

THURSDAY, OCTOBER 12, 1871

RECENT UTTERANCES

THE Oracle has spoken. In fact several Oracles have spoken. Let us take them seriatim. From the lips of two of the most enlightened members of the Cabinet we have had at last an authoritative expression of the desirability—nay more, of the absolute necessity—of scientific education for the country at large. Addressing his constituents at Bradford on Monday the 2nd inst. in a speech to which we have already alluded, on the occasion of the opening of the new Mechanics' Institute for that town, Mr. W. E. Forster, the Minister for Education, as he ought to be styled, made use of the following emphatic language:—"The old grammar-school teaching was almost framed upon the advantage that Latin and Greek well taught gave to the boys; now, we find that the boys cannot do without the use of more general knowledge than is given by Latin and Greek; that there must be a knowledge of modern languages. But there may be also a feeling that we ought to know something of the daily facts of life, and the rudiments of Science. There, again, I speak from a sense of my own want, and I have often thought how much more useful I might have been—at any rate, how much stronger I might have been—if I had had given to me a scientific education, such as I think we may now hope that our children will attain." And again: "We now believe that we have taken measures by which we may secure elementary education to all children of all classes in our borough, and throughout the country, and, consequently, those who attend this institution will have the foundation of a training that will enable them to fulfil the original idea of its promoters," that is, "to give mechanics scientific knowledge."

On the following day Lord Granville, the Secretary of State for Foreign Affairs, when presiding at the opening of the Dover College (intended to provide, at a very moderate cost, a first-class English and classical education), took the opportunity to make the following pertinent remarks:—"Then there is the study of Science in its different departments. I believe this to be eminently wise, and a matter to which parents in the present day attach very great importance. I believe the results of this branch of education are of considerable consequence; for after all, a mere smattering of education is of very little use in any department, but a really scientific mode of studying different branches of Science is one of the best and most useful instruments of education you can use. I remember reading a very remarkable speech, with most of which I agree, delivered by Mr. John Stuart Mill, on the difficulties of a comprehensive education. He said the study of Science taught young men to think, while the study of Classics gave them the power of expressing their thoughts. I own I have thought there is some little fallacy in the distinction drawn between the education taught in these two departments. I believe it is almost impossible for a man to study the ancient languages without himself acquiring great habits of thought, and I daresay you have all had opportunities of hearing some of the most distinguished professors, some now dead and others living, who have conveyed their thoughts to their audiences in such singularly clear and perfectly eloquent language, that

I feel there is something in the study of Science which makes a man feel that in what he is talking about, he must eschew all redundant and irrelevant verbiage."

The significance of these outcomes is not to be mistaken, and Lord Granville's remarks are of none the less authority because he does not happen to be our Home Secretary. His knowledge of the state of education in some other European countries has doubtless made him all the more sensible to the lamentable defects of our own. Of the other leading members of the Cabinet, Mr. Gladstone is too far-seeing a man to oppose the manifest tendencies of the age, Mr. Lowe has shown himself ready to respond to every legitimate demand made on the public purse by the proper representatives of the wants of Science, and the Duke of Argyll is himself a writer on Science.

While we cannot but congratulate ourselves that our rulers are at length alive to the importance of making Science the base of all true education, a necessity we have so constantly and earnestly insisted on, we still cannot but inquire how it is that all this has been so long in making itself self-evident to our public men. In the same address from which we have already quoted, Mr. Forster pointed out that the original design of the founders of Mechanics' Institutes was to give a scientific education to the working classes; but that they soon found that there was an almost universally spread absolute ignorance of even the most elementary facts on which a scientific education could be based. And yet all these years have been allowed to pass, and it is only yesterday, as it were, that any serious attempt has been made to provide a scientific education for the working classes. We are even surprised to find that the first advances made by teachers of science in this direction are met by an eagerness and enthusiasm which will soon outstrip the limited means at command to satisfy its cravings. In the higher strata of society it is the same; wherever the elements of science, natural or physical, are taught by a competent teacher, they are absorbed by boys and girls, and grown-up men and women too, with a zeal seldom bestowed on their Latin or Mathematics; there is something in these studies which the human mind finds really to respond to its own instincts. If the next generation of Englishmen does not grow up with more than a smattering of the rudiments of science, it will be the fault of the present teachers of science themselves.

From men of high position but out of the Cabinet, who are clear-sighted enough to discern the wants of the age, we hear the same demands on every side. Sir J. Lubbock the other day, in addressing a meeting of working men at Liverpool, after delivering the prizes in connection with science classes, said that scientific men throughout the country unanimously regretted the manner in which the grants to elementary schools are distributed. Reading, writing, and arithmetic, although the foundations of education, are not education itself, and the schools will never be placed on a sound and satisfactory basis until they take a wider ground. And at the meeting of the Social Science Congress, held during the present week at Leeds, Mr. Joseph Payne, than whom no more practical authority could be found, read a paper on scientific teaching and the advantages of mental discipline for children, approving of the cultivation of the faculties of observation and experiment and direct training from nature. Science teach-

ing, and not literary teaching, he said, ought to be the basis of all other knowledge.

