following cranial injuries there is a striking analogy to certain phenomena of epilepsy.*

But here I will stop; I will carefully avoid attempting to explain this.

There are in our, as in all sciences, a crowd of questions to which we can give but one answer: *we do not know.*† We must content ourselves by observing, studying, comparing. Let us, as little as possible, seek to explain. To anyone asking my opinion as to the approximate cause of epilepsy, I would reply, *I do not know.*

Ethics as applied to Criminology. By Dr. ARTHUR MACDONALD, Docent in Applied Ethics (Criminology), Clark University, Worcester, Mass., U.S.A.

The relation of criminality to the other forms of pathological and abnormal humanity is one of degree. If we represent the highest degree, as crime, by A^6, A^5, say, would stand for insane criminality, and A^4 for alcoholism, perhaps, A^3 for pauperism, A^2 for those weak forms of humanity that charity treats more especially, and A for the idea of wrong in general, particularly in its lightest forms. Thus, crime is the most exaggerated form of wrong; but these forms are all one in essence. A drop of water is as much water as is an ocean.

It is difficult to draw a distinct line between these different forms of wrong. This will become evident from the fact that they are dovetailed one into the other. Thus, when cross-questioning criminals, one often feels that not only are their minds weak and wavering, but that they border close on insanity. The same feeling arises after an examination of confirmed paupers. Here alcoholism is one of the main causes; the individual, on account of his intemperate habits, finds difficulty in obtaining employment, and this forced idleness gradually, from repetition, develops into a confirmed habit. Pauperism may be, in some cases, hereditary, but it is too often overlooked that the children of paupers can acquire all such habits from their parents, and so it can be

* It is well known that Westphal rendered guinea pigs epileptic by blows on the head with a hammer.

† These ideas have been developed with great ability by an illustrious savant, M. Bertrand, perpetual Secretary of the Academy of Science, in one of his last academical addresses.

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carried from one generation to another, without resorting to heredity as a cause, which is too often a name to cover up our ignorance of all the early conditions. The extent to which alcoholism is involved in all forms of humanitarian pathology is well known; it is often indirectly as well as directly the cause of leading the young into crime; the intemperate father makes himself a pest in his own home; the children remain out all night through fear; this habit leads to running away for a longer time. Although not thieves, the children are compelled to steal, or to beg, in order to live; and thus many become confirmed criminals or paupers, or both. The great evil about alcoholism is that it too often injures those around, who are of much more value than the alcoholic himself. It makes itself felt indirectly and directly in our hospitals, insane asylums, orphan asylums, and charitable institutions in general. However low the trade of the prostitute may be, alcohol is her greatest physical enemy.

As just indicated, some of the lesser degrees of abnormal and pathological humanity may be considered under the head of "charitological." These are represented by the different kinds of benevolent institutions, such as asylums for the insane and feeble-minded, for the inebriate; hospitals, homes for the deaf, dumb, and blind, for the aged and orphans, etc.; and institutions for defectives of whatever nature.

It is evident, however, that the term "charitological" may not only be applied to what is pathological or abnormal, but also to that which is physiological or normal. Thus it can refer to institutions of quite a different order, but yet none the less charitable in nature. We refer, of course, to educational institutions, the majority of which are a gift to the public, and especially to those who attend them. It is obvious enough that every student is, in some measure, a charity student from the well-known fact that the tuition money in most cases pays a very small part of the expenses.

Now, no distinct line can be drawn between penal and reformatory institutions, and between reformatory and educational institutions; it is, again, a question of degree. But, in saying this, it is not meant that difference in degree is of little consequence. On the contrary, it is very important to distinguish between penal, reformatory, and educational for practical reasons, as in the classification of

prisoners, not all of whom are criminals. In a sense, all education should be reformatory,

But it may be asked, where can a subject end? It goes without saying that divisions are more or less arbitrary, if we are seeking reality, for things are together, and the more we look into the world the more we find it to be an *organic mechanism of absolute relativity*. Most human beings who are abnormal or defective in any way are much more alike than unlike normal individuals; and hence, in the thorough study of any single individual (microcosmic mechanism), distinct lines are more for convenience. Thus the difficulties of distinguishing between health and disease, sanity and insanity, vegetable and animal, are familiar. Whatever may be said from the educational point of view about abnormal cases is generally true, with few modifications, of the normal. Education and pedagogy are thus to be included to some extent in a comprehensive charitological system.

