CONDITION AND CIRCUMSTANCES WHICH SHOULD INDUCE THE MEDICAL EXAMINER TO EMPLOY A CHEMIST.¹

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THE subject which I have chosen does not permit any original investigation or experiment, nor does it even allow a presentation and discussion of the opinions of authorities, for I have been entirely unable to find anything in books bearing directly upon this question. I shall only attempt, therefore, to call attention to the importance of the subject and to give my own idea of the proper method of proceeding in order to decide correctly, as individual cases arise, the question whether or not to employ a chemist. For it is manifestly impossible to create a set of rules by mechanically following which the medical examiner can be sure of a correct decision. No two cases of suspected poisoning are exactly alike in history, symptoms, and pathology. After all is said, nothing will be found as a substitute for the medical examiner's own judgment and discretion.

Somewhat over a year ago I was placed in what I felt to be a very difficult and embarrassing position. A lady well known in a small city had died under circumstances which suggested poisoning, and I had decided to make an autopsy. The illness had been short, but the symptoms gave no clew as to what poison, if any, had been administered. The main reason for investigating the case was the fact that, from the history, no satisfactory diagnosis could be made, while it was known, also, that two other deaths had occurred in the same family within a short time. Nobody was ready to believe that the lady would destroy herself, nor had any one been about her who seemed capable of doing her any harm. There seemed, however, to be sufficient mystery about the case to demand an autopsy, and I decided to perform it. By the most careful inquiry I could form no opinion in advance as to what pathological appearances I might find, and not having the confidence which years of varied experience must give, I approached the work with considerable hesitation and anxiety. I was afraid, on the one hand, that the death was due to natural causes, the evidence of which might escape me; on the other, I was anxious not to return as a natural death one really due to poison, and so, perhaps, permit the escape of a criminal. At the autopsy no sign of disease could be found, but there was unmistakable evidence of poisoning, and the chemical analysis discovered a large amount of arsenic. The cause of death was thus made plain; and, fortunately for my peace of mind, I had done the proper thing in employing a chemist. A careful man will, and I think all should, always undertake the autopsy in such cases with a certain amount of fear. His mind should be perfectly unbiassed; he should not be determined in advance whether to find evidence of poison or of natural death. The one thought should be to find everything pathological about the body, whether it points to disease or to poisoning, as when a case comes to trial it is found by the medical examiner that every sign of disease becomes of the greatest importance, and that he must be prepared to testify, not only that the death could have resulted from poison, but also that it could not have resulted from disease. To be sure, this is exactly the work for which the medical examiner is supposed to be qualified and prepared.

¹ Read before the Massachusetts Medico-Legal Society.

Yet when we consider the results which may follow a mistake in either direction we must agree that the decision to employ, or not to employ, a chemist should be reached only after the most careful consideration of all the evidence in the case. It may be said that the whole matter is very simple, and that we should employ a chemist whenever we cannot satisfy ourselves, by an autopsy, of the cause of death. While this may be true to a certain extent, yet there are reasons for not employing a chemist unnecessarily. For instance, the mere fact that a chemist is employed may cause irreparable damage to the reputation of an innocent person. In the case above alluded to, in spite of great precaution, it became known that a chemist had been consulted, and suspicion immediately fastened upon a relative of the deceased who had previously borne a good character. Again, in one county at least, the commissioners constitute themselves the judges of all a medical examiner's acts; they reserve to themselves the right to pay bills or not, according as they think them necessarily contracted. From the mistake of not consulting a chemist when poison has been given the very serious result might be the escape of a murderer. But the whole reason for the existence of the medical examiner is the protection of society by detecting crime. When a poisoning case has once come into the hands of the law the chance that the medical examiner may not consider the evidence sufficient to warrant a chemical analysis affords the criminal his first loophole for escape. If murderers are to go free it should be through the lawyers rather than through medical men.

