put out to nurse in the different provinces, from the age of one day to one year, the mortality varies from 90·50 per cent. to 58·56: this according to "le bilan mortuaire" for 1860. The particulars are the following:

Loire Inferieure	.	.	.	.	.	90·50
Seine-Inferieure	.	.	.	.	.	87·36
Eure	.	.	.	.	.	78·12
Calvados	.	.	.	.	.	78·09
Aube	.	.	.	.	.	70·27
Seine-et-Oise	.	.	.	.	.	69·23
Cote d'Or	.	.	.	.	.	66·46
Indre et Loire	.	.	.	.	.	62·16
Manche	.	.	.	.	.	58·66

It is added, that in Normandy, the proportion is from 73 to 87 per cent, "grâce à l'alimentation dite *au petit pot* absurde et funeste routine qui fait décroître d'une façon effrayante la population rurale de la vieille Normandie." Well may the editor of the journal from which we make this extract,¹ say, "la mortalité des enfans est non seulement aujourd'hui une question d'humanité, mais encore une véritable question d'état."

REVIEW X.

The Physiology and Pathology of the Mind. By HENRY MAUDSLEY, M.D. (Lond.) London. 1867. 8vo. Pp. 442.

Mental Pathology and Therapeutics. By W. GRIESINGER, M.D. Translated from the German, by C. LOCKHART ROBERTSON, M.D., and JAMES RUTHERFORD, M.D., for the New Sydenham Society. London. 1867. Pp. 530.

COMPARED with France and Germany, England has been far less fruitful in works on mental disorder; and until the appearance of Bucknill and Tuke's treatise, English psychiatry had no adequate exponent. The great work of Esquirol constituted the text-book on mental maladies both on the continent and in this country; indeed, it will never lose its value as a grand repertory of facts and observations conveyed in a lucid and interesting manner. But the foundations laid by Esquirol and his distinguished predecessor, Pinel, having been enlarged and built upon by numerous disciples, ceased to represent the growing edifice of psychiatry, and it therefore became necessary

¹ See 'Journal de Médecine et de Chirurgie,' November, 1866, where the subject is discussed at some length.

that others should attempt its portraiture. This has been done in the several principal countries of Europe, and with much success; for whilst we can point with much satisfaction to the English treatise above mentioned, our neighbours in France and Germany can take credit for the works of Morel and Griesinger. Not, indeed, that the works named are the only successful productions, for various others of high merit have appeared from time to time; but they are simply cited as the best known textbooks in each country mentioned.

M. Morel has not found an English translator, for the reason, no doubt, that almost all those who desire to peruse his volume can do so in the original language, and that publishers have little inducement to charge themselves with the production of translations of French works. The selection of Griesinger's treatise by the Council of the Sydenham Society for translation into English may be assumed as an indication of the high estimation in which it is held in Germany. It has further found a French translator, and the statement put forward in the preliminary note by the authors of the English version, may be accepted generally, viz., that "Professor Griesinger is essentially the representative and the acknowledged leader of the modern German school of medical psychology."

About the same time as the appearance of Griesinger's book in an English dress, the original and notable treatise by Dr. Maudsley was published, which, we apprehend, will claim for itself as high a consideration as even the well-known German production, and advance the credit of English psychological medicine. The two works are indeed constructed on different models; that by Griesinger abounds much more in detail and in practical matter, and is altogether more of a textbook for the student than the volume by Dr. Maudsley, which is especially calculated to attract the psychologist by its bold and original doctrines of mental physiology. Nevertheless there is a necessary approximation in many matters discussed which will enable a comparison to be instituted between these two treatises. Both writers, in the first place, agree in this, that they belong to the somatist school of psychologists, as opposed to the spiritualist. As physiologists and pathologists they profess no knowledge of a spiritual or immaterial essence, no acquaintance with the laws governing the existence of such an essence, and consequently cannot recognise mental disorders as symptoms of a lesion of some sort of entity in common parlance vaguely called "the mind."

As apprehended by Dr. Maudsley, the term "mind" is a general one, "acquired by observation of and abstraction from the manifold variety of mental phenomena. . . . It is a meta-

physical abstraction that has been made into a spiritual entity." (p. 40.) It is of a true subjective character, and when viewed in its scientific sense like other natural forces, is appreciable only in the changes of matter which are the conditions of its manifestation. In other words, it is no independent source of power and self-sufficient cause of causes; and, though the highest development of force, ministered to by all the lower natural forces, it is at the same time the most dependent of all of them. In short, physiologically, mind expresses the marvellous energy arising from the metamorphosis of nerve matter.

In fact, both Drs. Maudsley and Griesinger admit only a material cause for insanity, and seek for indications of disturbance in the normal metamorphosis of cerebral matter to account for the aberrant mental phenomena. Yet both are driven to the admission, that physical appearances in the nerve-tissue are frequently absent, or otherwise inappreciable in the bodies of those dying insane; and that, even where such appearances are notable, their connexion with, or their part in producing the insane state, is not demonstrable. It was this failure to demonstrate the material cause of mental disorder in the brain-mass that afforded the members of the spiritualistic school their best argument. But, as Dr. Maudsley rightly urges, we at present know nothing of the intimate constitution of nerve element and of the mode of its functional action. Hence

"Where the subtlety of nature so far exceeds the subtlety of human investigation, to conclude from the non-appearance of change to the non-existence thereof would be just as if the blind man were to maintain that there were no colours, or the deaf man to assert that there was no sound. Matter and force are necessary coexistents, and mutually suppose one another in human thought; and to speak of change in one is of necessity to imply change in the other. . . . And there are numerous facts available to prove that the most serious modifications in the constitution of nerve element may take place without any knowledge of them otherwise than by the correlative change of energy." (Pp. 367, 368.)

Similar considerations are adduced by Griesinger and enlarged upon. But he also asserts generally that the brains of lunatics are only exceptionally and apparently healthy, although indeed a knowledge of the intimate connexion between the kind of alteration met with and the form of psychical disease has not yet been arrived at (op. cit., p. 410).

