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*The MEAT SUPPLY of the UNITED KINGDOM.**By R. H. HOOKER, M.A.*

[Read before the Royal Statistical Society, 18th May, 1909,
Major P. G. CRAIGIE, C.B., Hon. Vice-President, in the Chair.]

IN his opening address, as President of this Society, Major Craigie in 1903 suggested that "the future sources of our meat supply in "this country might be a subject worthy of closer investigation "than it has received."¹ It has fallen to my lot to furnish the Departmental Committee on Combinations in the Meat Trade, on behalf of the Board of Agriculture and Fisheries, with a series of tables of cattle and meat prices, number of live stock in different countries, home production and consumption of meat; and it seemed to me that an examination of this material, covering a period of thirty-two years, might form a useful indicator to the future. It is almost needless to remark here that no one has done more in this direction than Major Craigie himself, and I trust that I shall not be regarded as unduly presumptuous in endeavouring to carry out his suggestion. Much of the work is, I am afraid, merely following in his footsteps, but at all events I carry them forward five years later.

Before dealing with the tables themselves there is one broad feature of the past thirty years or so upon which I wish to lay peculiar emphasis, as its effect upon the course of prices is apt to be overlooked. Yet it is not too much to say that its bearing upon almost all questions of supply and prices is fundamental. I allude to the fact that, with nearly all kinds of produce, prices are now-days determined by the supply and demand, not of a particular country, but of the whole world. Means of communication and transport have developed so enormously of late years as to produce a complete revolution in the conditions governing prices, and trade is no longer regulated by internal concerns, but by the sum total of the varying influences in all countries of the globe.

The change from a national to an international trade has mainly occurred during the past half century. It has affected different commodities at different times; indeed, there are still certain kinds of produce which have yet to feel its full effect. The earliest commodities subjected to outside competition were—speaking very generally—those which could be stored for a considerable period

¹ *Journal of the Royal Statistical Society*, vol. lxi, 1903, p. 679.

without deterioration of quality, and which could therefore be transported without loss. It is perhaps hardly fair to reckon among them such exotic products as cotton, tea, and the like; these have been for long drawn from the world at large, and the chief causes of permanent changes in their price are due to the opening up, or rapid extension, of new countries of supply and demand; and possibly the effects of over-sea competition in the case of wool may also be said to be prehistoric—in the statistical sense.

Apart from this class of goods, one of the earliest, among the more obvious revolutions, by which the trade was placed upon an entirely new footing, was that in the corn trade. At the beginning of the seventies a good English harvest still meant cheapness; ten years later a good English harvest had nothing to do with the price, for by that time the trade had become an international one. For yet another ten years it was found that there were still large areas capable of producing corn cheaply, and, thanks to the improved facilities of transport, areas from which it could be placed on the market without any difficulty. And so prices continued to fall. By the middle of the nineties prices had reached their lowest point; no further areas that could produce corn with equal cheapness were within reach of commerce, or, rather, such new areas were not large enough to affect the total supply or more than satisfy the increasing demand. And so the past ten years have seen relative stability of corn prices; the world's supply and demand are probably not far removed from equilibrium. How long this will continue depends upon the disturbance of the balance. If the development of new areas—such as those in Argentina, Western Canada, and elsewhere—proceeds at a greater rate than the exhaustion² of old—such as Europe and parts of the United States—then corn prices will fall; if the reverse be the case, they should rise.

What has occurred in the case of corn I believe to be the normal rule which has affected, or will sooner or later affect, all kinds of produce. Meat was not similarly affected for perhaps a decade or so after corn, *i.e.*, during the eighties. The cause of the delay was that meat is a more perishable product than corn, and in addition to the development of means of transport, means of preserving the product had also to be devised. This postponed the world's competition for some ten years or so, but when once the process of freezing meat had been rendered practicable, the inevitable arrived and importers began to land meat from a distance in appreciable quantities. (*Salted* meat had, of course, long been imported.) The fall in prices in the case of beef and mutton was, however, not so

² *i.e.*, relatively to population, cost of production, &c.

long drawn out as with corn, and for the past twenty years the general trend of prices has remained nearly level, though of course with temporary fluctuations.

Among commodities now in this transitional period may probably be reckoned hops, which are now exposed to the competition of a large area on the Pacific coast of the United States, and which are also affected by the development of cold storage, allowing any surplus production of one year being reserved till the next. The present crisis in this industry may safely be ascribed to the entry of the New World into the trade (of course, the European competition has long been present) and to cold storage. Among imported British products as yet unaffected, but threatened in the same way, are the choicer kinds of soft fruits, serious experiments in the transport of which from distant countries are being undertaken; while of those which for the moment appear unmenaced—at least in the immediate future—hay and fresh milk are perhaps the most important. The first is so bulky that it is only when the price is very high that material quantities seem able to bear the cost of carriage, while means do not yet appear to have been devised to place the latter upon the market in the same condition as the home produce, and it pays better to convert it into butter and cheese before sending it over. In fact, it is mainly cheap and bulky materials such as these, which take up so much space on vessels that their cost of carriage is large compared to their market value, that will probably be the last to suffer from the competition of distant countries.

This rather long exordium is intended to emphasise the fact that the question of our meat supplies and prices must be regarded from the international point of view. Accordingly, I propose to glance first at such statistics as exist concerning the world's supply of live stock, and to mention briefly a few of the salient features in the chief countries which we may expect to provide us with our dinners in future.

To attempt an estimate of the number of cattle, sheep or pigs on the globe is a difficult task. It is clear in the first place that such an estimate must be confined to those countries that are sufficiently civilised to take some sort of a census of their live stock. Most civilised countries now do this, at varying intervals; and as these comprise practically all the sources of any importance in international trade, we may, without too much danger, form an idea of the live stock in the "meat-trade world."³ This, of course, excludes enormous areas such as China, most of Africa and South America, &c. But the exports from these are practically negligible,

³ The countries comprised in this are limited to those enumerated in Table I.

and their stock cannot—at least at present—be drawn upon to supplement deficiencies. I propose in addition to omit India, with its 50,000,000 cattle (“excluding calves”), or, including buffaloes, close upon 100,000,000 head. Comparable data regarding this Empire cannot be carried very far back, and so far as concerns meat it is at present a negligible factor in the trading world. Our total will therefore be a sort of net available total for such countries as either require help from outside or offer it to others.

Even with this limitation, considerable difficulties present themselves in determining the very unit to be admitted. The famous question suggested by Major Craigie: “What is a cow?” remains, from the statistical point of view, unanswered. The cow, in fact, is a unit that may vary from the “milch cow” of the United States’ Department of Agriculture—which appears to be the equivalent of the “dairy” cow in the census of 1900: the latter (17,140,000 in number) being “dairy cows 2 years and over,” and excluding “heifers 1 and under 2 years” (7,184,000), as well as “other cows “2 years and over” (11,592,000)⁴—to the “cow” of the Italian enumeration of 1882, which “includes calves under one year old.”⁵ A suitable definition of a cow is, in fact, a matter which may be commended to the International Statistical Institute, or the International Agricultural Institute, as one deserving of serious consideration.

Apart from such difficulties of sub-division of animals according to age, sex, &c., which are not material to the present issue, there is the genuine zoological difficulty of genera and species. An enumeration of “cattle” in some countries includes buffaloes, or at least does not always distinguish them clearly (*e.g.*, India), and probably other animals closely allied to the European *Bos* are sometimes swept into the statistical net. Indeed, it would not be possible to draw a distinction that the uneducated mind of the peasant in many countries could appreciate. As regards sheep, matters are not on any better footing. Most countries enumerate goats separately, but a few include them with sheep. And the latter are frequently right. Here in England we know the difference between a sheep and a goat, but I believe it to be the case, more especially in tropical climates, that the varieties of sheep and goats are not only extremely numerous, but that they pass into one another by insensible gradations. Buffaloes and goats, in the countries under review, have been excluded as far as possible.

Among the appendices to the evidence taken before the Departmental Committee on Combinations in the Meat Trade⁶ will be

⁴ *United States Census of 1900*, vol. v, part i, p. 323.

⁵ *Agricultural Statistics*, 1907, part iv, p. 391.

⁶ Cd-4661, pp. 257—269.

found tables showing the number of live stock, taken from official data, in all the more important countries since 1877. Similar data for as many countries as possible are given in the annual *Agricultural Statistics*. From these two sources I have compiled Table I, showing the number of cattle, sheep, and swine in each country of the civilized world, at intervals of about a decade. In many cases no data exist for the years stated, and in such instances I have interpolated an estimate of my own.⁷ Generally, such interpolated estimate is simply proportionate to the nearest official figures before and after the dates specified; but in some cases other considerations have been taken into account—*e.g.*, in Australia, the numbers are affected by drought or rains, and where the total is not available, the fluctuations in those Colonies which do make an annual enumeration give a fair clue as to the probable number on the whole continent. All my own estimates are printed in italics.

Cattle.

United Kingdom.—The number of cattle in the United Kingdom shows, on the whole, an increase during the past thirty years—from about 9·8 millions in 1878 to 11·7 millions in 1908. It may be observed, however, that the increase was nearly all in the first half of the period, the total reaching 11·5 millions in 1892, after which there was a drop of three-quarters of a million head in two years. [This fall is exceptional, and will be referred to again later.] Since then it has slowly risen again, and the latest number is a record. That the number has increased only half as fast since 1895 as previously may, I think, be safely attributed to the general decline of the farming industry, and to the gradual encroachment of towns and industrial concerns upon the agricultural land. It is not without interest to observe that, whereas in 1877 1 head of cattle was kept for every 4·85 acres of the “area under crops and “grass,” the corresponding number was 1 for every 4·16 acres in 1892, 1 for every 4·45 acres in 1895, and 1 for every 4·00 acres in 1908.

United States.—Here we are in difficulties. This country undoubtedly has the largest stock of cattle in the world (except, perhaps, India); but comparisons with earlier periods are only to be made with great caution. The figures issued annually by the Department of Agriculture underwent a careful scrutiny, and were completely revised, in 1906-07, with the result of an addition to the nominal herds of some ten million head—not for the first time, as similar revisions at earlier dates resulted in additions of

⁷ I have also adopted some of the estimates given in Sundbärg's *Aperçus statistiques internationaux*.

several millions to the stock as returned in immediately preceding years ; notably in 1901, when the number was given as 18,400,000 (or 42 per cent.) more than in 1900. The latest revision puts the number in 1907 at 72,534,000, and it is stated⁸ that this figure is not comparable with earlier years. This number is made up of 20,968,000 "milch cows" and 51,566,000 "other cattle," which are stated to be 102.4 and 98 per cent. respectively of the numbers in 1906. This enables us to estimate the number in 1906 at 73,100,000. As the number returned in 1908 (1st January) is 71,300,000,⁹ this points to a decline of 1,800,000 head in the two years, made up of an increase of some 700,000 cows and a decrease of 2,500,000 other cattle. These latter, of course, include the beef cattle, and all that can be said is that such a decline is compatible with the known shortage of beef cattle in the United States in the last two or three years, which has so restricted imports thence and enhanced prices here. Apart from 1906-07, the chief revisions of the Department appear to have been made as the result of the publication of the numbers ascertained at the enumerations in connection with the decennial census, and I have preferred to take the latter figures in my table (except, of course, for 1908).

The census figures, however, are not themselves comparable, inasmuch as the census of 1900 included spring calves, a procedure which was adopted in only a few instances in the enumerations of 1880 and 1890. Of the number enumerated in 1900, however, 15,333,000 were "calves under 1 year," leaving 52,489,000 as the number of cattle, excluding calves. Again, the 1900 Census Report estimates that at least 10 per cent., and possibly 20 per cent. of the "other cattle" (*i.e.*, not milch cows) in 1890 were calves under 1 year old.¹⁰ Assuming 15 per cent., this brings the total of cattle, excluding calves, down to about 52,589,000 head. On the other hand, the Census of 1890 enumerated cattle on ranches separately from those on farms, and calves *may* have been included in the former. Assuming that this is so, and assuming again that the proportion of calves on farms in 1890 to other cattle was the same as in 1900, we get 13,520,000 as the calves on farms in 1890, whence the grand total (including ranch cattle) works out at 66,110,000; or, allowing for calves probably omitted among the ranch cattle, say 66,500,000. There are other complications, and this figure cannot be regarded as nearly accurate; the limit of error might, I think, be as much as 3,000,000 on either side. But it

⁸ *Crop Reporter*, February, 1907.

⁹ The number on 1st January, 1909, is given as 71,100,000 (*Crop Reporter*, February, 1909).

¹⁰ *United States Census of 1900*, vol. v, part i, p. clxii.

is obviously a better figure for comparative purposes than the 52,800,000 enumerated at the census of 1890. A similar calculation for 1880 shows 46,000,000 head, subject to a similar margin of error.

The absence of trustworthy data regarding the chief source of our beef supply is singularly unfortunate, and we are really not in a position to trace, with any degree of certitude, the course of events in the past, or, consequently, to judge adequately whether the United States can continue to supply us at the same rate as hitherto. The effect of my calculation is to indicate that whereas between 1880 and 1900 cattle increased as rapidly as population, this has not held since, although, as shown by the course of trade, the surplus available for export still continued to increase for some time. But when will this surplus cease to increase? The statistics really do not supply a definite answer. I take it that a time will come for the United States, as for every other country, when it will be "fully" stocked with cattle, but we have few facts to show how near that time is to the present; to show whether the present scarcity is a real sign of the high-water mark of their export trade having been passed, or whether it is merely a trough between two waves.

The rapid encroachment of civilisation upon the vast ranching areas has frequently been mentioned [and is again much to the fore at the present moment] as a factor which is bound to extinguish cheap cattle feeding. Some ten years ago this was ably discussed in two Foreign Office Reports¹¹ by Mr. H. O'Beirne, who considered, as a result of examining the annual United States cattle statistics, and other material, that this was then in full progress, and that the consequent scarcity was being rapidly accentuated. The official figures, indeed, showed a decline from 53,000,000 to 44,000,000 head between 1894 and 1899, but the enormous increase shown by the 1900 census indicates that this decline was probably imaginary, and that the numbers had really been increasing all the while. I think Mr. O'Beirne's contentions as to the effect of the disappearance of ranching upon the cattle industry are none the less true, the only error—and that not his—being that this disappearance was not going on then. Is it now?

Argentina.—From our point of view this ranks next to the United States in importance. Enumerations have been made at rare intervals, but these indicate that the number tends to increase fairly steadily, the total at the latest census in 1908 (29,100,000) being greater by 7,400,000 than at the previous, which took place so far back as 1895.

¹¹ *F.O. Reports.* Miscellaneous Series, No. 403 (1896) and 481 (1898).

Australia.—The live stock of this country is peculiarly susceptible to the ravages caused by drought, and its history of cattle raising, like that of sheep, seems to consist in alternations of decimation of the herds, followed by gradual reconstruction. It may possibly surprise some readers to learn that the chief cattle State is Queensland, though some of its prominence has recently departed. The culminating year for Queensland (and Australia) was 1894, when it possessed 7,000,000 head out of a total of 12,000,000 on the continent. From this the number declined rapidly until a minimum of just under 2,500,000—practically the same figure as in 1878—was reached in 1903, out of perhaps 6,800,000. In common with the other States, Queensland has since greatly increased its herds, and Australia has now some 10,000,000 head.

