namely, that the evolution of heat is in proportion to the intensity of mental action. The author hoped to be able to localise the various mental functions by comparing the rise of temperature in different parts of the head, from the various forms of mental excitement. The result in this respect, however, is very limited. The anterior portion of the left side of the head showed the rise more frequently, and to a greater extent, than any other region, both for intellectual and for emotional states.

It is not easy in a few words to explain the mode of experimentation. Suffice it to say that the instrument used was a thermo-electric apparatus. The examination was restricted to a few heads, so that all peculiarities and disturbing influences might the more readily be detected and allowed for. The utmost care was always taken to make the experiments trustworthy and exact; and, as the results show, the tissues intervening between the brain and the instrument do not offer so much difficulty as might be imagined.

The Physiology of Mind ; being the first part of a third edition, revised, enlarged, and in great part rewritten, of the "Physiology and Pathology of Mind."

The Pathology of Mind ; being the third edition of the second part of the "Physiology and Pathology of Mind," recast, enlarged, and rewritten.

DR. MAUDSLEY'S work on the "Physiology and Pathology of Mind" has now reached a third edition. The first volume of this edition, which appeared in 1876, deals with the Physiology of Mind; the second part, published last year, deals with the Pathology of it.

The new edition in its entirety being now before us, it may not be amiss to glance at the scope and purport of the work.

It is written with the intention of harmonising physiology and psychology. An inauspicious divorce has, in Dr. Maudsley's opinion, hitherto existed between these two sciences. The consequence has been sterility, or, worse than sterility, an unhallowed and ill-begotten fruitfulness. Dr. Maudsley, the herald of a new era in mental science, appears, and forthwith the barren shall be made to conceive.

Let us examine the charge against psychologists, and then Dr. Maudsley's claim to be the founder of a sacred union between the divorced sciences.

The charge against psychologists is that they have confined themselves to their own consciousnesses for their observation of mental phenomena, and that they have neglected to study the insane and idiots, the lower races of man, and the lower animals, as well as the experimental investigation of the nervous system. In considering this accusation we will first consider what weight is to be attached to it if true; and secondly whether it really is true.

That it is useless or misleading to examine our own consciousness is upheld by an argument borrowed from Comte. To observe we must pause; while if we do pause there is nothing left to observe. This argument unluckily proves too much. It proves that from self-examination we cannot draw any trustworthy conclusions; while as a matter of fact Dr. Maudsley wishes not to discard, but to dethrone, this method of acquiring knowledge about mental states. But must we pause to discover the co-existence and the succession of the phenomena of consciousness? Can we not remember them? Can we not even to some extent observe them in passing, without disturbing the current of thought or of feeling? How else have been obtained any of the acute analyses of intellect and of emotion that are to be found in all psychological writers, from Aristotle's days to our own?

The laws, too, that govern the relations of these mental states to each other have been obtained by the same method. In fact, the psychology of Dr. Maudsley's book is a psychology borrowed from the men he charges with raw and windy disquisitions. We do not wish in the smallest degree to detract from the value of Dr. Maudsley's work. On the contrary, we consider it to be a valuable and praiseworthy attempt to give a higher generality to the derivative laws of mind, and to discover the hidden portions in the chain of events of which thought, emotion, and volition are the last links. The attempt is a valuable one, because of the abundant collection, the lucid exposition, and the scientific grouping of facts, and the ingenuity wherewith inferences are extracted from them. It is a praiseworthy one because it presses towards the generalisation whereby the facts of mind shall be connected with the facts of body. But still it is only an attempt, inasmuch as, apart from those generalisations that had been already made, there is little that deserves a higher title than is conferred by the term hypothesis. There is certainly no such material advance over philosophers in the succession from Hartley to Bain and Spencer, as to warrant such animadversion as is bestowed on all previous writers. Bain and Spencer are, indeed, to some extent excluded from the general condemnation, because they have viewed

mental phenomena by the light of physiology. But Mr. Bain owes very little to physiology for any of his great work. The essential parts of it might have been written almost as well if physiology were no farther advanced than it was a thousand years ago. And, Dr. Maudsley's book notwithstanding, we have no doubt that most competent persons consider that mental science is even now more advanced on its psychological than it is on its physiological side.