In fine, nerve physiology and nerve pathology are in their infancy, and much advance in them may yet be looked for. Dr. Maudsley is encouraging in this matter. His chapter on the pathology of insanity is largely occupied with nervous physiology for the purpose of showing the progress towards the under-

standing of nerve-force in sickness and in health, accomplished recently by the researches of Helmholtz, Lister, and others. The successful microscopic investigations of Mr. Lockhart Clarke on various nervous maladies, which had hitherto been, in respect to their pathology, on a par in obscurity with mental disorders, might also be adduced to encourage inquirers in the search after the physical causes of mental disturbance.

Further, the two authors follow a similar plan in introducing a section on mental physiology or psychology. Moreover, in the case of Griesinger, a chapter of "preliminary anatomical observations" is added. This chapter is, in our opinion, uncalled for. The student of mental disorder may be presumed, if he has any right conception of the proper order of his studies, to come to his work with at least as rude an outline of the anatomy of the brain as Griesinger undertakes to place before him. But, apart from its redundant character, this chapter is particularly obscure in its descriptions, for which we apprehend the translators must be called to account. Many sentences and paragraphs are clumsy and ungrammatical, and consequently confusing to the reader; and in several instances German anatomical terms are left untranslated—unexpressed by their English equivalents.

Whilst on this subject of the translation of Griesinger's volume, and the manner of its execution, we may observe once for all of the whole performance, that it partakes of the faults too common in translated works—the idiom of the original permeates the entire composition, and introduces confusion and grammatical inaccuracies into it. Moreover, the peculiar use of the words "will" and "shall" betrays the nationality of one at least of the translators to be to the north of the Tweed. It would seem, indeed, that the translators are not quite easy in their minds concerning the manner in which they have performed their task, and particularly in the rendering into English the more strictly psychological chapters; for, after observing in their prefatory note, that they have aimed at a literal translation, and have in this respect followed the example of Griesinger's French translator, they tell us that "it was soon evident that any attempts at a more liberal rendering of these difficulties would only *farther obscure*—possibly contravene—the author's meaning," his "medico-metaphysics being not easily understood even in German."

To return now to the chapters on mental physiology and metaphysics in the two volumes before us. In the matter of these Dr. Maudsley is much more original and important, besides being vastly more lucid than Griesinger; consequently, our annotations on mental physiology will be based on the English

author. Indeed, we may hazard the opinion, that Griesinger will not perpetuate in the forthcoming new edition of his work, the long and abstruse metaphysical chapter included in the volume now before us. For, in an introductory lecture given at Berlin in 1866, translated and published by Dr. Sibbald, in the 'Journal of Mental Science for January, 1867' (p. 475), he referred to psychiatry as no longer to be entered "through the dark portals of metaphysics," and added, that "in Germany the time has quite passed away when psychiatry could be developed from a specially philosophico-psychological point of view," and that predisposition to insanity is no longer to be conceived of as psychopathic but as neuropathic.

This being admitted, a valid excuse is afforded us for not wading through Griesinger's metaphysical dissertation on the mental processes for the purpose of presenting an analysis of it in these pages. And we may go further, and recommend the would-be student of psychiatry to avoid the "dark portals of metaphysics" therein interposed as likely only to darken knowledge and confuse the understanding, and to follow Griesinger's advice, to seek both work and fame in etiology, diagnosis, prognosis, and therapeutics. (Lecture, op. cit., p. 476.)

One half of Dr. Maudsley's treatise is occupied with the physiology of mind; and it is this portion, we have no hesitation in saying, that will most arrest attention. The author's first chapter is, "On the Method of the Study of Mind." In it he asserts the inadequacy of the interrogation of self-consciousness—the method of investigation commonly pursued, to the construction of a true mental science or an inductive psychology. He shows that such interrogation is not only not reliable as to the information afforded by it, but also impotent as reaching only to states of consciousness and not to states of mind (p. 11). For consciousness is not co-extensive with mind; the two terms are not synonymous, and the existence of mind does not necessarily involve the activity of mind. At the same time, everything which has existed with any completeness in consciousness is preserved as a *residuum*, which may reappear in consciousness at some future time. To these residua it is that memory owes its existence. The association of ideas is, besides, independent of consciousness, as is likewise the assimilation or blending of similar ideas, or of the like in different ideas, by which general ideas are formed. Lastly, the brain responds as an organ of organic life to the internal stimuli which it receives unconsciously from other organs of the body.

The brain has a life of relation; *a*, with external nature through the senses; and *b*, with other organs of the body by the

medium of the nervous system. It has also a life of nutrition—an organic life, for its building up and repair, which, as a process, is unattended with consciousness.

“In this, its true organic life, there is a nutritive assimilation of suitable material from the blood by the nerve-cell, and a restoration thereby of the statical equilibrium after each display of energy. The extent of nutritive repair and the mould which it takes must plainly be determined by the extent and form of the waste which has been the condition of the display of function: the material change or waste in the nervous cell, which the activity of an idea implies, is replaced from the blood, according to the mould or pattern of the particular idea; statical idea thus following through the agency of nutritive attraction upon the waste through functional repulsion of active idea. . . . The deep basis of all mental action lies in the organic life of the brain, the characteristic of which in health is, that it proceeds without consciousness. He whose brain makes him conscious that he has a brain is not well, but ill; and thought that is conscious of itself is not natural and healthy thought. How little competent, then, is consciousness to supply the facts of an inductive science of mind!” (Pp. 22, 23.)

To build up this science, Dr. Maudsley adopts the objective method, and therefore appeals to the study—1, of *physiology*; 2, of the *plan of development* of mind, as exhibited in the animal, the barbarian, and the infant; 3, of the degeneration of mind as seen in idiocy and insanity; and 4, of the progress or regress of the human mind as exhibited in history. In employing this method he would have us divest ourselves of the popular error, that the function of the mind is that of a passive mirror, simply to reflect natural phenomena, and to remember that every state of consciousness is a developmental result of the relation between mind and the impression of the subject or object,

“That the development of mind, both in individuals and through generations, is a gradual process of organization—a process in which nature is undergoing her latest and most consummate development.” (P. 31.)

