juvenile delinquency provides the precedent for this new approach, although I must admit that public opinion is probably not yet ready to extend this type of treatment to adults.

RONALD TAFT.*

III. A psychiatrist's comments.

Few laymen would fault the assertion that insanity is what the psychiatrist studies and purports to treat. Mr. Justice Cardozo was doubtless also of this opinion when, in 1928, he said, "Everyone concedes that the present (legal) definition of insanity has little relation to the truths of mental life"; to the writer the chief interest of this statement lies in the apparently implicit assumption that "insanity" is an entity capable of being defined precisely in terms that will be meaningful both to the legal and to the medical professions.

In what is probably the most authoritative psychiatric dictionary in the English language neither mental illness nor mental disease is defined, and the heading "insanity" carries this quotation, "For a branch of learning which consists largely of definition the law is strangely lax in the use of the word "insanity". Unfortunately, the word has no technical meaning either in law or in medicine, ..." But this lack of definition does not necessarily betoken a lack of precision in the psychiatrist's understanding of the nature of the work upon which he is engaged; rather does it imply that the essential function of psychiatry is something other than it is commonly taken to be. Hence if there is not to be misunderstanding of the nature of the difficulty that confronts the psychiatrist attempting to transpose his findings into legal concepts, attention must be paid to the methodology of psychiatry.

"Psychiatry", as a learned judge reminded one expert witness, "purports to be a science." It will be in order therefore to ask, "What properly is the function of a science?"—and to answer "Not to 'understand' "—a loose term at best—"but to predict." The psychiatrist takes as his field the observed behaviour of the human subject and in his treatment of his data—the observed facts of behaviour—he does not—or should not—depart from a strict adherence to the methodology of science. The free-living organism (the human subject) and the environment, taken together, are held to form an absolute system containing an infinity of variables. But science cannot handle an infinite number of variables, so for the purpose of experimentation

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and prediction simpler absolute systems must be devised by abstracting, for incorporation in these simpler systems, variables suitable for observation and manipulation. Prediction, in the last resort, depends upon the process of abstraction, for it rests upon the application of the mathematical theory of probability to recognised similarities, and without abstraction there can be no recognition of similarity. While a system may be defined as any arbitrarily selected set of variables, not every system will be found to be absolute, i.e., will be found to yield reproducible and predictable lines of behaviour. A proper selection of essential variables is therefore of fundamental importance in creating the system that is to be observed.

A single sign or symptom, e.g., trembling of the hands, may be considered to be a variable that can take either of two values: value X when trembling is present in whatever degree, and value O when trembling is not observed, i.e., is present but of zero intensity. Similarly other signs or symptoms may be regarded as variables taking one or other of two possible values. Now, in a given instance, let variables A, B, C, D, E, etc.—two valued variables as aforementioned—represent respectively: weakness of the fingers; stiffness of the fingers; clumsiness of the fingers; wasting of the muscles of the hands; fibrillation of the muscles of the hands; etc.; and let the value to be assigned to each variable be X and not O, and the clinical observer will feel confident in predicting with a degree of probability, for practical purposes equivalent to certainty, first, that some additional variables presently of zero intensity will soon become of X value and, secondly, that there will be a progressive deterioration in the physical health of the subject who, ultimately, will die of his illness, probably within five years of its onset.

In the example given the physician behaves throughout as a scientist, he uses careful descriptions of observed behaviour as data for the prediction of future events; and in this instance he will achieve a very high degree of accuracy in his prediction of future events. Yet despite the scrupulous observance of scientific method, and despite the high degree of accuracy achieved in prediction, the physician may be wholly unable to "understand" the case in the sense that he may be entirely ignorant of the forces—genetic, biochemical, bacterial, etc.,—that bring about the phenomena he so accurately observes. These unknown factors may be taken to form a single variable Y, and later investigation may enable the observer to substitute, for this variable, one or more variables whose nature is more precisely determined. This further elucidation may possibly increase greatly the control exercised by the observer over the system under scrutiny, so that it

becomes possible for him so to manipulate certain of the variables as materially to change the nature of future events; events that he remains, however, able to predict. Nevertheless the power to predict future events from the study of present observable behaviour clearly precedes, and can be largely independent of, the power of the observer to modify variables effective in determining the future behaviour of the system.