New Zealand, less subject to climatic vicissitudes, shows practically steady progress, and there are now some 1,800,000 head in that island.

Europe.—*Russia* has the largest stock of any country after the United States. Statistics are available only since 1900 for the Empire as a whole: they show the total to have fluctuated between 40,000,000 and 45,000,000, and there is not much evidence of increase in the past decade, in spite of the progress of her Asiatic territories. The future of Russia as a possible purveyor of meat is quite an unknown quantity. Suggestions for developing the export trade are frequently heard, but there are many other ways in which the vast areas at present unutilised, particularly in Asia, may be rendered profitable. *France* exhibits a condition somewhat similar to our own: there have been throughout some 2,000,000 to 3,000,000 head more than in the United Kingdom—rather more in 1900-02, in which latter year the figure almost touched 15,000,000; since when the stock has diminished by 1,000,000. *Germany* and *Belgium*, both meat-importing countries, show steady progress, on the whole not disproportionate to the population, as does *Denmark*. Other countries do not call for special comment..

Sheep.

It may be said that the great feature of the past thirty years has been the steady, and indeed rapid, approach to extinction of the flocks of Europe. This is probably in part due to the quick extension and severe competition, during the first part of the period, of the Southern Hemisphere. Since the early nineties, however, this has received a notable check, and it can hardly be said that any country in the world is at present developing its sheep industry. The decline in the world's sheep stock since 1890 must be something like 7 per cent.

United Kingdom.—The decline here is much less than in any country of Central Europe. In 1877 our flocks numbered 32,220,000, and reached a maximum of 33,600,000 in 1892. Since then there has been a gradual decline to 29,000,000 in 1904 and 1905, followed by an increase of a couple of million since—due, no doubt, to the high prices of wool in 1906-07. Generally speaking, however, the comparative maintenance of our sheep stock may probably be ascribed to the continual conversion of arable land to permanent grass which has been so marked a feature since the fall in corn prices in 1875-95. Sheep fluctuate considerably in numbers, and seem much affected by climate, or diseases consequent thereon; the drop of over 4,000,000 between 1879 and 1882 was caused by the very wet summer of 1879, which resulted in great losses from liver-fluke.

Australia.—The statement above, that no country seems now to be developing its sheep-farming industry, is apparently contradicted by this continent, which has gained 15,000,000 to 20,000,000 head since 1900. But this is a revival, and the present total—probably not much short of 90,000,000—is not yet equal to that of the early nineties. The history of sheep in Australia is, in fact, intimately bound up with climatic cataclysms in the shape of prolonged droughts which ravage the flocks, they being followed by years of normal or abundant rainfall, during which the flocks are built up again. To take New South Wales, for example, which possesses more than half the Australian total, there was rapid progress from 21,500,000 in 1877 to nearly 62,000,000 in 1891 (with only one bad check in 1884). Then came the lean years, and the numbers fell away steadily, with slight exceptions, but including drops of 9,000,000 between 1894 and 1895, and of no less than 15,000,000 between 1901 and 1902, when there remained no more than 27,000,000. At this period the Australian total must have been far below the Argentine. This proved the nadir, and the number has since greatly increased. Queensland shows similar vicissitudes; Victoria and South Australia suffer rather less violently. The absolute maximum total for Australia was 105,400,000 in 1891, the absolute minimum (since 1878) probably exactly half of this, in 1902 or 1903. Although the numbers in the last six years have therefore shown steady and satisfactory increase, yet it is impossible to say that disastrous droughts will not recur to wipe out the flocks; and it appears probable that some 100,000,000 to 120,000,000 sheep will prove Australia's maximum for many years to come, unless the return of a bad drought is unduly postponed.

New Zealand does not suffer like Australia from drought; this

colony shows steady, though not over-rapid, development—not so rapid as in cattle. Conceivably this may be due to so many exporters of meat from New Zealand making a speciality of sending over lamb instead of the full-grown mutton.

Argentina.—This, after Australia, is the most important sheep country in the world. The rise in numbers was in earlier years rapid, and 74,400,000 was attained in 1895. No further enumeration has been made until 1908, revealing a total of 67,200,000 only, which appears to indicate that the high-water mark has been passed.

Uruguay is important (for its size it has also a large cattle industry). The number of sheep appears to have risen from 11,000,000 in 1892 to 18,600,000 in 1903; but there would seem to have been a decline since to something like 14,000,000.

South Africa.—This practically completes the southern hemisphere. The chief district is Cape Colony, where sheep appear to have reached a maximum about 1891-93, when it had little short of 17,000,000, though by 1899 this had fallen to 12,600,000. In the following troublous years no statistics were collected, but a rapid rise from 11,800,000 to 17,150,000 is recorded between 1904 and 1907. (I am not certain that these figures apply to the same area.) Paucity of comparable data compelled me to omit the *Transvaal* and *Orange River Colony* from my tables; the latest data (about 1905) show 4,194,000 in the latter, and 847,000 in the former.

United States.—Differences in the method of collection make it just as difficult as in the case of cattle to say what is the state of affairs here; and the general remarks I made in discussing the cattle statistics apply equally to the sheep. It would appear probable that the industry is more or less stationary. I incline to the view that the high-water mark has been passed, but I believe some States have still considerable areas available for sheep. For the purpose of my tables I have made similar calculations to those for cattle. Spring lambs were, theoretically, excluded in 1880 and 1890, but the United States Census Report of 1900 considers it "probable that not more than 10 per cent. of the sheep enumerated" ¹² previous to that year were lambs. The number enumerated in 1890 was 40,876,000; hence, deducting 10 per cent., we get 36,789,000 as the number excluding lambs. Assuming again the same proportion of lambs as in 1900, when 21,668,000 were recorded as against 39,938,000 of other ages, we find 19,960,000 lambs, giving 56,700,000 as a very rough approximation to the number in 1890. A similar calculation gives 58,600,000 for 1880. A rise of 1,500,000 is recorded in the Department of Agriculture's figures between 1908 and 1909.

¹² *United States Census, 1900, vol. v, part i, p. ccxiv.*

Europe.—*Spain*, once so famous for its wool, would appear to be stationary with 13,000,000 to 14,000,000; but enumerations are so rare that it is difficult to be sure, and the same remark applies to *Italy*. The largest number of sheep in the Old World is to be found in the *Russian Empire*, which exhibits a decline from 71,000,000 in 1903 to 57,500,000 in 1908. As with cattle, however, the vast Asiatic areas (where the number is steadily increasing) render it unsafe to say that this Empire may not again increase its flocks. The most startling decline in Europe is, however, that in *Germany*, whose 19,000,000 sheep of 1883 were in 1908 reduced to 7,700,000. In *Belgium* also the industry has dwindled to such an extent that sheep are no longer distinguished in the live stock returns. *France* tends to resemble more the United Kingdom in showing but a slow decline, although it is more persistent and accentuated than here, since it amounts to a loss of 6,000,000 head, or 25 per cent., in the past thirty years.

Pigs.

United Kingdom.—The number of pigs, while showing a tendency to increase gradually, exhibits very marked fluctuations, the number oscillating regularly, with a period of about five to six years, round a mean which is now something under 4,000,000. For instance, maxima occurred in 1877, 1883, 1890, 1896, 1899 and 1904; while minima were returned in 1880, 1886, 1892, 1897, 1901 and 1906. The latest number, 4,056,000, in 1908, is probably very close to a maximum, and a fair guess may be made that the 1909 total will hardly exceed this.¹³ These fluctuations are intimately connected with the prices of pig meat; in fact, prices and numbers (or more strictly the total of home and foreign pig meat available) react upon each other with remarkable regularity. Owing to the prolificity of this class of meat, the variations in the total supply are, as will be seen later, largely dependent upon home production; moreover, owing doubtless to considerations of price, imports are generally heaviest when the home supply is greatest. It must not be overlooked in this connection that pigs can often be raised comparatively cheaply, owing to their ability to assimilate more or less refuse food or bye-products—particularly of the dairy industry; and variations in the price of the finished product form a greater percentage on the outlay when the latter is low.

It may be observed that in Ireland there has been a distinct tendency for the maxima and minima to occur before they do in Great Britain. Since the 1907 number in Ireland (1,317,000) was

¹³ The considerable diminution in over-sea supplies may possibly, by keeping up the price, falsify this forecast.

greater than that of 1908 (1,218,000), whereas the reverse holds in Great Britain, this is a further indication that 1909 will show no increase over 1908: moreover, the number of sows kept for breeding had also turned downward in 1908.

United States.—This has by far the largest pig-population of any country: in fact, we may credit it with fully 40 per cent. of our "trade-world" total, and up to 1899 it had quite half. So far as I can ascertain, the difficulties in comparing 1890 and 1900 in the case of cattle and sheep are not considered to occur with pigs. Judging by these census figures there has been a great slackening, if not a considerable decline, in recent years; this is confirmed by the Department of Agriculture's estimates, and, as will be seen later, by our own trade returns. The number of pigs in 1909 is given by the Department of Agriculture as 54,150,000, or 96·5 per cent. of the number in 1908.

Of other countries outside Europe, *Canada* and *Argentina* are steadily (the latter rapidly) increasing their pig stock, although their numbers are not yet considerable. It is singular that every other country possesses absolutely insignificant numbers at present.

Europe.—The feature of the live stock industry of central Europe—*Germany, Netherlands, Belgium, Denmark, Austria, Hungary*—is the wholesale substitution of pigs for sheep. All these countries, and *Roumania*, have doubled their stock of pigs in about twenty years, and it is not without interest to note that the increase is largest in those countries where dairying shows the greatest progress; Denmark has tripled its numbers, and the same factor has doubtless been effective in *Argentina*. It may indeed be regarded as matter for speculation, seeing the recent tendency in the United Kingdom to develop the dairy industry, that our pigs, and particularly the Irish, have not increased more rapidly; and it is quite certain that the British have not appreciated the profitableness of skim milk and the like in the same way as kindred races on the Continent. *France* has also steadily increased the number of her pigs—not so rapidly as her north-eastern neighbours, but far more than the United Kingdom. *Russia*, almost alone, records no increase, but rather a decline. The importance of *Servia* as a pig centre may finally be mentioned.

World's stock of meat.

In Table I, I have ventured to add an estimate of the total stock of animals at intervals of a decade in each country, expressing sheep and swine in terms of cattle as follows:—

The average number of cattle in 1898-1907 in the United Kingdom was 11,478,400; on the average of the ten succeeding

meat-years we produced, as will be seen later, 13,438,000 cwts. of beef (or veal). Hence 1 "cattle" has yielded 1·171 cwts. of beef. Similarly 30,178,700 sheep have yielded on the average 6,075,000 cwts. of mutton, or 0·201 cwt. of meat for every sheep enumerated; and 3,786,500 swine have yielded 5,521,000 cwts. of pig-meat, or 1·46 cwts. for every pig. Hence, from a meat point of view, we may reckon 1 sheep as equivalent to 0·172 cattle, and 1 pig to 1·25 cattle. It is perhaps not generally appreciated that an "average pig" will, in the course of a year, yield more meat—either on its own body or its progeny—than "a cattle."

I have adopted these equivalents to get at the total meat animals of different countries. It is, however, to be noted that these equivalents are not to be used for comparing one country with another; ripe beasts are not of the same weight in each country, nor is the proportion of males to females, &c. And for comparing the live stock of a country at different periods, this method only gives the *potential* supply, which was obviously far from reached in earlier years. Hence the real increase in the meat actually delivered annually from the animals is clearly much greater than that indicated, since I have made no allowance for improvements in fattening, &c. In looking to the future, we are bound to take into account the possibility, if not probability, that where—as, for instance, in Australia—the live stock does not produce the amount of meat assumed for this country, the flocks and herds will be graded up to these quantities. And for this purpose it is right to take these equivalents; and even allow for future improvement.

Looked at from this point of view, it is clear that the increase in the world's potential supply of meat was much greater in the two decades, 1880-1900, than it has been subsequently. In the first decade it was America and the Southern Hemisphere that showed the most rapid advance. Between 1890 and 1900 Europe alone made great strides, developing both cattle and pigs; North American progress slackened, while the Southern Hemisphere actually retrograded, owing to Australian droughts and possibly the South African war. Since 1900 European progress has slackened, North American has retrograded, and the Southern Hemisphere has made a great recovery.

In the last two columns of Table I, I have added the approximate populations at the commencement and end of the period. During the first decade the world's meat stock probably increased at a distinctly faster rate than population; in the second, perhaps not quite so fast; but since 1900, population has very decidedly increased much faster than the meat stock. This is not incompatible with our having more meat to eat, because thirty years ago there must

have been great waste, and much live stock was never converted into meat at all. But the margin between the amount of meat actually delivered from the farm animals of the world and the potential supply shown by my estimates must have considerably diminished in the last decade.

Home production of meat.

Having thus briefly surveyed the living stock of meat in the world, let us now proceed to see what use we are making of it, and what share we have been able to obtain for ourselves. In the first place, I propose to examine the amount of food yielded by our own flocks and herds.

In Table II, I have reproduced from the appendices to the Meat Committee's Report¹⁴ the estimate (based upon the data obtained by this Society's special Committee five years ago) handed in by the Board of Agriculture and Fisheries of the meat production of the United Kingdom for the past fifteen years; adding three further years at the commencement, because the year 1893-94, with which the table originally commenced, happens to have been very abnormal. Unfortunately, it appears that 1890-91 is not a much better starting-point, as the figure of home production for that year looks remarkably low. But I have not ventured to carry these estimates further back, as at this distance of time certain disturbing factors, of unknown magnitude, that ought to be allowed for, come into play, and to push these calculations too far would be to erect a superstructure which these statistical foundations could no longer safely bear. Possibly the quinquennial average, 1890-91 to 1894-95, gives a fair approximation to what was the normal home supply at that period.

This table is a fruit of the labours of the Society's special Committee appointed to inquire into the production of meat and milk in this country in 1902; and I think the Society has every reason to congratulate itself upon the usefulness of that piece of work. The process adopted is given in full detail in the "Meat and Milk Committee's Report,"¹⁵ but it will perhaps be convenient if I insert a short summary here:—

To the total number of cattle, sheep, or pigs enumerated at the beginning of the year add the estimated number born during the year, deduct the estimated number of deaths by accident or natural causes, the number exported during the year, and the number surviving at the end of the year—that is the total number returned, and the remainder is the number slaughtered for food. In the case

¹⁴ Cd-4661, p. 270.

