.*

A judge of the Supreme Judicial Court or Superior Court of any county, or a judge of a probate court, or of a police or district or municipal court within this

county, may commit to either of the State lunatic asylums any insane person, when residing or being in said county, who in his opinion is a proper subject for its treatment or custody.

SEC. 12.—*No Person to be Committed to any Hospital without Order of the Judge.*

Except when otherwise specially provided, no person shall be committed to the lunatic hospital or other receptacle for the insane, public or private, without the order or certificate therefor signed by one of the judges named in the preceding section, said person residing or being within the county as herein provided. Such order or certificate shall state that the judge finds the person committed is insane and is a fit person for the treatment of the insane asylum. The said judge shall see and examine the person alleged to be insane, or state in his final order why he did not deem it necessary or advisable to do so. . . .

SEC. 13.—*Certificate of two Physicians.*

No person shall be committed unless, in addition to the formal testimony, there has been filed with the judge a certificate signed by two physicians, each one of whom is a graduate of some legally organized medical college and has practiced three years in the State, and neither of whom is connected with any hospital or other establishment for treatment of the insane. Each must have personally examined the person alleged to be insane within five days of signing the certificate, and each shall certify that in his opinion said person is insane and a proper subject for treatment in the insane hospital, and shall specify the facts on which his opinion is formed. A copy of the certificate, attested by the judge, shall be delivered by the officer or other person making the commitment to the superintendent of the hospital or other place of commitment, and shall be filed and kept with the order.

SEC. 15.—*Statement regarding Insane Person to be Filed with the Judge—Duty of the Superintendent.*

Upon every application for the commitment or admission of any insane person to a hospital or asylum for the insane there shall be filed with the application, within ten days after the commitment or admission, a statement in respect to such person, showing, as near as can be ascertained, his age, birthplace, exact condition, place, and occupation; the supposed cause and duration and character of his condition, whether mild, violent, dangerous, homicidal, suicidal, paralytic, apoplectic; the present symptoms of insanity in the person or his family; his habits in regard to temperance; whether he has been in a lunatic asylum or hospital, and, if so, what one, when, how long; and, if the patient is a woman, whether she has borne children, and, if so, what time had elapsed since the birth of the youngest; the names and addresses of his father, mother, children, brother, sister, or others next of kin, not exceeding ten in number and over eighteen years of age, when the names and addresses of such relatives are known by the person or persons making such application, together with any fact showing whether he has or has not a settlement, and, if he has a settlement, in what place; and if the applicant is unable to state any of the above particulars he shall state his inability to do so. The statement, or a copy thereof, shall be transmitted to the superintendent of the hospital or asylum, to be filed with the order or application for admission. The superintendent shall, within two days of the time of admission or commitment of the insane person, send, or cause to be sent, notice of said commitment, in writing, by mail, postage prepaid, to each of said relatives, and to any other two persons whom the person committed shall designate.

SEC. 26.—*Persons Violently Insane may be Received at the Hospital without Warrant of Commitment.*

The superintendent or keeper of a hospital, including the McLean Asylum at Somerville, may receive into his custody, and detain in such hospital or asylum for a period not exceeding five days, without an order of the judge as provided in section 2, any person as insane whose case is duly certified to be one of violent and dangerous insanity and emergency by two physicians qualified as in section 13. In addition to such certificates an application signed by one of the selectmen of the town, or by one of the aldermen of the city, in which such insane person resides or is found, shall be left with the superintendent of the hospital or asylum in which the insane person is

received, and such application shall contain the statement in respect to such insane person which is required by section 15, and a further statement that the case is one of violent and dangerous insanity.

SEC. 29.—*Notice to be Given to the Board of Health, Lunacy, and Charity.*

When the patient is received into such hospital upon his own application or under the provisions of section 26, the superintendent thereof shall give immediate notice of such reception to the State Board of Health, Lunacy, and Charity, stating all the particulars, including the legal settlement of the person so received, if known; the State board shall immediately cause such cases to be investigated and a record be made of all the facts pertaining thereto.

SEC. 35.—*Certain Privileges of Patients in Hospitals.*

An attorney regularly retained by or on behalf of any person committed to a lunatic hospital, asylum, or receptacle for the insane shall be admitted to visit such client at all reasonable times, if, in the opinion of the superintending officers of such hospital, asylum, or receptacle, such visit would not be injurious to such person, or if a judge of the Supreme Judicial Court, Superior Court, or Probate Court in any county first orders, in writing, that such visits be allowed.

SEC. 36.—*Postal Privileges of Patients.*

The patients in the lunatic hospital, asylum, or receptacle for the insane shall be allowed to write monthly to the superintendent or to the State board, and they shall be furnished by the superintendent with all materials necessary for such correspondence; and a letter-box shall be placed in each ward, in which each writer may deposit his letters, and the box shall be opened and the letters distributed monthly by the said board.

ACTS OF MASSACHUSETTS, 1883.

SEC. 1.—*Discharge of Inmates from Lunatic Asylum by Superintendent.*

The Board of Trustees of the State lunatic asylums, or of the Massachusetts General Hospital, may by vote confer on the superintendent of the hospital or asylum under their control authority to discharge therefrom any inmate thereof committed thereto as an insane person, provided due written notice of intention so to discharge shall be sent by said superintendent to the person or persons who originally sent the petition for the commitment of such inmate.

SEC. 2.—*Temporary Absence from the Hospital by the Permission of the Superintendent.*

Said superintendent may also, when he shall deem it advisable, permit any such inmate to leave the hospital or asylum temporarily, in charge of his guardian, relatives, or friends, for the period not exceeding sixty days, and receive him when returned by such guardian, relatives, or friends within such period without further order.

PUBLIC ACTS OF MICHIGAN, 1885.

SEC. 1.— . . . The asylums for the insane of the State of Michigan shall be under the control of separate boards of trustees.

SEC. 5.—*Appointment of the Superintendent, . . . Steward, and Assistant Medical Superintendent. . . .*

The Board of Trustees shall severally appoint a medical superintendent, who shall be a well-educated physician, experienced in the treatment of the insane, and a treasurer, not one of their number, who shall give bonds for the performance of his trust, in such sum and with such sureties as the director-general of the State shall approve. They shall also appoint, upon the nomination of the medical superintendent, a steward and a chaplain; and also, in a like manner, an assistant medical superintendent and necessary assistant physicians. All medical officers shall reside at the asylum. . . .

SEC. 12.—*Powers and Duties of the Medical Superintendent.*

The medical superintendent shall be the chief executive officer of the asylum. He shall have the general superintendence of the buildings, grounds, and farm, together with the furniture, fixtures, and stock; and the direction and control of all persons therein, subject to the by-laws and regulations established by the trustees. He shall daily ascertain the condition of all patients, and prescribe for their treatment in the manner directed in the by-laws. He shall have the nomination of his co-resident officers, with power to assign them to their respective duties, subject to the by-laws; also to appoint, with the approval of the trustees, such and so many other assistants and attendants as he may think necessary and proper for the economical and efficient performance of the business of the asylum, and to prescribe their several duties and places, and fix, with the approval of the trustees, their compensation, and to discharge any of them at his will and discretion; but in every case of discharge he shall forthwith record the same, with the reasons of discharge, under a proper head in one of the books of the asylum. He shall also have the power to suspend until the next meeting of the trustees, for good and sufficient cause, a resident officer; but in such case he shall forthwith give written notice of the fact, with its cause and circumstances, to one of the trustees, whose duty thereupon shall be to call a special meeting of the board to provide for the exigency. He shall also, from time to time, give such orders and instructions as he may judge best calculated to insure good conduct, fidelity, and economy in every department of labor and expense; and he is authorized and enjoined to maintain well-directed discipline among all who are employed by the institution, and to enforce direct compliance with such instructions and uniform obedience to all rules and regulations of the asylum. He is authorized and directed to use every proper means to furnish employment to such patients as may be benefited by regular labor suited to their capacity and strength. He shall further cause full and fair accounts and records of all his doings and the entire business and operations of the institution to be kept regularly from day to day, in books provided for that purpose, in the manner and to the extent prescribed in the by-laws; and he shall see that all such accounts are fully made up to the last day of September immediately preceding the meeting of the legislature, and that the principal facts and results, with his reports thereon, be at the time presented to the trustees. It shall be the duty of the medical superintendent to admit any member of the Board of Trustees in every part of the asylum, and to exhibit to him or them on demand all the books, papers, and accounts and writings belonging to the institution or pertaining to its business, management, discipline, or government; also to furnish copies of abstracts and reports whenever required by the board. The medical superintendent shall make, in a book kept for that purpose, at the time of reception, a minute with date of same, the name, residence, office, and occupation of the person, by whom and by whose authority each insane person is brought to the asylum; and shall have all the orders, warrants, requests, certificates, and other papers accompanying him forthwith filed. The assistant medical superintendent shall perform the duties and be subject to the responsibility of the medical superintendent in his sickness or absence.

LAWS OF 1889.

SEC. 21.—*Certificate of Admission of Patients— . . . Duty of Medical Superintendent to Notify Judge, etc.*

No person shall be admitted or held as a private patient in any asylum, public or private, or any institution, home, or retreat for the care or treatment of insane, except upon the certificate of two reputable physicians under oath, appointed by the judge of Probate Court where such alleged insane person resides to conduct an examination, and an order from the said judge of the Probate Court setting forth that the said person is insane, and directing his removal to an asylum or institution for the care of insane; no person shall be held in confinement in any such asylum or institution for more than fourteen days without such certificate or order.

SEC. 22.—*Qualifications of Physicians Certifying to Insanity, etc.*

It shall not be lawful for any physician to certify to the insanity of any person for the purpose of securing his admission to an asylum, unless such physician be of reputable character and graduate of some incorporated medical college, a permanent resi-

dent of the State, registered according to law, not related by blood or marriage to the alleged insane person nor to the person applying for such certificate, and shall have been in actual practice of his profession for at least three years; and such qualification shall be certified to by the clerk of the county in which such physician resides. No certificate of insanity shall be made except under the personal examination of the party alleged to be insane; and it shall not be lawful for any physician to certify to the insanity of any person for the purpose of committing him to an asylum for which the said physician is either a trustee or a superintendent, proprietor, an officer, or a regular professional attendant. . . .

SEC. 37.— . . . *Report by the Medical Superintendent of the Insane Asylum.* . . .

. . . The medical superintendents of the several insane asylums shall report quarterly to the secretary of the Board of Corrections and Charities the names and ages of all patients supported at State or county charge; . . . and shall also report to the secretary of the Board of Corrections and Charities the date and circumstances attending the discharge, removal, elopement, or death of all insane persons received, aided, or supported at county or State charge. . . .

SEC. 38.— . . . *Preference in Admission, etc., when Lack of Room for All.*

. . . In case the superintendents of the asylums find it impossible to receive all patients for whom application is made, they may, at their discretion, give preference to those for whom, in their judgment, treatment is most urgently necessary. To make room for urgent cases they are also authorized to order the removal from the asylum to his home and friends, or to the superintendent of the poor of the county whence he came, of any patient that in their judgment may safely reside outside of the institution.

SEC. 47.—*Definition of Terms "Insane" and "Insane Persons."*

The terms "insane" or "insane persons," as used in this act, include every species of insanity and extend to every derangement of persons and to all of unsound mind other than idiots. . . .

GENERAL ACTS, MINNESOTA, 1887.

