XCI.—No question relating to increased expenditure, to alterations in the staff or management of an asylum, to the sub-division of old or creation of new offices, or to any other subject of importance, shall be taken into consideration, without a month's previous notice; and no resolution of the board affecting the discipline or management of an asylum as established by the present rules, shall take effect, if contrary to any of them; nor, though conformable thereto, until after it shall have been submitted, through the inspectors, to the chief or under secretary, and shall have received the approval of the Lord Lieutenant.

XCII.—In any district lunatic asylum in which the person at present holding the office of manager is not a medical man, the foregoing rules shall not come into operation until he shall cease to hold that office; and, in the mean time, the rules hereinbefore recited shall remain in force in such asylum.

Given at the Council Chamber, in Dublin, the 16th day of January, 1862.

MAZIERE BRADY, *C.*
ROBERT PEEL.
N. BALL.
R. KEATINGE.
JAMES HENRY MONAHAN.
JOSEPH NAPIER.
WILLIAM KEOGH.
J. D. FITZGERALD.
R. DEASY.
G. BROWN, *General.*
THOS. O'HAGAN.

On the Practical Use of Mental Science.—By J. STEVENSON BUSHNAN, M.D., Fellow of the Royal College of Physicians of Edinburgh; late Senior Physician to the Metropolitan Free Hospital; Resident Proprietor of Laverstock House Asylum, near Salisbury.

(*Read before the Southampton Medical Society, 4th February*, 1862.)

MENTAL Science, in the forms under which it usually exhibits itself, is a subject of extreme generality. It deals with the phenomena of consciousness, as these are common to the whole human race. It hardly takes into account those peculiarities of the mind, from which individual character is formed; nevertheless, in the practical application of mental science, it is with individual character that we are for the most part engaged. Shall we, then, conclude that the prevailing systems of mental science afford no insight into

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the practical uses of that science? Certainly not—and for this very sufficient reason, that the peculiarities of individual minds bear but a very small proportion to the operations which arise in obedience to laws affecting all the sound-minded members of our race. Hence, in the study of the practical uses of mental science, while it is incumbent upon us to fix a strict attention on the general laws of thought, means must at the same time be sought to bring to light the limits of the range, within which these laws, in particular minds, suffer modification.

In short, the chief practical use of mental science is to enable us to deal with and to influence individual minds. Let a man be ever so well acquainted with his own mental constitution, he will have made but very small progress in the means available for a practical psychology. He may, indeed, have become thoroughly conversant with all the mental phenomena, which are common to him with the whole human race; but if he has studied himself only, he will run a great risk of falling into the error of including his own mental peculiarities among the universal laws of human thought. It is true that the study of mental phenomena by reflexion on the subjects of one's own consciousness may serve greatly to extend the reach of thought, and to give acuteness to the intellectual faculties; but no pains taken in this direction will suffice for the attainment of a knowledge of human nature in the sense of an acquaintance with individual character. To reach such a knowledge, the student must apply himself to the observation of individual men, and his progress will be proportionate to the opportunities which he may enjoy of a large intercourse with society under ever-varying circumstances. Nor can there be any doubt that an intimate familiarity with the general principles of scientific psychology will initiate him in the readiest modes of turning such opportunities to advantage, and serve to abridge the labour of perusing the hidden lines of thought, and the startling peculiarities of motive unceasingly offered to his attention. He already knows that, in obedience to the general laws of human thought, every act of mind must be introduced by a previous act of mind, and what he wishes to learn is what are the ordinary links in every man's prevailing currents of thought. He must now be content to acknowledge that, when he was taught that all the relations of thought could be reduced to such heads as contiguity in time and place, cause and effect, and the like, he was made acquainted merely with the alphabet of that language which he is now striving to read —and that, before he can attempt to determine what course of thought will arise under given circumstances in the mind of any individual, he must have had the means of ascertaining something of the modes in which that man's thoughts are accustomed to array themselves.

Thus practical psychology, as superadded to scientific psychology,

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might be described as the exercise of converting the general laws of suggestion, laid down by metaphysicians, into particular instances, falling under those laws, discoverable by the study of the individual minds of men throughout human society. This is a kind of pursuit which will encounter the reproach of being wholly opposite to inductive science. Nevertheless, it is a mode of investigation which in many departments of knowledge is essential to reaching the truth. It is far from being unknown even in natural history. How many well-distinguished groups, both in the vegetable and in the animal kingdom, have been made out of what seemed at first to be but one perfect family—how many species out of what seemed at first one well-marked species? In the mineral kingdom, look at such words as spar and gem which were originally employed each to signify a small group of resembling stones; yet how has each multiplied into a vast family but by a more and more particular scrutiny of each of the older members of the two groups? Turn to political economy—how many general laws, which at one time appeared complete and incontrovertible, have by the larger and larger investigation of special cases been broken down into almost endless details. And to a more limited extent, the same is true of the principles of morals.

Parse, so to speak, any particular example of a train of thought by the rules of suggestion, such as contiguity of time and place, cause and effect, and the like—nothing is easier than to dissect the train into its several members and to state the category under which each member falls. But reverse the case and reflect how far the train could be continued, were the first member only given, by any amount of consideration of these rules of suggestion. Witness such a string of thoughts as the following, taken almost at random from Shakspeare:

"PISTOL.—Then you, Mrs. Dorothy; I will charge you.

