

excitement. In the first instance every movement is carried out, and every duty is performed, with relation to a common purpose,—the most complete welfare of ship and crew; but no one can doubt that the individual motive of each sailor is to thereby bring the greatest benefit to himself. In the unusual occurrence of threatened shipwreck, however, this co-ordination is lost, because the selfishness of each individual in seeking his own safety causes him to disregard the duty he owes his companions, and the result is fatal inco-ordination.

If what we have said be true, the premise assumed by Metchnikoff is fundamentally wrong. The doctrine of evolution applied to the living organism teaches, not that there is final antagonism between struggle and co-operation, but that co-ordination and the well-being of the whole is the natural outcome of struggle for existence among the individual particles of the body; and, presuming capability of variation, there must, through 'survival of the fittest,' come to be increase of specialization and perfection of performance in every function. Fatal or merely injurious pathological processes, when traced to their source, are found to be due to accidents which do not come under the head of uniform law. Supposing such an accident to occur so frequently as to become a normal event: the vital elasticity of the organism re-adjusts itself to these new conditions involved, so that they (as in the case of the bone-fracture) are hardly distinguishable from ordinary physiological processes.

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THE BRITISH COMMISSION ON THE DEPRESSION OF TRADE.

IN response to a general feeling of anxiety, some of it expressed openly and some not, a royal commission was appointed some months since by the British government to take into consideration the depression of trade and industry in Great Britain, and to report by what means, if any, the depression could be remedied. The final report of the commission has recently been published, and it bristles with points of both theoretical and practical interest. The report is by no means unanimous. A majority report is signed by the late Earl of Iddesleigh, the able president of the commission, and eighteen of his fellows. Eleven of these, however, sign under certain restrictions and reservations, which they append over their respective signatures. The minority report, which represents the views of the so-called fair-trade party, is signed by Lord Dunraven and three

others. A third report is submitted by Mr. Arthur O'Connor, and signed only by himself.

The majority report begins by mentioning the general points of agreement among all the witnesses examined. These are said to be, 1°, that the trade and industry of the country are in a condition which may fairly be described as depressed; 2°, that this depression takes the form of a diminution, and in some cases an absence, of profit, with a corresponding diminution of employment for the laboring classes; 3°, that neither the volume of trade, nor the amount of capital invested therein, has materially fallen off, though the latter has in many cases depreciated in value; and, 4°, that this depression dates from about the year 1875, and that, with the exception of a short period of prosperity enjoyed by certain branches of trade in the years 1880 to 1883, it has proceeded with tolerable uniformity, and has affected the trade and industry of the country generally, but more especially those branches which are connected with agriculture.

This unanimity did not extend, however, to the causes which brought the depression about. But those causes to which any great importance was attached were, 1°, over-production; 2°, a continuous fall of prices, caused by an appreciation of the standard of value; 3°, the effect of foreign tariffs and bounties, and the restrictive commercial policy of foreign countries in limiting English markets; 4°, foreign competition; 5°, an increase in local taxation; 6°, cheaper rates of transportation enjoyed by foreign competitors; 7°, legislation affecting the employment of labor in industrial undertakings; 8°, superior technical education of foreign workmen.

It is pointed out that it is from the employers of labor and producers that most complaints of trade-depression have come; but the report adds, that its signers are satisfied that in recent years, and particularly in the years during which the depression has prevailed, the production of commodities generally, and the accumulation of capital in the country, have been proceeding at a rate more rapid than the increase of population; and in support of this the statistics as to pauperism, education, crime, and savings banks, are cited. The statistics of foreign trade show an apparent falling-off in some respects; but this is attributed almost entirely to the continuous fall in prices, especially those of raw materials, since 1873. After making allowance for this fall in prices and for the fall in the price of raw materials, it is held that the actual products of British labor and capital have largely increased. It is pointed out, for example, that, if valued at the prices current in 1873, the aggregate of the foreign trade of Great

Britain for 1883 would have amounted to 861,000,000 pounds sterling, instead of, as it appears now, 667,000,000 pounds sterling.

