SCIENCE

FRIDAY, JUNE 29, 1888.

AT A MEETING held at the Mansion House, London, on June 8, in support of a scheme for establishing polytechnic institutes in South London, a speech was delivered by Lord Salisbury, in which he pointed out, that, if the law of "the survival of the fittest" is to hold, there must be a rapid improvement in the human race at no distant day. Lord Salisbury, after passing in review the efforts which have been made in London to meet the demand for technical instruction, concluded as follows: "I have only one more word to say, just to call your attention to another aspect of this case, and to commend it to your efforts. We live in a time when men multiply fast, but apparently the means of supporting them do not multiply as rapidly; when there is vehement competition, and occasionally intervals of deep depression. And if you should look more closely, you will find that one cause, at least, of this phenomenon is that man, as the mere owner of muscle, is being edged out by another and more powerful competitor. Merely as an agent of physical force, as the possessor of the power of labor, the steam-engine is a competitor which drives him easily out of the market. And more and more the mere unskilled labor is being made unnecessary by the development of the forces which mechanical science has discovered. And as the world goes on, you must expect this tendency to increase. You must expect mechanical force to become more varied and more powerful and more cheap, and the competition with human arms and limbs to become more hopeless. But there is one region where the machine can never follow the human being, and that is in the exercise of thought. In skill, in cultivated mind, in the power to adapt the processes of thought to the laws of nature, in all that we call 'skilled labor' of the highest kind, — in that man must always have a monopoly, and need fear no encroachment from the competition of the steam-engine. It is to the development of his powers in that respect that the increase in the means of subsistence, and the opening of new paths of self-support, must be found. On all of us, in whatever position we are, is pressing, as one of the most anxious subjects of public care, the discoveries of methods by which the teeming millons of this country shall be able to maintain themselves in a prosperous, decent, and comfortable condition. We cannot find in their unskilled labor a satisfaction of that want. The difficulties are enhanced by the fact that our neighbors in other countries have been sensible of the superiority which skilled education can confer, and have not been slow to take advantage of it. If we will not be left behind in the race, if we desire to find any satisfactory solution for the deepest and the most inscrutable problem of our time, if we wish our complex community and high civilization to be maintained secure from all the dangers which the presence of unfed, unprosperous, untaught millions must bring upon them, we shall do our utmost to give a healthy and a rapid development to the secondary education of the working-classes."

In commenting on this speech, and on the report of the proceedings as given in the *Times*, *Nature* takes occasion to say, "For many a day, as our readers know, we have been urging the necessity for the establishment of a proper system of technical instruction. The subject is one of such pressing importance that we have returned to it again and again, seeking to present it in many different aspects; and Lord Salisbury's speech and the article in the *Times* may be taken as indications that large classes of the community have at last begun to understand that the nation has no time to lose in setting about a task which ought long ago to have been most seriously undertaken. Even if the question had little direct relation with economic interests, it would be for many reasons desirable to secure for manual training a place among our educational methods. Attention has hitherto been too exclusively devoted in schools to such knowledge as may be derived from books. It is necessary, from the strictly educational point of view, that teachers should aim at a wider, more direct, and more practical development of the mental powers of their scholars. But other and even more fundamental interests are also concerned. The leading nations of the world, our rivals in industry and trade, have already perceived the benefits to be secured from a thorough mastery, on the part both of employers and employed, of the principles of science as applied to agricultural and manufacturing processes. The result is, that in many of the best markets, where our supremacy as a trading people was formerly unquestioned, we find ourselves at a disadvantage; and it is certain, that, unless we place ourselves on a level with our competitors, we shall have to pass through some very bitter national experiences. The question is really one of life and death for England. It is a question whether in the near future there are or are not to be sufficient employment and remuneration for the vast and growing masses of her population."

THE MODERN TENDENCY of population to drift from the country to towns and cities is well illustrated by some figures published in a recent number of the *Melbourne Argus*. These figures have attracted considerable attention in Australia, where the tendency is particularly marked in the case of Melbourne, Sydney, and Adelaide. In Melbourne the yearly increase in population has been the greatest, the gain during the past three years varying from nineteen thousand to twenty-two thousand; and this increase is apparently still growing. The population of Melbourne and its suburbs is estimated at 400,000, against 250,000 in 1878. During the same time there has also been an increase in Sydney; and it is believed that this city must now be nearly as large as Melbourne, although with due pride the *Melbourne Argus* expresses its belief that the latter city is destined to be the real capital of Australia. This increase in city population has been at the expense of the country districts. The desertion of work at the gold-fields has tended to depopulate some sections, which population has gravitated toward the large cities. In 1861 Melbourne contained one-fourth of the population of the colony of Victoria; in 1881 this proportion had increased to one-third, and it is now two-fifths; and apparently we may soon see the phenomenon of one-half the people of the colony living in the city, and one-half outside of it. Similar conditions practically are true of Sydney and Adelaide. Melbourne at present contains one-seventh of the entire population of Australia. Whether this drifting from country to city will have any effect on the prosperity of the colony remains yet to be seen.

THE THREE AMERICAS PERMANENT EXHIBITION.

THE heartiness with which both Houses of Congress have dealt with the projectors of the 'Three Americas Permanent Exhibition' that it is proposed to establish in Washington in 1892 as a part of the celebration of the discovery of America by Columbus, insures its success. While the subject was under consideration by the House Committee on Commerce, Major J. W. Powell, director of the United States Geological Survey, was invited to address the