CHAPTER 146, SECTION 1.—*Postal Rights of Insane Persons.*

That henceforth each and every inmate of each and every insane asylum, both public and private, in the State of Minnesota, shall be allowed to choose one individual from the outside world to whom he or she may write when and whatever he or she may desire, and over these letters to the individual there shall be no censorship exercised or allowed by any of the asylum officials or employees, but their postal rights, so far as this one individual is concerned, shall be as free and unrestricted as are those of any resident or citizen of the State of Minnesota, and shall be under the protection of the same postal laws; and each and every inmate shall have the right to make a new choice of his individual party every three months if he or she so desires to do; and all such letters shall be dropped by the writer thereof, accompanied by an attendant when necessary, into a post-office box provided by the State at the insane asylum and kept in some place easy of access to all the patients; the attendant is required, when necessary, to see that this letter is directed to the patient's correspondent, and if it is not so directed it must be held subject to the superintendent's disposal; and the contents of the box shall be collected once every week by the authorized person from the Post-office Department, and by him placed into the hands of the United States mail for delivery.

SEC. 2.—*Duties of the Superintendent of the Insane Asylum.*

That it is hereby made the duty of the superintendent to keep registered and posted in some public place at the insane asylum a copy of the names of every individual chosen as an inmate's correspondent, and by whom chosen; and it is hereby made the duty of the superintendent to inform each of the individuals named of the party choosing him or her, and he is to request him or her to write his or her own name on the outside of the envelope of every letter he or she writes to this individual inmate; and all these letters bearing the individual writer's name on the outside he is requested to deliver, or cause to be delivered, any letter or writing to him or her

directed, without opening or reading the same, or allowing it to be opened or read, unless there is reason for believing the letter contains some foreign substance which may be used for medication, in which case the letter shall be required to be opened in the presence of a competent witness, and this substance shall be delivered to the superintendent, to be used at his discretion.

SEC. 4.—*Superintendent to Provide Registers and Stationery.*

It shall be the duty of the superintendent of each hospital or asylum for insane to furnish each assistant physician with a pocket-register of correspondence, in such way as the State Department of Corrections and Charities may prescribe, and to keep on hand some envelopes, paper, and postal cards, which shall be used for each correspondent. Such registers and stationery shall be furnished on requisition of the assistant physicians, and shall be paid for from the current expense funds of such institution. . . .

Whenever any letter or postal card from any correspondent chosen under this act shall be delivered to any assistant physician by the superintendent, he shall deliver the same to the inmate to whom it is addressed, without unnecessary delay, taking the receipt of said inmate therefor.

SEC. 6.—*The Superintendent to Mail and Deliver Letters.*

. . . It shall be the duty of the superintendent, upon receipt of such letters from the assistant physician, if he shall find that the said letter is addressed to a correspondent duly chosen under this act, to place such letter, or cause it to be placed, in the United States mail without opening or reading the same. It shall be the duty of the superintendent to request the said correspondents to write their names on the outside of the letters sent by them to the inmates. The said superintendent shall deliver such letters to the assistant physician, to be given to the inmates to whom they are addressed, unless in the judgment of the said superintendent the receipt of such letters would be injurious to such inmates, in which case they shall forthwith notify such correspondents that such letters are withheld, stating the reasons therefor, and recording the fact in the register of correspondence. No letter written by a correspondent to an inmate shall be opened by any superintendent, unless he has reason to suspect that it contains such matter as ought not to be delivered to said inmate, in which case he shall record the fact that such letter has been opened, and the reasons therefor, in the register of correspondence.

SEC. 7.—*Inmates may Correspond with the Governor and the Secretary of the State Board of Corrections and Charity.*

. . . Each and every inmate of any hospital for the insane in the State shall have the privilege of communicating in writing with the governor and the secretary of the State Board of Corrections and Charities, in the same manner, under the same regulations, as with the correspondents chosen under this act.

CHAPTER 14, SECTION 267.—*Physician to Examine Alleged Insane Person.*

Upon the filing of information the court shall make an order directed to two (2) persons, one of whom at least shall be a duly qualified physician; and such persons, in connection with the judge of probate, shall constitute a jury to examine the person alleged to be insane, and they shall ascertain the fact of sanity or insanity.

SEC. 274.—*When Discharged, Probate Court to be Notified.*

When any person who has been committed to the care and custody of the superintendent of the hospital by warrant of the Probate Court shall be discharged from such hospital, the superintendent shall, upon day of such discharge, send by mail to the judge of probate of the county in which such warrant was issued a certificate signed by him, stating that the person has been discharged from such hospital, and the date of such discharge, which certificate shall be filed in the Probate Court.

CODE OF MISSISSIPPI, 1880.

SEC. 665.—The medical superintendent shall have power to appoint and remove all subordinate officers and employees allowed by the trustees, and he shall make, in a book kept for that purpose, at the time of reception, a minute with the

date of reception, with name, age, sex, residence, office or occupation of the person, and by whom and by whose authority each insane person is brought to the asylum, and have all orders, warrants, requisitions, certificates, and other papers accompanying him or her carefully filed, and have them copied in said book. . . . He shall ascertain the condition of the patients, and prescribe their treatment in the manner prescribed in the said by-laws; and he shall also be required to see that all the rules and regulations for the discipline and good government of the institution are properly obeyed and enforced.

SEC. 659.—Any person being a lunatic and resident of the State of Mississippi shall be admitted into the asylum free of charge. . . .

SEC. 660.—It shall be the duty of the superintendent to admit into the asylum all persons ordered to be placed therein after an inquest of lunacy, in the due order of registration, if there be a vacancy in such asylum, on the presentation of a duly certified copy of such order under the seal of Chancery Court, showing thereby admission of the patient to the asylum.

SEC. 661.—On application in behalf of any person being a lunatic and a resident of this State, for his or her admission into the asylum, the superintendent and Board of Trustees may, if they think he or she ought to be admitted, receive him or her as a patient therein, even though no proceedings in lunacy have been instituted as hereinafter provided for.

SEC. 663.—In case the friends or relations of any lunatic shall neglect or refuse to place him or her in said asylum, and shall permit him or her to go at large, it shall be the duty of the clerk of the Chancery Court of any county in which such lunatic may reside or be found going at large, on the suggestion, in writing, of any citizen of the county, to direct the sheriff, by writ of lunacy, to summon as soon as may be the alleged lunatic and six discreet persons of the county in which such lunatic is going at large, to make inquisition thereto on oath, and the result of such inquisition to be returned to the said court forthwith; and if the person said to be a lunatic shall be adjudged by such inquest, or a majority of them, to be insane, and one who should be confined therein, the said clerk shall order said sheriff to arrest said lunatic, and place him or her in said asylum if there be a vacancy, or, if there be no vacancy, to confine such lunatic in the county jail until room can be had in the lunatic asylum. . . .

REVISED STATUTES OF MISSOURI, 1839.

SEC. 471.—*Superintendent's Duties.*

The superintendent shall be a physician of knowledge, skill, and ability in his profession, and have experience in the management and treatment of insane; he shall not, while such superintendent, engage in the practice of his profession, but shall, to the exclusion of all other business, devote himself to the supervision and care of the asylum and its inmates. Before entering on the duties of his office he shall take an oath or affirmation that he will diligently, faithfully, and impartially discharge all the duties required of him by the law.

SEC. 473.—*Patients—How Admitted and Discharged.*

Persons afflicted with any form of insanity may be admitted into the asylum when the superintendent deems it probable that their condition can be improved by the care and treatment of the institution; and any person may be discharged by the superintendent whenever he may believe that the condition of such person cannot be improved by a longer stay in the asylum.

SEC. 478.—*Pay-patients—How Admitted.*

Pay-patients, or those not sent to the asylum by order of the court, may be admitted on such terms as shall be by this chapter, and the by-laws of the asylum, prescribed and regulated.

SEC. 479.—*Terms of Admission.*

Preparatory to the admission of such a patient the superintendent shall be furnished with a request, . . . stating his age and place of nativity, if known, his Christian and surname, place of residence, occupation, and degree of relationship, or any

circumstances of connection between him and the person requesting his admission; and a certificate . . . dated within two months, under oath, signed by two physicians, of the fact of his being insane. Such person signing such request or certificate shall annex to his name his profession or occupation, and the township, county, and State of residence, unless these appear on the face of the document. Before any probate patient shall be received into the asylum there shall be produced to the superintendent a receipt from the treasurer of the asylum, acknowledging the payment to him of at least thirty days' charge in advance, and sufficient bond to the said treasurer conditioned with the obligees to secure the payment of the charges incurred in behalf, on account, of said patient. . . .

No board constituting thirty days' payment shall be refunded if a patient making such payment shall be taken away within the period, uncured and against the consent of the superintendent.

CHAPTER 86, SECTION 5513.—*On Information—Probate Court to Inquire as to Sanity.*

If any information in writing be given to the Probate Court that any person in its county is an idiot, lunatic, or person of unsound mind, and incapable of managing his affairs, and pray that an inquiry thereinto be had, the court, if satisfied that there is good cause for the exercise of its jurisdiction, shall cause the facts to be inquired into by a jury.

SEC. 5550.—*To be Discharged—When.*

If it be found that such person has been restored to his right mind, he shall be discharged from the care and custody, and the guardian shall immediately settle his accounts and restore to his person the things remaining in his hands belonging or pertaining to him; and if it be found that such person has not been restored to his right mind, the person at whose instance the inquiry was had may, in the discretion of the court, be required to pay the cost of proceeding.

STATUTES OF MONTANA, 1887.

SEC. 1215.—*Examination of Person Alleged to be Insane.*

From and after the passage of this article it shall be the duty of the probate judge, or, in his absence or incapability to act, the chairman of the Board of County Commissioners of the several counties of this Territory, upon the application of any person under oath, setting forth that any person by reason of insanity is unsafe to be at large or is suffering under mental derangement, to cause said person to be brought before him, at such time and place as he may direct; and the said judge or commissioner shall also cause to appear, at the same time and place, a jury of three persons of his county, one of whom shall be a licensed practicing physician, who shall proceed to examine the person alleged to be insane; and if such jury after careful examination shall certify upon oath that the charged is a lunatic, and the said judge or commissioner is satisfied that such person by reason of insanity is unsafe to be at large, or is incompetent to provide for his or her own proper care and support, and has no property available for that purpose, and has no kindred in the degree of husband or wife, father or mother, children, or brother or sister, living within the Territory, of sufficient means and ability to provide for such care and maintenance, or if he or she have kindred within the Territory and such kindred fail or refuse to properly care for and maintain such insane person, such judge or county commissioner shall make out a duplicate warrant reciting such facts, and place it in the hands of the sheriff of said county, who shall immediately, in compliance therewith, have the person or persons therein named apprehended, and deliver him or her or them to the director aforesaid, at the place designated in the notification. . . .

SEC. 1227.—*Inmates may be Discharged upon Report of Physician.*

The governor shall direct and have discharged from the insane asylum any of the inmates thereof at any time when, from the written report to him by the physicians in charge of said asylum, or either of them, or from any physician who shall be appointed to visit and examine said institution, he believes such discharge should be granted; provided that the report upon which he may act shall be filed and kept in his hands.

SEC. 1230.—*Inmates of an Asylum may Choose Confidential Correspondent.*

. . . Each and every inmate of each and every asylum, both public and private, shall be allowed to choose one individual from the outside world, to whom he or she may write when and whatever he or she desires, and over these letters to this individual there shall be no censorship exercised or allowed by any one of the asylum officials or employees, but their post-office rights so far as this one individual is concerned shall be as free and unrestricted as those of any other resident or citizen of the Territory of Montana, and shall be under the protection of the same postal laws; and each and every inmate shall have the right to make a new choice of this individual party every three months if he or she desires to do so. And it is here made the duty of the superintendent to furnish each and every inmate of every insane asylum in this Territory, either public or private, with suitable material for writing, inclosing, sealing, stamping, and mailing letters, sufficient at least for the writing of one letter a week, provided they request the same, unless they are otherwise furnished with such materials; and all such letters shall be dropped by the writers thereof, accompanied by an attendant, into the post-office box provided by the department of the insane asylum and kept in some place easy of access to all the patients; the attendant is required in all cases to see that this letter is directed to the patient's correspondent, and if it is not so directed it must be held subject to the superintendent's disposal; and the contents of this box shall be collected once every week by an authorized person from the Post-office Department, and by him placed in the hands of the United States mail for delivery.