The example chosen is typical in that prediction rests on a foundation of immediately observable behaviour and is independent of special classes of definitions. Of course, the case may always be named as an example of amyotrophic lateral sclerosis, but to do this is merely to employ a kind of medical shorthand that serves to limit the need to list at length the variables in the system, and certain of the future developments that are predicted. No other advantage follows from the attachment of the label.

Although the example cited has been selected from within the field of neurology and not the field of psychiatry, the principles that operate are the same. In neurology, however, the systems studied are less complex; the essential variables are fewer in number, and there is less interaction with the environment than is common in psychiatric systems.

It is hoped that this rather lengthy preamble will have sufficed to show that the psychiatrist—and the physician in general—can efficiently discharge his particular function by direct observation and without the need to evolve or to employ the highly developed classes of definitions that seemingly play so large a part in the study of the law.

The psychiatrist has no need therefore to define a concept of "insanity" to perform efficiently what is essential in his professional duties. Indeed concepts of this order may be a major embarrassment to him, for of the variables of observable human behaviour that are his concern many exist not as qualitatively and quantatively fixed entities, but as functions, qualitatively determined, but quantitatively capable of taking any one of a series of values, possible from within a very wide range. Thus the psychiatrist may be able to predict with certainty that when influenced by a particular stimulus, a subject *A.* will react with aggressive behaviour, while a second subject *B.* will respond by a withdrawal from the world of reality, but he will seldom be able to predict with similar certainty the precise form that *A.*'s aggressive behaviour will take. In theory, possibly, the psychiatrist should be able to do even this, but in practice the variables are so many and so complex that only the general form of behaviour can

be confidently foreseen. Some quantitative estimate of the probable violence of the reaction is, of course, usually possible, for example that *A.* may kick the cat, but will not strangle his wife, but even this degree of quantitative certainty cannot always be achieved. In view of the complexity of the field the psychiatrist has generally to be content with a precise qualitative and a rough quantitative estimate of the nature of the behaviour that he predicts and, possibly, hopes to modify. And in general this degree of accuracy permits a large measure of control over the system studied.

But the law, to satisfy certain requirements of its own, has evolved the concept that we term "insanity", and, having a further need to define this term precisely, has attempted to establish criteria that will have fixed, unchanging values. Yet the variables that make up the systems that the psychiatrist studies are necessarily functions possessed of a wide range of possible values; and so if the psychiatrist can bring himself to accept the concept of insanity, logically he can do so only with this reservation, that he is free to think in terms of a greater or lesser *degree* of insanity. Partial insanity—or rather partial insanities, for if the concept is to have any meaning for the psychiatrist, it must rest upon more variables than one—appears to find little acceptance among members of the legal profession, and yet clearly it is the only kind of definition of "insanity" that is likely to find favour with the psychiatrist.

It is now desirable to return to the initial question, "Is it possible to define precisely insanity, or mental illness, or mental disease, in terms that will be meaningful both to the legal and to the medical professions?" The writer is very pessimistic on this point. In its development as a scientific discipline psychiatry has no need of such definitions, and the failure, over a period of more than one hundred years, to improve upon the M'Naughten rules stresses the difficulties that beset those who find definitions to be essential, but existing definitions to be inadequate. Is it possible then to dispense with this kind of definition? To the psychiatrist it would appear so, provided that the law courts are willing to permit psychiatric testimony to be presented in the form habitually used by the psychiatrist when practising his profession, i.e., as a prediction arrived at by applying known probabilities to observed facts of behaviour. The possibility of error is inherent in this type of approach to the elucidation of human behaviour; but the psychiatrist in the prosecution of his professional work allows for the possibility of error, and, although more readily apparent, the factor of error is probably very much less when the problem of behaviour is subjected to this type of functional analysis,

than when it has applied to it the yardstick of a rigid definition. Unfortunately as yet there seems to be no inclination to abandon the use of a specific test of some kind founded upon a definition be it of insanity, irresistible impulse, mental illness or mental disease.

In this latest direction to jurors of the District of Columbia it is proposed to abandon the right-wrong test that had its roots in the M'Naughten rules, and the subsequent irrestible-impulse test, for a test that is set out in these terms, "The accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect." Earlier in these observations it was pointed out that the leading psychiatric dictionary of the present day makes no attempt to define either mental disease or mental illness. To the writer all that the District of Columbia is likely to gain by this present development is the exchange of a series of terms, of which insanity is of most note, that have defied satisfactory definition, in some instances for upwards of one hundred years, for a further term "mental disease" that is no more likely to prove capable of satisfactory definition than those that have gone before.