Perhaps of secondary importance is any loss of professional reputation which the medical examiner may suffer. This would certainly follow a wrong decision if, by any chance, his mistake should be discovered subsequently, or if at the time he could not satisfy the public mind.

In connection with the escape of criminals through an oversight of the medical examiner, I should like to remark that a very interesting question for speculation is whether it is possible that murders are being committed about us and remaining undetected or even unsuspected. From its very nature the question cannot be answered positively. Whatever may be true of the past the number of such murders ought certainly to diminish each year in civilized communities. According to the opinion of Taylor, expressed in 1873, such murders are (or were) very possible in England under the coroner system. For he says that in his opinion that system "affords no certainty for the detection of crime; it affords no protection to those who are wrongly charged with crime; and, lastly, it in some cases screens a criminal by a verdict based upon an imperfect inquiry, in which the important medical facts are either not understood or are misinterpreted by the jury." The number of exhumations suggests the possibility of secret murder. Taylor says, again, that in thirty years' practice, fifteen cases of exhumation were referred to him in which the death was proved to have resulted from poison. In some of the cases an inquest had been held. I have in mind a case occurring in this State in which a body was exhumed after fourteen years and arsenic found. We trust that the medical examiner system is better calculated to detect crime than its predecessor, yet it seems possible that there are murders unsuspected even by the friends and attendants of the deceased, which, of course, do not

come into the hands of the medical examiner at all. If acute poisoning is usually detected, may it not be true that chronic poisoning frequently is not?

These considerations may convey some idea of the importance of our subject. The investigation of a case of suspected poisoning seems to me the most delicate and difficult work the medical examiner is called upon to do. Not the least difficult of the many questions arising is whether or not to employ a chemist. The law under which we work affords little help, as it simply says: "The medical examiner may, if he deems it necessary, call a chemist to aid in the examination of the body or of substances supposed to have caused or contributed to the death." The evidence to be used in deciding this question of necessity may be discussed under two heads, as it comes from two entirely different sources:—

(1.) Evidence from the history of the case, including symptoms, and (2) evidence derived from the autopsy.

Evidence of either class may alone be sufficient to decide the question. Thus, in the first place, it is sometimes proper to decide before beginning the autopsy that a chemist should be employed. The cases in which, for the purpose of having a chemical examination, a body is exhumed, perhaps years after death, when the post-mortem appearances can have no diagnostic value, suggest themselves at once as examples. The autopsy in the case above alluded to was immediately followed by two others. Within the three weeks previous to the death of this lady her father and mother had both died after short illnesses. No positive diagnosis had been made by the attending physician, and there had been in each case some symptoms which might be attributed to a poison. Consequently the bodies were disinterred, and though a careful autopsy was made in each case I had previously determined to have a chemical analysis, whatever the autopsies might disclose. This decision seemed justifiable under all the circumstances and considering the unanimity of public opinion. For, on the discovery of arsenic in the body of the daughter, the public mind decided at once that the father and mother must have been poisoned also. At least, there was a universal demand for an investigation. Here it seems proper to say a word concerning this public sentiment, as the medical examiner may at times very plainly feel its force. Perhaps the chances are that in any given case the opinions of the public and those of the medical examiner will agree. When they do not I think great respect should be given to public opinion, and that the medical examiner may be influenced somewhat by it, unless he is absolutely sure of the ground on which he stands, and unless individuals are going to suffer manifest and great injustice. At all events it is easy to imagine a very disagreeable state of affairs, and one especially uncomfortable for the medical examiner, when he sees his duty clearly in one direction and the public or a neighborhood thinks it sees it in another. Such cases require the greatest tact and judgment in their management, as the medical examiner, and even the law itself, may fall into dispute.

Sometimes it is possible to base a decision to have an analysis on symptoms alone, regardless of the pathology and the moral history of the case. Christison contends that no disease can successfully mimic the effects to which strychnia and hydrocyanic acid give rise. Taylor once concluded from the symptoms that

strychnia had been given, though he had failed to find it. If symptoms are ever proof of the presence of poison they must still oftener be characteristic enough to demand an analysis. The conditions found in some cases of poisoning by strong irritants—the state of the lips and mouth, impending suffocation, coldness of surface, acid stains on bedclothes—should lead to a thorough analysis.