"DOROTHY.—Charge me? I scorn you, scurvy companion. What! you poor, base, rascally, cheating, lack-linen mate! Away, you mouldy rogue. Away, you cut-purse rascal! you filthy bung, away! By this wine, I'll thrust my knife in your mouldy chops, an you play the saucy cutter with me. Away, you bottle-ale-rascal! you basket-hilt state-juggler, you! Since when, I pray you, sir? What, with two points on your shoulder? much! Captain! thou abominable damned cheater, art thou not ashamed to be called Captain? If captains were of my mind, they would truncheon you out, for taking their names upon you before you have earned them. You a captain, you slave; for what? He a captain! Hang him, rogue! He lives upon mouldy stewed prunes and dried cakes. A captain! These villains will make the word captain as odious as the word occupy, which was an excellent good word before it was ill-sorted; therefore captains had need look to it."

It were very needless to point out how special the links of sug-

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gestion are in a discourse like this. They fall indeed under the general laws—but they are so peculiar as to be thoroughly the property of the individual mind. Nevertheless, it belongs to practical psychology to make an approach at least to anticipating such a train of thought as that just cited, when the prevailing turn of the individual mind has been indicated.

How, then, are we to proceed to gain insight into the links of suggestion which are customary in individual minds? It is to be understood that a preliminary step is an acquaintance with all that scientific psychology teaches concerning the nature of human feelings, thoughts, emotions, and passions. After this preparation, in the following enumeration will be found some of the most obvious means, by which a greater and greater facility of penetrating into the recesses of other men's thoughts may be acquired. Among these means stands pre-eminently the careful scrutiny of the characters of those, whose minds are specially laid open to us in the intercourse of life. I would next mention the selection for frequent study of those systems of scientific psychology, in which the principle of suggestion plays an unusually prominent part. Of this description in particular is the system of Dr. Thomas Brown. I would in the third place direct attention to the consideration of the question, how far certain physiological conditions of the living body are capable of modifying trains of thought. I would lastly point out what a boundless field for exercise in the elements of individual character is presented in literature, whether imaginative, or historical and biographical, as well as in the annals of crime as found in the judicial proceedings of every country. To the illustration of these several topics I now proceed.

If a minute could be made of all the operations of a man's mental nature from the earliest period of consciousness—a considerable time probably before birth—down to the last consciousness which preceded death; and if this could be done with respect to any large number of individuals, what a curious set of psychological pictures would be obtained! We should be able to trace minutely the several steps in the development of the infant mind; the rise of fundamental thoughts—some inspired by instinct, some wrought out by rudimentary reasoning; the daily growing knowledge in the child of the component parts of his own frame; his gradual approach to the discovery of the broad line of demarcation between self and an external world; the wonder of the boy as the nature of the things around thickly flashes upon his view! Then would appear the beginnings of the nice variations of individual character which show themselves so early in the period of youth—the bents, the dispositions, the secret thoughts, with the modes in which these are nourished by external circumstances—the seeds of the good and the evil of the after-character in manhood. Then what a singularly

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vivid anatomy of the man's spirit would be presented! what secrets revealed in reference to the prime and latter stage of life! What a commentary would such minutes be on the lucubrations of our poets, our moralists, our philosophers! how would it illustrate these! how would it transcend them all!

If then it be self-evident that the possession of such pictures of the human mind and character would be of invaluable service to all whose business it is to deal with human nature—and in particular to the legislator, the divine, the lawyer, and the physician—it deserves consideration to what extent that science should be held in estimation which, in default of such a gift in all its perfection, has for its object to present pictures of the same kind, if not complete, yet in large and unmistakeable fragments. That science is Psychology. It rests upon such minutes of the human mind and character as individuals, in all time past, have been able to supply from their personal experience; that is to say, from the observation of self. Inferior as psychology necessarily is to the pictures I have supposed, it makes the nearest approach to them in point of utility which men can possibly reach, and the more it is cultivated the nearer it absolutely identifies itself with them. Psychology exhibits, in a very complete manner, the general plan on which the operations of the human mind proceed; while the acknowledgment of inferiority which must be made on its behalf, in comparison with such a gift as the pictures I have supposed, refers chiefly to what is of the last importance—the numerous peculiarities of individual minds. There can be no doubt that the value of the pictures would lie essentially in their vivid representations of peculiarities, such as the descriptions of psychology have hitherto embraced to a far too limited extent. But this particular department—that is, the peculiarities of mind in individuals, both belongs to psychology and, with due discrimination, is, beyond doubt, capable of extensive cultivation. It is, in short, the practical part of psychology, and, as such, is directly available for the purposes of all who, in the business of life, are required, to any large extent, to study human nature. If it be plain, then, that the attainment of these pictures is beyond our reach, it is incumbent on all who feel the want of them to apply themselves to psychology, and to make it their endeavour to enlarge that part of the science which relates to the peculiarities of individual minds.

But, before proceeding farther in this line of discourse, let us recur, for a few moments, to the supposed minutes and pictures of the operations of mind throughout the lives of a number of individuals, with a somewhat different purpose. Though such a picture cannot be produced in the full perfection of its details, yet a fair outline of it can be imagined, and it is such an imaginary outline which psychologists make use of in their attempts to methodise the phenomena of the human mind by reducing them to groups. This

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methodising or grouping of mental operations, and the settling of the rules which, more or less, certainly determine the order of the succession of such operations, constitute psychology proper. The method of arrangement, and the laws or rules referred to, have been viewed in different lights by different authorities; and, indeed, the cultivation of psychology should not be regarded so much as being the mere study of the mode of grouping mental phenomena and the laws of their succession adopted by particular authors, but rather as being the consideration of the imaginary pictures above referred to and the practising of one's self in throwing the phenomena, now into one set of groups, now into another set, according to every discoverable kind of tie or relation between them.