It is said that "whenever there is some evidence" that the accused suffered from a diseased or defective mental condition at the time the unlawful act was committed, the trial court must provide the jury with guides for determining whether the accused can be held criminally responsible. But how is "some evidence" to be found of the existence of a "diseased or defective mental condition" if it is not possible to define what is to be understood by a "diseased or defective mental condition"? The next sentence in the new direction to jurors, "We do not, and indeed could not, formulate an instruction which would be either appropriate or binding in all cases," would seem to imply that the Court of Appeals of the District of Columbia, while formulating the rule that is to be applied, is nevertheless unable to define the term upon which the rule depends, and without whose definition the rule cannot be applied. If the Court of Appeals is unable to supply a satisfactory definition of a "diseased or defective mental condition", then the task of attempting to do so must devolve, in particular instances, upon the trial judge or upon the psychiatrist—one had almost said, the luckless psychiatrist—whose duty presumably is to provide "some evidence."

The sum of past experience would go to show that trial judges are seldom capable of evolving a definition that does not do violence to the legitimate aspiration of the psychiatrist to present his information in what he, at least, considers to be scientific terms. And since few psychiatrists believe in the need for, or the possibility of achieving,

an acceptable definition of a "diseased or defective mental condition", fewer still will be found willing to attempt a definition. It does not appear, therefore, that this direction will make it easier for the psychiatrist to assist the court.

Moreover, should the jury find it possible—despite the difficulties —to conclude that the accused was suffering from a "diseased or defective mental condition" at the time the unlawful act was committed, the jurors must then decide whether the unlawful act was "the product of such abnormality", or was independent of whatever abnormality was present. The writer cannot believe that any psychiatrist (with greater force, a lay juror untrained in these matters) would find it possible to make this distinction on scientifically valid grounds.

Again, the direction states that "In leaving the determination of the ultimate question of fact to the jury, we permit it to perform its traditional function which . . . . is to apply our inherited ideas of moral responsibility to individuals prosecuted for crime . . . Juries will continue to make moral judgments . . . . ". Unfortunately, "inherited ideas of moral responsibility" and "moral judgments" have nothing to do with the practice of psychiatry as a scientific discipline. The individual psychiatrist may well hold strong, possibly inherited, views on moral responsibility, but when applying these views he is no longer operating within the frame of reference of psychiatry. And a jury seeking to employ "inherited ideas of moral responsibility" to understand and evaluate psychiatric testimony is seeking to divorce psychiatry from its proper context and make of it, not a branch of science, but a system of ethics—a procedure certain to end in confusion, if not in disaster.

The attitude adopted by the Court of Appeals of the District of Columbia, however, is but a particular instance of the general unwillingness of the law to accept psychiatry as a scientific discipline subject to the limitations common to all sciences, and of the law's determination to persist in regarding psychiatry as an entity that can be—and ought to be—constrained within the legal concepts of moral responsibility which, however logical, are certainly unscientific. In the final analysis the difficulty is that of translating the concepts of one discipline into those of a second, and it is to be feared, quite unrelated, discipline.

But if psychiatry is to be allowed to present its testimony in a court of law in terms acceptable to psychiatrists, it will certainly be argued that the court will be at the mercy of the particular views held by the individual expert witness, and it will be recalled that psychiatric expert witnesses are notoriously prone to differ in the views they

express. The fact cannot be denied, but it may be questioned to what extent the difference in the views exepressed by various expert witnesses is more apparent than real, and due to the compulsion upon the expert witness to present his opinions in a manner to which he is not accustomed, and which forces him to relinquish the methodology that he has been trained to use. One suspects that were the expert witness to be allowed to present his evidence in the form of a prediction founded upon an evaluation of known probabilities, in the light of observed and recorded behaviour, the notable discrepancies in the views advanced by particular individuals would very rapidly tend to disappear.

In conclusion, the writer is of opinion, for the reasons stated, that the direction to jurors of the Court of Appeals of the District of Columbia is unlikely to make easier the presentation in courts of law of psychiatric testimony in a form that will have meaning both for the legally qualified practitioner and for the psychiatrist.

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