But although the distinct separation of one wrong from another is not easy, yet the decision as to the highest form of wrong may not be so difficult. This form consists, without doubt, in the act of depriving another of his existence; no act could be more radical; the least that could be said of anyone is that he does not exist. The desire for existence is the deepest instinct in nature—not only in the lower forms of nature, but anthropologically considered, this feeling manifests itself in the highest aspirations of races. In mythology, religion, and theology the great fact is existence hereafter, and in philosophy it has gone so far as pre-existence of the soul. Perhaps the deepest experience we have of non-existence is in the loss of an intimate friend, when we say so truly that part of our existence has gone from us. It is death which makes existence tragic.

Now the degrees of wrong may be expressed in a general way in terms of existence; that is, in depriving another of any of his rights we are taking from him some of his existence, for existence is qualitative as well as temporal; that is, it includes everything that gives to life content.

Thus, in this sense, a man of forty may have had more existence than another at eighty where the former's life has been broader, richer in experience and thought, and more valuable to others.

We may say in general that the existence of a person is beneficial or injurious in that degree in which it is

beneficial or injurious to the community or humanity. This statement is based upon the truism that the whole is more than any of its parts.

The degrees of wrong, therefore, should depend upon the degree of danger or injury (moral, intellectual, physical, or financial) which a thought, feeling, willing or action, brings to the community.

This same principle should be applied to degrees of exaggerated wrong or crime.

But, it may be said, should not the degree of freedom or of personal guilt be the main basis for the punishment of the criminal? The force of this objection is evident; historically, the idea of freedom has been the basis of criminal law; it has also been sanctioned by the experience of the race; and although no claim is made of carrying it into practice without serious difficulties in the way of strict justice (difficulties inevitable to any system), yet it has not only been an invaluable service, but a necessity to humanity. This is not only true on criminal lines, but this idea has been the conscious basis of our highest moral ideas.

But at the same time it must be admitted that the exaggeration of the idea of freedom has been one of the main causes of vengeance, which has left its traces in blood, fire, martyrdom, and dungeon; and though at present vengeance seldom takes such extreme forms, yet it is far from extinct. On moral and on biblical grounds, as far as human beings are concerned, vengeance can find little support; an example of its impracticability is the fact that some of the best prison warders never punish a man till some time after the offence, so that there may be no feeling on the part of either that it is an expression of vengeance. The offender is generally reasoned with kindly, but firmly, and told that he must be punished, otherwise the good discipline of the prison could not be maintained; which means that he is punished for the good of others. With few exceptions, a revengeful tone or manner towards the prisoner (save outside of prison) always does harm, for it stirs up similar feelings in the prison, which are often the cause of his bad behaviour and crime, and need no development. Kindness with firmness is the desirable combination. Vengeance produces vengeance.

But, taking the deterministic view of the world, the highest morality is possible. One proof is that some fatalists are rigidly moral. A psychological analysis will show that

persons who are loved and esteemed are those whose very nature is to do good—that is, they would not and could not see a fellow-being suffer; this is, from the necessity of their nature they were from infancy of a kind disposition. We admire the sturdy nature who, by long struggle, has reached the moral goal; but we cannot love him always. He is not always of a kind disposition: this is not a necessity of his nature. As the expression goes, "There are very good people with whom the Lord himself could not live."

Is it not the spontaneity of a kind act that gives it its beauty?—where there is no calculating, no reasoning, no weighing in the balance, no choice? The grace of morality is in its naturalness. But to go still further: Do we like a good apple more and a bad apple less because they are necessarily good or bad? and, if we admitted that every thought, feeling, willing, and acting of men were as necessary as the law of gravity, would we like honest men less and liars more? True, we might at first modify our estimation of some men, but it would be in the direction of better feeling towards all men.