From the author's point of view it follows, therefore, that what in a physiological sense is called the mind, is the marvellous energy, which cannot be grasped and handled, proceeding from cerebral activity. Cabanis represented mind as the secretion of the brain, as the bile is that of the liver; but Maudsley objects to this analogy as crude and erroneous, since mind is not the material, tangible product of the brain as the bile is of the liver; but, as just said, the impalpable organized result of its activity, its true secretion being the products of nerve waste.

In pursuance of the physiological method of studying mind, Dr. Maudsley in his second chapter gives a sketch of the progressive differentiation of the nervous system in the various tribes of animals, commencing with the lowest, noting at the same time the advancement in nerve function attending an increasing complexity. Reaction shown to outward impressions under the simplest form of reflex action, is the lowest expression of nervous function. But further on in organization, sensation and motor reaction to sensation exist, where sensory ganglia connected with the origin of nerves are discoverable, but as yet no brain proper. And now for the first time can the reaction be sensorial. When a true brain appears, it is as supplementary and secondary in order of development, although primary in dignity. Its function also is to be concluded secondary in relation to that which the primary constituents or sensory ganglia fulfil.

"The impressions received by the sensory centres when they do not react directly outwards, as they may do where hemispheres exist, and as they must do where hemispheres do not exist, are in fact passed onwards in the brain to the cells which are spread over the hemispheres, and are there further fashioned into what are called *ideas* or *conceptions*. Here then we come to another kind of sensibility, with its appropriate reaction, to which a special nervous centre ministers; and it is known as perception, or, more strictly, *ideational* perception. The hemispheres have a special sensibility of their own to the ideas fashioned in them (but not to pain, as have the sensorial ganglia); and those ideas may have other particular emotional qualities, as pleasurable or painful." (P. 47.)

Dr. Maudsley recognises in man four nervous centres:—1, primary or ideational, situate in the convolutions of the hemispheres; 2, secondary or sensational, in the sensory ganglia of the brain; 3, tertiary or reflex, mainly in the grey matter of the spinal cord; 4, quaternary or *organic*, existing in the sympathetic system.

The relations and mutual interdependence of these several centres are set forth in the following quotation:

"Each distinct centre is subordinated to the centre immediately above it, but it is at the same time capable of determining and maintaining certain movements of its own without the intervention of its supreme centre. The organization is such that a due independent local action is compatible with the proper control of a superior central authority. The ganglionic cell of the sympathetic co-ordinates the energy of the separate elements of the tissue in which it is placed, and thus represents the simplest form of a principle of *individuation*; through the cells of the spinal centre the functions of the different organic centres are so co-ordinated as to have their

subordinate but essential place in the movements of animal life—and herein is witnessed a further and higher individuation; the spinal centres are similarly controlled by the sensory centres, and the sensory centres in their turn are subordinate to the controlling action of the cerebral hemispheres, and especially to the action of the will, which, properly fashioned, represents the highest display of the principle of *individuation*. The greater the subordination of parts in an animal, the higher and the more perfect it is."

Evidence for the location of different functions in different nerve-cells, in groups of such, and in larger masses as ganglia, is obtainable from anatomy, from experiments upon animals, and from physiological and pathological researches; and it is only when this evidence is duly recognised, that the groundwork of a true conception of the relations of mind and the nervous system can be attained.

"The characteristic of living matter is the complexity of combinations and the variety of elements in so small a compass that we cannot yet trace them; and in nervous tissue this complication and concentration is carried to its highest pitch. Nervous tissue with its energy is, therefore, dependent for its existence on all the lower kinds of tissue that have preceded it in the order of development: all the force of nature could not develop a nerve-cell directly out of inorganic matter. The highest energy in nature is really the most dependent; in the fact that it is so dependent, that it implicitly contains the essence or abstraction of all the lower kinds of energy, lies the reason of the powerful influence which it is able to exercise over all the lower forces that are subservient to its evolution. As the man of genius implicitly contains humanity, so nervous element implicitly contains nature." (P. 61.)

In the third chapter the physiology of the spinal cord, as containing the centres of reflex action, is lucidly and philosophically handled, and upon the right apprehension of the arguments and illustrations in this portion of the work will greatly depend the understanding of the contents of the following chapters of mental physiology. It is abundantly evident that the spinal cord is not only a centre of irregular reflex movements, but also of co-ordinate or so-called designed actions; and, consequently, the design apparent in an act does not necessarily witness to the co-existence of will, forethought, or consciousness. Moreover, not only is the spinal cord the centre of co-ordinate action which has been implanted in its original constitution, but also of similar action, which has been acquired and matured through individual experience.

"Like the brain, the spinal cord has, so to speak, its memory.
. . . With the display of energy there is a coincident change or

waste of nervous element; and although a subsequent regeneration or restoration of the statical equilibrium by the quiet process of nutrition takes place, yet the nutritive repair, replacing the loss which has been made, must plainly take the form or pattern created by the energy and coincident material change. Thereby the definite activity is to some extent realised or embodied in the structure of the spinal cord, existing there for the future as a motor residuum, or as, so to speak, a *potential* or *abstract* movement; and accordingly there is a tendency to the recurrence of the particular activity—a tendency which becomes stronger with every repetition of it, until it assumes the character of an acquired faculty in the cord, and represents the *secondary* or *acquired automatic* acts as described by Hartley." (P. 67.)

The phenomena of such acquired acts serve to exhibit the true mode of origin, and the nature of what is called *design* in many actions of animals; and particularly when it is also remembered, that the acquired faculty of the parent animal is sometimes distinctly transmitted to the progeny as a heritage, instinct, or innate endowment.

