

industry. In 1856 exhibitions of manufactures were held in the Crystal Palace at Crystal Palace. It covered an area of five acres, and had several buildings of the stock and agricultural implements. The French certainly displayed great credit to their enterprise and economy in their exhibitions. In the same manner they established manufactures. For example, the silk of Lyons, first exhibited in the Crystal Palace in 1856, was transferred to a factory specially built for it in 1857, which was bought, and with it the sole proprietorship, by Louis XV, in 1859. From that time up to the present day Lyons has maintained its reputation for its manufactures of porcelain. By Government endowments schools have been opened where artists are educated who are employed to design and execute its productions. In this manner France gradually developed new industries and increased the manufacturing interests, and also successfully introduced a commercial principle hitherto unknown in that country—large sales and small profits. The recent French International Exhibition in which Canada has been a competitor will be referred to in their proper place. Belgium, Spain, Germany and other countries have held exhibitions, which we have not space to describe, but in all of them shall now give a brief sketch of English exhibitions. As formerly stated, the Society of Arts of London was the first to introduce art exhibitions in England. As early as the year 1759 this society held an exhibition and offered prizes for specimens of manufactures, tapestry, carpets, porcelain, etc. In the early part of the present century the formation of mechanics' institutes in England promoted the improvement of the taste and increased the knowledge of manufacturers and the working classes by establishing temporary exhibitions of the productions of the country, and articles illustrative of the manufactures. In 1828 an exhibition was held in London. George IV granted for this purpose the use of a part of the Royal Mews at Charing Cross, which then occupied the site of the National Gallery in Trafalgar Square. It was called "The National Repository for the exhibition of specimens of new and improved productions of the artisans and manufacturers of the United Kingdom." There was a board of management, assisted by a committee of inspection, who acted as jurors in deciding upon the merits of the articles sent in for exhibition. This committee consisted of the presidents, vice-presidents and secretaries of the various mechanics' institutes throughout the Kingdom, with Dr. BIRNICK, the founder of the mechanics' institutes, as chairman. A great display of goods was sent from the chief manufacturing towns, each of the articles had a descriptive label attached—a great want at Canadian exhibitions which could easily be supplied. They also had machinery, silk looms, etc., at work at certain hours of the day, and, as may be supposed, crowds of people thronged to this industrial exhibition when it was first opened, but even in England, fifty years ago, the people were incapable of comprehending the merits and understanding the future results of exhibitions in the industrial advancement and prosperity of countries, and this exhibition, after a lingering existence, gradually died of inanition. It had, however, good results, it induced competition and was an incentive to the production of a better class of goods, and was of considerable assistance in the progress of manufactures. In the following year, the Dublin Royal Society established a triennial exhibition of works of art, science and manufactures, but excluded all but Irish productions. The mechanics' institutes in all of the principal manufacturing towns followed by holding industrial exhibitions. Manchester Mechanics' Institute held an industrial exhibition in 1837 with 159 contributors, and was visited by 59,000 people, and realized over \$5,000. The year following, at the second exhibition, there were 369 contributors, who exhibited 26,300 articles, including models of machinery and mechanical contrivances, specimens of manufactures, philosophical instruments, natural history, etc. This exhibition was visited by 100,000 persons, and the committee realized nearly \$12,000. Is it not possible that the Mechanics' Institutes in Canada can do similar work? It is true they are somewhat identified with the provincial exhibitions, and representatives of institutes have been invited to act as judges, but no real practical value is accomplished by mechanics' institutes in this direction. Why cannot a few leading mechanics' institutes form small industrial exhibitions? This country is now able to appreciate everything that will develop commercial industry, and there has been no period in our history when this want is more keenly felt than at the present time. We are now endeavoring to increase our trade and manufactures, and every means should be used to awaken the dormant national genius and inventive faculties of our people. The Industrial Exhibition at Toronto is now one of the institutions of our country. Its success, to which we shall refer hereafter, may be attributed partly to centralization, but there is no reason why an industrial exhibition should not be held in connection with the mechanics' institute in every small town, and wherever held they will be found to influence the working classes by creating an elevated taste and imparting practical knowledge in regard to the national products of our country and the various branches of our arts and manufactures. The advantages of small annual exhibitions in this country may be judged of by the work done by the agricultural societies in Ontario. Our exports of improved cattle and agricultural products are the results of the efforts of these societies. The annual competitive fairs which are held are of great interest to all classes of the community and are attended by people from