¹⁵ *Second Report, Journal*, 1904, p. 368, or p. 3 of the reprint.

of cattle, the number of calves born is estimated to be 90 per cent. of the cows and heifers, and the rate of mortality 4 per cent. of the total cattle, including calves. Of the number slaughtered, 70 per cent. are estimated to be beef cattle, and 30 per cent. calves. These taken at 660 lbs. and 95 lbs. per head respectively give the estimated total of beef and veal. In the case of sheep, the number of lambs born during the year is taken as 112 per cent. of the ewes enumerated at the end of the year, and the rate of mortality at $4\frac{1}{4}$ per cent. of the total of sheep and lambs. Of the number slaughtered, 80 per cent. are taken at 65 lbs. per head, and 20 per cent. at 40 lbs. per head for mutton and lamb respectively. In the case of swine, the number of pigs born is estimated to be 11 per sow, and the rate of mortality 9 per cent. of the total number of swine. The swine slaughtered are estimated at 135 lbs. per head.¹⁶

The method admits of a few criticisms: notably, the birth- and death-rates adopted for live stock are no more a constant factor than among the human population. Particularly is this the case with sheep, for a "good" or "bad" lambing season is notoriously a matter of moment. But there are in this country no vital statistics of this character, and we must perforce apply some "average" rate throughout. On this ground alone, therefore, the estimates can only be regarded as approximate; still I do not think errors are likely to be so serious as to disturb the broad changes indicated in the total amount of beef, mutton or pig-meat obtained by these calculations.

DIAGRAM 1.—*Home production of meat.*

It would accordingly appear that the home production of beef and veal has, on the whole, risen from probably 11,500,000 or

¹⁶ Cd-4661, p. 7, Q. 168.

12,000,000 cwts. about 1890-92 to 14,300,000 in 1906-07, and 13,900,000 cwts. in 1907-08. It was just 15,000,000 in 1892-93 and 1893-94; but these two maxima were quite abnormal, and represent the extent to which we drew on home supplies at that period to meet an exceptional shortage of imports; this feature will be best discussed at a later stage of this paper. The very low figure of 1890-91 was probably due to the very heavy imports of 1890.

The production of mutton and lamb is considerably less than half the national beef. From not more than 5,500,000 cwts. in 1890-91—possibly an abnormally low total—it reached 7,000,000 in 1893-94, owing to the same causes as affected beef; and, after another maximum in 1899-1900, fell off somewhat, coincidently with the decline in the number of live sheep in the country. The high figure of 1899-1900 is open to doubt; the number of sheep under 1 year in Great Britain was, relatively to the ewes (which in those two enumerations were exceptionally numerous) very low, and it seems conceivable that the large consumption was only apparent: 1900 was certainly a bad lambing season. The calculations do not allow for this; in fact, I feel fairly sure that our estimates of the mutton supply are more affected by adventitious causes, such as variations in the number of births, deaths, &c., than those of beef.

Of pig-meat we produce nearly as much as mutton—occasionally more. We have seen that the number of pigs fluctuates considerably, and as we are estimating the birth-rate at 11 per sow, it follows that the oscillations in our meat production are even more marked. So violent are they in fact, that, apart from exceptional periods like 1892-94, the alternations in our total meat production are very largely controlled by those of pigs. The output is estimated to have attained a maximum of over 7,500,000 cwts. (doubtless abnormal) in 1891-92, with a minimum of 4,233,000 two years later. Since then the highest totals have been 6,840,000 cwts. in 1896-97, 6,300,000 in 1899-1900, and 6,500,000 in 1904-05. It may be forecasted that the 5,800,000 cwts. of 1907-08 will be slightly exceeded in the current year. To the very heavy production of 1891-92, consequent, no doubt, upon the scarcity of imported live animals just at this time, may be ascribed the decline of a million pigs noted in 1892.

From this discussion of the three kinds of meat, the changes in the total home supply, exhibited in Diagram 1, will be readily appreciated. It commenced with some 22,600,000 cwts. in 1890-91, rose to a maximum of practically 26,800,000 in 1891-92 and 1892-93, owing to shortage of imports; after which the fluctuations—

we might almost say oscillations—correspond roughly to those of pig-meat. On the whole, however, the general trend of the curve has been slightly upwards since the early nineties.

Imports.

While the crowded condition of this country has allowed of but a slight increase in the production of meat, there can be no question as to the enormous increase in our imports. In Table III, I have given, for calendar years, the imports of meat, distinguishing the three kinds, since 1877. Beef, alive or dead, has increased from perhaps 2,000,000¹⁷ to 8,500,000 cwts. in 1908, or 325 per cent. Mutton has gone up from some 500,000 to 4,500,000 cwts., or 800 per cent., and pig-meat from 3,250,000¹⁸ to 7,750,000 cwts., or 140 per cent.; while the grand total shows an increase from 5,888,000 to 21,621,000 cwts., *i.e.*, 267 per cent. Now all these percentages are far greater than the increase in population, and we have seen that the home production has risen (although not per head), so that we may at once, and decidedly, draw the satisfactory conclusion that these imports have not displaced, but are additional to, the home output.

DIAGRAM 2.—*Total imports of meat.*

Let us now consider the imports more in detail. In the first place, meat comes to us in two forms—on the hoof or dead. The former have therefore to be converted into their equivalent weight as dead meat, and this has accordingly been done at the following rates:—From and including 1901 onwards cattle from the United States have been taken at 744 lbs. per head; Canada, 688;

¹⁷ "Preserved" beef and mutton were not separately distinguished in the earlier trade returns. The beef—as distinguished—was 1,626,000 cwts. in 1877, and I have added thereto some 400,000 cwts. of the "unenumerated" meat of that year, this being the proportion indicated when the items were separated in 1890.

¹⁸ Allowing some 100,000 cwts. of the "unenumerated" to be pig-meat.

Argentina, 720; other countries, 560 lbs. Sheep from Canada, 66 lbs. per head; Argentina, 60; Denmark, 64; Holland, 70; United States, 60; and other countries, 65. Pigs from all countries, 112 lbs. per head. Prior to this period different rates were used for the United States as regards cattle, Canada and Argentina as regards both cattle and sheep, the following scale being adopted:—United States, cattle 808 lbs. per head; Canada, cattle 720 lbs., sheep 68; Argentina, cattle 560 lbs., sheep 65. As a result of careful inquiry among the Board of Agriculture's port inspectors in 1903 it was found that the rates taken for United States and Canadian cattle were too high, and those for Argentine cattle were too low. It was thought that the change had probably been progressive, and consequently the earlier figures since 1892 for cattle for those three countries were re-worked, the change in weight being spread gradually over the intervening years. The change as regards sheep was made in 1901. Calves were estimated at 132 lbs. a head in all years.¹⁹ In the foreign and colonial Tables (III and IV *a-k*) showing the principal countries whence we derive our meat, I have converted all the live animals into dead meat at the above rates, and they thus show at a glance the total meat imported from each country during the past thirty years, in a handy form which I believe will not be found anywhere else.

Before passing on to details we may note that the maximum importation of all kinds of meat was 22,144,000 cwts. in 1906; the slight decline since is attributable to the shortage of cattle in the United States. A similar shortage occurred in 1902. The rapid increase in imports was most noticeable up to 1898, since when there has been a decided slackening; in fact the figure of 1908 was exceeded in 1901, as well as in 1905-07. This is attributable to a decline in the arrivals of pig-meat, which are now coming in at the rate of a full million cwts. less than in 1898-1901. It may be observed that imports of pig-meat showed very slow progress prior to 1895. A most interesting feature is mutton, which still increases, and has doubled itself in the past fifteen years: this is rather curious when examined in connection with the diminution of the world's flocks during the same period.

Imports from United States.

Considering first the United States (Table IV*a*), whence we have throughout the past thirty years derived the great bulk of our foreign meat, the total amount received increased from 3,775,000 cwts. in 1877 to a maximum of 13,330,000 in 1901, since when it has receded to 7,280,000 cwts. It may be mentioned that this is still

¹⁹ Cd-4661, p. 8, Q. 181.

nearly 2,000,000 cwts. above the total from Argentina, now the United States' most formidable competitor. Of mutton we obtain but little from this Republic, and the whole supply practically consists of beef and pig, sometimes the one and sometimes the other forming the chief constituent, but since the middle eighties they have never been far apart.

DIAGRAM 3.—*Imports from United States.*

Pig-meat.—The grand total of pig products received during the past thirty years has slightly exceeded that of beef. The ups and downs are very similar to those of beef, doubtless depending upon the abundance or otherwise of feeding stuffs, maize especially being freely used for fattening both animals. In the first five years pig-meat, which then formed at least two-thirds of the total, reached 5,280,000 cwts. (in 1880), and then fell away to below 3,000,000 in 1882. A gradual rise then succeeded, although the quantity of 1880 was not reached again for another fifteen years. The amount rose abruptly by a full 50 per cent. between 1896 and 1898, when it reached, and maintained for four years, a level of over 6,000,000 cwts. Since 1901, when the actual maximum of almost 6,500,000 was reached, there has ensued a rapid and progressive decline to almost exactly half that amount in 1907. This remarkable fall in recent years is to my mind the most striking feature of the United States meat trade, and I am disposed to regard it as quite as serious as the present shortage of beef, which, from its suddenness, has excited so much comment, but which, owing to that very suddenness, is perhaps of a more temporary character, and less significant of the future, than the more prolonged depression in the output of pig-meat. The small recovery in 1908, bringing the total again above beef, is possibly due to an endeavour to make good the temporary deficiency of beef.

Beef.—This started at a much lower level in 1877, doubtless owing to the public taste, which freely accepts salted pig-meat (bacon, hams), while salted beef is more grudgingly eaten. In those days the refrigerating industry had, of course, not been established, and thus pig-meat, preserved by salt, could be transported for long distances, and still be landed in its most acceptable form. [This explains the comparatively small increase, noticed a few paragraphs above as being only 140 per cent., in our total imports of pig-meat. This trade was then in a much more forward state of development; in fact, it formed in 1877 much more than half our total meat imports, and nearly four-fifths of it came from the United States, while pig-meat is now only about a third of the total.] With the inventions of freezing and chilling, however, the beef trade increased, slowly at first; and the pig imports were surpassed in 1889, the only subsequent years in which we have received an excess of pig-meat being 1898-1901, and again 1908. Beef imports suddenly expanded in the two years 1889 and 1890, abruptly raising themselves from a level of about 2,000,000 cwts. to one of 5,000,000 cwts.; and they have since varied between 4,000,000 cwts. and 6,000,000 cwts. (until 1908), a maximum of 6,400,000 cwts. occurring in 1901. The fall to some 3,360,000 cwts. in 1908 is very sharp, and this represents the smallest amount of beef received from the U.S.A. for precisely twenty years. This sudden drop is attributable to a great shortage in the United States maize harvest of 1907, which will be discussed, under the heading of *Prices*, later on.

Imports from Argentina.

Argentina (Table IVc) has for at least a decade held second place among the countries supplying us with meat, and the 5,500,000 cwts., or thereby, received thence in 1908 reduces the gap between it and the United States to a matter of 2,000,000 cwts. only. Although at one time large numbers of animals were received alive from this country, yet the trade thence may fairly be said to have been developed by refrigeration; we were getting over half a million carcasses annually before the sheep received on the hoof numbered 500. Unlike the United States, we derive no pork from Argentina; its place as meat being taken by mutton. For many years—until 1890 in fact—mutton formed practically the entire meat export. The quantity first attained 100,000 cwts. in 1885, and developed steadily until we were receiving thence something like 1,500,000 cwts. in 1903. Since then the quantity has been nearly stationary, with a recrudescence to 1,560,000 cwts. (a maximum) in 1908.

But the great feature of the trade in recent years has been beef: it may be said to have “begun” in 1891, commenced its upward

DIAGRAM 4.—*Imports from Argentina.*

march in 1895 (since when a drop is to be noted in but a single year—1907), overtook the mutton exports in 1904, and finally in 1908, with some 3,600,000 cwts., overtook the United States, and took premier place among our purveyors of foreign beef. In connection with the Argentine trade, allusion may be made to the transient effect of our legislation regarding diseases of animals upon the meat supply from that country. Imports of live stock thence were prohibited in 1900, owing to an outbreak of foot and mouth disease; it will be observed that there is but the very slightest trace of a break in the continuity of the curves at that period, and the United Kingdom's supplies of meat remained entirely unaffected. The instantaneity with which Argentine exporters transformed their live stock trade into a dead meat one is most remarkable.

Argentina's neighbour, *Uruguay* (Table IV *d*), has made noticeable progress in quite recent years.

Imports from British North America.

Canada (and Newfoundland) with some 2,500,000 cwts. (less in 1908) ranks as the third country among our purveyors (Table IV *b*). Its trade resembles that of the United States in that it consists entirely of beef and pig-meat; but it differs chiefly in that its most rapid development has taken place since 1895 (apart from apparently temporary checks in 1901 and 1908); *i.e.*, at the period when the United States are at least slackening their rate of increase. Such a state of affairs, in view of the more recent settlement of the Canadian north-west, is natural. It differs also in that the relative movements of the pig and beef trade are reversed; in Canada exports of beef were consistently above those of pig-meat (they were just double in 1890) until the end of the century, since when the latter have doubled. From both countries, it may be

noticed, the quantity of bacon is about three times that of hams ; fresh and salt pork forming but an insignificant item.

DIAGRAM 5.—*Imports from British North America.*

There is a certain amount of cross-traffic in the exports from the United States and Canada, and I accordingly give below the actual countries of consignment (available for 1903-07 only) for the same items as appear in Table IV :—

Quantity of meat consigned from the United States and Canada to the United Kingdom.

[In thousands of cwt.]

Year.	Consignments from United States.				Consignments from Canada.			
	Beef.	Mutton.	Pig-meat.	Total.	Beef.	Mutton.	Pig-meat.	Total.
1904....	5,439	151	3,797	9,637	987	64	1,292	2,352
'05 .	5,378	85	4,327	10,077	1,030	27	1,158	2,232
'06 ...	5,331	41	4,537	10,182	1,086	17	934	2,048
'07....	4,985	41	3,855	9,140	740	21	931	1,703

It will be observed, upon comparison with Table IV (*a* and *b*), that United States pig-meat especially reaches us *via* Canada.

Imports from Australia.

The imports from this country (Table IV, *e*) are of a very remarkable character, and the terrible droughts that influence the number of stock kept are only too faithfully reflected in the exports. Owing to the impossibility of shipping live animals from so great a distance, this trade, like that of its neighbour, New Zealand, owes its inception to the refrigerating industry. Some amount of "preserved" meat is recorded as arriving thence in the very beginning of the period under review, and "fresh" mutton is entered in our trade returns in the first year that this class of meat was distinguished, but for practical purposes we may regard the trade as beginning to assume material proportions in 1890.

From 200,000 cwts. in that year it rose steadily to a maximum of over 1,500,000 cwts. in 1896-97, then declined almost to extinction

DIAGRAM 6.—*Imports from Australia.*

DIAGRAM 7.—*Imports from New Zealand.*

DIAGRAM 8.—*Imports from Holland.*

DIAGRAM 9.—*Imports from Denmark.*

(336,000 cwts.) in 1903, then recovered and reached 1,000,000 cwts. in 1907. Australia is generally regarded here as an exporter of mutton, but she also sends considerable quantities of beef; and, as a matter of fact, during the late nineties we obtained thence as much beef as mutton, more in 1899-1900. The two kinds of meat come from different parts—the beef from Queensland, with a little from New South Wales (? the northern districts); the mutton from New South Wales, with substantial amounts from Victoria, and subsidiary quantities from South Australia. It may also be observed that the beef curve tends to lag behind the mutton, both maximum and minimum occurring at a rather later date.