It is often made a complaint against psychology that so many different methods of arranging the phenomena of mind prevail in the works of the most esteemed authors. It is, doubtless, an inconvenience that the nomenclature is not more fixed, and, in so far as words are used in different senses by different authors, there is good ground for complaint. But it is quite possible that writers on psychology may vary their methods of arrangement, without confusing their readers by employing words otherwise than in their ordinary and received sense. With this restriction, there can be little doubt of the advantage which has resulted to psychology from the attempts of authors to throw mental phenomena, now into one set, now into another set of groups. It is not even necessary for the advantages attainable by the frequent variation of these groups of phenomena, that the principle on which the methods proceed should be absolutely correct; for more distinct views are often obtained by looking at such phenomena in every aspect in which they can present themselves, than by confining our attention to that aspect which is nearest the truth. For example, there are serious objections sometimes urged to representing all the operations of which mind in its largest sense is susceptible as so many states of mind, or so many states of consciousness. Nevertheless, it cannot be doubted that that mode of speaking has had, in a particular degree, the effect of clearing away the confusion caused to the student by the terms faculties, powers, feelings so currently used in the older modes of arrangement. In short, so long as consciousness was described as a mental faculty, co-ordinate with memory, imagination, judgment, and the like, there was a fertile source of perplexity introduced into every arrangement of the mental operations in which consciousness held such a place. But since it has been generally taught that consciousness is not a separate faculty of the mind, but a condition attendant upon every sensation, feeling, thought, emotion, passion, volition—in short, upon every state in which the mind can exist, the unity of the substance mind is at once made apparent to the student, and the true nature of consciousness brought out, even if the phrase "states of mind" should be

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subsequently abandoned and entirely left out of the arrangement finally adopted. I should remark, that in what has just been said the consideration of the new ideas which have sprung up as to unconscious cerebration is, for the present, postponed.

Again, though there are many valid objections to adopting the arrangement of mental phenomena proposed by Dr. Thomas Brown, yet there cannot be a doubt as to the study and debate of that arrangement being in the highest degree conducive to the clearer apprehension of the real character of phenomenal psychology. The part of Dr. Brown's arrangement to which I particularly allude, is that in reference to what he terms Intellectual states of mind. Dr. Brown regards all the intellectual states of which the human mind is susceptible as reducible to two conditions, namely, Simple Suggestion and Relative Suggestion. "Our perception or conception of one object," Dr. Brown says, "excites, of itself, and without any known cause, external to the mind, the conception of some other object, as when the mere sound of our friend's name suggests to us the conception of our friend himself; in which case the conception of our friend, which follows the perception of the sound, involves no feeling of any common property with the sound which excites it, but is precisely the same which might have been induced by various other previous circumstances, by the sight of the chair on which he sat, of the book which he read to us, of the landscape which he painted." This is Simple Suggestion. "There is a suggestion of a very different sort, which, in every case, involves the consideration not of one phenomenon of mind, but two or more phenomena, and which constitutes the feeling of agreement, disagreement, or relation of some sort. I see a dramatic representation. I listen to the cold conceits which the author of the tragedy, in his omnipotent command over warriors and lovers of his own creation, gives to his hero, in his most impassioned situation; I am instantly struck with their unsuitableness to the character and the circumstances." ('Brown's Lectures on the Philosophy of Mind,' vol. ii, p. 179.) This last is one of Dr. Brown's examples of his Relative Suggestion. Again, he says, "With these two capacities of suggested feelings, simple and relative—which are all that truly belong to the class of intellectual states of the mind—various emotions may concur, particularly that most general of all emotions, the emotion of desire, in some one or other of its various forms. According as this desire does or does not concur with them, the intellectual states themselves appear to be different; and by those who do not make the necessary analysis, are supposed, therefore, to be indicative of different powers. By simple suggestion, the images of things, persons, events, pass in strange and rapid succession; and a variety of names, expressive of different powers,—conception, association, memory,— have been given to this one simple law of our intellectual

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nature. (Ibid. 180, 181.) Again, "Whether the relation be of two, or of many external objects, or of two or many affections of the mind, the feeling of this relation, arising in consequence of certain preceding states of mind, is what I term relative suggestion; that phrase being the simplest which it is possible to employ, for expressing without any theory, the mere fact of the rise of certain feelings of relation, after certain other feelings which precede them, and, therefore, as involving no particular theory, and simply expressive of an undoubted fact, being, I conceive, the fittest phrase." —(Ibid., p. 430.)

The arrangement adopted by Dr. Brown is well adapted both to illustrate the true nature of what have been termed powers and faculties of the human mind, and to point out the practical advantages of seeking to frame minutes or to delineate pictures of what passes in the mind during trains of thought.

Dr. Brown objects to the phrase "association of ideas," maintaining that successive states of mind are suggested and not associated. If the association of ideas be regarded as including all the circumstances which determine the succession of mental states in what is called a train of thought, the notion that phrase conveys is undoubtedly too limited. When we hear the name of a friend pronounced and the appearance of that friend immediately rises to the mind, there is unquestionably a connexion between the two states which is entitled to the name of an association; for the two phenomena have often existed together, simultaneously, or in succession, in the mind before, or have been associated. But when I look at the portrait of a stranger for the first time, and that portrait seems to have a resemblance to a particular friend, whose appearance immediately rises into my mind, there is obviously no association, but only a suggestion, since the stranger's features and the appearance of my friend never before co-existed in my mind. Suggestion, it is plain, applies to both cases, and therefore, unless it be desirable to keep the two cases distinct, it is the preferable word.

