

Literature and Science.

THE RECENT PROGRESS OF SCIENCE.

WE take the following from the address of Sir William Dawson, President of the British Association, delivered at Birmingham on the 1st of September:

The period of twenty-one years that has elapsed since the last Birmingham meeting, has been an era of public museums and laboratories for the teaching of science from the magnificent national institutions at South Kensington and those of the great Universities and their colleges down to those of the schools and field clubs in country towns. It has, besides, been an era of gigantic progress in original work and in publication—a progress so rapid that workers in every branch of study have been reluctantly obliged to narrow in more and more their range of reading and of effort to keep abreast of the advance in their several departments. Lastly these twenty-one years have been characterized as the coming of age of that great system of philosophy with which the names of three Englishmen, Darwin, Spencer, and Wallace, are associated as its founders. Whatever opinions one may entertain as to the sufficiency and finality of this philosophy, there can be no question as to its influence on scientific thought. On the one hand it is inaccurate to compare it with so entirely different things as the discovery of the chemical elements and of the laws of gravitation; on the other, it is scarcely fair to characterize it as a mere "confused development" of the mind of the age. It is, indeed, a new attempt of science in its maturer years to grapple with those mysterious questions of origins which occupied it in the days of its infancy, and it is to be hoped that it may not, like the Titans of ancient fable, be hurled back from heaven, or, like the first mother, find the knowledge to which it aspires a bitter thing. In any case, we should fully understand the responsibility which we incur when, in these times of full-grown science, we venture to deal with the great problem of origins, and should be prepared to find that in this field the new philosophy, like those which have preceded it, may meet with very imperfect success. The agitation of these subjects has already brought science into close relations, sometimes friendly, sometimes hostile, it is to be hoped in the end helpful, with those great and awful questions of the ultimate destiny of humanity, and its relations to its Creator, which must always be nearer to the human heart than any of the achievements of science on its own ground. In entering on such questions we should proceed with caution and reverence, feeling that we are on holy ground, and that though, like Moses of old, we may be armed with all the learn-

ing of our time, we are in the presence of that which while it burns is not consumed—a mystery which neither observation, experiment, nor induction can ever fully solve. In a recent address the late President of the Royal Society called attention to the fact that within the lifetime of the older men of science of the present day the greater part of the vast body of knowledge included in the modern sciences of physics, chemistry, biology, and geology has been accumulated, and the most important advances made in its application to such common and familiar things as the railway, ocean navigation, the electric telegraph, electric lighting, the telephone, the germ theory of disease, the use of anaesthetics, the processes of metallurgy, and the dyeing of fabrics. Even since the last meeting in this city much of this great work has been done, and has led to general results of the most marvellous kind. What at that time could have appeared more chimerical than the opening up by the enterprise of one British colony of a shorter road to the East by way of the extreme West, realizing what was happily called by Milton and Cheddle, "the new North-West Passage," making Japan the next neighbour of Canada on the West and offering to Britain a new way to her Eastern possessions; or than the possibility of this Association holding a successful meeting on the other side of the Atlantic? To have ventured to predict such things in 1865 would have appeared quite visionary, yet we are now invited to meet in Australia, and may proceed thither by the Canadian Pacific Railway and its new lines of steamers, returning by the Suez Canal. To-day this is quite as feasible as the Canadian visit would have been in 1865. It is science that has thus brought the once widely-separated parts of the world nearer to each other and is breaking down those geographical barriers which have separated the different portions of our widely-extended British race. Its work in this is not yet complete. Its goal to-day is its starting point to-morrow. It is as far as at any previous time from seeing the limit of its conquests, and every victory gained is but the opening of the way for a further advance. By its visit to Canada the British Association has asserted its Imperial character, and has consolidated the scientific interests of Her Majesty's dominions, in advance of that great gathering of the industrial products of all parts of the Empire now on exhibition in London, and in advance of any political plans of Imperial Federation. There has even been a project before us for an international scientific convention, in which the great English Republic of America shall take part—a project the realization of which was to some extent anticipated in the fusion of the members of the British and American Associations at Montreal and Philadelphia in 1884. As a Canadian, as a past President

of the American Association, and now honoured with the Presidency of this Association, I may be held to represent in my own person this scientific union of the British Islands, of the various Colonies, and of the great Republic, which, whatever the difficulties attending its formal accomplishment at present, is certain to lead to an actual and real union for scientific work. In furtherance of this, I am glad to see here to-day influential representatives of most of the British Colonies, of India, and of the United States. We welcome here also delegates from other countries, and though the barrier of language may at present prevent a larger union, we may entertain the hope that Britain, America, India, and the Colonies, working together in the interest of science, may ultimately render our English tongue the most general vehicle of scientific thought and discovery—a consummation of which, I think, there are at present many indications.

THE shining metallic incrustation found upon the teeth of some of the cattle which are pasturing along the banks of the Carson River, California, has been popularly pronounced to be a coating of gold and silver deposited upon the teeth from the mineral impregnation of the water and grass, attracted through the magnetic action of the animal's body. Some of the bullion incrustation or deposit was submitted recently to Professor F. E. Fielding, Chief Assayer of the Consolidated California and Virginia Assay Office in this city, says the *New Orleans Times-Democrat*. Upon critical analysis of the material he pronounces it to be pure calcium sulphide, with not the least trace of either gold, silver or quicksilver. Thus another hopeful delusion is dispelled, and the contemplated source of revenue from scraping the animal's teeth periodically rendered useless and worthless.—*Ex.*

"CAREFULNESS," says one, "is to a man's work what oiling is to machinery; it puts a smoothness, a beauty into it, as the sun often hangs a golden fringe on the retiring cloud. Resolving to see the world on the sunny side, we have almost won the battle of life at the outset." Resolving to see our work on the bright side, have we not gained the victory over it? That person is to be indeed pitied who goes through this beautiful world murmuring, fretting, and complaining of his lot in life. Man is out of harmony with the universe unless he is happy. There is a tireless glee in the motion and life of all on which we look. There is music everywhere—music in the school-room, music in the hall; music by our fire-side bright, and music for us all.—*American Teacher.*