We shall not follow the author in the analysis given of the causes which affect the functional activity of the spinal cord, but proceed to notice the physiological doctrines of the fourth chapter, on the "Secondary Nervous Centres or Sensory Ganglia; Sensorium Commune," represented by the optic thalami, the corpora striata, the corpora quadrigemina, and the ganglionic nuclei of the nerves of the different senses. These centres give rise to a class of reflex movements of their own—*sensori-motor*, for the most part acquired and perfected by repetition, just as in the case of the cord, by the medium of a power akin to memory. Of this class are, consensual acts, and most of the instinctive actions of animals. Sensation is not an inborn faculty of constant quantity, but, in the case of each sense, is a gradually organized result matured through experience. The mind

"Implies a plastic power ministering to a complex process of organization in which what is suitable to development is assimilated, what is unsuitable is rejected. By the appropriation of the like, in impressions made upon the senses we acquire. . . . A *general* or *abstract* sensation, which exists latent or potential, as a faculty of the sensory centres, and on the occasion of the appropriate impression, renders the sensation clear and definite. . . . Coincidentally with the assimilation of the like in impressions, there is necessarily a rejection of the unlike, which, being then appropriated by other cells, becomes the foundation, or lays the basis, of the faculty of another sensation, just as nutrient material which is not taken up by one kind of tissue element is assimilated by another kind. In the education of the senses, then, there takes place a differentiation

of cells; in other words, a *discernment* as well as an improvement of the faculty of each kind of sensation by the blending of similar residua. There is an analysis separating the unlike, a synthesis binding the like; and by the two processes of differentiation and integration are our sensations gradually developed." (Pp. 92, 93.)

Sensori-motor acts may be innate or acquired; those of the latter class are in man the most important, and are, or otherwise are not, accompanied by consciousness. Moreover, the reaction of the motor ganglia in the sensorium commune, whether designed or undesigned, co-ordinate or irregular, may be excited not only by impressions conveyed to them (whether from without or from within the body) by different nerves, and by the so-called organic stimuli, but also by a stimulus descending from above (the higher nervous centres), either in the shape of an idea or of an impulse of the will.

"Thus the will is entirely dependent for its outward realisation upon that mechanism of automatic action which is gradually organised in the subordinate centres; the will cannot at once execute successfully a new movement, nor can it execute any movement without a guiding sensation of some kind: the cultivation of the senses and the gradually effected special adaptation of their reactions are necessary antecedents, essential pre-requisites, to the due formation and operation of will." (P. 98.)

After a summary of the causes of disorder of the sensory ganglia, Dr. Maudsley enters upon the consideration of the cerebral hemispheres regarded as the ideational nervous centres; as centres of independent reaction, wherein ideas may arise and produce movement, without volition, or actually in opposition to it, and without consciousness. Although the author recognises the existence of innate acts in connection with the spinal cord and with the sensorium commune, he rejects *in toto* the notion of *innate* ideas contemporary with birth. The formation of an idea is, he urges, an organic evolution.

"The cells of the cerebral ganglia, in reality, *idealize* the sensory perception; grasping that which is essential in them, and suppressing or rejecting the unessential, they mould them by their plastic faculty into organic unity of an idea, in accordance with fundamental laws. Every idea is thus an *intuition*, and implicitly comprises far more than could be explicitly displayed in it."

It is a mischievous error to treat of an idea as an actual entity, and to regard it as having a uniform quantitative and qualitative value; inasmuch as any given ideas will always have a different value in persons at different stages of cultivation or

civilisation, and even in the same individual at different periods of life and under the influence of culture and experience.

The following account is given of the nature of the so-called fundamental ideas and universal intuitions :

“Because all men have a common nature, and because the nature by which all men are surrounded is the same, there are developed certain ideas which have a universal application, but they are nowise independent of experience. . . . But their absolute truth, as expressions of certain fundamental relations between man and nature, is only guaranteed by the assumption of an unchanging persistence of these relations;” a new sense conferred upon him would entirely change the aspect of things, and render necessary a new order of fundamental ideas.”

But ideas when active display their energy by reflex action in various directions. Thus, when downwards upon the motor centres and muscular system, they give rise to *ideo-motor* movements, which may take place not only without any intervention of the will, but also without consciousness. Again, when exerted downwards upon the sensory ganglia their energy is concerned essentially in the formation of clear conception and representation, and under certain circumstances may even give rise to illusions and hallucinations.

“The excitation and cultivation of the sensorial cells are necessary antecedents in the order of mental development to the activity of the ideational cell; and the ideational cell in turn effects its complete function in the formation of a distinct conception by reacting downwards upon the sensory centres.”

An idea may also operate upon the functions of nutrition and secretion; and, lastly,

“As, in reflex action of the spinal cord, the residual force which was over and above what passed directly outwards in the reaction travelled upwards to the sensorium commune and excited sensation; and as in sensori-motor action the residual force which was over and above what passed outwards in the reaction travelled up to the cortical cells, and gave rise to idea; so, in ideational action, the force which does not pass, or the residual force which may be over and above what does pass, immediately outwards in the reaction, abides in action in the cortical centres, and passes therein from cell to cell. . . . This communication is what does take place probably, when one idea calls up another by some association, itself disappearing in the act.”

Further, not only may the force be transferred from cell to cell, but it may also be transformed, and then the tension of the particular cell, or the idea for the moment active, is attended with consciousness.

"That there may be consciousness of an idea, it is necessary not only that its excitation reach a certain intensity, but that the whole force of it do not pass immediately outwards in the reaction."

In harmony with this hypothesis, Dr. Maudsley defines *Reflection*

"As, in reality, the reflex action of the cells in their relations in the cerebral ganglia: it is the reaction of one cell to a stimulus from a neighbouring cell, and the sequent transference of its energy to another cell—the reflection of it. Attention is the arrest of the transformation of energy for a moment—the maintenance of a particular tension."

The like mechanical and physiological hypotheses are employed in each of the remaining chapters of this first part of Dr. Maudsley's work, devoted to the consideration of the emotions, of volition, of the motor nervous centres—*motorium commune*, and of memory and imagination. A self-conservative impulse is "immanent in all living organic elements," and an essential condition of their organic nature.