The laws of suggestion taken as a whole, to which the train of our subject here draws us, carry us into the very pith and marrow of practical psychology. The startling proposition—and it is not less true than startling—here is, that man has no voluntary power over any one thought. Every present state of mind is the suggestion of some previous state of mind; nevertheless, thoughts do not succeed thoughts like a long chain of connected events in physical nature; they do not follow each other under definite impulses like wave upon wave. Among the many states of which the human mind is susceptible, there are the states of volition and desire and these states have other states of mind for their objects, so that volition and desire, as it were, over-rule and control the ordinary rules of suggestion, and thus a man, by the regulation of volition and desire

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may become in a great measure master of his thoughts. Besides the influence, however, of the states of mind of which a man is conscious, in the determination of the succession of thought, there is reason to believe that organic states of the living frame sometimes, to a greater or less extent, assume the mastery.

Nothing is more familiarly known than the effect of what are called good and bad, high and low spirits on the trains of thought in individuals. Good and bad, high and low spirits are obviously merely organic or purely physiological states of the living body. In certain temperaments high spirits, in certain other temperaments low spirits are habitual. High spirits and low spirits are expressive terms, but in the present day have no physiological signification, being merely a bequest from the language of a physiology of former times. They correspond, however, without doubt, to organic conditions of the system dependent on variations in the activity with which some of its important functions are performed. Here, then, it is manifest that the laws of suggestion, as respects the succession of states of mind, are over-ruled and modified by purely corporeal conditions of the living frame.

But there is an additional view on this subject which introduces us to a wholly different mode in which the succession of thought may be modified by purely organic causes. It cannot be doubted that every change in the current of thought is accompanied by a strictly corresponding change of a material kind in the nervous centre—by an alteration of some unknown description in the condition of the organic atoms composing the portion of the nervous centre concerned in the state of mind which has arisen. It is true that this change on the vesicular nervous matter, corresponding to successive operations of mind, has of late been regarded as merely a decomposition of part of the organic solid into its inert elements, or into an inert compound designed to be thrown forth from the system by some of its emunctories. If this were the sole change, it is not easy to see how any vestige of it should remain in the nervous system, such as could concur with the mental principle, in its after reproduction as a state which might be recognised as one previously present to the mind. But many considerations render it highly probable, if not certain, that the change, whatever it is, leaves some trace of a permanent kind behind it; and if this be admitted, a fertile cause is obtained of many phenomena in the succession of thought, under peculiar circumstances, not otherwise easily explicable. For example, let us attend for a moment to the phenomena in febrile delirium, in intoxication, in dreaming, and the like. What an activity of mind is often discoverable in febrile delirium!—for fifteen or twenty days an almost unceasing outpouring of disjointed thoughts may occur, often of the most extravagant character, where perhaps no two could be said to have become connected by a previous coin-

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cidence in the mind during health. In the stillness and darkness of the sick chamber during a severe attack of fever, there are few impressions made of a kind to originate vivid sensations, while the sensations arising from local bodily disturbances are of a very uniform character, so that there is absolutely nothing in the shape of impressions on the organs of sense correspondent with the variety and activity of the thoughts rushing onwards in mad career. What then is discoverable in such a case within the head to account for so great an activity of thought? There is an increased momentum of the circulation of the blood through the cerebral vessels, an augmented development of heat, and doubtless a more rapid decomposition both of the fibrous and vesicular nervous substances. There are, indeed, no facts from which we can infer that an increased impulse of the blood on the vesicular matter can call its function into activity; but as the fibrous matter is, like the nerves themselves, a conducting apparatus, a strict analogy cannot but subsist between them. Hence it is not improbable that the impulse of the blood on the conducing nervous substance within the head, just as the impulse of the blood on the optic nerve causes visual effects, may so affect the vesicular substance to which it extends as to revive or reproduce states of mind altogether independently of their original order and connexion. The proposition so deduced may be in other terms thus stated; every act of mind leaves behind it in the vesicular nervous substance a permanent material trace or effect—the existence of this trace is probably essential to the revival of that act of mind by suggestion, that is by means of another act of mind; but while it continues, it seems probable that if that trace or vestige be organically affected in some certain modes, the corresponding act of mind is revived contrary to the ordinary rule by suggestion. Could this mode of viewing the subject be established, it would be a step in advance of no small importance in the pathology of mental diseases. The idea is not only in strict analogy with the series of facts of which an instance from vision was given above, but is in general keeping with the laws of nervous action.

Again, in intoxication and dreaming, how many considerations are there in favour of the outrageous trains of thought, common to both, being the effect rather of material impulses on the nervous apparatus than of anything coming under the name of suggestion.

But to take up the bearing of the view started above on insanity. On the supposition that thought succeeds thought merely by suggestion, how inexplicable is the torrent of unconnected ideas which in many cases of mental derangement is uninterruptedly poured forth! If, on the contrary, it be found that every mental operation, sensation, perception, remembrance, or imagination leaves a material vestige in the nervous centre, which vestige being rendered active, at a future time,

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by a merely physical impulse, can renew the corresponding mental operation, how close is the representation afforded by this view, to the phenomena of insanity. There can be no doubt that insanity depends, in every instance, on a deviation of the organism of the nervous centre from its normal condition. Too little is known of the intimate nature of organic parts to entitle us to say that insanity is in every case a real structural change on the nervous substance. The term "structural" should not certainly be employed unless in respect to changes which are within the range of the microscope. By which it is to be understood that merely inferred alterations of an organism are not to be described as changes of structure. In every organic part whether in health or disease there are molecular changes going on, and when such molecular changes are inferred to have become morbid, it seems at first sight reasonable to include them in the expression—morbid alterations of structure. But this is to destroy entirely the use of the old term "functional," as applied to diseases—which though perhaps never strictly correct in its original sense, is of great convenience. There still, is and probably will be for many years to come, room for the distinction of diseases into functional and structural, though it must be confessed that the structural every day makes new encroachments on the functional. As regards pathology it is surely not unreasonable to refuse to allow that a part is structurally changed, if after death the microscope cannot detect the alteration; and as respects practical medicine, it is not unreasonable to affirm, that that part has been only functionally affected if it return to its former state of a living solid, independently of suppuration or any like process.