But is the charge against psychologists true? Have they really neglected to study the insane, and the lower races of men and animals? On examining this question we must remember one or two circumstances. The early psychologists, as a rule, had no opportunity of investigation by means of the insane and of the lower animals. In former days the country was not studded with asylums, and vivisection was not freely practised. Ethnological observations, in so far as they had been made, were taken into consideration by all philosophers of the *à posteriori* schools. Psychology had little, indeed, to learn from the physiology of one or two hundred years ago; and certainly cannot, with justice, be charged with neglecting that little. In fact, we have only to recall the names of Hartley and Priestley in England, and Condilliac and Cabanis on the Continent, to show that any light from physiology would have been seized with eagerness. It would be much juster to charge physiologists with neglecting the paths of investigation pointed out by speculative philosophers than to charge psychologists with neglecting any department of knowledge that could elucidate their science. Not until Sir C. Bell's time was there any but the most meagre acquaintance with the functions of the nervous system; and Sir C. Bell's time was at least a century and a half after the publication of the *Novum Organum*. Since the labours of this distinguished physiologist—as before them—psychologists have always been found who assimilated whatever truth physiology had to tell them, and thus have always placed their science on a level with the most advanced observations of the day.

According to Dr. Maudsley, however, psychologists were by their *method* precluded from studying psychology from a physiological point of view. This, truly, is a strange statement, considering that from the time of Bacon there has always been a school of philosophers who investigated mental phenomena or, at least, some departments of mental phenomena, according to inductive principles. From Hobbes and Locke to Bain and Spencer, the method has been the same. Philosophers of the school now known under the name of the Association Psychology have never contented themselves with simply torturing their

own consciousnesses. But it would be interesting to know in what way the physiology of two hundred years ago could have profited psychology if the method of psychology did not debar its use, as Dr. Maudsley asserts. Dr. Maudsley does not, however, make an assertion; he gives a conspicuous example—an example, moreover, not of two hundred years ago, but even of our own day. The example is Mr. J. S. Mill! Mr. Mill did, indeed, condemn M. Comte's attempt to discard psychology, or to convert it into a branch of physiology; justly believing that, at least for a long time to come, the laws of psychology cannot be deduced from physiology. But, in order to show that Mr. Mill's method was in no wise adverse to regarding psychology from a physiological standpoint let us quote his words. "The relations, indeed, of that science (Science of Mind) to the science of physiology must never be overlooked or undervalued. It must by no means be forgotten that the laws of mind may be derivative laws resulting from laws of animal life, and that their truth, therefore, may ultimately depend on physical conditions; and the influence of physiological states or physiological changes in altering or counteracting the mental successions is one of the most important departments of psychological study. But, on the other hand, to reject the resources of psychological analysis, and construct the theory of the mind solely on such data as physiology at present affords, seems to me as great an error in principle, and an even more serious one in practice. Imperfect as is the science of mind, I do not scruple to affirm that it is in a considerably more advanced state than the portion of physiology which corresponds to it; and to discard the former for the latter appears to me an infringement of the true canons of inductive philosophy, which must produce, and which does produce, erroneous conclusions in some very important departments of the science of human nature." (*Logic*, vol. ii. p. 439.) It is thus seen that Mr. Mill confined himself to protesting against the attempt to discard psychology. So far was he from being debarred from physiology by his method, that it was really part of his method to have recourse to it, as could be shown by many passages besides the one just quoted. It is true that Mr. Mill himself did not investigate the physical relations of mind. His special department of inquiry lay in the subjective aspects of thought. He does not treat even of all the subjective aspects of mind; but, with one or two exceptions, of intellectual states only. With as much justice might it be said that his method forbids him to investigate the emotions and the will, as that it debarred him from investigating mental phenomena from a physiological standpoint. He attended specially to the inquiries that he con-

sidered most important, and that he deemed himself most fitted to examine. What more can be demanded of any man?

Dr. Maudsley, however, thinks that no man has any business with metaphysics, that it is a barren study—in fact, he likens it to an attack of measles; the ambitious youth undergoes it, and haply gets immunity from it for the rest of his life. This can hardly be termed a modest criticism on by far the majority of the greatest intellects the world has ever seen. But perhaps it is just; the greatest intellects may go wrong. What has metaphysics done? What is its value? Can it show reason why it should exist? In answer we may say that to those who value only the “bread and butter” sciences, metaphysics can never seem to be of importance. But to those that value truth for its own sake; to those that wish to know the nature, the extent, and the validity of human knowledge, metaphysics will not merely never lose its charm, but it will never cease to be the foundation of all other sciences. Dr. Maudsley does not, perhaps, always mean the same thing when he uses the term metaphysics. If he does always ascribe the same meaning to it, he certainly has not made that meaning clear. He speaks of the “received system of psychology,” the “accepted system of psychology.” At very few epochs in the history of philosophy would such phrases have been correct, and never would they have been more erroneous than now. Dean Mansel protested against grouping all mediæval philosophers under one name, and calling them “The Schoolmen.” But to speak of the “accepted system of psychology” is a still more heedless attempt to characterise by a common term the most heterogeneous opinions. The expression is, in fact, about as significant as such a phrase as the “accepted view of things in general.” Touching the real meaning of the word, what people generally mean when they use it, let us quote Dugald Stewart:—“*Metaphysics* was a word formerly appropriated to the ontology and pneumatology of the schools, but now understood as equally applicable to all those inquiries which have for their object to trace the various branches of human knowledge to their first principles in the constitution of the human mind.” (*Dissert.*, part ii. p. 475.) Elsewhere he speaks of it as the “inductive philosophy of the human mind.” Mr. Bain is still more explicit:—“By ‘metaphysical study’ or ‘metaphysics’ I mean—what seems intended by the designation in its current employment at present—the circle of the mental or subjective sciences. The central department of the field is *PSYCHOLOGY*, and the adjunct to psychology is *LOGIC*, which has its foundations partly in psychology, but still more in the sciences altogether, whose procedure it gathers up and formulates. The