"Such reaction of organic element is as natural and necessary as the reaction of any chemical compound, because as much the consequence of the properties of matter thus organically combined. When the stimulus to a hemispherical nerve-cell is not in sufficient force to satisfy the demands of the latter,—when, in fact, it is inadequate,—then there is the manifestation of its affinity or attraction by the nervous centre, an outward impulse, appetency or striving, which, again, as it occurs in consciousness, is revealed to us as *desire*, *craving*, or *appetite*."

But consciousness is only a something superadded—

"The striving after a pleasing impression, or the effort to avoid a painful one, is at bottom a physical consequence of the nature of the ganglionic cell in its relation to a certain stimulus; and the reaction or desire becomes the motive of a general action on the part of the individual for the purpose of satisfying a want or of shunning an evil."

Volition is the subject of the seventh chapter. The teaching of this chapter is conveyed in a quotation from the French edition of Spinoza placed at its head, and which may be termed its text. "It is a delusion," says Spinoza, "on the part of mankind to fancy themselves free agents. What grounds are there for such an opinion? Only that they are conscious of their actions and ignore the causes which determine them. The idea that men are in possession of their liberty, arises therefore from the circumstance that they are ignorant

of the cause for their actions, for to say that these are dependent on their will, is simply to make use of words without meaning. In fine, all that I can say to those who believe that they can speak, or maintain silence, in a word, can do what they list by virtue of an unfettered decision of the mind, is that they are dreaming with their eyes open."

Dr. Maudsley enlarges upon and illustrates this text. The will is no concrete reality; it is nothing but the desire or aversion (physically an available or liberated force, consequent on the communication of activity from one cell or group of cells to others in the hemispheres), sufficiently strong to produce an action after reflection or deliberation. The many voluntary actions recognised proceed from different nervous centres, and the will differs greatly in quantity and quality according to the extent and character of the association of ideas that must necessarily precede its evolution.

"If, then," argues Maudsley, "the final reaction after deliberation, which we call will, is, like other modes of reaction of nerve element previously described, a resultant of a certain molecular change in a definitely constituted nervous centre, then all the *design* exhibited in any given act of will must, like the design displayed in the function of the spinal cells, or the cells of the sensory centres, be a physical result of a particular intimate constitution or organization of nervous matter. In other words, the act of will, which is the final expression of a process of reflection, must needs contain a conception of the end desired—such a conception as has been determined by the nature of the reflection; the conception of the result, or the design, in the act of will constituting, in fact, the essential character of the particular volition," and being also a physical necessity. (P. 150.)

The particular volition, and whatever it contains, whether of folly or design, is considered to be a product of the organised residua of all former like volitions, excited into activity by the appropriate stimulus. The design manifest in a mental act is not a power which transcends or anticipates experience, but is actually conformed in its genesis to experience. The more cultivated the mind, and the more varied the experience, the better developed is the will and the stronger its co-ordinating power over the thoughts, feelings, and actions. In short, the will is looked upon as an insensibly organized result of varying value, yet as being the highest mode of energy of nerve elements, its purpose is to control the inferior modes of energy by operating downwards upon their subordinate centres.

We cannot follow the author in the examination of the power of the will over the movements of the body, and over mental operations, and of its relations to the emotions, but must hurry on to analyse his views respecting the motor nervous centres, as

set forth in the eighth chapter. Those centres, as the region of motor residua, he would speak of collectively as the *motorium commune*, and generically as the region of *actuation*, inasmuch as they contain the powers or faculties through which the activity generated reacts upon the muscular system. In mental action, in truth, the whole bodily life is comprehended, and every muscular intuition has its due place and influence in our mental life; body and mind being separable by no barrier, and mind the special occupant of no one part of the body. Between the stimulus and the ensuing reflex action definite motor intuitions intervene, either attended by consciousness or not. Where no consciousness obtains, it is evident that the motor residua have been definitely and adequately organized in the proper motor centres, so that far from design implying consciousness, this last vanishes when the design is firmly fixed in the nature of the nervous element.

The concluding chapter of this first section of the volume is on Memory and Imagination. An extract from Darwin's '*Zoonomia*' here forms the text, according to which the ordinary conception of memory as the transference of images to a recipient medium, as pictures are portrayed on the retina, is both incorrect and inadequate.

"The organic registration of the results of impressions upon our nervous centres, by which the mental faculties are built up, and by which memory is rendered possible, is the fundamental process of the mental life."

Memory is an organized product, and imagination is due to a similar organic process to that by which like residua are blended, and general or abstract ideas formed. There are no actual existences answering to our most abstract ideas, which are, therefore, so far new creations of the mind, and, when rightly formed, are valid and real subjective existences that express the essential relations of things.

There can be no memory of what we have not had experience in whole or in part; and imagination, therefore, being dependent on memory, can be productive only as to form and reproductive only as to material.

"The productive or creative power of imagination, which seems at first sight to be irreconcilable with knowledge gained entirely through experience, is then at bottom another, though the highest, manifestation of that force which impels organic development throughout nature; and the imagination of any one creates truly, or brings forth abortions and monstrosities, according as the mind is well stored with sound knowledge, and has true concepts, or as it is inadequately furnished with knowledge, or is furnished with erro-

neous concepts—according, in fact, as the individual is or is not in harmony with nature.” (P. 186.)

With this extract we conclude our sketch of the principal doctrines concerning mental physiology advanced by Dr. Maudsley. Those doctrines cannot be examined and be treated with indifference or contempt by the thoughtful and unprejudiced; although we imagine some will sniff in them rank materialism, and scout them as unworthy of discussion. This is not the place, nor is it our object in this review to discuss recondite problems in psychology, or to reconcile the hypotheses of Maudsley with the commonly accepted metaphysics of the day, or again to attempt to disprove them. It is enough for our purpose to give an abstract of his doctrines considered as physiological deductions.