While then, I say, that insanity depends in every case on a deviation of the organism of the nervous centre from its normal condition, I think it wrong, or at least premature, to say that every case of insanity is the result of an organic alteration. The numerous manifest morbid changes on the nervous parts within the head which have been detailed in cases of insanity by crowds of observers, as found after death, have thrown very little light on the actual state of the brain in that disease. No doubt there is a coincidence between great deprivation of the power of mental operation during life and extensive morbid change, as in fatuity and dementia. It can hardly be doubted that where the parts concerned in thought have lost their structure, the power of thought should be lost—but such cases throw no light on the aberrations of thought where the mental power remains in its fullest activity. It is quite probable, then, that when there is deprivation of mental power, morbid alteration is discoverable. But it is equally probable that where there is undue activity, there is only morbid organic action, and that, if after death in such a case there is extensive morbid alteration found, the latter is not the immediate but only the remote cause of the

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disease by creating disturbance of action in adjacent parts of the brain. Here, then, is an ample field of investigation. It is manifestly an essential point in the history of every case of mental derangement to detect in what respects the patient has lost mental susceptibilities previously possessed, as well as to examine how far new activities have been developed. Again, it may be possible in many cases to determine by attention to the character of a patient's trains of thought how far it is probable that their current is determined by the ordinary laws of suggestion in health, or whether it is more probable that the prevailing course of mental phenomena is the result of physical causes acting within the brain on the vestiges left by previous mental operations.

The subject of *latent cerebration* which I passed over near the commencement of this paper, not unaptly concurs with the discussion in which we have been last engaged. The idea of "latent cerebration," or what may be termed thought out of the dominion of consciousness, manifestly took its rise from the doctrine of the reflex action of the nervous system. It is vain to deny that Marshall Hall first placed the doctrine of reflex action on a distinct and intelligible footing. There were floating ideas bearing on the subject for nearly a century before he announced his discoveries; but they did not take a sufficiently definite shape. It had long been observed, that an impression made on one part of the living frame was succeeded, as a rule, by a definite motion in some other part of the frame more or less distant. This fact was variously explained. Those who held that the impression on the first part was conveyed to the nervous centre, and that the motion took place by the effect of an influence transmitted from that centre to the second part, made the first step towards the acknowledgment of reflex action. The difficulty was to get rid of a sensation in respect to the impression, and of a volition in respect to the motion. This difficulty plainly arose and obstinately continued to present itself only because physiologists confined their attention too exclusively to the human body and its actions. Further, the difficulty was increased, because in some of the instances placed under the same head, a distinct sensation was discoverable as attendant on the impression, while no trace of a subsequent volition appeared. Thus in the case of the impression of a strong light on the retina, followed by a contraction of the pupil, there was a sensation consequent on the impression, but no volition could be ascertained to precede the contraction of the pupil, though that, beyond doubt, was the effect of muscular action. On the contrary, in the impression made by the presence of venous blood on the nerves of the lungs followed by the contraction of the numerous muscles concerned in inspiration, there was in ordinary cases, and, above all, during sleep, no trace either of sensation or volition. So clearly, how-

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ever, was it seen that the impression made on one part was the cause of the motion in the other, in such instances as those just indicated, that for some time before Marshall Hall announced his mode of viewing the difficulty, it became common to speculate on what now seems an absurd notion, that there might be sensations without consciousness, in order to find something in the shape of a cause to interpose between the impression and the motion. What Marshall Hall really did, was to save physiologists from speaking of sensations without consciousness, or of volitions without consciousness. For what are his reflex actions but effects after impressions in all respects like to sensations, except in being unattended with consciousness, followed by effects in all respects like those of volitions, except in being unattended with consciousness? Accordingly, just before Marshall Hall announced his method, it had become common to resolve the phenomena of a sensation into: 1, an impression on a sensitive part; 2, a transmission of this impression along a nervous filament to the spot of the nervous centre with which that filament is connected; 3, an organic change in that part of the nervous centre; 4, a corresponding state of consciousness; and to resolve a volition into—1, a state of consciousness; 2, a transmission of an influence generated by that state of consciousness along a motor nervous filament; 3, an impression or stimulus made by that influence on the fasciculus of motor fibres on which it is distributed; 4, a movement by the contraction of that fasciculus. And it had become clearly seen by many physiologists that in respect to many acts, the state of consciousness was not essential either to the effect of what is now called the afferent nerve, or to that of what is now called the efferent nerve. (See on this subject 'Bushnan on Instinct,' p. 100, 101, Edin., 1837). This then was the origin of the doctrine which ascribes to the nervous centre an endowment by which acts, strictly analogous to mental acts, are performed, such as had before been believed to be essentially dependent on a conscious principle. Nor are these acts merely isolated movements—for in many instances the movements constitute the means applicable to extensive ends. What, for example, is more complex than the perfect act of vomiting in man? how many muscles distant from each other are called into simultaneous and concordant activity?—and yet all that large effect results from an impression made on the nerves of the stomach or of the upper part of the gullet. But as soon as such views became established in human physiology, it seemed at once manifest that the numerous instinctive acts of the animal world at large, by which so many important ends are accomplished, are precisely of the same character—that impressions are made on sensitive nerves, and that the movements necessary for the established end are produced by motor nerves.

