

# SCIENCE.

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## COMMENT AND CRITICISM.

THE ENGLISH ARE WORKING themselves into no slight excitement over their industrial position. They believe that they are losing ground as a nation, and both statesmen and scholars are looking for the cause and the cure for this unfortunate state of affairs. Lord Hartington and Professor Huxley have recently addressed their countrymen on this topic in a most interesting and suggestive manner. Professor Huxley compared the industrial forces of Europe to the organization of the great standing armies, and he asserted that the industrial competition of the present is really a state of war, though carried on for different objects and with far different results from those of ordinary warfare. "It does not break heads, and it does not shed blood," said Professor Huxley, "but it starves the man who succeeds in the war of competition, and the nation which succeeds in the war of competition beats the other by starvation." Lord Hartington accepted this metaphor as expressing the truth, and drew a most pitiful picture of what England would become were she defeated in this industrial warfare. "The consequences to the nation would be a diminution of wealth and of the influence which we have acquired through our pre-eminent industrial position. What would this country be without its manufactures and industries? No doubt we should still have our material resources, our iron and steel, and the muscular energy of what would then be our superabundant population; but, instead of being where we are now, we should be hewers of wood and drawers of water for the world. If ever our raw materials could be manufactured for the uses and wants of the world better in other countries than in our own, we should become the slaves and servants of the rest of the world, instead of its leaders and masters, as we have been hitherto."

But, Lord Hartington continued, the ill would not be confined to the country as a whole. It would be visited upon individuals. This imped-

ing industrial defeat would mean a disastrous change in the circumstances of almost every private person. The result would be "a loss of affluence to those now rich, poverty to those now prosperous, and to the masses of the country to those whose only means of subsistence is the demand for their manual and intelligent labor, it would mean famine, indigence, and starvation." The speaker asserted that the plain truth was, that, just as in actual warfare, victory in the industrial struggle can only be secured by the possession of scientific knowledge and the application of the most scientific instruction to the masses of the people. At the present time, Germany and France are making enormous efforts to provide adequate technical instruction for the people, and the lesser continental nations are following their example. England is lagging in this respect. Much has been done by the employers of labor, but much remains to be done. Lord Hartington expressed the hope that in every considerable centre industrial and technical schools would be established, suitable to the wants of the particular district. Professor Huxley has since returned to this point, and eloquently urged the necessity of organizing industrial education. He has pointed out what general direction this organization should follow, but has not entered into any details. It is certainly suggestive, however, to find the very first of England's statesmen and scientists uniting in their appreciation of the danger which threatens Great Britain, as well as agreeing that industrial and technical education is the proper means of avoiding this danger.

AS IS THE CASE with most other similar institutions in the eastern states, a considerable share of the work of the Massachusetts agricultural station is purely chemical. The report for 1886 contains the results of some hundred and sixty or more analyses of fodders, dairy products, fertilizers, water, etc.; and this portion of the report is evidently thoroughly good of its kind, and cannot fail to be of service to the farmers of the state. The field and feeding experiments are made more prominent in the report, however, than the chemical work, as befits their greater general

interest; but the impression left by a careful perusal of them is not altogether satisfactory. In some cases a large amount of data has been obtained, as in the feeding experiment; but the results are presented without any adequate discussion, — a too prevalent habit among our stations. Others of the experiments would be more properly called observations, and, while of value, scarcely require the apparatus of an experiment-station for their making; while still others seem to lead to no definite end. While much has been done, and in various directions, we fail to find in the report any exhaustive investigation of any subject, such as it is the peculiar province of the experiment-station to undertake. The tendency appears to have been to select those simpler forms of experiment which give an answer in gross to some question of present interest in practice, rather than to attempt to reduce the question to its elements and elucidate the action of the various factors which enter into the answer.

PERHAPS NO ONE is better fitted by training and experience to discuss intelligently the problem of municipal government in the United States than Mr. Seth Low of Brooklyn, and his address on this topic before the Historical and political science association of Cornell university is very full of information and suggestion. It has needed neither de Tocqueville's warning nor the data given in the current issue of the *Andover review* to impress upon us the fact that this is the age of great cities, and that it is in the cities that republican institutions will be put to the severest test. Mr. Low points out that the task of administering a large city's affairs is more difficult in this country than in Europe, because of its heterogeneous population and rapid growth. He adds that "the struggle in city government in the United States is not so much to secure the doing of a necessary thing, as it is to procure the doing of it economically, efficiently, and honestly."

The problem is therefore one in administrative science. The first consideration is to eliminate national politics from municipal elections. In order to this, Mr. Low recommends that municipal elections be held at a time when there can arise no complication between its issues and those of national administration. Then the city charter should carefully separate executive and legislative functions. The mayor should have the power of

appointment and removal of executive officers during the time for which he is responsible for the government of the city. The extent to which cities may incur debt should be absolutely fixed by constitutional limitation. All these and several other essentials are strongly urged by Mr. Low. He shows very clearly by practical illustrations just what the lack of such provisions has resulted in. The whole address is thoroughly scientific in character, and leaves the impression that the government of cities is a matter requiring far more intelligence and devotion than it usually has bestowed upon it.

THE *Sanitary news* reports that the sanitary committee of the Philadelphia board of health has decided that there is no harm in using distillery slops to feed milch-cows when supplemented by more nourishing food. If such action has been taken, it is certainly a step backward in sanitary administration. It is well settled that distillery swill in any amount is an unnatural food for milch-cows, and that the milk produced from animals so fed is unwholesome and injurious. A case is reported by the Brooklyn board of health in which it is believed to have caused the death of a child. Swill acts as a stimulant to the milk-glands, and the quantity of milk secreted is increased, while the quality is depreciated. It is to obtain a greater amount of the product that the dairymen desire to use swill; and a long experience has convinced the writer, that, if this food is permitted to be used at all, it will soon be the principal, if not the sole, food. We sincerely hope that the Philadelphia board of health will reconsider its action, and make a more extended investigation into the subject; for we feel sure that there is ample evidence on record to demonstrate to the satisfaction of any board of health that distillery swill is totally unfit food for milch-cows, even though it is given in restricted amount and in connection with other food.

#### GATSCHET'S ETHNOLOGICAL MAPS OF THE GULF STATES.

MR. A. S. GATSCHET's researches on the history and ethnology of the Creek Indians have led him to a thorough examination of the available literary material referring to the Indians of the Gulf states. The results of his studies are contained in his book, 'A migration legend of the Creek Indians,' and may be seen by a single glance at the maps pub-