This conclusion, however, is untrue in the case of agriculture, where it is found that the quantity of produce raised in Great Britain during the last few years has materially decreased, and the steady fall in prices has been felt even more severely than the diminished yield of the soil; and it is the section of the community interested in agriculture which the commission finds particularly affected by the depression. The complaints as to absence of profit, though general, are not uniform. The evidence shows, however, that while business is not absolutely less in quantity, it is carried on with the smallest possible margin of profit, and in some cases with no profit at all. Nevertheless it is pointed out that the gross amount of property and profits assessed to the income-tax in the years 1885 and 1886 is much larger than that of any previous year. Too much stress cannot be laid upon these figures, because the increase of the income-tax assessment is in great degree attributable to the increased efficiency of collection. It is further stated that in some cases the tax is paid on profits not earned, because of the unwillingness of traders to make known the fact that they have sustained losses.

But the absence or diminution of profits is not the only marked feature of the prevailing depression, though it is the most universal one. The supply of commodities is found to be in excess of the demand, and the natural tendency to equilibrium between them seems to have been obstructed for an unusually long period. And this excess of supply is maintained in the face of unremunerative prices. The chief features of the commercial situation are thus summed up: 1°, a very serious falling-off in the exchangeable value of the produce of the soil; 2°, an increased production of nearly all other classes of commodities; 3°, a tendency in the supply of commodities to outrun the demand; 4°, a consequent diminution in the profit obtainable by production; and, 5°, a similar diminution in the rate of interest on invested capital. The diminution in the rate of profit obtainable from production, whether agricultural or manufacturing, has given rise to the wide-spread feeling of depression among all the producing classes. Those, on the other hand, who are in receipt of fixed salaries, or who draw their incomes from fixed investments, have little to complain of. The same thing is true with regard to the laboring class, so far as the purchasing power of wages is concerned. Some distress is created among the laboring classes by the displacement of labor, which is always in progress

owing to the increased use of machinery and other changes of production; and last winter this distress was aggravated by the severity of the weather.

The report then takes up the causes which the signers believe have assisted to produce the depression. It goes on, "we have shown that the production of the more important classes of commodities has, on the whole, continued to increase; and there can be no doubt that the cost of production tends to diminish. It is difficult, therefore, to understand how the net product of industry, which constitutes the wealth of the country, can have failed to increase also. There is, moreover, sufficient evidence that capital has, on the whole, continued to accumulate throughout the period which is described as depressed, though there has been a sensible depreciation in the value of some kinds of capital. How, then, are we to account for the general sense of depression which undoubtedly exists, and is becoming perhaps more intense every year?"

The view which the signers of the majority report adopt is that the aggregate wealth of the country is being distributed differently, and that a large part of the prevailing complaints and the general sense of depression may be accounted for by the changes which have taken place in recent years in the apportionment and distribution of profits. The reward of capital and management has become less, and the employment of labor is, for the time at least, not so full and continuous; so that even where the rate of wages has not been diminished, the total amount earned by the laborer has been less, owing to irregular or partial employment. Setting aside the classes immediately dependent upon agriculture for their incomes, and considering those only engaged directly in commercial enterprises, it is found that the total amount of profits on which the income tax has been paid has increased, as has also the number of persons assessed. In the decade from 1875 to 1885 the number of incomes assessed under schedule D of the income-tax list, amounting to £200 or more, increased from 184,354 to 239,367, a gain of nearly thirty per cent. But the increase was much more rapid at the lower end of the scale than at the upper; for it seems that the number of persons with incomes of less than £2,000 a year has increased at a more rapid rate than the population, — which during the period in question has increased about ten per cent, — while the number of person with incomes above £2,000 has increased at a less rapid rate, and the number of persons with incomes above £5,000 has actually diminished. The rule is, the lower the income the more rapid the rate of increase. The conclusion

from this is, that, whether profits are increasing or not, there is direct evidence that profits are becoming more widely distributed among the classes engaged in trade and industry, and that, while the larger capitalists may be receiving a lower return than that to which they have been accustomed, the number of those who are making a profit, though possibly a small one, has largely increased.