Imports from New Zealand.

This island does not appear to suffer from drought to the same extent as Australia, and the record of its export trade (four-fifths consisting of mutton or lamb) is one of steady and fairly rapid progress since 1882, broken only in 1904-05, and again in 1908 (see Table IVf). This Colony is now running Canada very close for the third position among the trans-oceanic butchers of the United Kingdom.

Imports from Europe.

At the commencement of the period, a considerable percentage of our foreign meat came from Europe, particularly in the shape of live cattle, Germany, Holland, and Denmark being the principal contributors. Moreover, Spain, Portugal, and Sweden each sent us from 10,000 to 20,000 head of cattle annually during the first decade under review; Belgium (? Germany) sent large numbers of sheep, amounting to some 100,000 in number, in 1882-83; and other countries were occasionally heavy exporters. Now, of course, the trade in live animals from Europe (except Iceland) is prohibited; but these countries, unlike their trans-oceanic competitors, have not transformed their live stock into dead meat for our consumption, with the sole exception of Denmark, and to a lesser extent Holland.

Our most important contributor prior to 1885 was Germany (Table IVg), which sent us from 700,000 cwts. to 1,000,000 cwts. annually, the latter figure being reached in 1884, after which year the trade dwindled rapidly, and may be said to have been extinguished by 1891. The bulk of it was bacon, the weight of which was practically equal to the total of beef and mutton, these two latter being, however, alive. It may be mentioned that, in addition to the amounts officially recorded as received from Germany, that country now annually sends us some 50,000 live sheep, which are slaughtered at Rotterdam for the British market, the resultant 20,000 to 30,000 cwts. of dead mutton being of course credited to Holland in the trade returns.

The Dutch trade (Table IV*j*) was mainly mutton, alive until 1891, a maximum of over 800,000 cwts. of all kinds of meat being reached in 1888. Since the new century, again, the total meat from Holland has averaged nearly 1,000,000 cwts. The mutton receipts in 1888 were exactly 400,000 cwts., mostly alive, since when they have been fairly stationary at 200,000 to 300,000 cwts., the highest figure (344,000) of recent years occurring in 1902. In 1908 we received 267,000 cwts., a slight increase over 1907. Fresh pork has, however, been the main commodity from Holland since 1898, and this item shows a general, though rather erratic, rise between 1890 and 1903, with some decline since. Indeed, we get more fresh pork from Holland than from any other country.

Denmark (Table IV*k*) has been alone among European countries in developing a dead-meat trade with this country. In the earlier years its exports were almost entirely live cattle (with some Iceland sheep). Live cattle reached a maximum of 557,000 cwts. (dead weight) in 1883, and the trade dwindled to half that amount in 1890, after which it was practically extinguished. No serious attempt was made to convert the cattle into beef, although, when prices over here are good, the Danes occasionally send us some, notably about 1902, and we have again received consignments in the early months of the present year. The great development of the bacon trade (no hams, we get these from North America) may be regarded as dating from 1883, and in 1908 we imported over 2,000,000 cwts. of bacon, or fully four-fifths of the United States total. I quite expect to see Denmark take first place with this commodity in a very few years' time.

Imports from Belgium are shown in Table IV*h*.

This examination may be usefully summarised by dividing the world into three parts (see Table III); as the course of trade in these groups as a whole is much more significant than that from particular countries, and it is progressing in quite a different manner from these three quarters. I have adopted the same grouping in Table I, viz. : Europe (including Algeria and Asiatic Russia), North America, and the Southern Hemisphere. I should add that in the import tables I have taken account of Chile in the latter, otherwise the countries are only those named in Table IV, viz., Argentina, Uruguay, Australia, and New Zealand. Similarly, my North America consists solely of the United States and British North America. The tiny quantities occasionally received from other parts of the world thus fall into Europe: I think I am right in saying that in no single year do they collectively amount to 500 cwts., and thus my figures, which give totals in thousands only, are correct.

The course of trade from these three quarters of the globe is shown in Diagram 10. From North America, at present the most important, the trade rose steadily until a maximum was reached in 1901, which looks like proving the turning-point, and there has been a falling off since. From the Southern Hemisphere, which entered the arena in the late eighties, progress has been, and still is,

DIAGRAM 10.—*Imports from main divisions of the world.*

rapid—though interrupted shortly after the commencement of the new century by Australian droughts: this quarter has not reached its maximum yet, and last year sent only just a tenth less than North America. From Europe the trade has been, on the whole, nearly stagnant, although, thanks to Danish enterprise, it shows some increase of late years; but the character of the trade has largely changed (pig-meat taking the place of beef).

Beef is now arriving in about equal quantities from North America and the Southern Hemisphere; mutton almost entirely from the Southern Hemisphere; and pig-meat from North America and Europe, the latter now contributing rather more than a third of the whole.

Consumption.

I ought perhaps to apologise to earlier authorities who have written upon the meat supply of this country for not discussing their estimates or endeavouring to co-ordinate them with the official figures reproduced here. To do so would, however, merely be to abridge the very complete and ample summary by Mr. R. H. Rew in this *Journal*,²⁰ in which all the important estimates are put together; moreover, the various data adopted make it very difficult to ascertain their exact degree of comparability either with each other or with those based on the Society's investigations. For the latter reason I do not propose to carry any comparisons of home production or consumption back beyond the nineties. It may be observed, however, that the recent figures do not show any very startling discrepancies when compared with some of the abler earlier estimates: indeed, they may be said to bear testimony to the excellence of the work previously done in this direction by several authors. Since the date of Mr. Rew's article, the only other important contributions to this subject that I am acquainted with are those of Mr. R. E. Turnbull.²¹

The total meat consumed may be taken as the sum of that produced and that imported (less exports). Considering the period since 1890, we have the data shown in Table V, which are exhibited succinctly in the accompanying diagram (11). Here it has been necessary, owing to the method of calculating the home production, to adopt the "meat year," and the imports are for the year June—May, the figures being taken from the monthly trade returns. The conversion of live into dead meat has, of course, been made in exactly the same way, and at the same rates, as the imports for calendar years.

The total consumption of beef (including veal) increased from, perhaps, 18,000,000 cwts. about 1890-92 [I cannot regard any single year in the first quinquennium as representing the normal position] to 22,845,000 cwts. in 1907-08, a maximum of 23,600,000 cwts. having been recorded in the two immediately preceding years. The home production now forms 60 per cent. of the total supply, the average of the first quinquennium having been 69 per cent. The maximum home percentage was 73·8 per cent. in 1893-94; the minimum, 58·4 per cent., in 1905-06, when foreign imports were at their highest, and the recovery to 60·8 last year is due to the (probably temporary) shortage from North America.

Mutton in the same period increased from probably 8,000,000 cwts. to over 10,000,000 cwts. Here the maximum (10,445,000 cwts., as

²⁰ Vol. lxx, 1902, p. 666.

²¹ His latest is in the *Live Stock Journal*, 26th March and 2nd April, 1909.

DIAGRAM 11.—*Consumption of meat in United Kingdom.*

to which I am a little sceptical) occurred in 1899-1900, and the quantity has been, upon the whole, fairly stationary since. This is owing chiefly to the reduction in the home flocks of sheep up to 1905, while imports, although ever increasing, have done so at a slackening rate in the past ten years (with a spurt in the last two). In spite of the increase since, the home production in 1907-08 was but 55.9 per cent. of the total, the lowest on record; it was probably 76 per cent. at the beginning.

The supply of pig-meat has risen from 11,800,000 cwt. in 1890-91 to 13,450,000 cwt., and the United Kingdom supplied 55 per cent. of the total in the earlier year, as compared with 43.1 per cent. last year. The totals and percentages are, however, so dependent upon the oscillations in the home supply that single years give an even less reliable idea of the movement than with beef and mutton. The maximum was 60.1 per cent. in 1891-92 (owing, doubtless, to shortage of other imported meat), while the minimum has been as low as 36 per cent. (1901-02). On the whole, it is clear that the foreign supply has increased more rapidly than the home, but it is not easy to measure the amount of change.

The total of all kinds of meat includes a certain quantity of

“unenumerated” imported meat, which cannot be allocated to either of the three main groups, but which probably consists largely of these items (and mainly beef and pig-meat). The grand total shows an increase from some 36,000,000 cwts. in 1890-91 to 46,850,000 cwts. in 1907-08. This is the largest total yet estimated. The percentage that was home produced may probably be taken to have been about 65 per cent. at the commencement (the first quinquennium is quite abnormal), and 54 per cent. last year, the minimum (53·2 per cent.) occurring in 1905-06. If we accept quinquennial averages as the best guide to the relative trend of home and foreign meat during the past dozen years, at least in the case of beef and mutton, we have the following results:—

Percentage of home to total supply of meat.

	Beef.	Mutton.	Pig-meat.	All meat.
Average, 1890-91 to 1894-95.....	69·1	74·3	51·6	66·0
„ '95-96 „ '99-1900.....	63·4	61·8	44·3	57·1
„ 1900-01 „ 1904-05.....	62·0	61·2	43·7	55·3
„ '05-06 „ '07-08 (3 years)	59·9	57·2	41·4	53·7

But, after all, a far better picture of these relative movements than any discussion of the figures is afforded by diagram 12.

DIAGRAM 12.—*Percentage of home supply to total consumption.*

Taking the Registrar-General's estimates of population, the following table shows the estimated consumption per head in the period under review, taking quinquennial averages :—

Consumption of meat per head in the United Kingdom.

[In lbs.]

Average	Beef.			Mutton.		
	Home.	Foreign.	Total.	Home.	Foreign.	Total.
1890-91 to 1894-95	39	17	56	19	6	25
'95-96 „ '99-1900	35	20	55	16	11	27
1900-01 „ 1904-05	36	22	58	16	11	27
'05-06 „ '07-08 } (5 years).....	36	24	60	15	11	26

	Pig-meat.			All meat.		
	Home.	Foreign.	Total.	Home.	Foreign.	Total.
1890-91 to 1894-95	16	15	31	74	38	112
'95-96 „ '99-1900	17	21	38	68	52	120
1900-01 „ 1904-05	15	21	36	67	54	121
'05-06 „ '07-08 } (3 years).....	13	20	33	64	55	119

These figures do not tell the whole tale. There is a big increase between the first and second quinquennium, partly no doubt in consequence of causes which will be discussed immediately below. Had the last three years been normal, we should doubtless have seen the total greater than appears; they are unduly affected by the shortage from North America, and also by the home pig supply attaining a minimum in its periodicity in the middle of this triennium. The ordinary total consumption may, I think, certainly be regarded as being nowadays over 120 lbs. per head; the next five years should show this unmistakably.

The above are the broad outlines which may be noticed in the statistics of meat consumed in this country during the past eighteen years; but there are three periods to which special attention may be drawn.

The first of these is 1892-94. It will be observed that imports of meat were abnormally low in 1893, and that the percentage produced at home took a sudden leap upwards. This was to some extent the result of Parliamentary legislation, and, at this distance of time, it is possible to measure with considerable precision the immediate effect of the Contagious Diseases of Animals Acts, and Orders made thereunder, upon the supply of meat. At that time

Parliament, following and confirming restrictive Orders made in immediately preceding years, definitely prohibited the landing of live stock from practically all European countries and elsewhere, and required the compulsory slaughter upon landing of stock imported from North America and a few other places. This stopped the European live-meat trade, and (coupled apparently with a shortage of export cattle in America in 1893) caused a drop in our total imports, as between 1890 and 1893, of some 300,000 live cattle, 300,000 sheep, and perhaps 20,000 swine, or an equivalent of fully 1,750,000 cwts. of meat—mostly beef. To meet this deficiency of live animals, which the foreigner was not then able to convert instantaneously into dead meat, consumers drew largely on the home stock; and as has been seen from Diagram 11, they did not run short. In fact, there was as great abundance in 1891-94 as previously; prices, moreover, were not enhanced. This restriction of the live import trade is thus the cause of the depletion of our flocks and herds which I pointed out when discussing the number of animals in the country as shown by our annual enumerations. The slaughter for food of some 750,000 cattle and 3,500,000 sheep—a temporary reduction in stocks made good in two or three years' time—represents the price paid for providing against the introduction of various cattle diseases. I suspect, moreover, that while the consumer did not suffer, farmers rather profited than otherwise.

It may not be out of place to remark here that a decrease in the total number of animals between one census and another is not by any means, as seems frequently assumed, a matter necessarily to be deplored. It often merely means that we eat more, and is probably usually to be taken as an indication that there is a good healthy demand in the markets, with sufficiently remunerative prices, and consequently that the industry is in a very sound condition. Emphatically is this the case when the number of breeding stock is maintained (or increasing) at the same time, and it is this latter barometer that our Honorary Secretary, in his Report on the Agricultural Returns, so rightly consults.

The other two periods calling for special mention are 1901-03 and 1907-08, which may be taken together. They may be ascribed to identical causes, viz., a shortage of cattle in the United States. In both cases there is a rise in the proportion of home-produced beef. The cause in 1902-03 is not disconnected with the deficient maize harvest of 1901 in the United States, which was only 75 per cent. of the average of the preceding triennium. This enhanced the price of corn so that it no longer paid sufficiently to feed cattle, which are largely fattened on this grain. The result

was that large numbers were prematurely slaughtered, with a consequent scarcity of finished beef later on. Very similar conditions prevailed in 1907: a comparatively short maize harvest (2,590,000,000 bushels) is stated to have forced the slaughter of a large number of calves in the United States, and there is evidently considerable scarcity there now. The 1908 maize harvest (2,669,000,000 bushels), although but slightly larger than that of 1907, appears to be of better quality, the proportion of "merchantable" corn in 1907 having been abnormally low. Still it does not look as if it would be specially remunerative to fatten cattle this year in the United States at much below current prices.

Prices.

Reliable official prices of live stock and meat, extending over a long series of years, are not very numerous. In Tables VI—VIII, I have given, for the years 1877-1908, the quotations reproduced regularly, and mainly from unofficial sources, in the Agricultural Statistics, of live cattle and sheep (three qualities) at the Metropolitan Cattle Market, Islington; of beef and mutton at London (Central Meat Market, Smithfield), Liverpool and Glasgow; as well as the average declared values of imported beef, mutton, bacon and hams. I hesitate to lay great stress upon the price records in any particular year, as it is not clear what they all precisely represent. The prices of live cattle and sheep are compiled from quotations originally published in newspapers every week. The dead-meat prices, from various sources, are quoted as a range, but distinctions of quality are not made, and the quotations are left as a somewhat wide range. Comparison with the recent official prices of the Board of Agriculture, available for the past five years, seems to show that this range—at least at London—is from the lowest foreign to the highest British. The import values, as is well known, represent the value of the goods as declared by the importers.