One of the best recent utterances on the relation of the State towards Science is contained in the address of Prof. Huxley, delivered at Birmingham on Monday last, as president of the Birmingham and Midland Institute. In this admirable discourse he spoke of the principles of governing, and the relation of the State to its members, in a manner which enables us to congratulate ourselves that Prof. Huxley is no longer among the advocates of the limitation of State functions. He repudiated the idea of the functions of a Government being confined to those of a protective constabulary. Adopting the definition that the end of Government would be the good of mankind, he said he took it that the good of mankind meant the attainment by everyone of all the happiness which he could enjoy without diminishing the happiness of his fellow-men. The pursuits in which pleasure and happiness could be enjoyed by all, with detriment to none, were those which ought to be smiled upon by the State. If it were beyond the province of the State to interfere directly in commerce and the individual relations of men, it might safely foster these indirectly. He urged that it was the duty of Government to take the initiative in promoting the teaching of Science, leaving local energy, as soon as it could be evoked, to develop the work. The State should understand that local scientific institutions such as those at Birmingham, Manchester, and Newcastle-on-Tyne do not benefit the locality alone, but the nation at large.

With regard to the effects of Government subsidies on private enterprise, Prof. Huxley clearly showed how baseless are the grounds of alarm on this head. There are those who maintain that the State has no right to do anything but protect its subjects from oppression, but even "accepting the proposition that the functions of the State might all be summed up in one great negative commandment, 'Thou shalt not allow any man to interfere with the liberty of any other man,' Prof. Huxley said he was unable to see that the consequence was any such restriction as its supporters implied. If his next door neighbour chose to have his drains in such a state as to create a poisonous atmosphere which he breathed at the risk of typhus and diphtheria, it was just as much a restriction on his just freedom to live as if his life was threatened with a pistol. If his neighbour were allowed to let his children go unvaccinated, he might just as well be allowed to leave strychnine lozenges about in the way of his (Prof. Huxley's) children. And if his neighbour brought up his children untaught and untrained to earn their living, he was doing his best to restrict his (the lecturer's) freedom by increasing the burden of taxation for the support of gaols and work-houses for which he had to pay."

There is nothing new in these utterances, nothing that was not obvious to thinking men years and years ago; but they are of the highest importance nevertheless, for we may now hope that their lead will be followed in our English fashion throughout the length and breadth of the land. It was wisely said not long ago, that one of the most certain ways to make the study of Science national would be to make Science itself fashionable. This is true, and we may now hope that this task will for the future fall on Cabinet Ministers and the like, for scientific men who attempt it are apt to become martyrs to the good cause.

THE LAWS OF POPULATION

1. *Population: its Laws of Increase.* By Nathan Allen M.D. (Lowell, Mass., 1870.)
2. *Physical Degeneracy.* By the same. (New York: Appleton and Co., 1870.)
3. *The Law of Human Increase.* By the same.

DR. NATHAN ALLEN, in three pamphlets, of which the titles are given above, discusses different aspects of a question of grave importance to American society, and indirectly to other societies also—namely, the comparative infecundity of that part of the population of the United States described as "native Americans." This fact, which seems pretty generally recognised, first came before Dr. Allen as a matter of personal observation, and he gives us more precise information from census returns. It appears that in the State of Vermont, for instance, the birth-rate even of the whole population, including the foreign element, is but three-fifths of what it is in England, while that of the strictly American population taken alone is estimated at only one-half of the English standard. This fact is the more remarkable, since, as Dr. Allen points out, "the comparison is between a people occupying the healthiest part of New England, engaged principally in agricultural pursuits, scattered in settlement, and a population situated as that of England is, living mostly in cities and thickly settled places, as well as composed largely of the extremes in society." Nor was it always so with the same race; for a hundred years ago the number of children under fifteen years of age was, relatively to the adult population, double what it is now. As regards the causes of this difference, Dr. Allen does not assign more than a secondary place either to emigration westward or to prudential considerations. He himself regards the physical weakness of American women, their inattention to the rules of health, and the over-straining of their nervous system, as the chief determining causes of the small number of children in a family. We have the usual complaints of tight-lacing, low dresses, insufficient exercise, and so on, which have been urged by physical moralists in all countries; but more special evils are pointed out in "the excessive use of fine flour bread," and the overstrained intellectual education of girls. To the latter cause Mr. Herbert Spencer has already ascribed the same consequences. At all events the fact of general physical weakness in American women seems to be made out, and is curiously illustrated from one point of view by the estimate of a manufacturer, that more than seven million *feeding bottles* are annually sold in the United States. So many mothers are unable to nourish their offspring!

Dr. Allen further ventures on a general theory of population, which may be stated broadly thus:—That fecundity depends upon the perfect development or harmony of all the organs of the body. The principle thus stated is very vague, and the author cannot be called successful in his attempt to give it precision; but the subject is too large for discussion here. The practical counsels which he addresses to his countrywomen are valuable and judicious, but so long as large families are regarded with disfavour, advice in this direction seems little likely to meet with acceptance. More promising are his suggestions as to the origin of this sentiment. If it be chiefly due, as he implies, to