SCIENCE.

FRIDAY, MARCH 18, 1887.

COMMENT AND CRITICISM.

THE SIXTH CONGRESS of the Société nationale des professeurs de Français en Angleterre, held at London in January, attracted considerable attention from educators generally, and principally, it seems, from the very instructive address with which Dr. Jowett welcomed the members of the congress to Oxford for one of their sessions. The honored professor of Greek at Balliol assured the visitors that the ancient and modern languages have no quarrel, but rather they are related as parents and children, and the greatest affection should exist between them. In particular, he continued, no Englishman can be indifferent to the excellence of Bossuet and Fénelon, Montesquieu and Turgot, Voltaire and Rousseau, Montaigne and Pascal, or insensible of the great debt owed to these men by the English language and literature. It must be remembered, too, that above all other European languages, in French had been developed the noble and enviable quality of lucidity of style. Dr. Jowett then confessed that the treating of the modern languages in England was capable of great improvement. The first step in this improvement must be the following of a natural method. What this is, Dr. Jowett immediately specified: "Nature teaches us to begin with the ear, and not with the eye; with association, and not with analysis; with imitation, not with abstractions; with conversation, not with books of exercises. The powers of the mind generally strengthen, at least to middle life; but the faculty of learning languages decays, and is almost in inverse ratio to one's years. It is stronger before than after ten, stronger at twenty than at thirty, and so on." Furthermore, nature teaches us that a task should be proportioned to the capacity of the learner; and therefore instruction in the modern languages, which are the easier, should precede that in the classics. The speaker also commented severely on the too great time now spent in acquiring a very moderate knowledge of the classics, and called for a 'reform of procedure.'

Sufficient emphasis, continued Dr. Jowett, is not laid upon an acquaintance with modern languages. The universities still guide to a very large extent the education of the country, and they have heretofore given slight encouragement to the study of French and German. While the universities neglect these studies, they will be neglected at the schools and undervalued in the homes. He then made a suggestion which we have supported on several occasions already; namely, that a reasonable knowledge of some modern language may fairly be demanded of every university student, but — and here we must differ even from so distinguished an educator as the master of Balliol — for his degree, not for admission. We are not so sure that it is altogether fair to say that no one but a native can impart "the accent, the intonation, the true living voice of a language." Dr. Jowett said this, and of course his guests did not disagree with him. But it seems to us to go too far. Under this dictum, Max Müller would be prohibited from teaching English, and Mr. Saintsbury from teaching French. Before concluding their session, the French masters passed a formal resolution, asking for the establishment at Oxford of a school of modern languages, in order to encourage the study of French literature, and of the French language as a living tongue.

FOR THE BENEFIT of those who are fond of impressing on us continually the great advantages to be gained from a thorough and detailed system of methods, we would call attention to the book of instructions which has lately been issued in Austria, for the use of the teachers in the realschulen. The French system has always been supposed to be the most highly organized possible, but Austria is a dangerous competitor for the honor. It is Mr. Matthew Arnold, it will be remembered, who tells the story of the French minister of education who pulled out his watch and exclaimed that at that instant all the children of France were receiving instruction on the same subject. The same thing may hereafter occur in Austria; for, as the Vienna correspondent of an English journal remarks, "the Austrian teacher who, in his geog-

raphy-lessons, is treating the Caucasus, will no doubt be cheered by the reflection that at the same moment all the geography-teachers in the empire are treating the Caucasus, and, like himself, are calling attention to the points of similarity between the Caucasus and the Pyrenees, the straightness of the two mountain-ridges, the low plain to the north of each, the small number of passes in each, and the reach of both from sea to sea." For all this is laid down in the big book of instructions. Moreover, the teacher's expression of countenance must be professional, and not the index of his feelings; for the regulations expressly provide that "a teacher, on crossing the threshold of the school, must exhibit a cheerful and contented countenance, to show that he has his work at heart." We cannot imagine any thing much more nonsensical or degrading to the teaching profession than this. We believe, as much as any sensible educator does, in organization and method; but, when it is allowed to proceed to such lengths as the above instances indicate, it is high time to call a halt. Method gone mad is worse than no method at all.

Prof. William James is certainly the pleasantest and clearest writer we have in this country on psychological topics. His short articles, while never difficult reading, are always worth reading, both from the popular and the scientific standpoint. His latest paper, on 'What is an instinct?' in *Scribner's magazine*, is an excellent example of this. In style and form it closely resembles the same writer's recent paper on habits, to which we called attention at the time of its publication. In each a psychological study is concluded by a pedagogical rule of practice. As in the previous paper Professor James pointed ou the importance to the teacher of a knowledge of the psychology of habits, so here he says that "to detect the moment of the instinctive readiness for the subject is, then, the first duty of every educator. As for the pupils, it would probably lead to a more earnest temper on the part of college students if they had less belief in their unlimited future intellectual potentialities, and could be brought to realize that whatever physics and political economy and philosophy they are now acquiring, are, for better or worse, the physics and political economy and philosophy that will have to serve them to the end." Professor James accepts the definition that instinct is the faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance. This is slightly less specific than Mr. Romanes' definition, which is, that instinct is a generic term, comprising all those faculties of mind which are concerned in conscious and adaptive action, antecedent to individual experience, without necessary knowledge of the relation between means employed and end attained, but similarly performed under similar and frequently recurring circumstances by all the individuals of the same species.