To summarise the hypotheses advanced:—Everything in mind,—every mental operation or result, is referred to organization, and no force other than nervous force is recognised. Mental phenomena result from the functional activity of nerve-cells called forth by impressions from without or from within, and modified and directed by the residua of impressions, concepts and ideas heretofore existent. The like mental action exists in varying extent in all animals; it is improveable by hereditary transmission, and some of it is innate. Mind is no individual entity, but an organic product of ever variable quantity and quality, modified by surrounding nature and by the circumstances of life, and progressively evolved from the reciprocal action of external objects and events, and of the activity of nerve matter, in such a way that the building up of the mind is an act of the entire body, with which indeed mind is conterminous.

It is indeed difficult to conceive the aërial, imponderable, the most varying and varied, the most subtle and rapidly formed and executed, and marvellous phenomena of mind to be the direct products of organization—of material forces existing in nerve-cells, themselves dependant, like all other animal tissues, for their functional activity on the proper nutrition of the body. It is mystifying to be told that material nerve-cells—morsels of albumen—remember, discriminate, evolve ideas, and arrive at logical conclusions; but the author will say that it is for objectors to prove that this cannot be,—to indicate the line to be drawn between the nerve functions of animals in the ascending scale and man, to show wherein—what for another name may be called—memory of the spinal cord, as illustrated in acquired automatic acts, differs from memory, in the usual signification of the *term*, exhibited in the cerebral hemispheres; and, in gene-

ral, to discover the missing or the faulty link in that chain of nervous actions which he supposes that he has, by the recognised teachings of physiology, demonstrated as binding together in one harmonious whole, the so-called mental and nervous phenomena of all animated beings.

We pass on to review the second section of the work in question, viz., on the Pathology of the Mind; and now we may again take up Griesinger's book on mental diseases, and compare its contents with those of Maudsley's volume. The causes of insanity are taken into consideration by both authors, at the outset of their chapters on pathology; but before starting on their discussion, Griesinger presents a chapter on the Analogies and general Diagnosis of Insanity, which merits study, especially for the directions and suggestions offered for conducting the examination of a supposed case of insanity. He contends for a thorough examination of the patient, such as can only be obtained by prolonged observation over a period of more or fewer days, and by inquiries among friends, in all cases where any doubt can obtain respecting the mental state.

A similar minute examination is needed also when the causation of the insanity is to be investigated. Both authors concur in the assertion that

"It is not a single specific cause under the influence of which the disease is finally established, but a complication of several, sometimes numerous, causes both predisposing and exciting. Very often the germs of the disease are laid in those early periods of life from which the commencement of the formation of character dates. It grows by education and external influences, or in spite of these." (Griesinger, p. 130.)

The division of causes adopted by Maudsley is into predisposing and proximate, whilst Griesinger treats of predisposing causes, general and special, and of immediate causes, which, with regard to their mode of action, are subdivided into psychical, mixed and physical causes. The psychical and mixed causes enumerated agree in the main with those commonly called moral causes. But in Maudsley's opinion, the subdivision into physical and moral causes is a mistake, and he shows how impossible it is in many instances to refer a case to the one or the other group.

"The thoughts, feelings, and actions leave behind them certain residua, which become organized in the nervous centres, and thenceforth modify the manner of their development, or constitute their acquired nature; consequently the moral manifestations throughout life inevitably determine physical organization; and a slowly operating moral cause of insanity is all the while producing physical changes in the occult recesses of the supreme nervous centres of the

mental life. When insanity occurs as the consummate exaggeration of a particular vice of character, as it sometimes does, the morbid mental manifestations mark an internal definite morbid action in the supreme nervous centres,—a gradually effected modification of the mental organization." (P. 200.)

The predisposing causes recognised by the two writers are, for the most part, the same. Griesinger quotes largely from statistics to show the relative prevalence of insanity in the principal countries of Europe and of America. Were these statistics trustworthy, they would indeed demonstrate remarkable variations in the frequency of the disorder in the different countries cited, but Griesinger himself evidently holds them in light esteem, and in our opinion they are well nigh worthless. They may possibly exhibit with some accuracy the number of lunatics who have become denizens of asylums and the subjects of public supervision, but the history of lunacy in every country furnishes a denial to them as representing the extent of lunacy prevalent. When, however, in reference to this question, uncivilized or half-civilized communities are brought into comparison with nations advanced in civilization, it is generally conceded that insanity is by far less common among the former. This is, as might on theoretical grounds be, as Dr. Maudsley observes, expected: for

"In the complex mental organization, with its manifold, special and complex relations with the external, which a state of civilization implies, there is plainly the favorable occasion of many derangements. The feverish activity of life, the eager interests, the numerous passions, and the great strain of mental work incident to the multiplied industries and eager competition of an active civilization, can scarcely fail, one may suppose, to augment the liability to mental disease." (P. 201.)

These considerations are moreover borne out by such facts as are available.

"The sort of insanity most common among savages is imbecility, or idiocy, for the same reason that idiocy is the most common form of insanity in children; where the mind is not developed, varied degeneration of it cannot take place, though it may obviously remain morbidly arrested."

Both authors agree in the conclusion that, in recent times, there is a real increase of insanity among the people of civilized countries. In the case of England and Wales, Dr. Maudsley computes it to be at the rate of 1000 a year, an increase more than proportionate to an increasing sane population, and he advances several important considerations in explanation of this

unwelcome fact. Among others he refers to the social position of women, and boldly condemns it in a manner that must be most gratifying to the champions of the rights of women. Overcrowding of populations, and the eager pursuit of wealth to escape the degradation (as most certainly allotted it in the present state of society) of poverty, are also vigorously and faithfully discussed as predisposing causes of insanity. The remarks on the aspects of religion in relation to the causation of insanity are characterised by equal vigour and independence of thought; and most men who look around them, and honestly reflect on what they see, will endorse the sarcastic sentence—

“That the practical religion of the day, the real guiding-gospel of life, is money-getting; the professed religion is Christianity.” (P. 209.)