The signers recognize the fact that over-production may exist for a time and in certain branches of industry, and that it tends to correct itself. But they are more or less at a loss to account for an over-production at once so general and so long-continued as the one under consideration has been. They are disposed, however, to explain this as the effect of the protectionist policy of so many foreign countries, which has become more marked during the past decade than ever before. "The high prices which protection secures to the producer within the protected area naturally stimulate production, and impel him to engage in competition in foreign markets. The surplus production which cannot find a market at home is sent abroad, and in foreign markets undersells the commodities produced under less artificial conditions."

A share of the blame, if blame it can be called, for the depression, is laid upon the working of the limited liability system. Under this the capital invested in small sums by a large number of individual shareholders is, as a rule, contented with a lower rate of interest than the ordinary producer will require upon the capital which he employs at his sole and unlimited risk. The tendency of limited liability companies is also to undertake enterprises with regard rather to the creation and speedy sale of the shares at a premium than to their permanent prosperity. The limitation of the liability further serves to encourage a less cautious or more speculative system of trading than can safely be pursued by a trader who is himself liable for the full extent of his operations. The report offers no opinion as to the benefit derived by the community at large from the limited liability companies, but simply points out the important influence which they have exercised both upon the extent of production and the rate of profit obtainable on the capital employed in it. The fact that stocks held by middle-men have become available for consumption without replacement, because of the more rapid and direct communication between the producer and the consumer, has tended to depress prices and profits; and there is also to be taken into consideration the fact that the possibilities of new demands throughout the world are becoming annually more

limited: it is consequently predicted that in future more stability in the ratio of supply to demand may be expected, with a more regular though reduced rate of profit.

The report next considers at much length the fall of prices. The reasons for this may be briefly enumerated as an appreciation of the standard of value, a decreased demand both in domestic and foreign markets, — the latter attributed in large degree to the operation of protective tariffs, — and the fact that the reputation of British workmanship does not stand as high as it once did. The fraudulent stamping of foreign goods of inferior quality with British marks has had something to do in bringing about this result; and many witnesses before the commission believed that legislative restrictions on labor, and the action of the working-classes themselves in increasing the cost of production by strikes, and so forth, have had an important effect. The majority report, however, dissents from the view of these witnesses.

When it comes to the question of remedies for the depression, the report becomes more vague and indefinite. The cost of production must be cheapened so far as is consistent with the maintenance of sound quality and good workmanship. The increasing severity of foreign competition must be met. New markets must be sought for. Technical and commercial schools must be developed and improved until they are equal to those on the continent of Europe. Legislation is needed to make more effective the provisions of the existing laws as to the counterfeit or fraudulent marking of goods. The law as to limited liability companies is susceptible of improvement, though the report fails to point out how. The report then concludes, "We think that while, on the one hand, the information which we have been able to collect will tend to dispel much of the apprehension which appears to prevail on the subject of our commercial position, and to encourage a more hopeful view of the situation, it will also show, that, if our position is to be maintained, it must be by the exercise of the same energy, perseverance, self-restraint, and readiness of resource, by which it was originally created."