But, whatever one's personal convictions may be, questions of the freedom of the will and the like must be set aside, not because they are not important, but simply because enough is not known regarding the exact conditions (psychological and physiological) under which we act and think. If we were obliged to withhold action in the case of any criminal, for the reason that we did not know whether the will is free or not (allowing for all misconceptions as to this whole question), the community would be wholly unprotected. If a tiger was loose in the streets the first question would not be whether he was guilty or not. We should imprison the criminal, *first of all, because he is dangerous to the community.*

But if it be asked, how there can be responsibility without freedom? the answer is that there is at least the feeling of responsibility in cases where there is little or no freedom; that is, there is sometimes no proportion between the feeling of responsibility and the amount of responsibility afterwards shown. The main difficulty, however, is that in our present state of knowledge it is impossible to know whether this very feeling of responsibility or of freedom is not itself necessarily caused either psychologically or physiologically, or both. If we admit that we are compelled to believe we are free (as some indeterminists seem to claim), we deny

freedom in this very statement. Another obvious and practical ground for our ignorance as to this point is the fact that, although for generations the best and greatest minds have not failed to give it their attention, yet, up to the present time, the question remains *sub judice*. If we carried out practically the theory of freedom we should have to punish some of the greatest criminals the least, since, from their coarse organization and lack of moral sense, their responsibility would be very small.

A scientific ethics must regard the question of freedom as an unsettled problem. Any ethics would be unethical in taking, as one of its bases, so debateable a question.

Our general, sociological, ethical principle (as above stated) is *that the idea of wrong depends upon the moral, intellectual, physical, and financial danger or injury which a thought, feeling, willing, or acting brings to humanity*.

But accepting this principle, the important question is just what are these thoughts, feelings, willings, and actions, and by what method are they to be determined? The first part of this question, on account of the narrow and limited knowledge at present in those lines, can be answered only very imperfectly, if at all. As to the method, that of science seems to us the only one that can eventually be satisfactory. By the application of the scientific method is meant that all facts, especially psychological (sociological, historical, etc.), physiological, and pathological, must form the basis of investigation. Psychological facts that can be scientifically determined, as affecting humanity, beneficially or not, are comparatively few in number. Physiologically, more facts can be determined as to their effect on humanity. But it is pre-eminently in the field of pathology that definite scientific results can be acquired. As to the difficulty of investigating psycho-ethical effects, it may be said physiological psychology and psycho-physics have not as yet furnished a sufficient number of scientific facts.

By the scientific application of chemistry, clinical and experimental medicine with vivisection, to physiology, many truths of ethical importance to humanity exist. But there is much here to be desired; for example, what is said about questions of diet and ways of living in general is scientifically far from satisfactory. The development of pathology in medicine has been without precedent. Its direct ethical

value to humanity is already very great; but the outlook into the future is still greater. It is only necessary to mention the discovery of the cholera and tuberculosis germs (a *conditio sine qua non* of their own prevention). Immunity, in the case of the latter, would be one of the greatest benefactions yet known to the race. Medicine can be said to be the study of the future, especially in the scientific and prophylactic sense. It is to experimental medicine that scientific ethics will look for many of its basal facts.

In emphasizing the scientific method as the most important, it is not intended to exclude others. The *à priori* method has been of inestimable value to philosophy, ethics, and theology, and to science itself in the forming of hypotheses and theories, which are often necessary anticipations of truth, to be verified afterwards. The *à priori* method is related to the *à posteriori* as the sails to the ballast of a boat: the more philosophy, the better, provided there are a sufficient number of facts; otherwise there is danger of upsetting the craft.

The present office of ethics is, as far as the facts will allow, to suggest methods of conduct to follow, and ideals to hold, that will bring humanity into a more moral, physiological, and normal state, enabling each individual to live more in harmony with nature's laws. Such an applied ethics must study especially the phenomena manifested in the different forms of pathological humanity, and draw its conclusions from the facts thus gathered.