It is not quite clear how far these live stock and dead-meat quotations are always comparable, but I am of opinion that the annual averages may be taken as a fair guide to the general trend of prices during the past thirty years. I do not know if there has been any change in the method of quoting or grading, though there is one suspicious point, viz., that the records of third quality (live) cattle and sheep at London, instead of rising with first and second in 1888, after the five years' steady decline, fell away still further (see Diagram 13); and it would seem that the gap between third and second quality was permanently widened after 1887, pointing to an alteration of classification. It is clear, therefore, that we

must treat these third quality prices with caution. It will be observed, also, that the fluctuations in them are—in the last twenty years—generally more violent than in the superior grades, particularly with cattle: it will perhaps be maintained that this greater steadiness of first quality is normal, and due to the axiom that “the best will always fetch its price.”

To get an idea of the changes in the price of “British” beef and mutton during the thirty years, I have averaged the London, Liverpool, and Glasgow quotations. Not that I infer that this mean represents the prices ruling generally in Great Britain—being returned from three of the biggest consuming centres they may quite likely be different from the average of town and country markets—but the movements are doubtless parallel to those of the true mean.

There is great diversity in this country in the methods of selling live stock, and, to a less extent, meat. In the greater part of England the practice with cattle is nominally to pay a certain price for the beast; in determining this price the buyer exercises his judgment as to what amount of dead meat the animal will yield, and then offers accordingly. For purposes of quotation the amount is then converted into so much per stone (estimated dressed carcass weight). The rest of the animal—hide, hoofs, offal of all kinds, &c.—is thus not mentioned in the transaction, although naturally the purchaser gets it. Such prices are quoted technically as “per stone (sinking the offal).” The stone, again, in London and one or two neighbouring places is an 8-lb. stone; elsewhere it is the ordinary 14 lbs. In Scotland and many places in the north of England a totally different system prevails: the animal is sold at so much per cwt. live weight. That is, the beast is estimated to weigh so many cwt. as it stands (it is frequently actually weighed), and priced accordingly. Or the buyer may simply give so much per head, and the amount is converted for purposes of quotation into the equivalent per live cwt. In Tables VI and IX I have reduced the prices to the 14-lb. stone (sinking the offal); but this cannot be well done for Scotland without assuming a ratio between live and dead weight, and I have left the prices per live cwt. in the case of Scotch cattle. Dead beef is usually quoted per lb., the chief exception being London, with its 8-lb. stone. I have converted all prices to the 14-lb. stone, so as to have them in closer juxtaposition to the live animals.

Sheep are usually sold per head and quoted per lb. (also estimated dressed carcass weight)—per 8 lbs. in London: the dead meat is usually quoted per lb. Here also the question of “offal” is important, and it will be seen later that the price per lb. paid for

a sheep depends upon whether it is sold in the wool or clipped. I have reduced all quotations to the lb. Pigs are usually quoted by the stone (dressed carcass weight), but over a large part of the Midlands the "score" (*i.e.*, 20 lbs., not 20 pigs) is the customary unit. I have reduced all prices of pigs and pig-meat to the 14-lb. stone. The Scottish practice as regards sheep and pigs conforms generally to the English: selling by live weight is comparatively rare, but is increasing.

In consequence of this method of quoting prices, some of my tables and diagrams present a paradoxical appearance, in that the price of the raw product (the live animal) appears higher than that of the meat derived from it. A butcher purchasing an ox at, say, 8s. per stone, will sell the dressed meat at perhaps 6s. 6d. or 7s. per stone. This merely means that the price he gets for the hide, offal, &c., is greater than the cost of cutting up the beast plus his reasonable profit on the carcass. It must be carefully borne in mind in studying the diagrams that the price per [lb. or] stone for live animals is "sinking the offal," *i.e.*, the price of [one or] 14 lbs. of meat plus a certain amount of offal, whereas that for dead meat is for the actual [one or] 14 lbs. of meat only.

The changes in the last thirty years may be best exhibited, subject to the qualifications discussed above, by means of the two diagrams of beef and mutton (13 and 15), on which I have plotted the three qualities of live stock at London, the "British" average of dead meat, and the value of imported fresh meat. The import values of pig-meat (fresh pork, bacon, and hams—I have no home prices available) are shown in Diagram 17.

Beef.—The first feature in the beef diagram is the high level of prices prevailing until 1883-4, followed by the rapid drop in the next three years to a well-marked minimum in 1887. This fall apparently rather overshot the mark (a usual but generally unnoticed phenomenon in economics), and there was a little recovery next year, when prices reached a level that has been, roughly speaking, maintained for British produce ever since. A remarkable point about this rapid fall is that imports of beef happened to be *declining* with equal rapidity at the same time: from 3,736,000 cwts. in 1883 they dropped to 2,517,000 cwts. (or by 33 per cent.) in 1887! And imports of beef more than doubled in the next three years while prices were rising! Home stocks of cattle, moreover, increased by a million between 1882 and 1886, and had decreased to 10,268,000 in 1888, indicating that home production had probably been in the same direction as imports.

What then caused this sudden collapse in prices? The only suggestion I can offer is the sudden discoveries in the means of

DIAGRAM 13.—*Average prices of cattle and beef, 1877-1908.*

preserving beef fresh enough to land it here from great distances. It *may* have been partly that, though less meat was imported, a greater bulk of it was of so much better quality as to be a more severe competitor to home produce—and this is possibly not inconsistent with the much greater fall of third quality British cattle. But I believe that it was very largely a case of *expectation* of competition; *i.e.*, the realisation of the new era that was dawning frightened prices down before the dawn.²² This is not contradicted by the course of prices in 1888-90, which remained unaffected by an increased importation from 2,500,000 to 6,700,000 cwts. of beef, accompanied by heavier consignments of mutton and pig-meat. In fact, it looks as if the coming competition had been discounted three years in advance. The value of imported beef did not fall to anything like the same extent as British produce, but the fall continued after 1887, with only a slight check in 1888, though at a less rapid pace.

From 1891, the curves follow somewhat different courses. First and second quality fell slowly again, until an absolute minimum was reached of 7s. 5d. per 14-lb. stone for first quality in 1898. This was followed by a rise, and the corresponding price (8s. 7d.) in 1902, consequent upon the short importations, was the highest since 1888 and 1891. It has still remained at a relatively high level since,

²² It must not be overlooked that this was a period of trade depression, and all prices were declining at the same time (*cf.* Mr. Sauerbeck's index-numbers). Still, that the prices should have moved as they did in the face of such very diminished supplies is remarkable.

ending with 8s. 4d. in 1908. My "average" dead-beef price reached a minimum in 1896 (under 5s. per 14-lb. stone), since when it has been gradually rising, and 7s. was touched in the "famine" year of 1902. Imported beef has been falling quietly and persistently during practically the whole period, excepting only in the scarce times round 1902 and now; although there is no doubt that the quality of the refrigerated produce has immensely improved in recent years. The absolute minimum was reached in 1905 (4s. 5d. per 14-lb. stone).

The different behaviour of the curves since prices established themselves at their modern level is, I think, worth a little notice. The decade 1880-90 may be regarded as the transitional period when the British producer had to adapt himself to the changed conditions; in fact, between the periods indicated in my exordium when he had to compete only with his fellow-countryman or the inhabitant of contiguous European countries, and the period when the whole world's supply and demand dominated the price.

The continued decline of the import values is also of interest. The fact is that the imported stuff has varied enormously in quality during the past twenty years, owing to various causes. First there has been the change from freezing to chilling as a preservative in the case of the trans-oceanic produce: this has of course improved the quality and rendered it more analogous to the native commodity. On the other hand, there has been the increasing proportion received from Argentina, and this being (at least till recently) frozen, has tended to diminish the average quality of the bulk. These two factors are thus in opposition, and I take it that the low-priced Argentine produce has in recent years carried the most weight. On the third hand (if I may be pardoned an expressive "bull") the processes of both freezing and chilling have no doubt greatly improved in their respective degree. All these gradual substitutions of one form of beef for another, which are still in progress, doubtless account for many divergences in the relative values of the different grades of beef and mutton. The distinction of fresh, chilled, and frozen meat is now, it may be mentioned, receiving recognition in the Trade and Navigation Accounts. Judging by the monthly trade returns since January last, "fresh" meat is entirely European; "chilled" comes from North America, and over a third of the South American consignments at present fall into that category; the remainder of the South American, and all the Australasian shipments are "frozen." Nearly half the beef is now chilled; almost all mutton is frozen, and pork is fresh.

Official prices.—For several years past the Board of Agriculture and Fisheries have, under the Markets and Fairs (Weighing

of Cattle) Act, 1891, obtained returns of the number and prices of cattle, sheep, and swine weighed at certain specified towns in Great Britain. Some changes have from time to time been made in the markets scheduled for this purpose, and the details, while recording the movements at such places from year to year, do not, for various reasons, lend themselves to an accurate comparative statement extending over the whole period. At twelve towns, however, the records may be regarded as sufficiently reliable to be used for such a purpose since 1899, at least in the case of cattle, a large number of animals being weighed and priced at each. Moreover, in so far as these towns may be regarded as representative of Great Britain, we may form from them an average price of fat cattle, the total number of animals utilised for this average being considerably over 100,000. The practice of selling sheep and swine by actual live weight is much rarer. The towns included in the following table are: Carlisle, Leeds, Leicester, Liverpool, London, Newcastle, Shrewsbury, Aberdeen, Dundee, Edinburgh, Glasgow and Perth. The disproportionate number (5) in Scotland is due to the practice, alluded to above, of selling there by live weight; this applies also to the north of England, and London is the only southern market admissible. Hence the preponderance of Scotch and northern markets. The average prices work out as follows (per live cwt.):—

	1899.		1900.		1901.		1902.		1903.	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
England	33	4	34	11	33	9	35	5	34	1
Scotland	33	8	35	3	34	1	36	2	34	6
Great Britain	33	7	35	2	34	0	35	11	34	4

	1904.		1905.		1906.		1907.		1908.	
	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
England	33	1	32	8	32	6	33	6	34	2
Scotland	33	9	33	0	33	0	33	9	34	8
Great Britain	33	7	33	11	32	11	33	8	34	7

It will be observed that, so far as they go, these figures follow precisely similar movements to those already noted in the longer series. Prices of cattle are higher than three or four years ago, but farmers have not realised as much as in 1902 or even in 1900.

Besides this set of prices, returned under the Act of 1891, the Board have for the past five years been obtaining regularly, week by week, prices of all kinds of agricultural produce from a great number of centres in Great Britain, special attention being paid to

live stock because, as we have seen, there are very few data available regarding this commodity. As the first quinquennium has only just been completed, we are now in a position to form a tolerably satisfactory idea of what may be regarded as the ordinary prices of live stock and dead meat in this country. I think it is worth while examining a little more closely the recent high prices in the light of the monthly averages, more especially as these latter bring out a few matters of economic interest which, although well known in the trade, are probably not familiar to many Fellows of this Society. In Tables IX—XIV I have accordingly reproduced, from the statistics laid before the Departmental Committee on Meat Combinations,²³ the Board of Agriculture's average prices for each month of the past five years, adding a column for the quinquennial average. In order, however, to exhibit more clearly the unusual features of 1908, I have, in the accompanying diagrams (14, 16, 18) plotted the 1908 prices in comparison with the average for the *four* years 1904-07.

Prices of cattle and beef all show a fairly similar trend throughout the year. Commencing at a particular level in January, there is at first a tendency to remain steady, or even slightly fall, this movement being followed by a rise in spring to a maximum in June and July. Then prices fall steadily to a minimum in November, with an abrupt little rise in December. These movements are perfectly normal, and are the result of the two different methods of feeding cattle in winter and summer. During the winter and early spring we are getting stall-fed cattle, which may be regarded generally as giving the finest meat. As spring advances these stall-fed cattle gradually become exhausted, and the price begins to rise, and goes up until the early summer, when there are very few left, and the second class of cattle—the grass fed—are mostly not yet ripe. Hence we get a sort of interregnum between the two forms, a period sometimes alluded to as the June scarcity.²⁴ As the summer goes on the grass-fed become more abundant, and the price falls. In the late autumn the low price is due, not always so much to abundance, although there are plenty, as to the frequent comparatively poor quality; and there is moreover a marked tendency to hold the best beasts for the Christmas markets. The lack of quality was a very noticed feature in the autumn of 1908. In December we are getting stall-fed cattle again, and there is a keen demand in that month, the animals moreover being of unusually good quality. We *will* have beef at Christmas, and, as the curves show, we have to pay for it.

²³ Cd-4661, pp. 249—56.

²⁴ There is probably less demand for meat in hot weather, but it will be observed this is insufficient to prevent a rise in price due to an even more restricted supply.

DIAGRAM 14.—*Monthly prices of cattle and beef.*

The actual quinquennial averages (Table IX) show this ordinary movement rather better than the diagrams, and I think that they are probably more representative of the normal. For instance, I imagine that the October-November minimum would generally be at least as low as, if not lower than, the March average. The four years averaged for the diagram are rather too short a period—not that the quinquennium is necessarily long enough—and they are, in fact, too much affected by the considerable rise in price that occurred in the second half of 1907, particularly in certain items, such as American chilled. It will not escape notice that the trend of the average line of the imported beef, instead of being practically horizontal as it should be, is somewhat tilted to the right, and this still applies, though to a more limited extent, to the quinquennial averages in the tables.

Coming now to the cattle and beef prices of 1908, it will be observed that they all started well above the level of the (four years') average. We had, in fact, already begun to feel some scarcity in 1907. The highest prices are, however, to be found in the summer, and the great rise may be said to have set in abruptly

in April, after which prices were for a few months practically parallel to the normal. The enhanced level is due to the shortage of meat supplies from the United States. This will be easily seen from the curves, both live and dead meat from that source separating themselves much more from the average than British; moreover, the rise in American was rapid at first, whereas the British began more slowly, and rose more rapidly later (beef more than live cattle). It would seem that British beef waited a little to make quite sure that the American rise was not merely momentary.

The original cause of the scarcity was the short maize harvest of 1907 in the United States. The production of the year amounted to but 2,592,000,000 bushels as compared with 2,927,000,000 bushels in the previous year; moreover, the general quality was reported poor, only some 77·7 per cent. being officially classed as "merchantable," while the three previous years averaged about 87·5 per cent. This, of course, sent up the price: the farm value on December 1st, 1907, in the United States was 52 cents per bushel, as against the three preceding years' average of 42 cents. Cattle fattening was thus rendered almost prohibitive; and, as stated in Clay Robinson's (Chicago) Live Stock Report, whitefaces were slaughtered by thousands in the autumn. The beasts that should have been ripe in the spring of 1908 were consequently not forthcoming.

The very big rise in Argentine chilled beef (of which we actually received much more in 1908 than in any other year) is sympathetic; and it is curious to notice how, when prices of United States' produce weakened in July, Argentine fell away at once, only to obey the upward lead of North America in August.