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It was not surprising that a new impulse should be given by such doctrines, so that even thought began to be regarded as, under some circumstances, independent of consciousness. Dr. Laycock claims the credit of having first taught the doctrine of a reflex function of the cerebrum, while Dr. Carpenter has adopted views in which thought is regarded as arising from the operation of certain parts of the brain unattended by consciousness. This is what Dr. Carpenter terms unconscious cerebration. The present is not an occasion to attempt to distinguish between the views of Dr. Laycock and those of Dr. Carpenter—it is enough that both teach, in the words of Dr. Carpenter—that much of our highest mental activity is to be regarded as the expression of the automatic action of the cerebrum, and that it may act upon impressions transmitted to it, and many elaborate results such as we might have attained by the purposive direction of our minds to the subject without any consciousness on our parts. "Looking," he adds, "at all those automatic operations by which results are evolved without any intentional direction of the mind to them, in the light of reflex actions of the cerebrum, there is no more difficulty in comprehending that such reflex actions may proceed without our knowledge, so as to evolve intellectual products when their results are transmitted to the sensorium and are thus impressed on our consciousness, than there is in understanding that impressions may excite muscular movements through the reflex power of the spinal cord, without the necessary intervention of sensation." (See 'Laycock,' vol. ii, Appendix.)

The subject of reflex action is one of the highest interest, and well deserves to engage our attention. It is, however, rather a part of physiology than of psychology, and the interest which attaches to it arises from the special offices which it assigns to certain parts of the nervous system. It does not develope any new line of thought—that is, any line of thought unknown to the old psychologists, who cultivated their science without so much as determining whether there were a material frame or no. They did not ignore genius, they did not ignore capacity, they did not ignore high talents, they did not ignore cleverness—and whence, their partisans will say, did the products of all these qualities of mind come?—surely they arose in the minds of the fortunate possessors without any consciousness of the source "whence they originated."

Were numerous pictures of individual minds, such as were referred to at the commencement of this paper, within our reach, they would exhibit all those peculiarities which in literature constitute what is called character, whether in real history or fictitious writing. It will not be disputed that in the study of pyschology, particularly in reference to the turn of thought in individuals, much is to be learned from those works of genius which owe great part of their celebrity to the faithful delineation of special character. Even the heroic

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personages of Homer and Virgil, limited as the pictures of their thoughts are, are not without their use in the respect referred to. Achilles, Agamemnon, Menelaus, Æneas, Turnus, are so many well-distinguished characters, exhibiting particular turns of thought, in perfect accordance with psychological rules. Ulysses is Homer's most laboured character, and here undoubtedly a correspondingly large insight into human nature is afforded. Merely to touch on modern times, how infinite in number and variety are the lessons in the course of human thought, emotion, passion, to be gained from the pages of Shakespeare! Nay, even in the higher specimens of that large department of modern literature, the Novel, there is an incalculable amount of minute psychological instruction in reference to individual character. If any one express a doubt as to the accuracy of knowledge of this kind derived from such a source, the answer is—that kind of literature is, in fact, to a great extent a record of the individual experience of the writers in the intercourse of real life.

When from fiction we turn to the actual history of the world and of the men who have figured in the world, we find everywhere vast stores of psychological knowledge laid open. Here the utmost extremes of human character prevail. It becomes, indeed, a question on many occasions in real history whether the characters of which we read belong to the physiological or to the pathological department of human nature. In short, the perversity of some historical characters is such as to suggest the existence of mental derangement as the only solution of the difficulty. To discuss the crimes of history with a view to determine the soundness of mind of the actors, would be a very ungrateful task.

To these several considerations on the effect of physiological conditions of the living frame to modify trains of thought, I will only add, that the temperament of the individuals will sometimes furnish an important clue to the nature of the modification.

Nevertheless, in an age like this, in which frequent attempts have been made to infer the existence of insanity merely from the single perpetration of an enormous crime, such a discussion is by no means useless. When there is a distinct motive for a crime, however great—that is a motive which can be understood in an intellectual sense, and not the mere gratification of a morbid propensity—there is little difficulty in the case. Any amount of wickedness, for example, is perfectly compatible with the gratification of ambition, without subjecting the actor to the imputation of mental derangement. But when we contemplate the useless cruelties of a Nero, a Caligula, a Domitian, our faculties stand aghast at the spectacle, and refuse for awhile to resolve the question as to their cause. It has been thought by some philosophers, that Nero's career admits of an explanation; namely, that his two first great crimes, the

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poisoning of his brother Britannicus, and the putting to death of his mother Agrippina, being of a political character, are explicable, and that thus his moral sense was blinded to the enormities of which he was afterwards guilty, often from the merest whim. The same kind of explanation is sometimes put forward for Domitian—but Caligula's case admits of no alternative but absolute depravity or insanity. This opens a wide field of psychological enquiry, into which our limited time forbids us to enter farther. I will only say, that it is to be feared that the plea of insanity cannot often be justly urged in behalf of great historical crimes. When the human character, originally bad, is freed from restraint by absolute power, and has once become familiar with blood, it seems, tiger-like, to know no bounds to the cruelty of which it is capable.

Fortunately history presents other aspects of the human character from which psychological knowledge can be drawn than the revolting aspect which we have just been considering. There, all that is great and good in human nature finds its place. On that the mind may dwell with complacency, while it drinks knowledge from a pure stream. And the same observations apply to the extensive records of biography.