Thus we see the nature of the evidence from which the medical examiner may determine to employ a chemist before the autopsy. Just what and how many suspicious acts on the part of persons accused, just what symptoms and how characteristic, just how strong and plainly expressed a public demand are necessary, it is impossible to state in advance. This is where the skill and discretion of the medical examiner are displayed, and each case must be treated as it arises.

We now come to a consideration of the autopsy, and, for the moment, may suppose ourselves dealing with a body of whose history nothing is known. What conditions as found post mortem should lead to the employment of a chemist? A complete discussion of this question would involve a statement of the pathology of all poisons and a comparison with the pathology of all diseases, which would involve many long details of which every medical examiner is supposed to have obtained sufficient knowledge in the course of ordinary study and practice. I shall, therefore, offer only a few general considerations, and mention some appearances which should lead to an analysis regardless of the history.

Poisons may be divided into two great classes, irritant and neurotic. On a general survey of the post-mortem lesions as detailed by authorities one is struck by the frequent absence of characteristic effects. The whole class of neurotic poisons as a rule do not leave any well-marked appearances in the body, and this class includes such well-known poisons as opium, strychnia, belladonna, aconite, and digitalis. Both irritants and neurotics may destroy life without leaving any appreciable changes in the body. "Evidence derived from post-mortem appearances can merely be more or less suggestive. Only a few poisonous substances make such decided impressions upon the living tissues as to warrant even a very strong presumption of their presence."¹ In case of all neurotic poisons it seems safe to say that we cannot expect to find at the autopsy sufficient positive evidence to warrant even a decision as to the necessity of a chemical analysis, to say nothing of finding a cause of death. Here should be excepted, however, autopsies where the odor of such poisons as alcohol, chloroform, and hydrocyanic acid can unmistakably be detected; these odors are sufficient to call for an analysis, even if they are not positive proof of the presence of the poison. But the absence of the odor is no proof of the absence of the poison.

Irritant poisons are more likely to leave post-mortem signs, and the lesions in some cases are more characteristic. "They act chiefly on the stomach and intestines, which they irritate, inflame, and corrode. We may likewise meet with all the consequences of inflammation, such as redness, softening, thickening, ulceration, and perforation."² But each of these conditions may depend upon disease as well as upon the action of irritant poisons. There are various points of difference between these appearances when produced by dis-

¹ Reese on Poisons.

² Taylor's Manual of Medical Jurisprudence.

ease and similar appearances produced by poisons, yet it may be very difficult, if not impossible, to make the distinction without knowing the history of the case. I should consider any of these lesions, much more a combination of them, sufficient to demand an analysis, unless poisoning could be eliminated in some other way. As neurotic poisons may leave their odor, so irritants may cause very characteristic signs of their presence (not true pathological lesions), any of which should call for an analysis. Such are the white patches of arsenious acid sometimes found firmly attached to the mucous coat of the stomach, the peculiar slate-colored deposit said to have been seen in the stomach after poisoning by corrosive sublimate, and the remains of poisons themselves sometimes discovered by close inspection. Here, too, may be noted the preservative effect of arsenic.

This attempt to consider the nature and weight of the evidence furnished separately by the history, symptoms, and autopsy, may at least have suggested the importance in every medico-legal case of gaining evidence from every possible source. The history, or the autopsy, taken separately, is often entirely inconclusive, while the two together may be decisive.

Poisoning has been suspected in cases of death from various natural causes; for instance, peritonitis, intussusception, strangulated hernia, and more rarely rupture of the stomach or duodenum, rupture of the bile ducts, and rupture of the uterus. By combining the history and the autopsy in such cases it is often possible to declare that death could not have been caused by poison. The evidence from the autopsy can always be obtained unless decomposition prevents, while an exact and reliable history may easily be wanting. To be deprived of either class of evidence can only be considered a misfortune. Yet if all the obtainable evidence is duly weighed, if our reasoning is founded on facts and not on theory, we may expect to decide the question under consideration to the advantage both of the public and of ourselves in the vast majority of cases.