SEC. 1231.—*Lists of Correspondents to be Registered and Posted.*

That it is hereby made the duty of the superintendent to keep registered and posted in some public place at the insane asylum a true copy of the name of every individual chosen as an inmate's correspondent, and by whom chosen; and it is hereby made the duty of the superintendent to inform each of the individuals of the name of the party choosing him or her, and to request him or her to write his or her name on the outside of the envelope of every letter he or she writes to this individual inmate; and all these letters bearing individual writers' names on the outside he is requested to deliver, or cause to be delivered, any letter or writing to him or her directed, without opening or reading the same, or allowing it to be opened or read, unless there is reason for suspecting that the letter contains some foreign substance which might be used for medication, in which case the letter shall be required to be opened in the presence of competent witnesses, and this substance shall be delivered to the superintendent, to be used at his discretion.

NEBRASKA COMPILED STATUTES, 1887.

SEC. 2.—*Post-office Privileges of Inmates.*

. . . Henceforth there shall be no censorship exercised over the correspondence of the inmates of the hospital for the insane in this State, but their post-office rights shall be as free and unrestricted as are those of any resident or citizen of this State, and be under the protection of the same postal laws, and every inmate shall be allowed to write when and whatever he or she desires to any person he or she may choose. And it is hereby made the duty of the superintendent to furnish each and every inmate of each and every insane asylum in this State with suitable material, at the expense of the State, for writing, inclosing, sealing, stamping, and mailing letters, sufficient for writing at least one letter a week, provided they request the same, unless they are otherwise furnished with such material. . . .

SEC. 11.—*Duties and Power of the Superintendent.*

The superintendent of said institution shall be a physician of acknowledged skill and ability in his profession, and be a graduate of a regular medical college. He shall be the chief executive officer of the hospital, and shall hold his office for the term of six years, unless sooner removed by the governor, for malfeasance in office, or other good and sufficient cause. He or the assistant physician must be in daily

attendance at the hospital, and in no instance must they both be absent at the same time. Before entering upon the duties of his office he shall take and prescribe an oath for the faithful and diligent discharge of the duties required by law. He shall have the entire control of the medical, moral, and dietetic treatment of patients, and shall see that the several officers of the institution faithfully and diligently discharge their respective duties. He shall employ attendants, servants, nurses, and such persons as he may deem necessary for the efficient and economical administration and government of the asylum.

SEC. 21.—*Application for Admission to the Hospital.*

Application for admission to the hospital must be made in writing in the nature of information validated by affidavit; such information must allege that the person in whose behalf the application is made is believed by the informant to be insane and a fit subject for custody and treatment in the hospital; that such person is found in the county and has an alleged settlement therein, if such is known to be the fact; and, if such settlement is not in the county, where it is, if known, or where it is believed to be, if the informant is advised on the subject.

SEC. 12.—*Investigation of the Commissioners.*

On the filing of any information as above provided, the commissioners shall at once take steps to investigate the grounds of the information. For this purpose they may require that the person for whom such admission is sought be brought before them, and that the examination be had in his or her presence. . . . The commissioners, whether they decide to dispense with the presence of such person or not, shall appoint some legally practicing physician of the county to visit or see such person, and make a personal examination touching the truthfulness of the allegation in the information, and adjudge the actual condition of such person, and forthwith report to them thereon; and said physician may or may not be of their own number; and the physician so appointed and acting shall certify in his own hand that he has, in pursuance of his appointment, made a careful personal examination as required; and that on such examination he finds the person in question insane, if such is the fact; and, if otherwise, not insane; and in connection with his examination the said physician shall endeavor to obtain from the relatives of the person in question, or from others who know the facts, correct answers so far as made in the interrogatories hereinafter required to be propounded in such cases, which interrogations and answers shall be attached to the certificate.

STATUTES OF NEVADA, 1889.

CHAPTER 39, SECTION 1.—Whenever by reason of absence of the district judge of the county an insane person cannot be brought before him for examination, he may be taken before the county clerk of such county, and thereupon said county clerk shall be vested with the power to hold such examination and discharge such person or commit him to the insane asylum in the same manner as may be done by the district judge.

GENERAL STATUTES, 1885.

SEC. 1457.—*District Judge to Examine Insane Person—Physician to Attend.*

The district judge of any judicial district in this State shall, upon application under oath, setting forth that a person by reason of insanity is dangerous to be at large, cause any person to be brought before him, and he shall summon to appear, at the same time and place, two or more witnesses having had frequent intercourse with the accused during the time of alleged insanity, who shall certify under oath as to conversation, manners, and general conduct upon which said charge of insanity is based; and he shall also cause to appear before him at the same time and place two graduates in medicine, before whom the district judge shall summon a jury, and if after careful hearing of the case and a personal examination of the alleged insane person the said physicians shall certify on oath that the case is of recent or curable character, or that the said insane person is of a homicidal, suicidal, or incendiary

disposition, or if from any other violent symptoms the said insane person would be dangerous to his or her own life, or to the lives and property of the community in which he or she may live; and if said physicians shall also certify to the name, age, nativity, residence, occupation, length of time in this State, apparent cause and class of insanity, duration of disease, and present condition as nearly as can be ascertained by inquiry and examination; and if the district judge shall be satisfied that the facts in the examination establish the existence of insanity in the person of the accused, of a recent or curable nature, or of a homicidal, suicidal, or incendiary character, or from the violent symptoms the said insane person would be dangerous to his or her own life, or to the lives and property of others, to be at large, he shall direct the sheriff or some suitable person to convey to the capitol of the State and place such insane person in charge of the secretary of the State, and shall transmit duplicate copies of complaint and commitment and physicians' certificates, which shall also be in form as furnished to the judge, to the secretary of the State.

NEW HAMPSHIRE LAWS, 1889.

CHAPTER 18, SECTION 6.—*Only Pauper Insane in County Asylums—Reports of County Superintendent.*

No person other than a pauper shall be admitted into any county asylum, and the superintendent of every asylum or other place in this State where insane persons are confined shall, within three days after the commitment of any person, notify the board of such confinement upon a blank furnished for that purpose; and the said superintendent shall at all times furnish such information regarding the insane in his charge as the State board may request.

1878.—CHAPTER 10, SECTION 12.—*Persons Dangerous to be Committed to the Asylum.*

If any person is in such condition as to render it dangerous that he should be at large, the judge of probate, upon petition of any person and such notice to the selectmen of the town in which such insane person is, or to his guardian, or to any other person as he may order—which petition may be filed, notice issued, and a hearing had in vacation or otherwise—may commit such insane person to the asylum.

SEC. 18.—*Certificate of two Physicians Required to Commit.*

No person shall be committed to the asylum for the insane, except by order of court or the judge of probate, without a certificate of two respectable physicians that such person is insane, given after a personal examination made within one week of committal; and such certificate shall be accompanied by a certificate of the judge of the Supreme Court, or of the court of probate, or mayor or chairman or selectman, testifying to the truthfulness of the signatures of the signers.

SEC. 25.—*Superintendent may Furnish Stationery, Paper, and Transmit Letters to Trustees.*

It shall be the duty of the superintendent to furnish stationery to any patient who may desire it, and transmit any letter such patient may address to the Board of Trustees to such member as said board shall have designated to receive such correspondence, and all such letters shall be promptly transmitted without interception.

LAWS OF NEW JERSEY, 1889.

CHAPTER 168.—*Superintendent or Warden to Send a List of Patients Chargeable to the County.*

. . . It shall be the duty of the superintendent or warden of the respective State asylums for the insane in this State, at which patients are supported at the expense of any county of this State, to make out under oath and send to the clerk of the Board of Chosen Freeholders of each and every county supporting patients at said asylums, at least three days before the meeting of the said Board of Freeholders, at which a quarterly bill of said asylum shall be presented, a regular and quarterly statement giving the names of all patients at said asylum at the expense of the county for which

said statement is made, who have been at said asylum during the last preceding quarter, which statement shall also contain the dates of admission of the respective patients, the township from which they came, the days of discharge of any who have been discharged, the date of death of any who have died, and the dates between which they have been away on a visit or otherwise during the quarter.

TRENTON ASYLUM, 1886.

SEC. 1.—*Admission of Patients.*

. . . No person shall be admitted into the asylum as a patient except upon the order of some court or judge authorized to send patients, without lodging with the superintendent—first, a request under the hand of the person by whose direction he is sent, stating his age and place of nativity, if known, his Christian and surname, place of residence, occupation, and degree of relationship, and other circumstances of connection between him and the person requesting his admission; and second, a certificate dated within a month, under oath, signed by two respectable physicians, of the fact of his being insane. Each person signing such request or certificate shall annex to his name his profession or occupation, and the township and county and State of his residence, unless these facts appear on the face of the documents.

SEC. 7.—*Duties and Powers of Physician.*

The superintendent shall be the chief executive officer of the asylum. He shall have the general superintendence of all the buildings, grounds, and farm, with their furniture, fixtures, stock, and the direction and control of all persons therein, subject to the laws and regulations established by the managers. He shall daily ascertain the condition of the patients, and prescribe their treatment in the manner prescribed in the by-laws. He shall appoint, with the approval of the managers, so many assistants and attendants as he may think proper and necessary for the economical and efficient performance of the business of the asylum, and prescribe their several duties and places, and fix, with the managers' approval, their compensation, and discharge any of them at his sole discretion; but in every case of discharge he shall forthwith record the same, with the reasons, under the proper heading in one of the books of the asylum. He shall also have the power to suspend until the next meeting (monthly) of the managers, for good and sufficient cause, any resident officer; but in such case he shall give written notice to the effect, with its cause and circumstances, to one of the managers, whose duty thereupon shall be to call a special meeting of the board to provide for the exigency. He shall also, from time to time, give such orders and instructions as he may judge best calculated to insure good conduct, fidelity, and economy in every department of labor and expense; and he is authorized and enjoined to maintain salutary discipline among all who are employed by the institution, and to enforce strict compliance with such instructions and uniform obedience to all rules and regulations of the asylum. He shall cause a full and fair account and record of all his doings, and of the entire business and operations of the institution, to be kept regularly from day to day in a book provided for that purpose, in the manner and to the extent prescribed in the by-laws; and he shall see that all such accounts and records are fully made up to the last day of December in the year, and that the principal facts and results, with reports thereon, be presented to the managers immediately thereafter. The assistant physician shall perform his duties and be subject to the responsibilities of the superintendent in his sickness or absence.

SEC. 36.—*Discharge of Patients.*

. . . The managers, upon the superintendent's certificate of complete recovery, may discharge any patient except those under criminal charge or liable to be removed to prison; and they may send back to the poorhouse or township of the county from whence he came any person admitted as dangerous who has been two years in the asylum, upon the superintendent's certificate that he is harmless and will probably continue so, and not likely to be improved by further treatment in the asylum; or, when the asylum is full, upon the certificate that he is manifestly incurable and can probably be rendered comfortable at the poorhouse. They may also discharge and deliver any patient, except one under criminal charge as aforesaid, to his relatives or friends who will undertake, with good and approved securities, for his peaceable behavior, safe custody, and comfortable maintenance without further public charge.

SEC. 21.—*Proceedings when Lunatics are Dangerous if at Large.*

That it shall be and may be lawful for any two justices of the peace of the county in which any lunatic, furious, mad, or dangerous, if permitted to go at large, shall be found, by warrant under their hands and seals, to direct the Overseers or Overseer of the Poor of the city or township in which such lunatic or mad person may be found, to cause such person to be apprehended and kept safely locked up, and chained if necessary, in some secure place within such city or township or within the county within which said city or township shall be situated, as such justices shall by their warrant appoint, in case the legal settlement shall be in the city or township in the said county.