We cannot here follow the two authors in their observations upon the other several causes enumerated as predisposing to mental disorder, such as age, sex, education, seasons of the year, and hereditary tendency, which are equally well discussed by both; but we must call attention to Dr. Maudsley's chapter on “the *proximate* causes of disorder of the ideational centres,” as particularly deserving perusal. Under that head he includes original differences in the constitution of the ideational nervous centres, quantity and quality of the blood, reflex irritation, excessive functional activity, and injuries and diseases of the brain. The two first of these groups of causes are more fully examined than is usual in treatises on insanity, and will be read with interest and profit. Griesinger has sections also on several of the same causes referred to by Dr. Maudsley, and is particularly full in detail respecting the physical causes of insanity, which are but lightly touched on by the writer last named. We cannot, however, speak in praise of the German author's dissertation on psychical causes, and especially of that portion of it in which the mode of action of such causes is examined. But he may very justly cast much of the blame for obscurity upon the translator of this portion; as, for instance, for the following paragraphs:

“The emotions, particularly the passed-off psychical phenomena, are the *immediate* originators of the mental disease, inasmuch as they produce a state of intense irritation of the brain, which now (?) continues.” (P. 167.)

And again,—

“A mediator of this description (meaning apparently an intercurrent morbid condition, *Rev.*) of especial importance and frequency in connection with mental disease is continued *sleeplessness*,

which often accompanies the depressing emotions, which (?) over-excites the brain and lowers the nutrition." (P. 168.)

In Dr. Maudsley's treatise the chapter on etiology is followed by one of considerable length, and of great interest and originality, on the "Insanity of Early Life." Had space permitted we could wish to have analysed this essay for the benefit of the reader. We are, however, compelled to pass on to notice the varieties or forms of mental disease enumerated in the two volumes before us. In Dr. Maudsley's treatise the consideration of these forms is introduced by a sketch of what he terms the "insane temperament," as seen among persons who cannot be called insane, but who are characterised by singularities or eccentricities of thought, feeling, and action. "This peculiarity of temperament, which undoubtedly predisposes to insanity, does nevertheless in some instances border very closely upon genius," and Dr. Maudsley proceeds at some length to inquire into "the relations which a form of talent bears to insanity, in order to exhibit the position of each in the social organization. In both cases there may be an uncommon deviation from the usual course of things; but in one case there is the full recognition of the existing organization as the basis of a higher development, a fusing of the past through a new mould into the future; in the other, there is a capricious rebellion, as the initiation of a hopeless discord."

The several varieties of insanity fall under two great divisions—*Affective* and *Ideational*. The former includes two sub-divisions, impulsive and moral insanity; the latter also is separable into two forms, 'partial and general. Dementia and general paralysis take a position as supplementary forms. Such is Dr. Maudsley's distribution of mental disorders, which, it will be seen, differs widely from the classification usually adopted, and which, in its principal features, is followed by Griesinger. The last-named writer treats of 1. States of mental depression; 2. States of mental exaltation; and 3. States of mental weakness; and, as supplementary, the complications of insanity, represented by general paralysis and epilepsy. The states of depression include hypochondriasis and melancholia. Under the latter term are comprised many insane conditions, having nothing in common except the presence of more or less mental depression at some part of their course. Among such conditions are the forms of disorder which make up Maudsley's group of the affective varieties of insanity.

The artificial system of classifying mental maladies framed by Esquirol, and followed generally by Griesinger, has long been looked upon as very defective, and full of inconsistencies. M.

Morel rejected it, and attempted a more natural system, and Dr. Maudsley, on his part, has advanced very valid arguments against it and further expressed as his conviction that adherence to it has fettered observation, and hindered the faithful study of the natural history of insanity.

“The different forms of affective insanity have not been properly recognised and exactly studied, because they did not fall under the time-honoured divisions; and the real manner of commencement of intellectual insanity in a disturbance of the affective life has frequently been overlooked.”

It is, however, only just to Griesinger to note that he accepts the artificial system simply from want of a better, and that the two essential varieties of insanity which he admits, viz., disorder of the emotions, and disorder of the thought and will, bear a general resemblance to the two grand divisions accepted by Maudsley.

The history of the forms and of the complications of insanity presented by Griesinger is much more full in all details respecting their course and symptoms than that attempted by Dr. Maudsley. The manner also in which the chapter is subdivided into sections, each one devoted to some variety bearing—whether deservedly or undeservedly we do not say, a special name, necessary to be known by the student—renders it a more fitting textbook than the work of the English author. The translators besides, as practical psychiatrists, have, as might be anticipated, performed their task in a more creditable manner in this descriptive portion of the work; and doubtless they found Griesinger himself much more in his element, much more lucid and readable in describing the characteristic features of insanity, than in the more learned and abstruse disquisitions of the previous portion of his work. Hypochondriasis and epileptic insanity, moreover, are separately and sufficiently treated of in Griesinger's book whilst, for some reason, they have been omitted from Dr. Maudsley's treatise.

The remaining chapters in the two works are occupied with the pathological anatomy, prognosis, and treatment of mental diseases. In the mode of dealing with the first-named subject, Griesinger is again distinguished from Dr. Maudsley by careful detail. After some general remarks on pathological research, and the results to be looked for from it, he enters on a descriptive account of the alterations met with in cases of insanity, in the cranium, in its bones, membranes, and in its contents severally, and afterwards proceeds to note the morbid consequences of disease in all other organs of the body, with which the insane state may have been considered complicated. On the contrary his English fellow-author occupies much of his chapter on

pathology with recounting the latest physiological doctrines and experiments concerning the functions of the nervous system, the individuality of nerve-element and reflex pathological action ; all of them subjects of the highest importance, but rightly belonging to another section—quite necessary to the right interpretation of morbid appearances, but somewhat out of place in the chapter occupied by them. Nevertheless credit must be given him for what is recounted of the morbid products and appearances of the brain and membranes, and particularly for an excellent summary of the kinds of degeneration met with in the brain after insanity ; morbid changes distinguished in more recent times, of great importance pathologically, and likely, when more fully understood, to throw light upon the material cause of mental disease.