Prices during the autumn were rather peculiar. Argentine beef ended the year at practically the same level as it began, and the United States' was but little higher than in January. British cattle absolutely maintained, and even slightly increased, the prices obtained in the summer, but a curious difference is to be noted as between English and Scotch beef. The latter, exactly like the cattle, maintained its position, but the English fell like American. It must be noted that in the illustrative diagrams I have only reproduced the prices of first quality, and the autumn has been noteworthy for an unusual absence of first quality cattle in the markets. Possibly this was due to the high prices having induced farmers to pay special attention to keeping anything good until Christmas, a policy which was attended with success. Hence scarcity of first quality may be a reasonable explanation of prices being maintained during the autumn, but I do not see why, if best cattle were scarce, best [English] beef was not also dearer. That

inferior quality fell more than the best is indicated by the somewhat greater relative fall of cow and bull beef, particularly second quality. I have not been able to examine the prices of lower grades of British produce, which are, moreover, for various reasons, less satisfactory.

I may as well repeat here that prices of cattle and beef in 1908 have not been so high as in 1900 and 1902. It is curious that there was then a double maximum, with a year of more moderate prices sandwiched in between. I should not like to offer an opinion whether a similar phenomenon will occur upon this occasion.

Sheep and mutton. Unofficial records.—Taking first the serial diagram (15) of prices during the past thirty years, these show the same fall in 1883-87 as cattle and beef. The fall seems, however, to have been a good deal sharper, and the recovery in 1888-90 was also upon a more important scale. Imports of mutton, at first

DIAGRAM 15.—*Average prices of sheep and mutton, 1877-1908.*

on a very moderate scale, doubled between 1881 and 1884, and, quantitatively, grew more rapidly when prices were rising between 1887 and 1890 than in 1883-87, so that in this case also the anticipation of imports seems to have weighed upon the trade. It may be noted in this connection that the supplies were threatened (and subsequently arrived) from a much more distant source, namely,

Argentina and Australasia, with immense actual and potential wealth of flocks, than in the case of beef, which was derived from the United States (the Argentine Republic being negligible in those days from the beef point of view). Imported mutton fell even more rapidly in value than other kinds, doubtless owing to the growing proportion of cheap Argentine or New Zealand now added to the fresh or live European, and about 1885 fell below the value of imported beef, a level which, with some fluctuations, was maintained for many years (until the last quinquennium), whereas British mutton is very rarely below beef.

After 1889-90 sheep and mutton values declined, the nadir being 1893-98. Third quality British continued to fall until 1898-1901; imported mutton touched its lowest in 1898. Since then there has been a steady rise (arrested in 1908) in all classes. First and second quality exhibit a curious rise in 1900, while third quality and dead mutton were practically unaffected. Of late years (except 1908) prices must be regarded as having been very satisfactory, the 1907 value being the highest since 1890. The years 1905-07 were probably affected by the high price of wool (it must be borne in mind that the sheep's skin with its wool is, relatively to the meat, a much more important item than the hide of the ox). Fluctuations in wool values may often be responsible for some of the apparent discrepancies in the price of live sheep.

Official Prices.—I have treated the official prices of sheep and mutton in the last quinquennium in exactly the same way as beef, and a very different picture is presented in Diagram 16. The June maximum appears only in the case of Scotch (alive and dead), and in English dead mutton. With English sheep, it will be observed that the minimum occurs in the early summer. This is because, during winter and early spring, sheep are sold unshorn; as summer arrives they are shorn before being marketed; and the allowance made for the wool disappears. The steadily increasing proportion of unshorn sheep in the total causes a drop in the average prices about June: this occurs later in the Scotch sheep, as seems only natural. The difference in the value of shorn and unshorn sheep may be as much as 1*d.* per lb., often less, but sometimes more in certain cases, depending chiefly upon the breed and price of wool. Hence we find that while there is a distinct June maximum in the case of dead mutton, English live sheep show a minimum at that period; with Scotch sheep the minimum is deferred till later and the June maximum is apparent. The changes in the New Zealand and Argentine frozen are so slight that I hesitate to draw any deductions, though they may possibly be significant to the expert in that trade.

DIAGRAM 16.—*Monthly prices of sheep and mutton.*

The summer of 1908 has witnessed a remarkable slump in the price of British mutton, a slump which has much puzzled all concerned. [Owing to this factor, the averages of 1904-07 shown in the diagram are probably more typical of the normal monthly movement in the case of sheep than the quinquennial average in the tables.] English mutton was at its maximum in March, and fell steadily during the early summer. Already by May live sheep were below the four-year average, but prices continued to fall till the end of the year; and went rather from bad to worse during the winter. $7\frac{3}{4}d.$ per lb. for first quality Downs, which was the official average in December, is far the lowest of the quinquennium.

Various reasons for these low prices have been advanced in the press, but I do not think that what I apprehend to be the real cause has been mentioned, viz., the relatively large flocks of sheep

in Great Britain. The Agricultural Returns of 1908 show an increase of over 2,000,000 sheep in the United Kingdom since 1906, and this means, sooner or later, an extra 1,000,000 cwts. of dead mutton available for consumption. Imports of mutton, although less in 1908 than in 1907, are still much above those of 1906 [the *autumn* imports of 1908 are above those of 1907, mainly from Argentina; the increase from Holland, as to which much has been said, was quite unimportant]. With wool prices lower than in 1906 and 1907, the impetus given to sheep breeding by that incentive is no longer acting, and it is clear that the stock of sheep in the country is as heavy as can possibly be carried, even at the good mutton prices hitherto prevailing. Feeding the increased number of sheep has, of course, gone on *pari passu* with the production of wool, and the extra animals are now ripe. If not actually marketed, our large stock is a dead weight hampering the sales. My tables show an estimated quantity of 10,088,000 cwts. of mutton consumed in 1907-08; if the number of sheep on 4th June next prove the same as last June, and if our imports in the meat year 1908-09 be taken as only equal to those of the calendar year (they look like exceeding them), such data would imply a consumption in 1908-09 of 10,800,000 cwts. of mutton. This is an addition of 7 per cent. waiting to be consumed somehow before the trade can be regarded as being on a normal basis again. Or, in other words, if our consumption is to be the same in 1908-09 as in 1907-08, we must either import 700,000 cwts. less in the current meat year, or hold over some 1,250,000 sheep more. I doubt our next census showing that increase in our sheep; farmers want to reduce their flocks at present, not augment them! Under these conditions, with such an incubus hovering over the market, low prices seem to me inevitable.

As further evidence of this, note that British sheep fell in price before mutton, and that imported Argentine and New Zealand did not fall at all till quite the end of the year (when imports were relatively heavy). Evidently only the *British* supply exceeded the demand. Farmers are, in fact, now losing something of the fortunate profits that they made a couple of years or so ago on the wool.

Pigs and pig-meat.—Of this item I have no very good series of figures extending over a long period. The import values suggest themselves, and I have accordingly taken, and exhibited in the accompanying diagram (17), the average values of fresh pork, bacon, and ham imported since 1877. The values of live swine imported (there have been none in recent years) are hardly satisfactory owing to the smallness of the quantities involved.

DIAGRAM 17.—*Import values of pig-meat, 1877-1908.*

Prices of pig-meat differ from beef and mutton in several ways. In the first place, their general level has been much more stationary throughout the whole period. These commodities, being salted, may perhaps be regarded as indifferent to the development of the refrigerating industry; and a comparison of their nearly dead level of values with the sharp drop in beef and mutton shows clearly that the trade in pig-meat was on a world-basis before 1877.

The most interesting point in connection with the bacon and hams is the clearly-marked interdependence of supply and demand (the value of the pork hardly varies from year to year). The pig-breeding industry, being one in which a large amount of the produce can be brought to maturity in a few months, responds in a very sensitive manner to the price (and *vice versa*). When this goes up, farmers breed more extensively, and the pig population rises rapidly: the demand is soon met and surpassed, and prices fall again as quickly as they rose. On Diagram 17 I have also plotted the total number of pigs in the United Kingdom in each year, and, for recent years, have added the estimated consumption of pig-meat. The latter curve reflects the prices very well, much more so than the mere pig-population, which is the primary cause of the oscillations in our total pig-meat supply. There is, however, visible a very distinct tendency for the price oscillations to be one to two years behind those of the population during the past twenty years, although it is not apparent in the first decade.

Another point that may be noticed is the near approach of the value of imported bacon to hams in recent years, whereas until 1890 the former was consistently some 5s. to 10s. per cwt. below the latter. This is no doubt due to the larger proportion of the higher-priced Danish among our bacon imports of late years.

It is often said that we might well increase our pig population,

in the same way as is being so well done by our Continental neighbours; and I think the suggestion reasonable. On the other hand, there seems some good reason for our present relative inaction, since Diagram 17 shows very clearly that pig breeders are only too willing to increase their business the moment the industry becomes profitable. It would almost appear that the secret of profitable pig-breeding is known to comparatively few in this country.

Official prices.—Pigs show a decline in value during the early summer, followed by a rise later on, the maximum being attained about September or October. Porkers tend to be somewhat later than bacon pigs, and pork (the dead meat) appears to be most in favour during the winter. Bacon and hams differ, exhibiting a very marked maximum in July to September. I do not know how far it is safe to attribute this to a demand for cold ham as a staple dish instead of a hot joint during warm weather, nor whether we may attribute some portion of the rise to picnics.

DIAGRAM 18.—*Monthly prices of pigs and pig-meat.*

Conclusion.

The foregoing analysis indicates that the future sources of our over-sea meat supplies are problematical. The rough indications which may be deduced from such knowledge as we have of the live stock now existing in different parts of the world, and from the trade statistics of the past thirty years, are that the surplus available from North America has now about reached its maximum, and will before very many years have passed tend downwards, its place being taken by the Southern Hemisphere. From Europe we are still deriving steadily increasing quantities of pig-meat, and this will quite probably continue to increase for some years yet. The Southern Hemisphere, again, may be divided into two parts—South America, which is forging ahead fast, and Australasia, which is very possibly, so far as regards the average number of stock, nearly stationary (but fluctuating between enormously wide limits).

In saying that North America has about reached its maximum, I do not wish to imply that no increase may be looked for in the *near* future; on the contrary, I anticipate that the present good prices will give a stimulus to the cattle (and possibly pig) industry in the United States, and that in two or three years' time (perhaps less) we shall have a plentiful supply of meat thence, following, in fact, the next large maize harvest. But after that there should be a general tendency to decline, probably with considerable ups and downs. The rapid increase in population must, at some not very remote period, require more and more of the surplus for its own needs. Canada should, of course, greatly develop her herds upon her vast north-western prairies, and we should for some time draw increasing quantities thence, and less from the United States. Later on the States will themselves make demands upon Canada, and our colony's meat will probably go to whichever (Britain or the States) pays best.

Turning to the untapped sources of supply, comprising the, as yet, undeveloped areas of Canada, Argentina, Russian Asia, South Africa, &c., as well as completely new territories such as the highlands of equatorial Africa (the latter probably unavailable until the deadliness of various diseases has been mitigated), there is no doubt ample space to rear stock for many years to come. Russian Asia in particular has room for an enormous development of its live stock, but the produce may be absorbed by the needs of its own prolific population, or its surplus may be intercepted by Germany (the growing dependence of Central Europe upon imported food is an important factor in the problem of *our* supply, but I have no space to develop it).

I have frequently observed that, when a famine is alleged to be

threatened in some important foodstuff, these various areas are allotted to its prevention. Now we are threatened at some rather indefinite period in the future—shall I say a generation hence?—with a wheat famine *and* a meat famine, not to mention a timber famine, &c. To my mind there is little doubt that the areas now actually under cultivation or pasture are carrying much nearer their maximum of wheat than of meat. But wheat is the first necessity: of the two, meat is at present regarded as the more luxurious article of food. And I therefore think that, in the scramble for land between wheat and meat, it is the former that will secure the lion's share; and that, as a consequence, a scarcity of meat is to be apprehended before wheat.

Of course, there is also to be considered the suitability of the lands for the purpose; and here we must distinguish between the kinds of meat. Taking the world over, sheep are pastured; and when grazing lands are transformed into arable, mutton disappears, and is disappearing fast everywhere (except in Australia). Cattle are naturally pastured as far as possible; but when cattle-grazing lands are transformed into arable the cattle are still raised on the arable land, though of course not so cheaply. With absolutely virgin land, rich in fertilising constituents, like the Argentine plains, wheat will be raised year after year without manure; but later on, with the exhaustion of the soil, manuring and rotations become necessary. At this latter stage, cattle come in again, and thus we get corn and cattle developing together as in the United States. They are developing side by side in Argentina, where the areas are so vast that the two need not at present be interdependent, as lucerne can be grown for cattle-feeding on the same land for years in the same way as wheat. Swine tend to be a later industry and—at least frequently—to be concomitant with cattle, especially dairying. Hence I should not be surprised to see South America develop its pig-meat trade in the not distant future.

Mutton, therefore, tends to be driven out by corn, and subsequently by beef and pig-meat. The most advanced stage of this process is to be seen in Europe; it is in a much earlier stage on the American Continent. For our mutton in future I look to Australasia, and I do not see why we should not have some from our African possessions, but the bulk will probably come from the Antipodes. Not that I anticipate an extraordinary addition to the numbers; but such a very small amount of meat is yielded by the sheep in Australia as to leave room for enormous development of the production of existing flocks if the trade becomes sufficiently remunerative to allow of its being organised so as to yield every possible ounce of mutton. The average consumption of mutton in Australia is

put at nearly 100 lbs. per head ²⁵ (and possibly a lot of that is thrown away), or a total of, say, 420,000,000 lbs., and the country exports, say, 100,000,000 lbs., the two together making a total of a little over 500,000,000 lbs. With a sheep stock of only 85,000,000 this is but 6 lbs. in the year per sheep recorded as alive at the enumerations, whereas in the United Kingdom we found a sheep yield some 22½ lbs. per annum. Increased areas are also available in Australia, but their effect may possibly be rendered nugatory by the droughts, which are quite conceivably periodic.²⁶ If so, with our increasing dependence upon Australia, the future should reveal some heavy fluctuations in supplies and prices of mutton (and wool).

To sum up, I expect to see beef plentiful again in two or three years' time. In the future our dependence on North America will steadily diminish, and I look to the Southern Hemisphere for our extraneous meat supply: mainly to South America for our beef and to Australasia for our mutton, the latter probably exhibiting great fluctuations. Pig-meat should come for a good many years from Europe and perhaps Canada. But when the South American supply has ceased to grow, there seems every probability that population will increase faster than live stock, and the next generation will have to pay dear for its meat unless some radical change is made either in the method of producing meat or in the diet of the United Kingdom.

²⁵ R. H. Rew, *Journal*, 1904, p. 425.

²⁶ See Col. H. E. Rawson, *Journal, Royal Meteorological Society*, 1908, p. 165.

APPENDIX.

TABLE I.—*Number of live stock in the meat trade world at different dates.*

[In millions, to one place of decimals.]