NEW MEXICO, 1884.

SEC. 1324.—*Judge may Issue a Commission—When.*

It shall be lawful for any district judge in this Territory to issue a commission, in term or vacation time, in the nature of a writ *de lunatico inquirendo*, to inquire into the lunacy or habitual drunkenness of any person within this Territory, or having real or personal estate therein. Such commission shall issue in the county wherein he last had his residence, or in which his property is situated, and shall be executed therein.

SEC. 1327.—*Order made to Court.*

It shall be the duty of the court, at the time of granting any application as aforesaid, to make such order respecting notice of the execution of the commission to the party with respect to whom such commission shall be issued, or to some of his near relations or friends who are not concerned in the application, as the said court shall deem advisable.

SEC. 1328.—*Jury of Inquest.*

It shall be lawful for the commissioner or commissioners to direct an order to the sheriff, requiring him to summon not less than, nor more than twelve persons upon the inquest, as the circumstances to them may seem to require.

SEC. 1329.—*Inquisition—When Held.*

If the court shall be of the opinion that the person with respect to whom proceedings are instituted has no estate, or not sufficient to justify the expense of a commission and the proceedings under it, the judge thereof, in person, shall hold said commission during the term of the court, and shall direct an inquest to be impaneled from the jurors attending said court, and which proceeding shall have like force and effect as an inquisition held by commissioners as aforesaid.

SEC. 1354.—*Jailer to Give Notice.*

If any person arrested or imprisoned as aforesaid, in any civil action, shall appear to be of unsound mind, it shall be the duty of the jailer or keeper of the prison forthwith to give notice of the fact to two justices of the peace, who shall within five days attend at the prison, and, upon the oath or affirmation of such persons as they shall think fit to examine, proceed to inquire into the state of mind of such prisoner, and if they shall find him to be a lunatic as was alleged, they shall forthwith make a record of the fact and certify the same to the clerk of the District Court.

REVISED STATUTES OF NEW YORK, 1889.

CHAPTER 446, ARTICLE 1, SECTION 1.—*Commitment of the Insane.*

No person shall be committed to or confined as a patient in any insane asylum, public or private, or any institution, home, or retreat for the care and treatment of insane, except upon the certificate of two physicians, under oath, setting forth the insanity of such person. No person shall be held in confinement in any such asylum for more than five days, unless within that time such certificate be approved by a judge or justice of a court of record of the county or district in which the alleged

lunatic resides; and such judge or justice may institute inquiry and make proofs as to the fact of alleged lunacy before approving or disapproving such certificate; and such judge or justice may in his discretion call a jury in each case to determine the question of lunacy.

Sec. 2.—It shall not be lawful for any physician to certify to the insanity of any person for the purpose of securing their commitment, unless the physician be of reputable character and a graduate of some incorporated medical college, a permanent resident of the State, and shall have been in actual practice of his profession for at least three years; and such qualifications shall be certified to by a judge of any court of record. No certificate of insanity shall be made except after the personal examination of the party alleged to be insane, and according to the forms prescribed by the State Commissioner of Lunacy, and every such certificate shall bear a date not more than ten days prior to such commitment.

Sec. 3.—It shall not be lawful for any physician to certify to the insanity of any person for the purpose of committing him to an asylum of which the said physician is either superintendent, proprietor, or officer, or a regular professional attendant therein.

Sec. 4.—Every superintendent of the State asylum, or public or private asylum, institution, home, or retreat for the care and treatment of insane, shall, within three days after the reception of any patient, make, or cause to be made, a description of such case, entered in a book exclusively set apart for that purpose, and shall also make entries from time to time mentioning state, bodily condition, and medical treatment of such patient, together with the forms of restraint employed during the time such patient remains under his care; and in the event of discharge or death of such patient the superintendent aforesaid shall state in his case-book the circumstances pertaining thereto.

Sec. 10.—Any overseer of the poor, constable, keeper of jail, or other persons who shall confine any lunatic in any seminary, or any other places than such as are herein certified, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be liable to a fine not exceeding two hundred and fifty dollars, or imprisonment not exceeding one year, or both, at the discretion of the court before which the conviction shall be had.

Sec. 33.—When any person confined under the indictments of arson, murder or attempt to murder, or highway robbery, or who has been acquitted thereof on the ground of insanity, and has been committed to some State lunatic hospital, . . . shall be restored to his right mind, it shall be the duty of the superintendent of such asylum to give notice thereof to the State Commissioner of Lunacy, who shall thereupon inquire into the truth of the fact, and if the same shall be proved to his satisfaction he shall issue certificate, dated under his official hand and seal, to a justice of the Supreme Court of the district in which such asylum is situated, who shall thereupon and upon such other facts as may be proven before him determine whether it is safe, legal, and right that such party in confinement, as aforesaid, shall be discharged.

SEC. 24.—*Discharge of Patients.*

The managers, upon the superintendent's certificate of complete recovery, may discharge any patient, except when under a criminal charge or liable to be remanded to prison, and they may discharge any patient admitted as "dangerous," or any patient sent to the asylum by the superintendent or Overseers of the Poor, or by the (first) judge of the county, upon the certificate of the superintendent that he or she is harmless, and will probably continue so, and not likely to be improved by further treatment in the asylum, or when the asylum is full, upon a like certificate that he or she is manifestly incurable and can probably be rendered comfortable at the poorhouse, so that the preference may be given, in the admission of patients, to recent cases, or cases of insanity of not over one year's duration. They may discharge and deliver the patient, except when under criminal charge, as aforesaid, to his relatives or friends who will undertake, with good and approved sureties, for his peaceable behavior, safe custody, and comfortable maintenance without further public charge. And such sureties shall be approved by the county judge of the county from which said patient was sent. . . . Upon the presentation of a certified copy thereof the managers may discharge such patient.

CODE OF NORTH CAROLINA, 1883.

SEC. 2249.—*Superintendent—Qualifications.*

. . . He shall be a skillful physician, educated to his profession, of good moral character, of prompt business habits, and of kindly disposition. He shall hold his office for six years from and after his appointment, unless sooner removed . . . for infidelity to his trust, gross immorality, or incompetency to discharge the duties of his office, fulfilled and declared, and the proof thereof recorded in the books. . . .

SEC. 2250.—*Assistant Physician.*

Each Board of Directors shall appoint one or more assistant physicians, and, with the advice and consent of the superintendent, prescribe his duties. Every assistant physician appointed shall hold his place for two years from and after the appointment, unless sooner removed by said board for good cause, which shall be specified and recorded in their proceedings.

SEC. 2253.—*Superintendent to Control Officers.*

Such superintendent shall exercise exclusive direction and control over all subordinate officers and employees engaged in the service and labors of his asylum, and he may discharge such as have been employed by himself or his predecessor, and shall report to the Board of Directors of the asylum the misconduct of all other subordinates.

SEC. 2256.—*Proceedings to Obtain Admission to the Asylum.*

For admission into the asylum for the insane the following proceedings shall be had: Some respectable citizen residing in the county of the alleged insane person shall make before, and file with, the justice of the peace of the county, an affidavit. . . . Upon the bringing of the alleged insane person before the justice of the peace, or upon the return of the precept with the body of the insane person, the justice shall cause to be associated with him one or more justices of the said county, who together shall proceed to examine into the condition of the mind of the alleged insane person, and shall take the testimony of at least one respectable physician, and such others as they may think proper. If any two of the justices of the peace shall be satisfied that the person is insane, and some friend, as he may do, will not become bound with good security to restrain him from committing injuries, support and take care of him until the cause for confinement shall cease, such justices shall direct such insane person to be removed to the proper asylum as a patient, and to that end they shall direct a warrant to the sheriff or constable, and at the same time shall transmit to the proper Board of Directors, on examination of the witnesses, a statement of the facts as the said justices shall deem pertinent to the subject-matter. . . .

SEC. 2259.—*Action of the Superintendent in Doubtful Cases.*

Whenever an insane person shall be conveyed to any asylum, and the superintendent is in doubt as to the propriety of his admission, he may convene any three of the Board of Directors of his asylum, who shall constitute a board for the purpose of examining and deciding that such person is a proper subject for admission, and if a majority of such board shall decide so, such person shall be received into that asylum; but that a like board may at any time hereafter deliver such insane person to any friend who may become bound with good security to maintain and take care of him in the same manner as he might have become bound under the surety of the justice of the peace.

SEC. 2260.—*Discharge of the Cured—Removal of the Incurables.*

Any three of the Board of Directors of any asylum, upon the certificate of the superintendent, . . . shall be a board to discharge or remove from their asylum any person admitted as insane when such person has become or is found to be of sane mind, or when such person is incurable and in the opinion of the superintendent his being at large will not be injurious to himself or dangerous to the community; or said board may permit such person to go to the county of his settlement on probation, when in the opinion of the said superintendent it will not be injurious to himself or dangerous to the community; and said board may discharge or remove such person

upon other sufficient cause appearing to them; and whenever any such person admitted as indigent may be so discharged or removed, except as sane, it shall be the duty of the sheriff of the county of his settlement to convey such person to his county at its expense; and any indigent person discharged as sane shall receive from such asylum a sum of money sufficient to pay his transportation to the county of his settlement, which sum shall be repaid by said county.

ACTS OF OHIO, 1888.

SEC. 1.—*Application for Admission to the Asylum.*

Be it enacted by the General Assembly of the State of Ohio that section 705 of the Revised Statutes of Ohio be amended so as to read as follows:

Probate judge upon receiving certificate of medical witnesses . . . shall forthwith apply to the superintendent of the hospital for the insane situated in the district in which the patient resides; he shall at the same time transmit copies under his official seal of the certificate of the medical witnesses and of his findings in the case. Upon receiving application for certificate, the superintendent shall immediately advise the probate judge whether the patient can be received, and, if so, at what time; the probate judge, when advised that the patient will be received, shall forthwith issue his warrant to the sheriff, commanding him forthwith to take charge of and convey such insane person to the asylum. . . .

SEC. 709.—*Discharge of Patients from the Insane Asylum.*

. . . On consent and advice of the trustees the superintendent may discharge any patient from any asylum for the insane, when he deems such discharge proper and necessary; provided, no patient with known homicidal or suicidal propensities shall be discharged without a bond in the sum of one thousand dollars, with two or more sureties, to be approved by the probate judge of the county of which the patient is an inhabitant, payable to any person who shall be injured in person or property by any insane act of such discharged person while at large.

Any incurable or harmless patients may be discharged to make room for acute cases from the same county; and no patient with known homicidal or suicidal propensities shall be hereafter kept in any county infirmary or jail of the State, except temporarily, while awaiting the order for removal to the State Asylum for the Insane. When in the opinion of the superintendent the condition of the patient at the time of discharge is such as to justify such action he may permit such patient to go to his home or leave the institution unattended; and if such patient is not financially able to bear his own expenses the superintendent of the institution may furnish the patient a sufficient sum to pay his traveling expenses, and charge the same to the current expense fund of the institution; such sum shall in no one case exceed twenty dollars. . . .

SEC. 704.—*Certificates of Medical Attendants.*

At the time (unless for good cause the investigation is adjourned) the judge shall proceed to examine the witnesses in attendance; and if upon reading the testimony he is satisfied that the person so charged is insane, he shall cause a certificate to be made out by the medical witnesses in attendance. . . .

SEC. 710.—*When Discharged as Cured.*

When a patient is discharged as cured the superintendent may furnish such patient with suitable clothing and a sum of money as he deems fit, not in any case exceeding twenty dollars.