Professor James prefers to subsume instinctive under reflex actions, though we think Prof. Lloyd Morgan's criticism on so doing deserves consideration. Professor Morgan, with Mr. Romanes, defines reflex action as non-mental, neuro-muscular adjustment, due to the inherited mechanism of the nervous system, which is formed to respond to particular and oft-recurring stimuli, by giving rise to particular movements of an adaptive but not of an intentional kind. He then asks whether it will not be better to avoid introducing the term 'reflex action' into the definition of instinct, inasmuch as a reflex action is a direct response to a definite stimulus, and puts the specific question, Can we call all instincts, for example the migratory instincts of birds, reflex actions? Professor James sees clearly that the answer to such a question as this must rest upon the extension permitted to the term 'instinct,' and he himself confines instinct to impulses to act resulting from present sensations. The writer also makes good use of Schneider's 'Der thierische Wille,' but is specially happy in his demonstration of the way in which two scientific principles — the inhibition of instincts by habits and the transitoriness of instincts — account for what Mr. Romanes has called 'derangements of the mental constitution.' The paper is a most excellent combination of the scientific and the popular, and we heartily commend it to all intelligent readers.

In the London *Journal of education* for February, the Rev. R. H. Quick has an article on 'Dr. Paulsen and the curriculum of the future,' which contains the surprising statement that the writer — and Dr. Quick is one of England's best informed educators and educational writers — had not seen or heard any mention in England of Dr. Paulsen's 'History of the higher instruction in Germany.' He then proceeds to paraphrase the major portion

of Dr. Paulsen's concluding chapter, and to apply its sentiments to the discussion as to the nature of the curriculum of the future. We are several thousand miles farther from Berlin than our English co-workers, yet Dr. Paulsen's name and thought are well known here. In fact, the *Academy* published recently, in the form of a supplement, a complete and very excellent translation of Dr. Paulsen's now celebrated final chapter. We cannot understand the English ignorance of Paulsen's work and status, unless that people fails to read all educational literature published off the Island of Albion, which is an opinion we shall be very sorry to hold. Professor Paulsen is one of the most popular professors in the Berlin faculty, and he lectures to large audiences of students. He is also a councillor of state for education and one of the state board of examiners of the candidates for licenses to teach, and has in a variety of ways exercised a wide influence on Prussian education. His philosophical writings are of a very high order, and he is surpassed by no one in his critical mastery of the history and philosophy of education.

THE DOUBLE NUMBER of the *Library journal*, bearing the date January and February, will be very valuable for future reference because of the tables it contains concerning the libraries of the United States. The statistics are taken in the first instance from advance sheets of the forthcoming report of the bureau of education, and an addition is made of the names of the librarians and a classification of the libraries according to size. The government list comprises all libraries having 300 volumes or over, and contains 5,338. The *Library journal*, however, only reprints the information concerning those of 1,000 volumes or over, and these number 2,981. Forty-seven of these have over 50,000 volumes; and among the forty-seven are the public libraries of Boston, Chicago, and Cincinnati, and the libraries of Harvard, Columbia, Yale, Cornell, and Brown universities. These forty-seven libraries aggregate 5,026,472 volumes; and the whole list of 5,338 libraries aggregates 20,622,076 volumes, or one volume to every three persons in the country. In round numbers, the United States has one library to every ten thousand of population, though in many states the proportion is far greater. New Hampshire, for example, has a library to every 2,700 persons. The neighboring states of Massachusetts and Connecticut furnish a library to every 3,134 and 3,479 persons respectively. California, Colorado, Wyoming, and Michigan stand well up on the list. The southern states, as might be expected, make the worst showing, Arkansas bringing up the rear with one library to every 50,158 of population.

A TENDENCY is observable on the part of many young teachers, whose enthusiasm and imagination are roused by the great discoveries of modern science, to substitute in their instruction the method of discovery for the method of exposition. Excepting for advanced students, in university courses and the like, the substitution is rather confusing than beneficial. The young child cannot rise to an appreciation of the relations between isolated facts save as these are used in illustration of a principle. There must be some support on which to hang the facts in question, if the child is to grasp their significance. For this reason we believe that there is a stage in education when it is preferable to state a simple principle, and then illustrate it fully, than to present the pupil with a congeries of facts with the request that he ascertain their relations and causal dependence. Yet a great many young and well-instructed — save in pedagogics — teachers, understanding themselves the value and purposes of the method of investigation, demand of their pupils what the latter are not able to give. The fact should be recognized that the method of exposition has a determined place in education, and should be awarded it.

