SCIENCE.

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COMMENT AND CRITICISM.

SOMETHING was said in these columns recently about the shortcomings of geography-teaching in the lower schools. The same complaints hold in regard to elementary science teaching in general. The wave of enthusiasm for teaching science in primary and middle schools, which swept the country a few years ago, has not brought us as much nearer the millennium as was at first fondly anticipated; but it has left many of us wiser, if not sadder. There was at first a general but strange misconception of what ought to be taught, and how the teaching was to be done. A poor workman with bad tools, which he does not know how to use, is hardly likely to turn out a finished product. One distinguishes genuine metal by its ring, only after he has heard it many times; and a teacher who knows little or nothing of any department of science is easily caught by the tone of a text-book which is often little better than a base alloy. 'Science made easy' finds its way into the school-room to the temporary delight of both teacher and pupil, but to the lasting benefit of neither.

Have the scientific men of this country done their full duty in this matter? It is a pertinent question, and it cannot be answered in the affirmative. Two forces are here to be dealt with, — the teachers and the text-books. Concerning the latter, it will be remembered by many that something akin to a sensation was produced, at the Minneapolis meeting of the American association for the advancement of science, by Professor Rowland's vigorous denunciation of American science text-books. His resolution was doubtless too sweeping in its character, — more so, in fact, than was really intended by its author; but it cannot be denied that it contained a large measure of wholesome truth, however unpalatable it might have been. But can Professor Rowland and others, whose names will occur to the reader, hold themselves wholly free from responsibility in the premises? It is not unreasonable to assert that the preparation of text-books, including those that are elementary in their character, ought to be undertaken by specialists; and it is gratifying to know that many eminent American scholars have not shrunk from their duty in this respect. A few years ago, in a review of an elementary treatise on physics, Clerk Maxwell remarked that there seems to be "some opposition between accurate statements and school-teaching, which, if not a fundamental necessity, is at least a universally existing phenomenon in the present order of things." Nowhere is the hand of a master more needed than in the making of an elementary text-book. Science can be 'made easy' by being made clear and accurate; and such elementary treatises as those prepared by Maxwell and Balfour Stewart show how well the real scholar can do this. It can hardly be done by any one else.

THE recent deliberations of the committees of the American ornithologists' union, upon the rules of zoölogical nomenclature, will, when published, be of great interest to zoölogists working in other classes. The day is not far distant when the nomenclature of American zoölogy, particularly in its vertebrate division, will be reduced to a uniformity based upon consistent interpretation of the law of priority. American zoölogists are now waiting with much curiosity to see what their fellow-workers in Europe are going to do in the matter, and whether it be possible that they will cling to the illogical and inconsistent usages now prevalent among them. At present the names sanctioned by the great authorities, like Cuvier, appear to be regarded as sacred and immutable. In a recent official report upon the

Berlin fishery exhibition, Professor Giglioli, the leading authority in Italian vertebrate zoölogy, commenting upon the collections sent from the U. S. national museum, remarks, "I feel obliged to make reference to the singular nomenclature current among the zoölogists of the United States, which is in most instances entirely arbitrary, and at variance with that generally adopted in Europe. Only the working zoölogist can form an idea of the confusion which is sure to result from such practices. If the present courses are continued, they will end in the destruction of the wise, convenient, and simple *sistema zoologico* conceived by the great Linnaeus."

Most English zoölogists follow, though not very consistently, the rulings of the Strickland-ian code; but on the continent, except in Norway, there appears to be no general appreciation of the importance of conforming to any consistent policy in nomenclature. The authority of Cuvier, or one of his contemporaries, is allowed to outweigh any consideration of justice or uniformity. In the United States, however, the number of indigenous species to be systematically catalogued is so great, that systematic zoölogists have been forced to follow the rule of priority, without fear of contemporaries, or favor to the workers of the past. It is somewhat unfortunate that the common sea-bream of Europe should be known to transatlantic ichthyologists as Sargus vulgaris, while here it is called Diplodus sargus; equally so, that our black bass, Micropterus salmoides, should there be known as Huro nigricans. The American zoölogist has, however, the advantage of standing on a foundation of priority, upon which his European brethren must sooner or later take refuge, or be overwhelmed in an ocean of synonymes.

In closing a review of the different means employed by man to rid himself of destructive insects, Mr. de Fontvielle expresses a regret that the attempts made to popularize the use of insects as food have made so little progress. We are, in fact, behind the Chinese, and even behind the monkeys, who, if we may believe Millet, eat their own lice. It is not necessary, he adds, to go to this length; but we ought not to forget the remark of the Roman emperor, who said that the body of an enemy never tasted bad, and the banquet of the Society of insectology, before which he spoke, would always lack something so long as there was not placed before them at least some grasshopper farina and fried white worms.

'Characterized by high, unbroken mediocrity' is the description which the *Pall-mall gazette* gives of the literature of the past year. This only brings up again the question whether the age of literature and of good talkers, as well as writers, may not be passing away. The energies of a large portion of the able men of the present are occupied by the work of their special avocations, — avocations in which they have few associates, or possibly none, in their particular branch. What has the foremost position in these men's thoughts they find no opportunity of mentioning to those with whom they may be thrown. Where Franklin found time to be a printer, a statesman, and a physicist, is now so much ground to be covered, that a physicist may soon be a thing of the past; the electrician possibly being quite ignorant of the laws of heat, and each student only striving to cover faithfully the subject of sound, or light, or heat, as may seem most attractive. Shall the active man of the future limit himself in his department that he may gain a polish that will make him the more agreeable companion? or, that he may serve the world's purpose the better, shall he, by his education, largely separate himself from all others? What this differentiation has come to, is shown by the fact that a learned academy not long ago honored with a gold medal a memoir which no member had read. A meeting of this society has often been compared to a funeral, — a funeral only to be enlivened by the queries of some garrulous layman; and how can it be otherwise when the words of our wiseacre fall upon the ears of others, incapable of vibrating in sympathy?