SEC. 712.—*Proceedings when Person Becomes Again Insane.*

When a patient discharged from an asylum for the insane as cured again becomes insane, and a respectable physician files with the judge of probate of the county of which the insane person is an inhabitant an affidavit setting forth the fact of the recurrence of the disease, and such other facts relating thereto as he deems proper, the probate judge shall forthwith transmit a copy of such affidavit, authenticated by his official seal, to the superintendent of the proper asylum, and thereupon the same

proceeding shall be had as provided in this chapter for persons found to be insane upon inquest for that purpose.

SEC. 715.—*When Patient Dies, Relatives shall be Notified.*

When a patient dies in any one of the asylums for the insane, the superintendent thereof shall immediately notify relatives of such deceased patient, if known to him; and, if not so known, he shall immediately notify the probate judge of the county from which such patient was sent, who shall forthwith cause a notice of his death to be printed in two of the leading papers published in the county.

SEC. 736.—*Qualifications for Admission.*

The asylum shall be open for admission of all persons over seven years having a legal settlement in the county of Hamilton; but no person shall be entitled to admission unless he become insane after acquiring a legal settlement therein.

SEC. 740.—*Examination—Physician's Certificate.*

At the time appointed (unless for good cause the investigation is adjourned) the judge shall proceed to examine the witnesses in attendance, and if upon the hearing of the testimony such judge is satisfied that the person so charged is insane, and is included in the class enumerated in this chapter, he shall cause a certificate to be made out by the physician, setting forth the name, age, residence of patient, with a concise history of the case, medical treatment pursued, supposed cause of disease, and such other information as is deemed useful.

SEC. 741.—*Patient shall be Taken to the Asylum.*

The probate judge, upon receiving the certificate aforesaid, shall forthwith transmit a copy thereof, and his finding in the case, under his official seal, to some suitable person (giving the relatives of the insane person the preference), who shall immediately take charge of and convey such patient to the asylum, and return therefor to the probate judge a receipt of the superintendent, to be filed with the other papers in the case.

LAWS OF OREGON, 1887.

SEC. 3555.—*Superintendent to Make Pay-rolls of the Employees.*

At the end of each month the superintendent shall cause a pay-roll to be made, on which is written the name of each person employed in or about the asylum, giving the capacity in which each is employed, the rate of salary or wages, and the amount due each. Upon receiving this pay-roll, duly receipted by the superintendent and audited by the board, the secretary of the State shall draw his warrant on the treasury in payment of the several amounts audited and allowed by the board, and in favor of the person to whom the same is allowed, in a like manner as their warrants are drawn for the payment of claims against the State.

SEC. 3557.—*Judge of the County to Hear and Determine Complaint of Insanity.*

The county judge of any county in this State shall, upon application stated in writing, setting forth that any person or persons, by reason of insanity or idiocy, is suffering from neglect, exposure, or otherwise is unsafe to be at large, or is suffering under mental derangement, shall cause such person or persons to be brought before him at such time and place as he may direct; and the said county judge shall also cause to appear at the same time and place one or more competent physicians, who shall proceed to examine the person or persons alleged to be insane or idiotic; and if said physician or physicians, after careful examination, shall certify upon oath that such person or persons are insane or idiotic, as the case may be, then such judge shall cause the said insane or idiotic person to be conveyed to and placed in the Insane Asylum of the State of Oregon. . . .

SEC. 3553.—*Superintendent as the Executive Officer.*

The superintendent shall be the executive officer of the asylum under the regulations and by-laws of the Board of Trustees. He shall have control of the patients,

prescribe their treatment, adopt necessary measures for their welfare, and discharge such as in his opinion have permanently recovered their reason, or such other patients as the best interests of the State and the institution require. He shall maintain discipline among the subordinate officers and employees, and enforce obedience to the laws, rules, and regulations adopted for the government of the institution; and is empowered to discharge any employee or attendant for violation of the laws or rules of the asylum, and submit the same to the Board of Trustees immediately for their approval. He shall remit to the Board of Trustees a report of the amount, kind, and quantity of furniture and household furnishing goods, provisions, fuel, forage, cloth, and other material required for six months ending on the first day of June and December of each year, and the trustees shall then advertise, when practicable, for four successive weeks, for contracts for furnishing said supplies, or so much thereof as they deem necessary. . . . Necessary expenditures other than for provisions, fuel, forage, clothing, and furniture and household furnishing goods may be made by the superintendent subject to the approval of the board. . . .

SEC. 3554.—*Superintendent to Keep Accurate Accounts and Make Monthly Reports.*

The superintendent shall cause accurate and careful accounts to be kept of the daily expenditures of all classes of stores and property placed in his charge, and shall at the end of each month submit the same to the trustees for their inspection, and on each daily report shall be shown the number of persons having lodging in the asylum, whether as officer, employee, or patient. . . .

LAWS OF PENNSYLVANIA, 1873.

SEC. 1.—*On what Evidence Insane Persons may be Placed in an Asylum.*

Insane persons may be placed in a hospital for the insane by their legal guardians, . . . or by their relatives or friends in case they have no guardians, but not without the certificate of two or more reputable physicians under a personal examination made within one week of the date thereof; and this certificate to be duly acknowledged and sworn to or affirmed before some magistrate or judicial officer, who shall certify to the genuineness of the signatures and to the responsibility of the signers.

SEC. 13.—*Philadelphia State Lunatic Asylum Physician.*

. . . The trustees shall have charge of the general interests of the institution; they shall appoint a superintendent who shall be a skillful physician, subject to removal or reelection no oftener than the period of ten years, except by infidelity to the trust reposed in him, or for incompetency; said physician shall also reside in the asylum, and shall be a married man, and his family shall reside with him. . . .

SEC. 14.—*Powers of the Superintending Physician.*

The superintending physician shall appoint and exercise entire control over subordinate officers and assistants in the institution, and shall have entire discretion of the duties of the same.

LAWS OF PENNSYLVANIA, 1883.

SEC. 19.—*Time within which Certificate must be Made.*

The certificate above provided for shall have been made out within one week of the examination of the patient, and within two weeks of the time of the admission of the patient, and shall be duly sworn to or affirmed before a judge or magistrate of this commonwealth and of the county where such person has been examined, who shall certify to the genuineness of the signatures and to standing and good repute of all the signers; and any person falsely certifying as aforesaid shall be guilty of misdemeanor and also liable.

SEC. 23.—*Duty of Medical Attendant.*

. . . The regular medical attendant of the house shall, within twenty-four hours after the reception of any patient, examine such patient and reduce to writing the

results of such an examination, and enter the same upon the book to be kept for the purpose, with the opinion formed from such examination and from the documents received with the patient.

SEC. 24.—*When Detention Unnecessary, Notice to be Given.*

In case the said medical attendant is of the opinion that detention is not necessary for the benefit of the patient, he shall notify the person or persons at whose instance the patient is detained, and unless such a person shall without a delay not exceeding seven days exhibit satisfactory proof of such necessity, the patient shall be discharged from the house and restored to his family or friends.

SEC. 25.—*Interviews Allowed.*

At the time of such examination the medical attendant shall himself cause the patient strictly to understand, if he or she is capable of doing so, that if he or she desires to see or otherwise communicate with any person or persons, means will be provided for such interview or communication, and said attendant shall see that the proper means are taken to communicate this fact to the person or persons indicated by the patient; or any proper person or persons not exceeding two shall be permitted to have a full unrestrained interview with the patient.

SEC. 26.—*Reports to be Made by the Medical Attendant.*

The statement furnished at the time of the reception of the patient (and of the examination of the patient by the medical attendant of the house) shall be forwarded by mail to the address of the Committee on Lunacy within seven days from the time of the reception of the patient, which shall by them be entered in a book which shall be kept for the purpose, and at least once in six months there shall be reports made by the medical attendant of the house on the condition of the patient, together with such other matters relative to the case as the said committee may require; and at the same time such report shall be made by request of the secretary of the Committee on Lunacy.

SEC. 28.—*Materials for Correspondence, etc.*

All persons detained as insane shall be furnished with materials and reasonable opportunity, under the discretion of the superintendent or manager, for communicating, under seal, without the building, and such communication shall be stamped and mailed. They shall have the unrestrained privilege of addressing communications, if they so desire, not oftener than once a month, to any member of the Committee on Lunacy.

SEC. 31.—*Persons Restored to Reason to be Forthwith Discharged.*

All persons that have been detained as insane (other than criminal insane duly convicted and sentenced by a court) shall, as soon as they are restored to reason and are competent to act for themselves, in the opinion of the medical attendant of the house, be forthwith discharged; and any person so detained shall at all times be entitled to a writ of habeas corpus for the determination of this question. . . . In case the discharged patient be in indigent circumstances, such person shall be furnished with necessary raiment and with funds sufficient for sustenance and travel to his home, to be charged to the county from which such patient was committed.

SEC. 32.—*Committee to be Notified of Discharges.*

The Committee on Lunacy shall be notified of all discharges within seven days thereafter, and a record of same shall be kept by the committee.

SEC. 36.—*Postal Privileges of the Patients.*

. . . "That it shall be unlawful and be deemed a misdemeanor in law, punishable by fine not exceeding one hundred dollars, for any superintendent, officer, physician, or other employee of any insane asylum, to intercept, delay, or interfere with, in any manner whatsoever, the transmission of any letter or other written communication addressed by an inmate of any insane asylum to his or her counsel residing in the county in which the home of the patient is, or the State or county in which the asylum is located," is hereby amended so that the same shall extend to superintendents,

officers, servants, or other employees of all hospitals, houses, or places which are subject to the provision of this act.

STATUTES OF RHODE ISLAND, MAY, 1884—JANUARY, 1885.

CHAPTER 479.—*Apportionment of Insane Paupers at the Butler Hospital or other Curative Hospitals.*

Whenever it shall appear by the written certificate of two practicing physicians of good standing that any pauper within the State is insane, and may be benefited by curative treatment, the agent of State Charities and Corporations, with the written consent of the governor, may place such insane pauper in the Butler Hospital for the Insane; but in case such pauper cannot be received in the said hospital, then at some public curative hospital for the insane within the State.

PUBLIC STATUTES OF RHODE ISLAND, 1882.

CHAPTER 74, SECTION 1.—Whenever complaint in writing and under oath shall be made to any trial justice or clerk of a justice court, that any person within the county is a lunatic, or so furiously mad as to render it dangerous to the peace or safety of the good people of the State for him to be at large, and that such person is at large, such trial justice or clerk shall issue his warrant, under his hand and seal and returnable forthwith, directed to the deputy sheriffs, town sergeants, or constables, requiring the officer charged therewith to apprehend such person, and convey him with such warrant before such or some other Justice Court for examination relative to such complaint.

SEC. 2.—*Examination and Proceedings on Return of the Warrant and Commitment of the Mad Person.*

If the court on such examination shall adjudge such complaint to be true, it shall, unless a recognizance satisfactory to said court be then given before it that said person shall not be permitted to go at large until restored to soundness of mind, commit such person by warrant under its hand and seal to the Butler Hospital for the Insane, or to the State Hospital for the Insane, there to be detained until, in the judgment of some justice of the court of the county in which he may be detained, he shall, upon inspection and examination, be declared to be restored to soundness of mind, or to be no longer under the necessity of restraint, or until recognizance as aforesaid, satisfactory to such court, shall be given.

SEC. 10.—*When a Person Committed may be Discharged though not Cured.*

Any person committed to any such institution under the previous proceedings of the fourth section may, although not restored to sanity, be discharged therefrom upon the written recommendation of the trustees and superintendent thereof, or an order of any justice of the Supreme Court, to be made in his discretion.

SEC. 11.—*Commitment of Lunatics.*

Insane persons may be removed to and placed in the said Butler Hospital or State Asylum for the Insane, if they can be there received, and, if not, in any other curative hospital for the insane of good repute in this State. . . . But the superintendent of said hospital shall not receive any person into his custody in such case without the certificate from two practicing physicians of good standing, known to him as such, that such person is insane.