outlying and dependent branches are—the narrow metaphysics or ontology, ethics, sociology, together with art or æsthetics. There are other applied sciences of the department, as education and philology. The branches most usually looked upon as cognate or allied studies of the subjective department of human knowledge are psychology, logic, ontology, ethics.” (“Metaphysical Study,” *Contemporary Review*, April, 1877.)

We suspect, however, that Dr. Maudsley did not use the word according to its current meaning; but applied it rather with special reference to the narrow metaphysics or ontology; though nowhere does he make this clear. But should even this narrow metaphysics be banished from the sphere of human speculation? Those who wish to know for themselves how far, and with what result, human reason can investigate some of the most recondite problems that have ever engaged the mind of man, must examine the subject for themselves. They will not be satisfied to accept without question the dogmatic utterance of even the greatest philosopher. It is not needful that everyone should be a metaphysician any more than it is needful that everyone should be an astronomer or an accomplished mathematician. But surely it is desirable that intellects having an aptitude for metaphysical inquiry should let the light of their genius illuminate the subject. Does the present age not owe any debt to metaphysicians of former days, that we should forget them, or be unmindful of their teaching? To enumerate the debts would be to a large extent to trace the history of philosophy for the last two hundred and fifty years. To name only one thing, Descartes’s rule that nothing should be accepted without proof, has been one of the most fruitful principles of modern times, and it is now one of the most striking characteristics of modern thought. It is, moreover, especially from metaphysicians, from those engaged in the subjective sciences, that such principles come. The proof lies in the history of the sciences themselves.

In the chapter on Mind and the Nervous System the doctrine that mind is an abstraction, that it is not merely an abstraction, but that it is nothing more than a function of matter, is vigorously asserted. We freely grant that it is an abstraction. But so also is matter in the sense in which it is ordinarily understood as a noumenon. With matter as with mind we know only the phenomenal. Possibly there may not be any noumena or things-in-themselves underlying the phenomena or things-as-they-appear-to-us; and some have gone so far as to assert this universal negative, a negative which by the nature of things can never be proved. Assuredly it is not easy to perceive by what process of valid reasoning noumena can be dogmatically established for the one series of phenomena and dogmati-

cally rejected for the other. The question is one of probabilities ; and though personally concurring in Dr. Maudsley's opinion, we regard the question as an open one, and think it will so continue till the end of time. That Dr. Maudsley should have laid so much stress on the doctrine that mind is a function and nothing more than a function of matter, is the more to be regretted, inasmuch as it was wholly needless for his purpose. That every mental change is accompanied, or perhaps preceded by a physical change, though not yet actually proved, is highly probable ; and would most likely be granted by all. Such an hypothesis (for how probable so ever it may be, it is still, according to strict principles of induction, only an hypothesis,) would have served the purposes of Dr. Maudsley's exposition equally well ; while it would have this advantage, it would not carry dogmatic inference beyond the strict warranty of facts, an advantage of no mean importance in a scientific treatise. We may add also that it would not be so likely to bar the way to the reception of the generally sound doctrines of these volumes by stirring up the opposition of some of those who act according to Tennyson's principle :—

Hold thou the good: define it well :
For fear divine Philosophy
Should push beyond her mark, and be
Procureess to the Lords of Hell :—

instead of clinging to that purer faith and higher principle that truth and truth only should be our guiding star in attempting to penetrate the mysteries of nature. We believe, however, that Dr. Maudsley would not value much the too delicate sensibilities of these people. Nay, he oftentimes goes out of his way to animadvert on religion.

Apart from the blemishes we have pointed out, the work is, on its theoretical side, one of great and unquestionable merit. Both volumes are replete with interest ; and suggestive remarks are to be found on almost every page. The style, too, is lucid, in fact, classical.

Archives de Neurologie, Revue trimestrielle des Maladies Nerveuses et Mentales. Publiée sous la direction de J. M. CHARCOT. Paris: Bureaux du *Progrès Médical*.

THIS, the first number of a new journal under the able direction of M. J. M. Charcot, on neurology, bids fair to take its place amongst the highest publications, of the same class, in Europe and America. M. Charcot, in his introductory chapter,