both distances as well as those to a thick population. It may be said that the improvement of stock is partly the result of private enterprise, but it is certainly true that the enterprise has been aided and abetted by the establishment of agricultural fairs where exhibitors can compare their stock with the stock of their neighbors, and thus to advantage, and there is no doubt that the fair animal shows, even by the Ontario Legislature, the encouragement of agricultural societies, and the holding of the fairs, have done much to the benefit of the farmer in this province within the past few years. There would have been accomplished by individual efforts in many instances. The great progress which we have made in the manufacture of agricultural implements may also be attributed to the same cause. The necessity of improved machinery was felt by the manufacturers when they entered into competition with the agricultural fairs. This led to new inventions and new appliances, enabling some of them to successfully compete at the International Exhibition in Paris. In fact this is the only real branch of our manufactures that was awarded a gold medal in 1868. This has also been the means of our doing a large export trade in agricultural implements, and thus increasing the wealth and revenue of our country. We trust that in future exhibitions may be of equal service in advancing other manufactures than horticulture, and that by our united energies as a people we may be able to show the world what a productive country Canada really is, and may thus also be the means of opening up new avenues of trade and prosperity throughout the whole Dominion. In our next we shall refer to the next international exhibition held in England in 1851, and show the part which Canada took in her infancy as a manufacturing competitor against other nations.

SHIPS, COLONIES AND COMMERCE

A good old British motto, and a time-honored toast at patriotic gatherings, is that of "Ships, Colonies and Commerce." But one of the current arguments against Protection in Canada, or any other British colony, is that it tends to diminish trade with the Mother Country, and it is argued that if there is to be a falling off in ships, and in commerce with the Colonies, the Colonies may as well themselves fall away too, as the Mother Country would no longer have any interest in keeping up the connection. This is a very narrow, contracted and insufficient view of Imperial and Colonial relations, and we hope the day is fast approaching when Britain everywhere will be ashamed to avow it, and will in fact have rejected it altogether. Put into plain English, what does it mean? It means just this—that the progress of a Colony is an injury to the Mother Country, and that the more backward and unprogressive the former is, the more valuable it is to the latter. We repudiate this doctrine as humiliating and unpatriotic, to begin with, and we further hold that it is daily contradicted by the teaching of commercial and colonial history, especially that of Canada. We hear much now of "the spirit of the age," the present age, it is said, is too liberal and too enlightened to endure the tyrannies and the restrictions that were thought necessary a hundred or several hundred years ago. Just to show the direction in which the world has been moving—a hundred and fifty or two hundred years ago it was thought to be good British policy that the American colonists should not be allowed to make even a hobnail for themselves, and manufactures generally were to be discouraged in the Colonies to the extent almost of prohibition. No British statesman dreams of such a policy now, and what should we learn from the fact? This, chivalry, that whereas in a less enlightened and less liberal age colonial manufactures were looked upon almost as an enemy's gun pointed against the Mother Country, they are now regarded as additions to the strength of the Empire as a whole—that we are progressing away from the old idea of antagonism to colonial manufactures and towards the new idea of tolerating and even encouraging them. And yet Free Traders, who view with alarm every change calculated to develop manufactures in this or any other colony, claim to be the special advocates of liberal and progressive ideas! They are, in truth, the antagonists of colonial progress, which has to fight them and their illiberal, tyrannical and restrictive ideas for every step forward that is gained. It is not the truth, but a gigantic mistake, to suppose that the Empire would be stronger and wealthier, taken altogether, were such colonies as those of British America and Australia to remain for ever in the condition of farms or plantations, without developing manufactures. The true line of argument in this matter is somewhat as follows: A prosperous colony is and must be a better customer to the Mother Country than if it were poor and backward, the expansion of manufactures makes a colony prosperous, therefore the interest of the Mother Country harmonizes with the prosperity of the colony. But, it will be said, every yard of cloth you make in Canada diminishes by so much your purchases from England. We reply—yes, it diminishes our purchases from England of that particular cloth or its equivalent, but meantime our purchases of other English goods are increased, through the fuller employment of our people here, and their consequent greater ability to purchase. It is futile to argue that if our population were not employed in manufacturing they would be employed in farming, lumbering and fishing. A thousand mechanics and factory hands added to the population of a country would not put an acre out of cultivation, except for building sites, but would, on