I trust that the somewhat desultory and unscientific character of this paper may be attributed partly to the nature of its subject, which hardly seems to admit a more precise and definite answer.

NORMAL CEREBRATION FOLLOWING THREE YEARS OF DISEASED MENTAL ACTION; THE MYSTERY OF ITS PATHOLOGY.

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AMONG the insane the physician occasionally sees a chronic case, in which he had supposed every ray of intelligence obliterated, suddenly brighten up after years of thoroughly diseased mental action, and speak rationally and intelligently. Such cases are as rare as they are interesting, and it is about them that I wish to speak, illustrating the subject by a typical case that occurred in the New Hampshire Asylum. There is but little on this interesting matter in the text-books of insanity. The subject itself, however, is well worthy of investigation, for the study of such cases may throw some important light on the pathology of one of the most obscure diseases, and may also add something to our knowledge of normal mental action.

The tendency of the latest investigation is to prove that mental action is developed through the activity of the nervous system; that chemical and cellular change in that system always precedes the evolution of thought. This leads us to the conclusion that insanity is a physical disease as much as pneumonia or pleurisy. Disordered mental action is dependent on disordered nerve tissue. I think nearly all alienists of the present time subscribe, in the main, to this view of the physical basis of mind. But any specialist who has lived among the insane recognizes the difficulty of establishing a perfect analogy between cases of mental and ordinary physical disease. Indeed, we seem to know as little about the pathology of insanity as we do about its morbid anatomy; and probably the same mystery that surrounds mind in general will always to a greater or less degree obscure it when diseased.

That the analogy between mental and ordinary physical disease is not complete is very evident. A man who has had paraplegia for three years does not suddenly take up his bed and walk, and yet a man's mind may be so diseased that not a single normal thought may be evolved for years, and, owing to the disordered state of his intellectual system, the man may have sunk into a condition worse than that in brute life, and yet, suddenly, after years of such diseased action, that same man may give utterance to sound thought, and may call into perfect play some of the higher attributes of mind, such as memory, realization of time, consciousness of his own condition, etc. It is as if a man with advanced locomotor ataxia should suddenly, perhaps for a few minutes only, arise and walk naturally. There is evidently something in the pathology of insanity that we have not grasped. We can understand tolerably well the ninety and nine cases that have chronic mental disease, and die, either in their thoroughly demented or maniacal condition, without uttering an intelligent idea. We can, to a certain extent, understand how there may be cases of recurrent mania, in which the patient runs through a more or less acute excitement, recovers, and breaks down again. Every hospital has its circulatory cases, and physicians are able to predict with great certainty in some cases the date of a fresh attack. But it is not to these that I allude. I refer to the cases in which the attributes of mind seem to have been destroyed, to cases in which, of the three factors of mind, namely, feeling, volition, and thought, feeling and volition, at least, seem to have been obliterated. In short, we find it extremely difficult to understand how it is that a man with chronic mania or dementia, in whose mind there does not seem to remain a single rational idea, how such a man may suddenly come back to himself, as it were, and speak intelligently.

With these few ideas in mind, I wish to outline as briefly as possible the clinical history of Hiram Gore, and to discuss the peculiar features of his mental condition. Gore was a native of New Hampshire, married, forty-two years of age, shoemaker. He was admitted on the 24th of May, 1877. Had been insane once before. The attack had been of one week's duration before admission. About ten days before, he had had some difficulty with a neighbor, and attempted to shoot him, for which he was arrested, and committed to the jail in Portsmouth. After his arrest he had been growing more excited, and for two days previous had been completely maniacal, violent in language and conduct, destroying everything he could lay his hands upon.