Country.	Cattle.				Sheep.			
	About 1880.	About 1890.	About 1900.	About 1907-08.	About 1880.	About 1890.	About 1900.	About 1907-08.
United Kingdom	9·8	10·7	11·4	11·7	30·2	31·6	31·0	31·3
France	11·4	13·6	14·5	14·0	22·5	21·7	20·2	17·5
Algeria	1·2	1·2	1·1	1·1	8·0	8·9	8·0	8·8
Belgium	1·4	1·4	1·6	1·8	0·4	0·2	0·2	0·1
Luxemburg	0·1	0·1	0·1	0·1	0·0	0·0	0·0	0·0
Holland	1·5	1·5	1·7	1·8	0·6	0·8	0·8	0·5
Denmark	1·5	1·6	1·8	2·0	1·5	1·2	1·0	0·7
Norway	1·0	1·0	1·0	1·0	1·6	1·4	1·0	0·9
Sweden	2·2	2·4	2·6	2·6	1·5	1·4	1·3	1·0
Russia in Europe	30·0	30·6	30·4	30·6	60·0*	58·0*	61·2*	46·6*
Finland	1·1	1·2	1·4	1·5	1·0	1·0	1·0	0·9
Asiatic Russia	2·5	3·0	4·2	5·7	8·6*	9·0*	9·4*	11·9*
Germany	15·6	17·5	18·9	20·6	19·2	13·6	9·7	7·7
Austria	8·6	8·6	9·5	10·0	3·8	3·2	2·6	2·3
Hungary	5·3	5·8	7·0	7·5	9·8	10·0	8·7	7·0
Roumania	2·3	2·5	2·6	2·6	4·5	5·0	5·7	6·0
Bulgaria	1·6	1·7	2·0	2·2	6·7	6·8	7·0	7·0
Servia	0·8	0·8	1·0	0·9	3·0	3·0	3·1	3·1
Switzerland	1·2	1·2	1·3	1·5	0·4	0·3	0·2	0·2
Italy	4·7	5·0	5·5	6·2	8·6	6·9	8·0	11·2
Spain	2·5	2·2	2·3	2·4	18·0	13·4	13·5	13·7
Portugal	0·6	0·6	0·7	0·7	3·0	3·0	3·0	3·0
Total Europe	106·9	114·3	131·7	134·5	213·0	200·5	196·7	181·4
British North America	3·6	4·1	5·6	7·7	2·7	2·6	2·5	2·8
United States	46·0	66·2	67·8	71·3	58·6	58·7	61·6	54·6
Mexico	5·0	5·0	5·1	5·2	3·0	3·0	3·4	3·6
Total North America	54·6	75·3	78·5	84·2	64·3	62·3	67·5	60·9
Queensland	3·2	5·6	4·1	3·9	6·9	14·5	10·3	16·7
New South Wales	2·6	1·9	2·0	2·7	35·4	56·0	40·0	44·5
Victoria	1·3	1·8	1·6	1·8	10·4	12·7	10·8	14·1
Tasmania	0·1	0·2	0·2	0·2	1·8	1·6	1·7	1·7
South Australia	0·3	6·4	0·2	0·3	6·5	7·0	5·2	6·8
West Australia	0·1	0·1	0·3	0·8	1·2	2·5	2·4	3·7
Australia, total	7·6	10·0	8·4	9·7	62·2	94·3	70·4	87·5
New Zealand	0·7	0·8	1·3	1·8	13·0	16·2	19·3	22·4
Cape Colony	1·4	1·5	1·1	2·0	12·5	16·7	12·0	15·0
Natal	0·5	0·7	0·4	0·8	0·4	0·9	0·6	0·8
Uruguay	5·5	5·5	6·8	6·5	15·0	17·0	17·2	14·0
Argentina	14·0	22·0	23·0	29·1	70·0	71·0	76·0	67·2
Chile	0·8	0·8	0·8	0·8	1·3	1·3	1·3	1·3
Falkland Islands	0·0	0·0	0·0	0·0	0·4	0·7	0·8	0·7
Total Southern Hemisphere	30·5	41·3	41·8	50·7	174·8	218·1	197·6	208·9
Grand Total	192·0	230·9	252·0	269·4	452·1	480·9	461·9	451·2

* Including goats.

TABLE I—*Contd. Number of live stock in the meat trade world at different dates.*

Country.	Pigs.				Total Equivalent of Cattle (see p. 315).				Population in Millions.	
	About 1880.	About 1890.	About 1900.	About 1907-8.	About 1880.	About 1890.	About 1900.	About 1907-8.	About 1880.	About 1907-8.
United Kingdom	2.9	4.4	3.7	4.1	18.6	21.5	21.4	22.2	35.0	43.9
France	5.6	6.0	6.7	7.1	22.3	24.8	26.4	25.9	37.3	39.3
Algeria	0.1	0.1	0.1	0.1	2.7	2.8	2.6	2.7	3.3	5.2
Belgium	0.6	0.9	1.0	1.2	2.2	2.6	2.9	3.3	5.5	7.2
Luxemburg	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Holland	0.3	0.6	0.7	0.9	2.0	2.4	2.7	3.0	4.0	5.8
Denmark ..	0.5	0.8	1.3	1.7	2.4	2.8	3.6	4.2	2.0	2.6
Norway	0.1	0.1	0.2	0.2	1.4	1.4	1.4	1.4	1.9	2.3
Sweden	0.4	0.6	0.8	0.9	3.0	3.4	3.8	3.9	4.6	5.4
Russia in Europe	11.0	11.0	13.2	11.4	54.1	54.3	66.4	58.9	83.5	118.4
Finland	0.2	0.2	0.2	0.2	1.5	1.6	1.8	1.9	2.1	2.9
Asiatic Russia	0.4	0.5	0.7	0.9	4.5	5.2	6.7	8.9	14.0	28.3
Germany	9.0	11.6	16.8	22.1	30.2	34.2	41.6	49.5	45.2	62.0
Austria	2.7	3.5	4.7	5.4	12.6	13.5	15.8	17.1	22.1	28.2
Hungary	4.2	6.1	8.0	9.0	12.2	15.1	18.5	20.0	15.6	20.5
Roumania	0.8	0.9	1.7	2.0	4.1	4.5	5.7	6.1	4.8	6.8
Bulgaria	0.5	0.5	0.4	0.4	3.4	3.5	3.7	3.9	2.0	4.2
Servia	0.9	0.9	1.0	0.9	2.4	2.4	2.8	2.6	1.7	2.8
Switzerland	0.4	0.5	0.6	0.6	1.8	1.9	2.1	2.3	2.8	3.5
Italy	2.0	1.8	2.2	2.5	8.7	8.4	9.6	11.2	28.5	33.9
Spain	2.0	1.9	2.0	2.0	8.1	6.9	7.1	7.4	16.6	19.2
Portugal	0.9	1.0	1.0	1.0	2.2	2.4	2.5	2.5	4.1	5.2
Total Europe	45.6	53.8	67.1	74.6	200.6	215.8	249.3	259.1	336.8	447.8
British North America ...	1.3	1.7	2.4	3.4	5.7	6.7	9.0	12.4	4.5	6.0
United States	49.8	57.4	62.9	56.1	118.3	147.7	157.0	150.8	50.2	86.3
Mexico	0.5	0.5	0.6	0.6	6.1	6.1	6.4	6.6	10.2	13.6
Total North America ...	51.6	59.6	65.9	60.1	130.1	160.5	172.4	169.6	64.9	105.9
Queensland	0.1	0.1	0.1	0.1	4.5	8.2	6.0	6.9	0.2	0.5
New South Wales	0.3	0.3	0.3	0.2	9.1	11.9	9.3	10.6	0.8	1.6
Victoria	0.2	0.3	0.3	0.2	3.3	4.4	3.8	4.5	0.9	1.2
Tasmania	0.0	0.1	0.1	0.0	0.4	0.6	0.6	0.5	0.1	0.2
South Australia	0.1	0.1	0.1	0.1	1.5	1.7	1.2	1.6	0.3	0.4
West Australia	0.0	0.0	0.1	0.1	0.3	0.5	0.8	1.6	0.0	0.3
Australia, total	0.7	0.9	1.0	0.7	19.1	27.3	21.7	25.7	2.3	4.2
New Zealand	0.2	0.3	0.2	0.2	3.2	4.0	4.9	5.9	0.5	0.9
Cape Colony	0.1	0.2	0.2	0.4	3.7	4.6	3.4	5.1	0.8	2.5
Natal	0.0	0.0	0.1	0.1	0.6	0.9	0.6	1.1	0.4	1.2
Uruguay	0.0	0.0	0.1	0.0	8.1	8.4	9.9	8.9	0.4	1.1
Argentina	0.3	0.4	0.9	1.4	26.4	34.7	37.2	42.4	2.5	5.7
Chile	0.1	0.1	0.1	0.1	1.1	1.1	1.1	1.1	2.5	3.4
Falkland Islands	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0
Total Southern Hemisphere }	1.4	1.9	2.6	2.9	62.3	81.1	78.9	90.3	9.4	19.0
Grand total	98.6	115.3	135.6	137.6	393.0	457.4	500.6	519.2	411.1	572.7

TABLE II.—*Estimated meat production of the United Kingdom.*

Years.	Beef.	Veal.	Total beef and veal.	Mutton.	Lamb.	Total mutton and lamb.	Pig-meat.	Total of all meat.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
1890-91.....	10,023,640	618,720	10,642,360	4,793,120	737,400	5,530,520	6,470,800	22,649,680
'91-92.....	12,071,080	744,640	12,815,720	5,593,800	860,580	6,454,380	7,525,620	26,795,700
'92-93.....	14,059,640	867,320	14,926,960	6,121,120	941,720	7,062,840	4,779,720	26,769,520
'93-94.....	14,193,740	875,580	15,069,320	5,792,480	891,160	6,683,640	4,233,160	25,986,120
'94-95.....	12,287,460	758,000	13,045,460	5,103,280	785,120	5,888,400	5,080,060	24,013,920
'95-96.....	11,451,700	706,440	12,158,140	4,647,260	714,960	5,362,220	6,200,860	23,721,220
'96-97.....	12,027,960	741,980	12,769,940	5,314,180	817,560	6,131,740	6,841,320	25,743,000
'97-98.....	11,770,500	726,100	12,496,600	5,028,660	773,640	5,802,300	5,300,760	23,599,660
'98-99.....	11,725,080	723,300	12,448,380	5,190,120	798,480	5,988,600	5,267,760	23,704,740
'99-1900.....	12,392,060	764,440	13,156,500	5,726,780	881,040	6,607,820	6,298,340	26,062,660
1900-01.....	12,607,400	777,720	13,385,120	5,406,660	831,800	6,238,460	5,577,400	25,200,980
'01-02.....	13,133,780	810,200	13,943,980	5,565,940	856,300	6,422,240	4,808,620	25,174,840
'02-03.....	12,588,320	773,480	13,361,800	5,308,500	816,700	6,125,200	5,011,100	24,448,080
'03-04.....	12,080,320	742,140	12,822,460	5,363,240	825,120	6,188,360	5,943,600	24,994,420
'04-05.....	12,615,160	778,200	13,393,360	5,146,860	791,820	5,938,680	6,501,160	25,833,200
'05-06.....	12,991,560	801,420	13,792,980	5,122,680	788,100	5,910,780	5,166,960	24,870,720
'06-07.....	13,460,160	830,340	14,290,500	4,937,320	759,580	5,696,900	4,847,860	24,835,260
'07-08.....	13,079,500	804,860	13,884,360	4,884,160	751,400	5,635,560	5,791,100	25,313,620

TABLE III.—*Total imports of (live and dead) meat into the United Kingdom.*

[In thousands of cwt.s.]

Year.	Beef.				Mutton.			
	From North America.	From Southern Hemisphere.	From Europe, &c.	From World.	From North America.	From Southern Hemisphere.	From Europe, &c.	From World.
1877....	803	—	823	1,626	13	—	505	518
'78....	1,329	—	652	2,081	48	—	479	527
'79....	1,519	—	599	2,118	108	—	450	558
1880....	2,451	2	793	3,246	83	—	475	558
'81....	2,077	3	748	2,828	66	—	487	553
'82....	1,223	2	1,236	2,461	103	37	713	853
'83....	2,512	3	1,221	3,736	146	108	637	891
'84....	2,446	5	975	3,426	85	353	622	1,060
'85....	2,532	19	694	3,245	64	450	506	1,020
'86....	2,215	28	572	2,815	66	575	638	1,279
'87....	1,964	8	545	2,517	25	689	655	1,369
'88....	2,437	45	730	3,212	36	888	642	1,566
'89....	4,204	109	686	4,999	46	1,005	576	1,627
1890....	6,014	191	495	6,700	36	1,416	496	1,948
'91....	5,335	342	271	5,948	39	1,573	325	1,937
'92....	6,055	341	38	6,434	14	1,521	280	1,815
'93....	4,302	390	68	4,760	5	1,796	291	2,092
'94....	5,477	439	28	5,944	216	2,175	292	2,683
'95....	4,698	942	35	5,675	382	2,760	273	3,415
'96....	5,962	1,107	12	7,081	196	2,973	284	3,453
'97....	6,268	1,345	57	7,670	145	3,214	282	3,641
'98....	5,886	1,396	56	7,338	108	3,407	297	3,812
'99....	5,985	1,580	77	7,642	111	3,458	313	3,882
1900....	6,401	1,580	101	8,082	109	3,211	354	3,674
'01....	6,983	1,342	90	8,415	217	3,334	332	3,883
'02....	5,581	1,385	204	7,170	200	3,344	361	3,905
'03....	6,359	1,690	114	8,163	193	3,783	285	4,261
'04....	6,425	2,108	84	8,617	215	3,240	285	3,740
'05....	6,408	2,948	92	9,448	110	3,570	261	3,941
'06....	6,418	3,178	22	9,618	58	3,877	253	4,188
'07....	5,725	3,340	29	9,094	61	4,379	235	4,675
'08....	4,160	4,271	43	8,474	49	4,155	289	4,493

TABLE III.—*Contd. Total imports of meat into United Kingdom.*

[In thousands of cwts.]