the contrary, greatly stimulate them. In that case, the question is not—Should we be farmers and lumbermen only, or drop all that and take to manufacturing?—Should we drop to manufacturing and lumbering as at present?—Should we do up as a manufacturing colony, but in a subordinate agricultural industry, but in the other way, by the establishment of a colony made prosperous through Protection will a fully employed population, and thereby the consumer and customer to the Mother Country than if it were backward and unprogressive, and will it not contribute to the wealth of the Empire? This conclusion will yet be reached and that Protection is the true promoter and not the destroyer of Ships, Colonies and Commerce!

FOOD AND HEALTH

PAPER READ AT THE BALANCE AND ROYAL MEDICAL ASSOCIATION MEETING, CARLETON PLACE, AUGUST FOUR LAST, BY DR. GUNN, OTTAWA.

To say it has become a recognized principle that the greatest problem is the sanitary condition of our people. It affects alike both poor and rich, but more particularly the former, who are unable to contend so vigorously against the pernicious influences. Statistical facts have demonstrated beyond a doubt that more people die daily from the neglect of proper sanitary precautions than from all other forms of mortality combined. The most prolific sources of disease—at least those which most directly impair health and shorten life—are foul air, impure water, adulterated food and drink in the various forms which are catered up to the digestive capacity of a growing generation still eager to perpetuate the principle that ordinary business matters cannot be finally accomplished without the spirit ratification in some one of the shapes so popular in almost every county at the present day. No subject calls for more vigorous action at present than that of "Sanitary Reform," which would contribute, beyond our most sanguine anticipations, towards the improvement of our sanitary condition, and thus promote, in the most tangible form, the comfort and happiness of our people. The time has now arrived when the public men interested in the welfare of this Dominion must take an active part in the promotion of sanitary science. The "Adulterations Act," introduced by Government, has already accomplished some good in a very moderate way, but greater activity is requisite in order to fully appreciate the importance of the various adulterations of food and drink so intimately associated with the future of our Dominion. In Great Britain, Europe and the neighboring Republic, there is at present considerable effort being made in this department of sanitary science, and the various workers in this prolific field of observation have accomplished much, and are now bringing about a more healthy recognition of the important issues which spring from this momentous subject. The extent of food adulteration, in fact, is only now being actively looked into, in order, as far as possible, to ascertain a more peaceful idea of poisonous influences daily and hourly at work in bringing about the increased death rate of our population. The forms of adulteration are varied, and introduced with a considerable degree of skill, in order to evade the law and contribute to personal gain, even with the prospect of shortening life. The addition of substances of inferior value, for the sake of bulk and weight, is a common practice, and even more so than the addition of coloring matters of various kinds, to improve appearances, if possible, and conceal other popular forms of adulteration. The preparations of lead, copper, mercury and arsenic, used for coloring purposes, possess highly poisonous properties and thus impart very deleterious influences. A common form of adulteration is the addition of substances, in order to impart flavor, pungency and attractive smell—common means indeed of deluding and deceiving the public in matters of every day life. We have not heard of chicory powder in coffee or cocoa; of woolly fibre and sawdust in different kinds in spices, and various drugs in powder, added neatly by *spice and drug granules*, of copper in pickles and bottled fruits, of bold Armenian and Venetian red in potted meats and fish? Such adulterations could not possibly be practised by the retail tradesman, being rather the outcome of special machinery, used in the large centres of trade and commerce. It is quite evident that the seller of adulterated food are in a position to increase their profits in a very large degree. From these few examples in the line of current impurity, which is more extensive than generally supposed, it is quite evident the question of the adulteration of food is one which vitally affects the interests of the honest and most respectable of the trading community. In whose hands is now placed the important duty of staying, as far as possible, the nefarious system of adulteration which saps human vitality and throws a slur upon many of our best merchant princes, who are the very essence of commercial integrity. Is the present machinery in operation for the purpose of checking adulteration which comes under the head of Excise active and energetic? How many are there at present carrying on the requisite investigations as to food adulteration? This suggestion is not thrown out with any hostile feeling, but merely in order to ascertain the efficiency of the Excise force in this particular branch, which guards the best interests of our people. The present Government has the credit of having taken the initiative in this matter, to whom much credit is due, even for the progress so far made in a most practical path of public duty. We require to rely more on science;