Another fertile source of individual character for the study of practical psychology is the record, in every country, of criminal jurisprudence. The crimes of the infancy of society are chiefly acts of violence committed from such motives as find free scope in such a state of life. As society advances, new crimes become developed, and there even arises a population born to crime. The extent to which this hereditary tendency to criminal acts can be corrected, is a question of the utmost moment in a condition of the social state like that which at present exists in this country; nor can psychology denude itself of a large share in the settlement of that question. This is, however, too much a matter of detail for the present occasion. Again, when crimes of violence are committed in this age without sufficient apparent motive, there arises the nice question whether the criminal be or be not of sound mind. In such a question psychology has a large share—not in the determination of what the law actually is, but what it ought to be. Here there are three most important questions with all of which, though not by any means in the same degree, psychology is concerned. First, as to the evidence of the existence of insanity in the criminal; secondly, as to the amount of responsibility in the several forms of insanity; and, thirdly, as to the expediency of punishment in the insane. And in all these three cases it is manifest that it is individual character which is concerned.

I referred before to the tendency in our time to infer insanity merely from the magnitude of a crime committed without sufficient apparent motive. This tendency in the public mind seems now to

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be on the wane. Some years ago it was at its height, but various circumstances have contributed to emancipate public opinion from the influence of some enthusiasts who were continually holding up the execution of persons of an eccentric character for capital crimes as instances of judicial murder. No one will expect to find such men as Ravailliac, Fenton, Bellingham, quite like other men; the inquiry into their previous history will be sure to bring to light peculiarities of conduct or character such as excessive benevolence may interpret into indications of a tendency to mental derangement. But had such men been suspected of insanity before their crime, and an inquisition set on foot, the peculiarities of which they might have been found to be possessed would not have been held at all sufficient to warrant their being pronounced insane. This This state of things would undoubtedly be found to exist in the major part of such instances. And if this be the case, the public are not fairly dealt with when crimes of this kind are committed. If a man confined in an asylum for the insane commit murder, he is unquestionably entitled to whatever mitigation of punishment the plea of insanity can afford. But if, being at large, he commit murder, the plea of insanity should not be accepted, unless the insanity be distinctly proved. In the former case, indeed, he cannot be tried, since the law holds insanity a bar to trial for any crime; but, in the latter case, it commonly happens that the culprit is tried and convicted, while the plea of insanity is put forward in bar of punishment. Whatever may finally be the authoritative determination on this important question, it is evident that the public mind is still unsettled in regard to it—it is a question which specially belongs to the medical profession, and yet it is one with which the profession, so long as a minute study of psychology makes no part of its education, is unable to cope.

The same may be said of the second question referred to above, namely, the responsibility of the insane in regard to crimes. Here the public are equally in want of enlightenment. It is a question of the utmost moment. We know, how great differences exist among those labouring under mental derangement as to the appreciation of right and wrong. We know that those who, affected with hopeless dementia, are incapable of perceiving this distinction, are generally, at the same time, incapable of committing deliberate crimes. But nothing is more certain than that in a large proportion of the insane there is a sufficiently clear perception of right and wrong. For unless this were true, where would be the foundation of the moral treatment now so happily substituted in our asylums for the coercive measures of former times? But as respects crimes committed by the insane, there are many questions still unconsidered, and undetermined. To whom is the public to look for a final adjustment of such a question? It is a question belonging to practical psychology.

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The medical profession alone has sufficient practical experience of insanity to investigate such a question with effect. The public will put trust in the decisions of the medical profession as soon as the general voice pronounces that the medical profession, as a body, is really a tribunal competent to deal with psychyological questions.

The third question referred to above is the expediency of the punishment of the insane for public crimes. The medical profession has less to do with this question than with the two previous questions. It belongs in particular to legislation and jurisprudence. Nevertheless, if public opinion ever come to respect the decision of the medical profession on psychological questions, there can be no doubt that the medical psychologist will have much to say on this subject. This question, as to the expediency of subjecting the insane to legal punishment, will probably ere long engage the public attention. It is hardly credible how many lives are every year lost by the hands of the insane! Men begin to perceive that they have too long suffered their opinions on the subject of punishment to be guided by the ravings of a few philanthropists destitute of all principle but a mawkish sentimentality. The present state of the law does not settle this question—for the law, in exempting the insane from trial on the ground of inability to plead, does not fix what amount of mental derangement is necessary for the attainment of this privilege of exemption. The question, therefore, is open. One thing is certain, that the great rule for the repression of crime in society is unfailing detection joined with unfailing punishment. This is, in the end, true mercy. Could this course be carried out, of how much additional happiness would it be the parent? Of how much misery would it stop the career? The true nature of punishment has often been pointed out—perhaps the day may come when public opinion will recognise its truth. In punishment there is nothing of vengeance for crimes—vengeance is left to the Almighty Judge of all the earth—society has no particular right to take a man's life—but it cannot exist unless it exercise its unquestionable power to protect itself by whatever means experience shall show best adapted to that end.

It seems plain, then, from the various and somewhat desultory considerations which I have set before you, that psychology should constitute an indispensable part of a medical education. The question will then arise, whether the future medical man should study the psychology of the schools of metaphysics, or the psychology of the schools of physiology. It is far from a determined point whether it would be advantageous to unite these two forms of psychology under one course of study—or whether it is not likely to be conducive to the future progress of the science at large, that each should be cultivated apart by its own appropriate means. It appears to me, however, to be a thing quite beyond question—that the medical man should be minutely acquainted with the views taught under both

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forms of this science. It is in this way only that he can attain that standing and pre-eminence among the learned for which the other parts of his education, and the intimate acquaintance with human nature afforded by his professional pursuits, contribute so great facilities.

The psychology of the metaphysician is a system of the knowledge of the human mind founded exclusively on the evidence of every man's consciousness—it acknowledges nothing as true but what is derived from this source.