SEC. 12.—*Powers of Superintendent to Receive and Detain Lunatics.*

Any person committed to the charge of any of the said institutions for the insane as aforesaid, in either of the modes herein described, may lawfully be received and detained in said institution by the superintendent thereof, and by his keeper and servants, until discharged by any one of the modes herein provided; and no superintendent, his keepers or servants, nor the trustees or agents of same, shall be liable, civilly or criminally, for receiving or detaining such person so committed or detained.

SEC. 14.—*Superintendent may Discharge—When.*

The superintendent of such institution for the insane within the State may, on the application of any relative or friend, with the proper approval in writing of the visiting committee or trustees, discharge from such institution any patient not committed by process of law.

SEC. 30.—*To Visit Insane Persons.*

The State Commission, or either of the members thereof, shall from time to time in their discretion visit every institution or place wherein any person insane or alleged to be insane is restrained of his liberty, and alone or attended, as they shall elect, examine into the condition and complaint of any one so confined.

SEC. 31.—*Duty of Persons in Charge of Insane Persons.*

The superintendents, officers, keepers, and assistants, and other persons in charge wherever any insane person is confined, are forbidden and enjoined from in any way or manner interfering, hindering, or preventing any person so confined from communicating at all times, in manner as aforesaid, with said commission, except under consultation, and with the full consent in writing of the commission. And every such superintendent, officer, keeper, and assistant, or other person, shall afford to every person under his charge, with the exception of the aforementioned, every facility for making such communications, according to the true intent and meaning thereof, and shall forward such communication to the said commission without delay.

LAWS OF SOUTH CAROLINA, 1884.

ACT 508, SEC. 1.—*Certificate of Physicians.*

. . . Physicians examining summoned persons alleged to be insane for admission to a lunatic asylum shall certify under oath that they are registered in accordance with the State law, that they have examined the persons separately, and that they are not related by blood or marriage to any of the persons; they shall also certify under oath that to the best of their medical knowledge the persons they recommend for admission to the lunatic asylum are epileptics, idiots, or lunatics, incurable at home, and that they are violent or dangerous.

SEC. 2.—*Idiots, Epileptics, etc., not to be Sent unless Violent.*

Physicians giving certificates recommending commitment to the asylum of a person who is simply idiotic, epileptic, physically infirm, or mentally imbecile, unless such person is violent or dangerous, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined by the District Court.

LAWS OF 1882.

ACT 121, SEC. 1.—*Terms and Conditions upon which Patients may be Admitted into the Asylum.*

. . . The superintendent and regents of the State Lunatic Asylum shall not receive into said institution any beneficiary patient unless the order consigning such person to the asylum is accompanied by report from the County Commissioners of the county from which such person is sent, certifying that they have carefully investigated the circumstances and condition of such person, his or her family, parent, or guardian, and that such person is a proper subject for the beneficiary care, and to what extent.

SOUTH CAROLINA LAWS, 1881-82.

CHAPTER 646, SEC. 1.—*How Lunatics are to be Sent to the Asylum.*

. . . All officers now authorized by law to send insane persons to the lunatic asylum shall, before sending such insane person to the asylum, notify the chairman

of the Board of County Commissioners, or the clerk of such board, that such person should be sent to the lunatic asylum, having first had such lunatic, if of a dangerous or violent character, so secured as not to do any damage or injury. . . .

SEC. 1586.—*How to be Admitted to the Asylum.*

It shall be the duty of the regency to admit as subjects of the institution all idiots, lunatics, and epileptics, under the statutes of this State and subject to the following conditions, that is to say: . . . (3) all persons who shall be declared lunatics, idiots, or epileptics. After due examination by one trial justice and two licensed practicing physicians of the State where the subject is a pauper, the admission shall be at the request of the County Commissioners wherein such pauper has a legal settlement; otherwise the admission shall be at the request of the husband or wife, or, where there is no husband or wife, of the next of kin of the idiot, lunatic, or epileptic.

SEC. 1588.—*Judges may Direct Inquisition.*

Whenever a judge of probate or a judge of the Circuit Court shall direct an order to any trial justice to inquire as to the idiocy, lunacy, or epilepsy of any person, or when information on oath shall be given to any trial justice that a person is an idiot, lunatic, or epileptic, and is chargeable for his support on the county, it shall be the duty of said trial justice forthwith to call to his assistance two licensed practicing physicians, and examine such person as to evidence of his or her idiocy, lunacy, or epilepsy; and if after full examination they shall find such person an idiot, lunatic, or epileptic, they shall certify to said judge or Board of County Commissioners whether in their opinion such person is curable or incurable, and whether his enlargement would be harmless or dangerous or annoying to the community; and thereupon the judge or Board of County Commissioners in its discretion may make an order that the said person shall be sent to the lunatic asylum.

SEC. 1594.—*Discharge of Lunatics.*

Whenever any lunatic or epileptic shall have recovered, it shall be the duty of the regents to discharge him from the asylum.

SEC. 1596.—*III Treatment of Patients by Employees.*

It shall be the duty of the regents to remove from office and cause to be indicted any person employed in said institutions who shall assault any idiot, lunatic, or epileptic with any other or greater violence than may be necessary for his or her restraint, government, or cure.

CODE OF TENNESSEE, 1884.

ARTICLE 2, SECTION 2027.—*Qualifications of Superintendent.*

The superintendent of the hospital shall be appointed by the Board of Trustees, and shall be a skillful physician, of unblemished moral character, of enlightened and thorough professional education, of prompt business habits, and of humane and kind disposition.

SEC. 2028.—*Residence, etc.*

He shall be a married man, and with his family shall reside constantly in the institution.

SEC. 2029.—*Term of Office.*

He shall hold his office for eight years, but may be removed by the Board of Trustees for infidelity to his trust or incompetency fully shown and declared.

SEC. 2030.—*Powers over Officers.*

He shall exercise entire control over all subordinate officers and assistants in the hospital, and shall have entire direction of the duties of same, he himself being accountable to the Board of Trustees for their good character and fidelity in the discharge of their duties.

SEC. 2036.—*Duties.*

It shall be the duty of the superintendent, under the orders of the Board of Trustees: First, to exercise a general superintendency over all matters relating to the hospital. Second, to visit the patients therein at least twice a week, or oftener if necessary. Third, to call meetings of extraordinary importance of the Board whenever he may deem it necessary. Fourth, to report to the trustees immediately before each general assembly, first, the number of patients admitted into the asylum; second, date of admission of each patient; third, the degree and kind of insanity with which each patient is afflicted; fourth, length of time each person was supposed to have been affected before admission; fifth, the profession, occupation, age, and habits of each patient, and whether married or single; sixth, the names of those discharged, and the condition of each when discharged; seventh, and such other particulars as he may deem necessary to further action and legislation thereon.

SEC. 2037.—*In Reference to Removal of Patients.*

The superintendent, by authority of the resident Board of Trustees or a majority of them, shall have power to require the removal of any patient, paying or non-paying, whenever in their opinion it is advisable to do so.

TITLE 7, REVISED STATUTES OF TEXAS, 1879.

ARTICLE 67.—*Board of Managers.*

The general control and management and direction of the affairs of the State asylums shall be vested in the Board of Managers, to be styled the "Board of Managers of the Lunatic Asylums."

ART. 73.—*Monthly Inspection.*

One or more of the managers shall visit the asylum and inspect the same at least once every month.

ART. 75.—*Superintendent Provided for.*

The governor of this State shall appoint, by and with the advice and consent of the Senate, a superintendent of the lunatic asylum, who shall, unless sooner removed, hold his office for a term of two years; and in the case of a vacancy in said office the appointment shall be only for the expiring term, and the term of such officer shall, in any event, expire with the term of the governor making the appointment.

ART. 76.—*Qualifications of the Superintendent.*

The superintendent shall be a married man, and also of experience in the treatment of insanity. He shall reside in the hospital with his family, and shall devote his whole time exclusively to the duties of his office.

ART. 80.—*Powers and Duties of the Superintendent.*

The superintendent shall be the chief executive, medical, and disbursing officer of the institution, and subject to the by-laws, but shall have general care and control over everything connected therewith. He shall attend to the enforcement of the laws of the State relating to the asylum, and by-laws of the institution, and shall take care that all employees connected therewith diligently and faithfully perform duties assigned to them.

ART. 81.—The superintendent shall also, with the consent of the Board of Managers, employ such officers, attendants, and other persons as may be required for the service of the institution, and with like consent may discharge them at pleasure. He shall also receive and discharge patients, superintend repairs and improvements, and take care that all moneys intrusted to him are judiciously and economically expended.

ART. 82.—The superintendent shall keep also an accurate and detailed account of all moneys received and expended by him, certifying the source from which such moneys were received, and to which and on what account to be used; and on the first day of July of each year he shall report the same under oath to the governor.

ART. 83.—The superintendent shall also keep and register patients received into the asylum and discharged therefrom, together with a full record of all the operations of the institution, and on the first day of November of each year he shall report such operations in full to the governor, accompanied with such suggestions and recommendations concerning the management and operations of the asylum as may be deemed important.

ART. 84.—*Annual Inventory.*

On the first day of November of each year the superintendent shall cause inventory of all the personal property belonging to the asylum to be prepared, in which inventory an estimated value shall be set beside each article, and shall submit the same to the Board of Managers.

ART. 92.—Before any person can be received as a patient . . . the parent or legal guardian of such person, or, in case he has no parent or guardian, then some near relative or other person interested in him, must present a written request to the superintendent for his admission, setting forth the name, age, residence of the lunatic, together with such particulars as may be required by the superintendent or the by-laws of the institution; which written request must be under oath of the party presenting it, and be accompanied with an affidavit of the physician certifying to the insanity, that he has made a careful examination of the person for whom admission is applied for, and verily believes him to be insane.

ART. 93.—*County Judge must Certify.*

The application referred to in the preceding article must also be accompanied by the certificate of the county judge of the county where the lunatic resides, that the physician certifying to the insanity of the person under charge is a respectable physician in regular practice; which certificate of the county judge must be attested by the seal of the County Court of his county.

ART. 99.—*Discharge of Patients.*

Any patient, except such as are charged with or convicted of some offense and have been adjudged insane in accordance with the provisions of the Code of Criminal Procedure, may be discharged from the asylum at any time upon the recommendation of the superintendent, approved by the Board of Managers. Any patient coming within the above exception can only be discharged by order of the court by which he was committed.

ART. 100.—No patient shall be discharged without suitable clothing and sufficient money to pay his expenses home; and when a patient is discharged by order of the court he shall be provided with a suitable guard and conveyed to his friends, or to the county from which he was sent.

ART. 106.—*Apprehension of Lunatics.*

If information written under oath be given to any county judge that any person in his county is a lunatic or *non compos mentis*, and that the welfare of himself or of others requires that he be placed under restraint, and said county judge shall believe such information to be true, he shall forthwith issue his warrant for the apprehension of such person, and shall fix a day for the hearing and determination of the matter.

ART. 120.—*Suitable Clothing to be Provided.*

Before sending any patient to the asylum the county judge shall take care that the patient is provided with two full suits of substantial summer clothing and one full suit of substantial winter clothing.

LAWS OF UTAH, 1880.