up on the economy of cleanliness and upon the cooperation of the public. Excise Inspector, who is active and willing to convey such information to the public, is falls under the category of the health of the country, and the economy of the country, depend largely upon the proper discharge of the duties connected with the application of the question of food adulteration, and under the circumstances, we feel assured the interests of the public will be guarded in a manner to our satisfaction, and in the line in which we have indicated. One of the first questions one would very naturally ask, are we not making substantial progress in sanitary matters, what is our death rate in the Province of Ontario, or in the whole Dominion, as compared with the public made by those adopting the same course from the Mother Country. In England, before the Revolution, the death rate in the towns then numbered 100,000 in the towns of the country, the rate of mortality in London from 1600 to 1770 was fully 1,000, and in 1871 it became reduced to 1,000 in the 1,000. Thus we observe how, by proper sanitary regulations, the death rate in the land was greatly reduced than by the introduction of the requisite precautions. In Ontario, it is estimated to die per day of various causes, and it is estimated that fully one-third of the deaths of diseases which might be prevented by thorough sanitary measures. The aim of sanitary science is to prevent disease, preserve health and prolong life, to guard the best interests of our people, and efficiently discharge their various duties for personal comfort and State advancement. Thus a private well as a public hygiene is considered in the acceptance of the term. This science, like the medicine, is pre-eminently one of observation, and both, disease is the study, but in different ways. The physician endeavors to cure an acute, but the health officer more particularly inquires as to what will prevent an acute. While the scientific physician extends his observation to the cause as well as the cure of disease, the health officer makes it his special duty to look quietly and carefully into the various causes of disease, and thus co-operate with his brother practitioner in promoting health. The laws of health, like the laws of nature, take a well-defined course or direction. A careful submission to these laws promotes health and longevity—without death and disease result from the converse, and it is marvelous how many people do live with the impurities placed on their systems, more even than the impurities of civic corporations, with their magnificent edifices and other evidences of progress amidst the march of intellectual refinement. What are the deductions from the fact of Tanner? That the human system is far more overstrained than necessary by the extra amount of food taken, and that too little attention is paid to the impurities part pure and unadulterated water plays in the human economy. It is estimated that of every body weighing 135 lbs, there are fully 111 lbs of water, and at a glance, we can observe the proportionate part and effect of water in maintaining life under the trying circumstances, more eccentric in character otherwise, but still important in a sense, as the evidence of human endurance under such trying circumstances. The curative power of moderate starvation in some forms of disease is a well-attested fact, and if many of the gorging and fashionable prodigals were only more carefully guarded, life would be longer, health more vigorous, intellectual powers more acute, and the accumulation of adipose tissue would frequently interfere with ordinary locomotion. How close we consider public health the simpler be the problem: Purity of air, water, food and clothing, all of which may be embraced in a single word—cleanliness. Life is a fortress we know little and why throw difficulties in the path? What concerns the individual, concerns the State, and every individual should know something of the grand vital sanitary principles so closely connected with the cheer and happiness of the home and the side Lord Bacon's remark in his celebrated March 17th speech, as Prime Minister, remarked, "I think public attention ought to be concentrated on sanitary legislation. I cannot impress upon you too strongly my conviction of the importance of the legislature and society uniting together in favor of these important results. After all, the first consideration of a nation should be the health of the people." Do not our facts apply directly to our public men—from whom we expect activity and marked energy in bringing about a central department of health, such as is established in many countries at the present day. This will be evidence of progress in the right direction, and, although laws may conflict in the local or general government of our country, still we feel assured action will soon be taken and such as will tend to prolong life, promote comfort and happiness by demonstrating in a tangible form how the source of preventible deaths may be avoided. Such is the basis upon which we expect to operate and thus root out the causes which add so largely to our annual death rate. This is science turned to good account, and surely the lives of our people are equally important with those worldly treasures of little account once man has passed beyond the sphere of earthly cares.

The fifteen crops of cotton made in the United States since the war exceeds the fifteen ante-war crops nearly 10,000,000 bales. When the sixteenth crop is added this year it will make the excess more than 14,000,000 bales. The value of the fifteen crops since the war has been \$4,000,000,000.