DR. LUCY M. HALL, physician to Vassar college, in a short paper in the *Popular science monthly*, brings to the discussion concerning the higher education of women inaugurated by Dr. Withers-Moore — to which we have alluded several times already — some conclusions deduced from statistics gathered by herself concerning the number of children born to women who have pursued a course of higher education. The statistics were gathered for the purpose of measuring the great falling-off in numbers in the American family, and, though by no means complete, they bear directly upon the question at issue. The data were taken from all grades of American life save that found in extreme poverty. The women were, as a rule, simply educated. A few were more highly educated, and the figures show that the largest families of the present generation belong to the

most highly educated of the women. One hundred and seventy-five families give an average of 3.2 children to each. Of the few really large families, the evidence shows the mothers to have been in most cases well educated, and in a few cases exceptionally so. Dr. Hall's own experience has been, that young women in college are unusually healthy, and become increasingly so as the course progresses. She quotes President Bascom, of the University of Wisconsin, as saying, "The young women do not seem to deteriorate with us in health, but quite the opposite. . . . It has long seemed to me plain that a young woman who withdraws herself from society and gives herself judiciously to a college course is far better circumstanced in reference to health than the great majority of her sex."

GENERAL PSYCHOLOGY, ITS DEFINITION, LIMITS, AND METHOD.[1]

I.

IT is necessary at the commencement of this treatise, not to define, — for that is almost impossible, — but to explain, the meaning of the term 'general psychology.' In fact, until now the term has been very rarely used; and in all scientific literature there is no work, so far as our knowledge extends, that bears this title.

Psychology, as ordinarily understood, is the science of intelligence: thus all depends upon the extension given to the word 'intelligence.' Taken etymologically only, intelligence signifies the comprehension of things, or the knowledge of the causes of action; but taken thus, the term is too narrow, for it follows that there is no intelligence save in connection with a self-conscious being. An unconscious intelligence would be, viewed etymologically, a meaningless phrase, since to comprehend a thing would imply, by definition, the consciousness of the comprehension. But the instances of unconscious intelligence, absurd though the expression is, are certainly many and convincing. Take, for example, the ordinary occurrence of the solution of a problem during sleep, though he who solves the problem is in total ignorance of it. Can it be denied that an intellectual process is here involved? We must, then, admit that there are intellectual phenomena which are unconscious or nearly so; and therefore psychology cannot be limited to the study of self-conscious intelligences. The chief difficulty here is in the language, since no other term except the inaccurate one, 'intelligence,' can be applied to this unconscious mental activity. The expression 'psychical activity' is indeed better, though somewhat pedantic. Perhaps it would be more fitting to use the word 'ideation,' leaving to the term 'intelligence' its precise, clear, and evident meaning; namely, the conscious comprehension of things. I, for my part, prefer to give the term 'psychology' an application wider even than unconscious ideation and conscious intelligence: for there are numerous beings which perform complicated acts that are called instinctive, in which no intelligence, whether conscious or unconscious, is involved. Can it be said that psychology takes no notice of instinct? Surely its exclusion would be permitted by no one. Instinct is a psychic force, intelligent as to the end in view, if not as to the means employed. This is sufficient to give it a place in general psychology.

Even if the act performed is not understood by the agent, it is nevertheless perfectly adapted to its end. Thus a vague and latent intelligence, of which we cannot deny the existence, is manifested. Moreover, we can trace all the gradations, in a clearly defined hierarchy, from blind instinct to wholly conscious intelligence. There are, then, diverse psychic forces, — instinct or latent intelligence; ideation or unconscious intelligence; and, finally, intelligence properly so called, that is, conscious intelligence.

But what are the sources of instinct? Whence does it arise? We do not fear to go on to such consequences as general psychology may point out. Just as the zoölogists and embryologists assign to beings, however diverse, the humble origin of a primary cell, so we may trace all psychic forces, instinctive and intelligent, to their humble origin in an elementary reflex action. Instinct is not always so complicated, as it is usual to suppose, when the term is employed without qualification. Unquestionably the instinct of the mother who bends lovingly over the cradle of her child, that of the bee that builds its hexagonal cell, and that of the insect which poisons the body of its victim behind the second cephalic ring, constitute complex intellectual operations, of which the psychological character is undeniable. But how often is instinct more simple and rudimentary?

Let us take an instance which is of historic interest; for it was by this example that Descartes first gave us, with remarkable precision, the theory of reflex action. Here is a heated object: if the hand touch it, it is immediately withdrawn. Is this instinct, is it reflex action, or is it an act of intelligence? Here is an act which at the same time combines the characteristics of all three classes of phenomena. It is an act of intelligence,

[1] Translated for this journal from the author's forthcoming work, entitled 'Essai de psychologie générale.'