CHAPTER 31, SECTION 13.—*Qualifications of the Medical Superintendent and his Duties.*

The medical superintendent shall be well educated, an experienced physician, and a regular graduate in medicine, and shall have practiced at least five years from the date of his diploma. He shall have the general superintendence of the buildings,

grounds, and property thereof, subject to the laws and regulations of the directors. He shall have control of the patients, prescribe their treatment, adopt sanitary measures for their welfare, and discharge such as in his opinion have permanently recovered their reason. He shall appoint, with the approval of the directors, as many attendants as may be necessary for the efficient and economic care and management of the asylum, and, with the consent of the Board of Directors, fix their compensation and discharge any of them. He shall prescribe the duties of the subordinate officers, maintain discipline among them, and enforce obedience to the laws, rules, and regulations adopted for the government of the institution. He shall estimate quarterly, in advance, the probable expenses of the asylum, and submit the same to the Board of Directors at their regular meeting preceding the commencement of such quarter, for their approval. . . . The medical superintendent shall cause to be kept full and accurate accounts and records of his official transactions from day to day, in books provided for that purpose, in the mode prescribed in the by-laws. He shall see that his accounts are fully made up to the 31st of December in each year, and shall submit his annual report to the Board of Directors immediately. He shall visit the asylum every day in the year, unless he obtain leave of absence from the president of the Board of Directors, in which event the assistant physician shall discharge his duties. . . .

SEC. 16.—*Judge of Probate may, if Found Necessary, Direct that Insane Persons be Placed in an Insane Asylum.*

The probate judge of any county in this Territory shall, upon application under oath, setting forth that a person, by reason of insanity, is dangerous to be at large, cause such person to be brought before him, and he shall summon to appear, at the same time and place, two or more witnesses who well knew the accused during the time of alleged insanity, who shall testify, under oath, as to the conversation, manners, and general talk upon which charge of insanity is based; and shall also cause to appear before him, at the same time and place, two practicing physicians in medicine, before whom the judge shall examine the charged; and if, after a careful hearing of the case and a personal examination of the alleged insane person, the said physicians shall certify, on oath, that the person is insane, and the case is of recent or curable character, or that the insane person is of homicidal, suicidal, or incendiary disposition, and that from any other violent symptoms the said insane person would be dangerous to his or her own life, or to the lives or property of the community in which he or she may live, and the said physicians shall also certify to the name, age, nativity, residence, occupation, length of time in the Territory, State, or county last from, previous habits, premonitory symptoms, apparent cause, and class of insanity, duration of the disease, and present condition, as nearly as may be ascertained by inquiry and examination; and if the judge shall be satisfied that the facts revealed in the examination establish the insanity of the person accused, and that it is of a recent or curable nature, or of homicidal, suicidal, or incendiary character, or that from the violence of the symptoms the said insane person would be dangerous to his or her own life, or to the lives or property of others, if at large, he shall direct a sheriff of the county, or some suitable person, to convey to and place in charge of the officers of the Territorial Insane Asylum such person, and shall transmit a copy of the complaint and commitment, and physicians' certificate, which shall also be in the form furnished by the medical superintendent of said asylum. . . .

VERMONT, 1884.

ACT No. 52, SECTION 1.—It is hereby enacted by the general assembly of the State of Vermont, that section 2898 of the Revised Laws is hereby amended so that it will read as follows:

The supervisors shall visit the Vermont Hospital for the Insane as often as occasion requires, and one member as often as once a month, and also any other place where insane persons are confined in the State, at their discretion; shall examine into the condition of the said asylum, and such other places where insane persons are confined, the management and treatment of the patients therein, their physical and mental condition, and medical treatment; form a careful opinion of the patients, apart from the officers and keepers, and investigate the cases that in their judgment require special investigation, and particularly ascertain whether persons are confined in such asylum or other places who ought to be discharged. They shall have the general supervision of the insane of the State not in confinement, so far as it concerns their physical and

mental condition, their care, management, and medical treatment; and also those who are discharged from such asylum or place of confinement by authority under section 4 of the act approved November 28, 1882, and shall make such order therein as such case requires.

REVISED STATUTES, 1880.

CHAPTER 139, SECTION 2897.—*Supervisors.*

The general assembly shall elect biennially three Supervisors of Insane, who shall hold their office for two years, commencing on the first day of the next December; and the governor may fill vacancies of the board during the term. Two of said supervisors shall be physicians, and none of them shall be a trustee, superintendent, employee, or other officer of an insane asylum in the State.

SEC. 2900.—*Powers of the Supervisors.*

The supervisors may administer oaths, summon witnesses before them in any case under investigation, and discharge by their orders in writing any person confined as a patient in any asylum for the insane whom they find on investigation to be wrongfully confined, or whom they find so far sane as to warrant discharge. But convicts sent to an asylum from the State Prison or House of Correction who are found sane before the expiration of their sentence shall not be discharged, but the supervisors shall order their return to the Prison or House of Correction. In no case shall the supervisors order the discharge of a patient without giving the superintendent of the asylum an opportunity to be heard.

SEC. 2905.—*Fine for not Discharging Patient after Recovery.*

If a trustee, superintendent, employee, or other officer of any asylum for the insane willfully and knowingly neglects or refuses to discharge a patient after such patient has become sane, or after the supervisors have ordered his discharge, such trustee, superintendent, employee, or other officer shall be fined not more than five hundred dollars.

SEC. 2906.—*Physicians' Certificate Required.*

No person, except as hereinafter provided, shall be admitted or detained in an insane asylum as a patient or inmate except upon the certificate of such person's insanity, made by two physicians of unquestioned integrity and skill, residing in the probate district in which such insane person resides, or, if such insane person is not a resident of the State, in the probate district in which the asylum is situated; or if such insane person is a convict in the State Prison or House of Correction, such physicians may be residents of the probate district in which such place of confinement is situated.

SEC. 2907.—*Certificate—When to be Made.*

Such certificate shall be made not more than ten days previous to the admission of such insane person, and, with the certificate of the judge of probate of the district in which the physicians reside that such physicians are of unquestioned integrity and skill in their profession, shall be presented to the proper officer at the time such insane person is presented for admission.

SEC. 2908.—*Physicians to Certify upon Examination.*

The certificate of the physicians shall be given only after a careful examination of the supposed insane person, made not more than five days previous to the giving of the certificate; and the physician who signs the certificate without making such previous examination shall, if the person is admitted to any asylum under the certificate, be fined not less than fifty dollars and not more than one hundred dollars.

CODE OF VIRGINIA, 1887.

SEC. 1668.—*Annual Reports.*

The board of each asylum shall annually before the first day of November report to the governor, for the information of the general assembly, the condition of the asylum,

and an account of all sums received and disbursed, with a list of the patients designated by name or otherwise in the asylum during the preceding year, showing their age and sex, place of residence, and civil condition, deaths, and discharges, and condition when discharged, and any statistics and remarks as to the management of insane and the subject of insanity which in their judgment may be useful.

SEC. 1669.—Any justice who suspects any person in his county or corporation to be a lunatic shall issue his warrant ordering such person to be brought before him. He and two other justices shall inquire whether such person be a lunatic, and for that purpose summon his physician (if any) and any other witnesses. . . .

SEC. 1670.—If the justices decide that the person is a lunatic and ought to be confined in an asylum—unless some person (to whom the justices, in their discretion, may deliver such lunatic) will give bond, with sufficient security, to be approved by them, payable to the commonwealth, with condition to restrain and take proper care of such lunatic until the cause of his confinement shall cease, or the lunatic is delivered to the sheriff of the county or corporation, to be proceeded with according to law—the said justices shall order him to be removed to the nearest asylum on receipt of notice of there being room therein, and, if not, to either of the others.

SEC. 1673.—The superintendent of the asylum, when such vacancy exists, is authorized, when practicable, to send a guard for the lunatic, or empower any person of responsibility and character to guard and conduct him to the asylum, and furnish the person so appointed with a certificate of his appointment; or, when neither of such arrangements are practicable, the sheriff shall conduct such lunatic to the asylum. . . .

SEC. 1674.—*Examination and Admission of Lunatics.*

When such patient arrives at the asylum the superintendent or his attendants shall examine him, and if they concur in opinion with the justices shall receive and register him as a patient.

SEC. 1688.—*Discharge of other Restored Lunatics.*

When any other person confined in an asylum or jail as a lunatic shall be restored to sanity, the superintendent or the court, as the case may be, shall discharge him and give him a certificate thereof.

CODE OF WASHINGTON, 1881.

SEC. 2251.—*Appointment and Qualifications of Superintendent.*

The superintendent shall be a skillful practicing physician, and shall reside upon the hospital grounds; he shall hold his office for such time as the trustees may deem wise and for the efficiency and economy of the institution; he shall have entire control of the medical, moral, and dietetic treatment of the patients, and, so far as is not inconsistent with the by-laws and regulations of the hospital, of all other internal government and economy of the institution; and he shall, in such manner and under such restrictions and for such terms of time as the by-laws may prescribe, appoint all subordinate employees, and shall have entire direction of them in their duties.

SEC. 2260.—*No Person Laboring under Contagious Disease Admitted.*

No person laboring under any contagious or infectious disease shall be admitted in said hospital as a patient.

SEC. 2264.—*When and How Patients may be Discharged.*

Any patient may be discharged from the hospital when in the judgment of the superintendent it may be expedient. Whenever a patient not cured or any indigent patient shall be ordered discharged, the superintendent shall immediately give notice thereof to the probate judge of the county in which said patient resided; and if in the judgment of the superintendent such patient so ordered to be discharged is in fit condition to be sent to his or her county unattended by any person, the superintendent may return the patient to the county from whence he or she came, if indigent, at the expense of said county; but if such patient so ordered to be discharged from said hospital and care, without endangering the health of such patient, is through or by any reason unfit to be sent alone to the county from which he or she was committed to said hospital, the superintendent shall so certify to the probate judge of said county, who

shall immediately upon receipt of the notice issue his warrant to the sheriff, commanding him to remove the patient and return him or her to the county from whence he or she came. If within thirty days after the notice the patient be not removed, the superintendent, if he think necessary, may return the patient to the county from which he or she came at the expense of the county; *provided*, that if any such patient is not in a condition to either go or be removed to said county he or she may, for the time being, be retained in said hospital at the expense of the county from which he or she was so committed.

SEC. 2267.—*The Superintendent shall Ascertain History of each Patient.*

It shall be the duty of the superintendent to ascertain, by diligent inquiry and correspondence, the history of each and every patient admitted to the hospital, and whether such patients, or their friends or families, if there be any, are able to defray the expenses of his or her care, and report the facts to the Board of Trustees, who shall use efficient means for the collection of all sums due the institution from those who are able to pay for such care.

SEC. 2273.—*Correspondence of Patients Free from Censorship.*

There shall be no censorship exercised over the correspondence of inmates of insane asylums, except as to the letters to them directed; but their other post-office rights shall be as free and unrestrained as are those of any other resident or citizen of this Territory, and be under the protection of the same postal laws; and every inmate shall be allowed to write one letter per week to any person he or she may choose. And it is hereby made the duty of the superintendent to furnish each and every inmate of each and every insane asylum, both public and private, in the Territory of Washington, with suitable material for writing, inclosing, sealing, stamping, and mailing letters sufficient for writing of one four-paged letter a week, provided they request the same, unless they are otherwise furnished with it; and all these letters shall be dropped by the writers themselves, accompanied by an attendant when necessary, into a post-office box, provided by the Territory at the institution, in some place easily accessible to all the patients; and the contents of these boxes shall be collected at least as often as once a week by an authorized post-office agent. And it is hereby made the duty of the superintendent of every insane asylum in the Territory of Washington, both public and private, to deliver or cause to be delivered to said person any letter or writing to him or her directed, provided the physician in charge does not consider the contents of such letter dangerous to the mental condition of the patient.

SEC. 2282.—*Upon Delivery of Patient, Superintendent must Give Certificate, Stating Name of Patient and County.*

Whenever any patient is delivered at the asylum under the provisions of this act, the superintendent of the asylum shall give to the sheriff or guard delivering such patient, a certificate stating the name of the patient, from what county admitted, and the court that committed the same.

LAWS OF WASHINGTON, 1883.