The minority report is of interest, because it embodies the views of Lord Dunraven and his fellow-advocates of fair trade. In its analysis of the depression, it is in almost entire agreement with the majority report; its individuality consists in its recommendations. It mentions and approves the remedies outlined by the majority of the commission, but finds that they leave untouched the greatest and most permanent causes of the depression, which are the action of foreign

bounties and tariffs, and the growing effect of directly or indirectly subsidized foreign competition. These are not natural, but artificially created difficulties. They will increase rather than diminish. To counteract them it is not recommended that a like system of import duties be established, but the minority believe that "a slightly preferential treatment of the food-products of India and the colonies over those of foreign nations would, if adopted as a permanent system, gradually but certainly direct the flow of food-growing capital and labor more towards our own dependencies and less towards the United States than heretofore. When it is noted that in the year 1884 the Australian colonies, with only 3,100,000 inhabitants, purchased £23,895,858 worth of our manufactures, while the United States, with about 55,000,000 inhabitants, purchased only £24,424,636 worth, it will be apparent how great would be the effect of a policy which should lead to the more rapid peopling of the Australian colonies in giving fuller employment to our working-classes at home, and thus increasing the healthful activity of the home trade, as well as the import of raw materials for our various industries to operate upon."

It is thought that "specific duties, equal to about ten per cent on a low range of values, imposed upon the import from foreign countries of those articles of food which India and the colonies are well able to produce, would sufficiently effect this purpose. Their adoption would, of course, involve the abolition of the heavy duties on tea, coffee, cocoa, and dried fruits, which are now levied on Indian and colonial, equally with foreign, produce. It would widen the basis of our revenue, and render us less dependent upon the sustained productiveness of the income-tax and the duties upon intoxicating liquors; and, what is even more important, it could not fail to draw closer all portions of the empire in the bond of mutual interests, and thus pave the way towards a more effective union for common objects. For there would be no exclusion of foreign food-products: they would come in on payment of the duty named; and we are convinced, that, if any effect were produced upon the prices of the articles in question, it would be very slight indeed, and limited in duration to the time required, under the stimulus of preferential treatment, to increase the production of them in India and the colonies."

Besides this, a duty of 2s. 4d. per hundredweight on sugar is advocated to offset the sugar bounties. "Its effect would be to restore to the producers of sugar in our colonies and in India, and to the refiners in this country, the just right of competition on practically equal terms, and to transfer to our own exchequer the export bounties given by

foreign nations. The position of the British consumer would be the same as if we had by negotiation obtained an equivalent reduction of the bounties, while in his quality of tax-payer he would be a gainer by the diversion of foreign money into our exchequer so long as the bounty-receiving importations continued."

These are the main features of the reports which have been looked for with considerable interest by the commercial classes and economists both in this country and in England. How far future legislation will embody their recommendations, and how successful they will be if enacted into laws, remains to be seen.

As a substitute for gunpowder, dynamite, or other explosive requiring ignition, Dr. Kosman proposes, for use in mines containing inflammable gases, cartridges filled with dilute sulphuric acid and zinc-dust (the mixture of finely divided zinc and zinc oxide that collects in the condensers of the zinc retorts). The cartridge-case is a glass cylinder divided into two chambers, one being four times the capacity of the other. The larger chamber contains the acid, the zinc-powder being placed in the other when the cartridge is about to be used. The cartridge is inserted in the shot-hole in the usual manner, a 'shooting-needle' being first passed through the zinc-powder to a plug in the partition separating the two chambers. The shot-hole is then tamped in the ordinary way, the end of the needle projecting at the surface. A tap on the needle displaces the plug and breaks the glass partition, when a rapid evolution of hydrogen takes place with sufficient expansive power to do the work of the explosive cartridge, but without its danger.

— General Lefroy, formerly director of the Toronto observatory, who is considered to be the best authority on terrestrial magnetism in Canada and the British possessions, pays the following compliment to the work done by the United States in this direction: "The United States appear to be in advance of most European countries in current knowledge of the facts of the earth's magnetism, but the magnetic survey of the British Islands is again in progress, and we shall soon be up to date again." In this connection it may be well to state that France has just made a magnetic survey of its area, and in England the third one is now being made; central Europe had but one magnetic survey; the Russians are alive to this important work; and Japan has just completed a fine survey, 200 stations occupied, with the curious result of a connection of the magnetic curves with the lines of folding of the geological strata.