But there are many scientists who look with suspicion upon the introduction of philosophical thought and methods into their field. We may call them pure-scientists; that is to say, those who believe that the term scientific truth should be applied only to that form of truth which can be directly verified by facts accessible to all. Yet from this point of view the arrangement, classification, forming of hypotheses and theories, and drawing philosophical conclusions are not necessarily illegitimate, provided those processes are clearly distinguished from each other and rigidly separated from the facts. Perhaps the study which, more than all others, will contribute towards a scientific ethics is criminology, the subject matter of which touches the popular mind very closely, owing, in a great measure, to the influence of the Press; and though this has its dangers, yet it is the duty of this, as of every science, to make its

principles and conclusions as clear as possible to the public, since in the end such questions vitally concern them.

Crime can be said, in a certain sense, to be nature's experiment on humanity. If a nerve of a normal organism is cut, the organs in which irregularities are produced are those which the nerve controls. In this way the office of a nerve in the normal state may be discovered. The criminal is, so to speak, the severed-nerve of society, and the study of him is a practical way (though indirect) of studying normal men. And since the criminal is seven-eighths like other men, such a study is, in addition, a direct inquiry into normal humanity.

The relation also of criminology to society and to sociological questions is already intimate, and may in the future become closer. Just what crime is at present depends more upon time, location, race, country, nationality, and even the State in which one resides. But notwithstanding the extreme relativity of the idea of crime, there are some things in our present social life that are questionable. A young girl of independence, but near poverty, tries to earn her own living at three dollars a week, and if, having natural desires for a few comforts and some taste for her personal appearance, she finally, through pressure, oversteps the bound, society, which permits this condition of things, immediately ostracizes her. It borders on criminality that a widow works fifteen hours a day in a room in which she lives, making trousers at ten cents a pair, out of which she and her family must live, until they gradually run down towards death from want of sufficient nutrition, fresh air, and any comfort. It is criminally questionable to leave stoves in cars, so that if the passenger is not seriously injured, but only wedged in, he will have the additional chances of burning to death. It has been a general truth, and in some cases is still, that so many persons must perish by fire before private individuals will furnish fire escapes to protect their own patrons. It is a fact that over five thousand people are killed yearly in the United States at railroad-grade crossings, most of whose lives could have been spared had either the road or the railroad passed either one over the other. But it is said that such improvements would involve an enormous expense; that is, practically, to admit that the extra money required is of more consequence than the five thousand human

lives. And yet, strange as it may seem, if a brutal murderer is to lose his life, and there is the least doubt as to his premeditation, a large part of the community is often aroused into moral excitement, if not indignation, while the innocently-murdered railroad passenger excites little more than a murmur.

There is, perhaps, no subject upon which the public conscience is more tender than the treatment of the criminal.

Psychologically, the explanation is simple, for the public have been educated gradually to feel the misfortune and sufferings of the criminal; it is also easier to realize, since the thought is confined generally to one personality at a time. But if the public could all be eye-witnesses to a few of our most brutal railroad accidents, the consciousness gained might be developed into conscientiousness in the division of their sympathies. But this feeling, however paradoxical, is a sincere, though sometimes morbid expression, of unselfish humanitarianism, for the underlying impulses are of the most ethical order, and over-cultivation is a safer error than under-cultivation. The moral climax of this feeling was reached when the Founder of Christianity was placed between two thieves.

The Circulation of the Blood and Lymph in the Cranium during Sleep and Sleeplessness, with Observations on Hypnotics (Prize Essay). By John Cumming Mackenzie, M.B., Assistant Medical Officer, Northumberland County Asylum, Morpeth.

Sir Henry Holland, in his chapter on Sleep, considers its investigation should include causes which prevent as well as those which favour or produce it. In the investigation of sleeplessness we assume the converse of this as true, and advert briefly to what experimental physiologists regard as causes and accompaniments of sleep before engaging on its pathological condition, for the therapeutics of sleeplessness imply a knowledge of both. Disturbances of sleep are so constantly the heralds and associates of mental disease as to make insomnia, more than any other condition, common to all, or pathognomonic. The object of sleep, says Sir Henry Holland, is reparation, and sleep itself repose of sensibility and volition, whose cause is a change of condition of the nervous substance closely related to these functions, probably never to be ascertained by investigation, "yet," he continues, "not the less real as a change on that account."