SEC. 1632.—The Probate Court of any county in this Territory, or the judge thereof, upon application of any person under oath, setting forth that any person by reason of insanity is unsafe to be at large or is suffering under mental derangement, shall cause such person to be brought before said court or judge, at such time and place as the court or judge may direct, and shall cause to appear at said time and place one or more respectable physicians, who shall under oath, in writing, give their opinion of the case, which opinions shall be carefully preserved and filed with other papers in the case; and if the said physician or physicians shall certify to the insanity or idiocy of said person, and it appear to the satisfaction of the court or judge that such is the fact, said court or judge shall cause such insane or idiotic person to be taken to and placed in the Hospital for the Insane of Washington Territory; *provided* that such person, or any person in his behalf, may demand a jury to decide upon the question of his insanity, and the court or judge shall discharge such person if the verdict of the jury is that he is not insane; *provided*, also, that when the relations or friends desire to take charge of such insane or idiotic person the court or judge may so order, if they shall give bonds, to be approved by said judge, conditioned that such insane or idiotic person shall be well and securely kept.

AMENDED CODE OF WEST VIRGINIA, 1884.

CHAPTER 58, SECTION 7.—*West Virginia Hospital for the Insane.*

A superintendent and as many assistants as may be necessary, who shall be physicians, and other officers, shall be appointed by the board, and shall receive such compensation as the board may prescribe. The board may also appoint an executive committee, and may authorize the superintendent to employ as many nurses and attendants as may be necessary, and also discharge them, or any of them, and employ others, but the board shall fix their compensation. Any one or more of the directors, together with the superintendent, shall constitute an Examining Board, and may examine persons brought to the asylum as lunatics, and order those found to be such to be received.

SEC. 11 (ACTS OF 1882, p. 133).—Any justice who shall suspect any person in his county to be a lunatic shall issue his warrant, ordering such person to be brought before him. He shall inquire whether such person be a lunatic, and for that purpose summon a physician and other witnesses. In addition to any other questions he may propound as many of the following as may be applicable to the case: 1. What is the patient's age, and where born? 2. Is he married; if so, how many children has he? 3. What are his habits and occupation? 4. How long since indications of insanity appeared? 5. What were they? 6. Does the disease appear to increase? 7. Are there periodical exacerbations; any lucid intervals, and of what duration? 8. Is his derangement evinced on one or on several subjects; what are they? 9. What is the supposed cause of his disease? 10. What change is there in his bodily condition since the attack? 11. Has there been a former attack; when, and of what duration? 12. Has he shown any disposition to commit violence to himself or others? 13. Whether any, and what restraint has been imposed on him? 14. If any, what connections of his have been insane. Were his parents or grandparents blood relations; if so, in what degree? 15. Has he any bodily disease from suppression of evacuations, eruptions, sores, injuries, or the like, and what is its history? What curative means have been pursued and their effect, and especially if depleting remedies, and to what extent, have been used?

SEC. 12.—If the said justice decide that the person is a lunatic and ought to be confined in the hospital, and ascertain that he is a citizen of this State, then—unless some person to whom the justice, in his discretion, may deliver such lunatic, will give bond, with sufficient security, to be approved by said justice, payable to the State, with condition to restrain and take proper care of such lunatic until the cause of confinement shall cease, or the lunatic is delivered to the Sheriff of the county, to be proceeded with according to law—the said justice shall order him to be removed to the hospital and received, if there be room therein.

SEC. 23.—*When Persons may be Discharged from Hospital.*

Except in the case of a person charged with crime and subject to be tried therefor, or convicted of crime and subject to be punished therefor, when in a condition to be so tried or punished, the board of the hospital, or the circuit court of any county, may deliver any lunatic confined in the hospital or in the jail of such county to any friend who will give bond with security, with the condition mentioned in the twelfth section of this chapter; and where a lunatic, except as aforesaid, is deemed by the superintendent of the hospital both harmless and incurable, the board may deliver him without such bond to any friend who is willing and, in the opinion of the board, able to take care of him.

SEC. 50.—*General Provisions.*

If any director of the hospital, justice, clerk of a court, or other officers shall fail to perform any duty required of him in the chapter, or shall offend against any prohibition contained herein, he shall forfeit not less than fifty nor more than one hundred dollars.

SEC. 51.—The word "lunatic," whenever it occurs in this chapter, shall be construed to include every insane person who is not an idiot.

REVISED STATUTES OF WISCONSIN, 1879-1883.

CHAPTER 32, SECTION 588.—*Duties of the Superintendent.*

The superintendent of each hospital shall, before entering upon the duties of his office, take and subscribe an oath faithfully and diligently to discharge the duties required of him by law and the by-laws of the Board of Trustees. He shall be chief executive officer of the hospital, and shall devote all his time and attention to his duties; he shall exercise entire control over all the subordinate officers; he shall employ all employees and assistants necessarily connected with the institution below the grade designated in the by-laws as officers, and may discharge any officer, assistant, or employee at will, being responsible to the Board of Trustees for the proper exercise of that duty in regard to officers. The superintendent shall not be compelled to obey the subpoena of any court in any case, civil or criminal, if he shall file with the magistrate or clerk his affidavit that to obey the same would be seriously detrimental and hazardous to the welfare of the hospital under his charge, except when an accusation of murder is to be tried; nor in such case, unless the judge shall make a special order therefor, and the subpoena, with a memorandum thereof indorsed thereon, be served one week before the time when he shall be required to appear; *provided*, however, that no person shall be entitled, in any case, to make and file such affidavit, exempting him from subpoenas as aforesaid, who shall upon tender of the usual fees of witnesses, in courts of record, refuse to be present and to give his deposition at his office or usual place of business, or, instead thereof, at his house or usual place of abode; *provided* further, that any person so present and giving his deposition at his office or usual place of business, or, instead thereof, at his house or usual place of abode, who shall be detained four hours from the time fixed for the taking of such deposition, or from the time to which the taking of the same may have been adjourned, may make affidavit that further detention would be seriously detrimental or hazardous to the welfare of the person or business in or under his charge; and such affidavit having been made, a justice of the peace, court commissaries, notary public, or other authorized officer before whom such deposition is given, shall thereupon adjourn further proceedings thereon to a future day.

SEC. 593.—*Proceedings to Determine Insanity—Examination by Physicians.*

Whenever any resident of this State, or any person from therein whose residence cannot be ascertained, shall be or be supposed to be insane, application may be made in his behalf by any respectable citizen to the judge of the County Court, judge of the Circuit Court, or any judge of a court of record in and for the county in which he resides, or, in case his residence is unknown, the county in which he is found, for a judicial inquiry as to his mental condition, and for an order of commitment to some hospital or asylum for insane. The application shall be in writing and shall specify whether or not a trial by jury is desired by applicant. On receipt of said petition the judge to whom it is addressed shall appoint two disinterested physicians, of good repute for medical skill and moral integrity, to visit and examine the person alleged to be insane; and such physicians shall proceed without unnecessary delay to the residence of the person supposed to be insane, and shall by personal examination and inquiries satisfy themselves fully as to his condition and report the result of their examination to the judge. . . .

. . . Upon the receipt of the report of the examining physicians the judge may, if no demand has been made for a jury, make and enter his order of commitment to the hospital or asylum of the district to which the county belongs, or, if not fully satisfied, he may make such additional investigation of the case as may seem to him to be necessary and proper; and at any stage of the proceedings, and before the actual confinement of the person alleged to be insane, he, or any relative or friend acting in his behalf, shall have the right to demand that the question of sanity be tried by a jury, and when such demand is made the judge shall forthwith enter an order for a jury trial.

In case a trial by jury is demanded, the forms of procedure shall be the same as in trials by jury in justices' courts, and the trial shall be in the presence of the person supposed to be insane, and his counsel and immediate friends and the medical witnesses. . . .

County Judge may Order Insane Persons Confined.

On receipt by the county judge of the petition provided for by section 1 of chapter 266 of the General Laws of 1880, such judge may, if in his opinion the public safety

requires it, deliver to the sheriff of his county an order in writing requiring him forthwith to take and confine such insane or supposed insane person in some place to be specified, until further order of the judge; and after the receipt by such judge of the report of the examining physicians provided for in said chapter, such judge may, in his discretion, deliver to such officer such order in writing requiring him forthwith to take such person into custody and keep him in some place to be specified, until the further order of such judge. The examining physicians provided for by said section 1 of said chapter 266, in addition to the report required to be made by them by said section, shall state as follows: Has the patient any infectious disease? In your opinion is he insane?

. . . If any relative or friend—being of a legal age and competent to perform the duties—of any person committed to any hospital for the insane shall request the warrant for such commitment may be delivered to and executed by him, he shall be paid his necessary expenses, not exceeding the fees and expenses now allowed to sheriffs according to law; otherwise it shall be delivered to the sheriff, who, taking such assistants as the courts issuing such warrants may deem necessary, shall receive such insane person and convey him to the hospital.

REVISED STATUTES OF WYOMING, 1887.

SEC. 2287.—*Application for Inquisition.*

If information in writing be given to the probate judge that any person in the county is an idiot, lunatic, or person of unsound mind, or an habitual drunkard, or incapable of managing, and praying that an inquiry therein to be had, the court, if satisfied that there be good cause for the exercise of its jurisdiction, shall cause the facts to be inquired into by a jury.

SEC. 2288.—*Court may Act in Vacation.*

Such information may also be given in the vacation of said court, to the judge therefor, in which event he shall call a special term of the court for the purpose of holding an inquiry whether the person mentioned in such information be of unsound mind or an habitual drunkard, or not.

SEC. 2289.—*Person may be Brought into Court.*

In proceeding under this chapter the Probate Court may, in its discretion, cause the person alleged to be of unsound mind or habitual drunkard to be brought before the court.

SEC. 2290.—Whenever any judge of the Probate Court, justice of the peace, sheriff, coroner, or constable, shall discover any person resident of his county to be of unsound mind or an habitual drunkard, as in the first section of this chapter mentioned, it shall be his duty to make application to the Probate Court for the exercise of its jurisdiction, and thereupon the like proceedings shall be had as in the case of information by unofficial persons.

1888.

CHAPTER 85, SECTION 1.—That section No. 3765 of the Revised Statutes of Wyoming be amended and revised so as to read as follows: Section 3765.—After the building herein provided for shall have been completed and accepted by the Board of Commissioners the board shall serve notice in writing upon the Boards of County Commissioners of all the different counties in this Territory, which notice shall state that the asylum for insane at Evanston is now completed and ready for the reception and care of insane persons. Each Board of County Commissioners shall, after the receipt of such notice, cause all persons adjudged to be insane, and whose care shall have been thrown upon the county, to be sent as patients to the Insane Asylum at Evanston, there to be kept and cared for at the expense of said county. And all insane persons having been sent to asylums outside of this Territory shall, upon the completion of said asylum at Evanston, and notice to the Board of County Commissioners as hereinbefore provided, be returned as soon as practicable, under an order of the respective Boards of County Commissioners, to this county, to be kept and cared for at the insane asylum at Evanston.

SEC. 3764 (1887).—*Superintendent of Asylums—Qualifications and Duties.*

The Board of Commissioners shall elect one resident physician, who shall be the general superintendent of the insane asylum herein provided for, subject at all times to the order and duties of said board, which shall have power at any time, whenever in their judgment it shall be deemed proper and for the best interests of the Territory, to discharge and remove such superintendent. The superintendent so elected shall reside at the asylum, be a graduate in medicine, and receive a salary of eighteen hundred dollars per year, payable in advance in equal installments. He shall cause to be kept a fair and full account of all his doings and the actual business and operations of the institution, and submit a monthly report to the Board of Commissioners. The superintendent shall employ all necessary help needed at the asylum, subject to the approval of the Board of Commissioners.

SEC. 3766.—Paying patients, whose friends offer and will pay, or who have property to pay their expenses, shall be admitted to the insane asylum, according to the terms directed by the Board of Commissioners thereof; but the insane poor shall in all respects receive the same medical care and treatment, and be given as wholesome food, as is given to paying patients.

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