Physiological psychology is the knowledge of the functions of the nervous system in the animal kingdom, obtained through whatever channel may appear worthy of confidence. The latter, therefore, includes the former, and has a much wider scope. But it is necessary for the physiological psychologist to understand and respect the limits within which the psychology of the metaphysician is confined, that he may be able to debate with him numerous questions on the grounds chosen by the latter.

For example, while the physiological psychologist holds all debate as to personal identity and the existence of an external world unnecessary, he must be prepared to understand the difficulties on those heads entertained by metaphysicians, and to assist them in the solution of these difficulties.

It is manifest that all the preliminary difficulties of the metaphysician arise from his fear of assuming as self-evident things which he thinks can be established by reasoning back to ulterior principles. The physiological psychologist seldom encounters this kind of difficulty, because the more immediate instrument of his progress is observation, and because it is the discovery of facts alone with which he expects his labour to be rewarded; so that he takes everything for an ultimate fact, which is not manifestly founded on something with which he was previously familiar. The physiological psychologist would no more think of seeking proof in favour of personal identity, and of the existence of an external world, than he would propose to offer proof that the eye sees or that the ear hears. The two latter facts have long had on their behalf the universal belief of mankind, and as to the the two former doubts respecting points, they were never heard of except among metaphysicians. Many such doubts manifestly owe their origin to the exclusive attention given by them to reflection on the phenomena of consciousness, to the nearly total exclusion of all consideration of the "concrete Ego," or bodily self.

If there be one thing more certain than another in human thought, it is the toothache under which I labour to-day suggesting the remembrance of that I suffered from a year ago, is a consciousness including the conviction that I am the same I who suffer to-day, and the same who suffered a year ago. The belief here

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is inherent. It is a first principle—it excludes all reasoning—all argument. No doubts as to personal identity ought ever to have arisen among pure metaphysicians. These doubts probably first arose from some suspicion, even in the earliest ages, that the body was not the same matter at one time as it had been at a previous time, and thus the question being started, it was inadvertently taken up by metaphysicians, who did not even allow the body any place in their speculations.

As to the evidence of the existence of an external world, it is one of those questions which have very much exercised the acumen of metaphysicians, but very uselessly as to the results. If metaphysicians confine themselves to the study of the immaterial "Ego," that is, to reflection on the pure phenomena of consciousness, it is manifest that no proofs of the existence of an external world could ever come within their reach. But they might have confessed this necessary defect in their system without any detriment to their pursuit of the philosophy of the human mind. For the mere supposition that all things are ideal, would not change by a hair's breadth the several relations discoverable among the objects of human knowledge. There would still be the same broad distinction between sensations and emotions, between remembrances and the things remembered, between desires and the objects of desires, between passions and the objects of passions, as under an opposite system. If, on the other hand, metaphysicians admit the concrete "Ego," or the bodily self in their system, and trace the development of ideas in the progress of childhood, they will undoubtedly discover evidence that, at an early period, the infant did not discriminate self altogether from external nature, but that, after a time, this distinction is fully attained—yet whether by reasoning, or by pure instinct, it may be impossible to determine. This, however, is the process undoubtedly which every infant goes through—and this is, after all, what philosophy has finally reached, namely, that the belief in an external world rests on the common sense of mankind, that is, on the conviction which arises in the breast of every child in the progress of its study of self and the things around, during the important period of self-education.

In short, there is plainly no more difficulty in the admission that such convictions as the belief in personal identity and the belief in the existence of an external world are the result of special endowments, than there is in the acknowledgment of the undeniable facts that it is in consequence of special endowments that the child creognises the differences of colours by the eye, the differences of sound by the ear, the differences of smell by the nose, the differences of taste by the palate, the differences of temperature and the differences in magnitude by the skin and muscular system. Man, in short, is born endowed with certain susceptibilities destined to be

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called forth under corresponding conditions—when these conditions arise, the predetermined result follows.

It seems evident from these, and similar considerations, that what was termed above physiological psychology bears most on a practical psychology. It will be seen, from the general tenor of the observations which I have offered in this paper, that I regard a practical psychology as essentially the psychology of individual minds. It is a subject confessedly still in its infancy. It has not been possible, for that reason, to treat of it in a very connected or systematic form; but unless, I deceive myself, I have been able to point out some of its distinctive features, and to indicate to the medical observer some of the sources whence he may draw improvement in a department of knowledge so essential to the proper treatment of all those diseases in which an estrangement of the mental faculties is concerned.

The New Lunacy Bill.

The introduction of this important measure so soon after the interminable and wearisome Windham case, has led to the too hasty supposition that the Lord Chancellor has been induced to prepare his Bill mainly in consequence of what occurred in that case, which was indeed a fine exemplar of the evils of the system which are sought to be remedied.

But in truth these evils had long been well recognised, and although Lord St. Leonards' Act of 1853, is admitted on all hands to have been a most wise and skilful measure when it was enacted, it is now scarcely disputed that the time is over-ripe for new ameliorations of the law. That this is so will scarcely be denied by any one who has taken the trouble to read and consider the evidence given before the Commons' "Select Committee on Lunatics;" and the same fact is indicated by the two Lunacy Bills introduced by Sir Hugh Cairns, and by the late Lord Campbell. The readers of these pages will perhaps also remember a letter on this subject of Chancery lunatics, addressed by the editor to the chairman of the Select Committee, in which letter the great evil of the needless cost of lunacy inquisitions was dwelt upon, and such remedies were recommended to be applied as had suggested themselves to the writer in his limited knowledge of the subject.

We take some credit for having suggested in this letter one of the most important improvements in the manner of conducting lunacy trials, on which the Lord Chancellor has now placed the authoritative stamp of his opinion, namely the proposal that the alleged lunatic

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