Passing by the other chapters we will, in conclusion, make a few remarks on the opinions and statements of the two authors on treatment. Suppose that we assume the correctness of Dr. Maudsley's hypothesis, that mind is an organic product, the result of the reaction of nervous matter in response to external nature, and to internal nerve-residua, and that at the same time the material instrument, the brain, must be nourished and kept in health, in accordance with the same laws as govern any other organ of the body,—a two-fold mode of treatment in insanity is indicated ; directed, on the one hand, towards the modification of external influences operating on the mental organisation, and, on the other, towards correcting whatever is irregular in bodily function, whether this be in the nervous centres themselves, or in other parts of the body with which the well-being of those centres is indissolubly bound up as members of the same body. In short, the treatment need be both moral and medical,—psychical and physical, in the language of Griesinger.

It is clear that medical or medicinal treatment can have no direct effect upon the disturbed mental processes ; yet, nevertheless, it can exert a tangible effect indirectly. The over-excited and over-worn brain may be thrown into repose by an opiate, or calmed by a prolonged or a Turkish bath ; or a course of chalybeate medicines may restore a healthy state of the blood and therewith healthy brain function.

Under all circumstances the treatment must be grounded, as Dr. Maudsley observes, " upon the removal of those bodily conditions which appear to have acted as causes of the disease, and to be keeping it up, and upon the general improvement of nutrition."

Griesinger passes under review the various medicinal agents which have been more especially resorted to in treating the insane, and exhibits a correct appreciation of the value of the

various drugs considered as curative of the morbid states in which they are administered. But both he and Dr. Maudsley insist upon the necessity of early treatment, and particularly of the early withdrawal of the patient from those influences to which the disease is traceable. An entire change in the surroundings will sometimes of itself lead to recovery.

Yet under the influence of this demand for removal the mischievous, and too often fatal, error is made of being contented with the transfer of the patient to an asylum, as though this constituted the whole necessary treatment. Against this indiscriminate consignment of insane persons to asylums Dr. Maudsley protests strongly. In recent cases an asylum may be absolutely necessary; but it should be something more than a place of seclusion; medical treatment should form a real feature in it.

"Future progress in the improvement of the treatment of the insane lies (writes the author just quoted) in the direction of lessening the sequestration and increasing the liberty of them." (P. 430.)

Moreover, if we look to our asylums, more especially to the county asylums, we find, as a rule, overgrown institutions in which the medical element is reduced to a minimum, and medical treatment, except on a wholesale, empirical character, unattainable. Moral and medical means must be combined in the treatment of curable or recent cases; and this cannot be accomplished by certain set rules or a system of routine, but by special regard being had to the character and circumstance of each individual case.

"It is necessary (says Dr. Maudsley) to penetrate the individual character in order to influence it beneficially by normal means, and to investigate carefully the concurrence of conditions that have issued in insanity, in order, so far as possible, to remove them." (P. 431.)

The remarks of Griesinger on this subject are equally decided, though, may be, the English is not so clear.

"Nowhere (he says) is the desideratum strictly to keep in view the individual of greater importance than in the treatment of insanity; nowhere is the constant consciousness more necessary that it is not a disease but an individual patient—that it is not mania, but an individual who has become maniacal—that is the object of our treatment. Each individual case should be specially investigated in all its bearings, which constantly vary, and all the means of anatomical diagnosis and pathological research ought to be brought to bear upon its elucidation; in fact, a penetration into the psychical individuality of the patient is here demanded, which is

scarcely ever necessary in ordinary medical practice." (Op. cit., p. 462.)

But how different is the position of a patient on being introduced within one of our large English asylums? He at once loses his individuality, and is for the future nothing more than one of the four or five hundred lunatics who claim the attention of the duly appointed medical officer, and have an equal share in (as Griesinger describes it) the mechanical nature of the superintendence and treatment in operation. In our present monstrous asylums, as Dr. Maudsley truly observes, anything like individual treatment is an entire impossibility. Though the incurable majority may not require such individual looking after, the small curable minority have slight and uncertain chances of satisfactory treatment.

"To the medical officer (he further goes on to remark) there are not so many *individuals*, having particular characters and particular bodily dispositions, with which he is thoroughly acquainted, but they are apt to become so many lunatics, whom he has to inspect as he goes his round of the establishment, as he inspects the baths and the beds." (P. 431.)

And let it be added, that what makes the position and prospects of curable lunatics in our huge asylums still worse is, that the medical officers being sufficiently occupied in carrying out the routine of those establishments, and feeling themselves overwhelmed by the number of patients consigned to their care, often yield to the temptation to merge their medical character and usefulness in the routine of supervision, or, as Dr. Maudsley expresses the fact, "forgetting their character as physicians, degenerate into mere house-stewards, farmers, or secretaries," p. 431.

We have entered rather largely into this question of asylum treatment because it has become a problem of the day how to provide for our lunatics, seeing that the plan of building gigantic structures has failed to meet the demands for accommodation, and tended rather to the production and accumulation of chronic insanity, than to cure the insane and benefit the community.

A few words on the treatment of the insane without mechanical coercion. We are glad to find that Griesinger, unlike many of his countrymen, does not regard this plan as a deception and mistake. The question (he writes, p. 492) is now decided entirely in favour of non-restraint. Up to the time of the first edition of his work he allowed himself, (he states) to be influenced by the adverse opinion of his fellow-countrymen but since then he has seen the new system carried out in several of the large English institutions, and has been convinced.

Dr. Maudsley accepts non-restraint as unquestionably the correct plan of management, but, curiously enough, never mentions the name of Dr. Conolly, although he introduces that of Pinel. Griesinger, however, is more just to the memory of our great English champion of non-restraint, remarking that "the name of Conolly will always be mentioned with that of Pinel, whose work he has completed," (op. cit. p. 492).