Year.	Pig-meat.				Total meat.			
	From North America.	From Southern Hemisphere.	From Europe, &c.	From World.	From North America.	From Southern Hemisphere.	From Europe, &c.	From World..
1877....	2,787	—	357	3,144	3,905	191	1,792	5,888
'78....	4,322	—	419	4,741	6,054	113	1,768	7,935
'79....	4,957	—	454	5,411	7,097	102	1,609	8,808
1880....	5,357	—	438	5,795	8,423	161	1,820	10,404
'81....	4,663	—	370	5,033	7,224	200	1,744	9,168
'82..	2,803	—	408	3,211	4,476	235	2,386	7,097
'83....	3,463	—	649	4,112	6,564	362	2,460	9,386
'84....	2,931	—	851	3,782	5,737	514	2,488	8,739
'85....	3,762	—	697	4,459	6,633	700	1,946	9,279
'86....	3,945	—	659	4,604	6,534	706	1,931	9,171
'87....	3,507	—	868	4,375	5,800	900	2,124	8,824
'88....	2,834	—	1,274	4,108	5,640	1,122	2,723	9,485
'89....	3,927	—	969	4,896	8,663	1,250	2,333	12,246
1890....	4,635	—	569	5,204	10,763	1,643	1,755	14,161
'91....	4,204	—	866	5,070	9,683	1,977	1,565	13,225
'92....	4,555	1	943	5,499	10,724	1,939	1,398	14,061
'93....	3,465	4	1,087	4,556	7,853	2,249	1,604	11,706
'94....	4,103	3	1,115	5,225	9,902	2,700	1,590	14,192
'95....	4,354	0	1,508	5,862	9,559	3,806	2,010	15,375
'96....	4,828	1	1,735	6,564	11,132	4,182	2,240	17,554
'97....	5,825	1	1,490	7,316	12,407	4,678	2,104	19,189
'98....	7,072	1	1,445	8,518	13,270	4,887	2,101	20,258
'99....	6,982	1	1,754	8,737	13,318	5,137	2,470	20,925
1900....	6,672	2	1,714	8,388	13,464	4,917	2,517	20,898
'01....	7,007	4	1,661	8,672	14,518	4,831	2,470	21,819
'02....	5,591	0	1,842	7,433	11,699	4,880	2,831	19,410
'03....	4,934	1	2,307	7,242	11,810	5,669	3,096	20,575
'04....	5,089	0	2,462	7,551	11,989	5,555	3,215	20,759
'05....	5,485	7	2,037	7,529	12,309	6,739	2,745	21,793
'06....	5,471	24	2,049	7,544	12,230	7,292	2,622	22,144
'07..	4,789	7	2,524	7,320	10,843	7,944	3,083	21,870
'08....	4,996	2	2,756	7,754	9,464	8,721	3,436	21,621

TABLE IV.—*Imports from different countries.*

[In thousands of cwt.s.]

Year.	(a.) From United States.				(b.) From British North America.			
	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.
1877....	731	7	2,749	3,775	72	6	38	128
'78....	1,194	24	4,304	5,871	135	24	18	183
'79....	1,348	63	4,894	6,811	171	45	63	286
1880....	2,138	36	5,281	7,980	313	47	76	443
'81....	1,731	26	4,553	6,721	346	40	110	503
'82....	1,013	61	2,768	4,162	210	42	35	314
'83....	2,131	89	3,253	5,784	381	57	210	780
'84....	2,025	48	2,682	5,017	421	37	249	720
'85....	2,069	39	3,472	5,843	463	25	290	790
'86....	1,769	9	3,644	5,716	446	57	301	818
'87....	1,530	3	3,215	4,980	434	22	292	820
'88....	2,033	8	2,673	4,981	404	28	161	659
'89....	3,651	12	3,622	7,710	553	34	305	953
1890....	5,187	7	4,234	9,499	827	29	401	1,264
'91....	4,626	18	3,966	8,705	709	21	238	978
'92....	5,415	1	4,198	9,710	640	13	357	1,014
'93....	3,760	2	3,211	7,049	542	3	254	804
'94....	4,944	133	3,790	8,971	533	83	313	931
'95....	4,068	251	3,989	8,428	630	131	365	1,131
'96....	5,278	146	4,185	9,743	684	50	643	1,389
'97....	5,451	105	5,399	11,114	817	40	426	1,293
'98....	5,176	80	6,391	11,840	710	28	681	1,430
'99....	5,296	70	6,354	11,949	689	41	628	1,369
1900....	5,693	83	5,925	11,971	708	26	747	1,493
'01....	6,397	173	6,462	13,330	586	44	545	1,188
'02....	4,970	165	4,954	10,404	611	35	637	1,295
'03....	5,149	140	4,057	9,646	1,210	53	877	2,164
'04....	5,487	165	4,045	9,935	938	50	1,044	2,054
'05....	5,445	90	3,986	9,795	963	20	1,499	2,514
'06....	5,397	49	4,011	9,716	1,021	9	1,460	2,514
'07....	4,890	52	3,256	8,443	835	9	1,533	2,400
'08....	3,361	42	3,645	7,283	799	7	1,351	2,181

TABLE IV—*Contd. Imports from different countries.*

[In thousands of cwt.]

Year.	(c.) From Argentina.				(d.) From Uruguay.			
	Beef.	Mutton.	Pig-meat.	Total including unenumerated.	Beef.	Mutton.	Pig-meat.	Total including unenumerated.
1877....	—	—	—	0	—	—	—	11
'78....	—	—	—	5	—	—	—	6
'79....	—	—	—	4	—	—	—	3
1880....	—	—	—	3	—	—	—	14
'81....	—	—	—	15	—	—	—	16
'82....	—	0	—	16	—	—	—	18
'83....	—	4	—	13	—	—	—	17
'84....	1	40	—	45	0	8	0	32
'85....	1	112	0	125	—	0	—	21
'86....	7	190	0	220	0	—	—	22
'87....	0	251	0	265	—	—	—	20
'88....	4	345	0	359	—	—	—	48
'89....	9	395	0	415	—	—	—	57
1890....	17	448	0	472	32	—	0	40
'91....	122	463	0	605	35	—	—	42
'92....	130	483	1	640	30	—	0	38
'93....	78	531	4	633	19	—	—	27
'94....	58	630	1	707	2	—	—	12
'95....	255	896	0	1,173	10	0	0	21
'96....	437	1,001	1	1,465	4	3	0	14
'97....	529	1,113	1	1,666	2	2	—	15
'98....	658	1,358	1	2,042	9	—	—	18
'99....	692	1,364	1	2,084	5	2	—	16
1900....	688	1,220	1	1,958	12	1	—	23
'01....	805	1,273	0	2,152	8	—	0	18
'02....	973	1,353	0	2,413	47	—	—	58
'03....	1,406	1,539	1	3,045	34	—	—	44
'04....	1,779	1,433	0	3,328	10	0	—	25
'05....	2,676	1,464	0	4,285	48	54	—	117
'06....	2,838	1,434	1	4,431	20	23	—	60
'07....	2,729	1,411	0	4,308	68	49	—	135
'08....	3,628	1,558	0	5,444	133	58	—	203

TABLE IV—*Contd. Imports from different countries.*

[In thousands of cwt.s.]

Year.	(c.) From Australia.				(f.) From New Zealand.			
	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.
1877....	—	—	—	155	—	—	—	22
'78....	—	—	—	66	—	—	—	36
'79....	—	—	—	71	—	—	—	24
1880....	2	—	—	122	—	—	—	22
'81....	3	—	—	161	—	—	—	8
'82....	2	31	—	173	—	6	—	28
'83....	3	32	—	224	0	72	—	108
'84....	3	64	—	167	1	241	0	270
'85....	8	54	0	233	10	284	0	321
'86....	10	38	0	90	11	347	0	374
'87....	0	42	0	178	8	396	0	437
'88....	1	44	—	141	40	499	0	574
'89....	25	42	0	99	75	568	0	679
1890....	45	148	—	201	96	820	0	929
'91....	69	205	0	283	116	905	0	1,047
'92....	111	263	0	395	69	775	0	865
'93....	276	356	0	647	16	909	0	940
'94....	376	562	1	978	3	983	1	1,003
'95....	661	667	0	1,383	16	1,197	0	1,229
'96....	635	869	0	1,553	31	1,099	0	1,149
'97....	738	769	0	1,568	76	1,330	0	1,429
'98....	633	693	0	1,363	96	1,354	0	1,462
'99....	745	584	0	1,376	138	1,501	0	1,654
1900 ...	562	484	0	1,097	318	1,506	1	1,839
'01....	297	565	1	912	232	1,496	3	1,749
'02....	126	327	—	484	239	1,661	0	1,921
'03....	89	190	—	336	161	2,049	0	2,239
'04....	137	168	0	359	182	1,634	0	1,838
'05....	70	520	6	631	154	1,532	1	1,706
'06....	72	641	19	751	248	1,759	4	2,030
'07....	145	876	5	1,036	398	2,016	2	2,438
'08....	155	672	0	836	355	1,757	1	2,127

Table IV—*Contd. Imports from different countries.*

[In thousands of cwt.s.]

Year.	(g.) From Germany.				(h.) From Belgium.			
	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.
1877....	174	277	262	716	2	36	7	55
'78....	164	259	308	735	—	22	17	44
'79....	125	218	345	691	—	12	27	46
1880....	133	218	365	719	—	6	10	23
'81....	131	258	300	699	—	16	9	33
'82....	165	276	311	757	—	61	12	85
'83....	156	286	476	922	—	53	19	78
'84....	128	291	607	1,034	—	24	30	67
'85....	93	196	477	771	—	22	30	67
'86....	42	199	368	612	—	1	26	42
'87....	51	186	395	635	—	6	32	51
'88....	74	176	273	526	—	2	43	62
'89....	1	184	72	261	—	58	15	98
1890....	1	121	1	132	11	79	15	117
'91....	2	32	5	46	14	50	31	112
'92....	—	—	—	—	5	43	24	84
'93....	2	17	12	32	6	39	27	86
'94....	1	7	2	13	6	29	31	78
'95....	6	7	2	19	7	30	29	77
'96....	1	4	10	18	7	0	40	53
'97....	1	2	12	20	13	0	39	60
'98....	3	1	13	23	11	1	37	60
'99....	4	1	17	26	10	—	37	60
1900 ..	6	1	26	41	14	2	53	84
'01....	9	2	18	33	15	0	48	88
'02....	8	1	14	28	28	4	45	94
'03....	6	1	12	25	39	4	43	99
'04....	6	0	13	24	60	1	35	114
'05....	3	0	9	16	72	9	40	141
'06....	3	—	8	14	16	4	14	45
'07....	5	—	6	13	19	1	20	49
'08....	6	1	4	13	21	13	23	72

TABLE IV—*Contd. Imports from different countries.*

[In thousands of cwt.s.]

Year	(j.) From Holland.				(k.) From Denmark (including Iceland).			
	Beef.	Mutton.	Pig-meat.	Total, including unenumerated.	Beef.	Mutton.	Pig-meat.	Total including unenumerated.
1877....	124	166	33	406	248	24	41	314
'78....	74	157	34	357	262	37	49	348
'79....	52	186	22	346	196	32	53	283
1880....	66	191	11	355	313	54	48	415
'81....	63	158	12	338	293	50	42	386
'82....	141	304	18	465	415	67	51	537
'83....	65	219	62	372	568	72	84	724
'84....	67	244	44	362	446	54	161	661
'85....	67	249	56	386	315	45	118	479
'86....	44	345	93	511	327	69	162	560
'87....	73	378	159	642	275	56	250	583
'88....	120	400	270	831	319	54	643	1,020
'89....	96	202	129	472	403	88	672	1,173
1890....	49	191	27	325	297	80	511	894
'91....	47	187	134	431	109	37	632	783
'92....	2	169	103	376	9	25	738	880
'93....	0	197	147	458	56	20	790	881
'94....	0	200	160	470	0	41	832	887
'95....	0	167	265	585	7	41	1,095	1,157
'96....	1	229	268	663	2	42	1,314	1,375
'97....	5	267	245	744	34	11	1,095	1,160
'98....	2	266	241	760	37	20	1,091	1,167
'99....	17	285	365	923	45	26	1,306	1,407
1900....	8	331	425	1,034	69	17	1,190	1,319
'01....	4	316	401	1,009	61	14	1,142	1,267
'02....	41	344	574	1,054	119	10	1,341	1,557
'03....	16	258	562	1,106	52	17	1,621	1,770
'04....	7	266	474	1,015	7	12	1,870	1,959
'05....	7	235	324	822	7	11	1,600	1,672
'06....	3	235	359	822	0	9	1,597	1,644
'07....	3	221	449	889	1	6	1,982	2,037
'08....	4	267	418	938	10	6	2,253	2,332

TABLE V.—*Estimated meat supply of the United Kingdom.*

Years.	Beef and Veal.				Mutton and Lamb.			
	Home.	Foreign.	Total.	Per Cent. of Home to Total.	Home.	Foreign.	Total.	Per Cent. of Home to Total.
	Cwts.	Cwts.	Cwts.		Cwts.	Cwts.	Cwts.	
1890-91...	10,648,360	6,309,020	16,957,380	62·8	5,530,520	1,881,850	7,412,370	74·6
'91-92...	12,815,700	6,389,500	19,205,200	66·7	6,454,380	1,841,100	8,295,480	77·8
'92-93...	14,926,960	5,677,470	20,604,430	72·4	7,062,840	2,026,290	9,089,130	77·7
'93-94...	15,069,320	5,336,300	20,405,620	73·8	6,683,640	2,150,180	8,833,820	75·7
'94-95...	13,045,440	5,639,840	18,685,300	69·8	5,888,400	3,057,460	8,945,860	65·8
'95-96...	12,158,140	6,492,740	18,650,880	65·2	5,362,220	3,673,660	9,035,880	59·3
'96-97...	12,769,940	7,093,320	19,863,260	64·3	6,131,740	3,321,240	9,452,980	64·9
'97-98...	12,496,600	7,814,740	20,311,340	61·5	5,802,300	3,832,120	9,634,420	60·2
'98-99...	12,448,390	7,206,860	19,655,240	63·3	5,988,600	3,792,840	9,781,440	61·2
'99-1900	13,156,500	7,877,360	21,033,860	62·5	6,607,820	3,837,240	10,445,060	63·3
1900-01...	13,385,120	8,322,960	21,708,080	61·7	6,238,460	3,896,380	10,134,840	61·6
'01-02...	13,943,980	8,014,400	21,958,380	63·5	6,422,240	3,698,620	10,120,860	63·5
'02-03...	13,311,780	7,218,460	20,530,240	64·8	6,125,200	4,069,920	10,215,120	60·0
'03-04...	12,772,460	8,669,680	21,442,140	59·6	6,188,360	3,966,080	10,154,440	60·9
'04-05...	13,393,360	8,799,600	22,192,960	60·3	5,938,680	3,925,580	9,864,260	60·2
'05-06...	13,792,980	9,813,340	23,606,320	58·4	5,910,760	4,014,820	9,925,600	59·6
'06-07...	14,290,500	9,312,580	23,603,080	60·5	5,696,900	4,475,740	10,172,640	56·0
'07-08...	13,886,360	8,968,880	22,845,240	60·8	5,635,560	4,452,420	10,087,980	55·9

Years.	Pig-meat.				Total.			
	Home.	Foreign.	Total.	Per Cent. of Home to Total.	Home.	Foreign.*	Total.	Per Cent. of Home to Total.
	Cwts.	Cwts.	Cwts.		Cwts.	Cwts.	Cwts.	
1890-91...	6,470,800	5,345,360	11,816,160	54·8	22,649,680	13,015,270	35,664,950	63·5
'91-92...	7,525,620	4,985,900	12,511,520	60·1	26,795,700	12,926,820	39,722,520	67·5
'92-93...	4,779,720	4,921,240	9,700,960	49·3	26,769,520	12,340,100	39,109,620	68·4
'93-94...	4,233,160	5,015,860	9,249,020	45·8	25,986,120	12,455,860	38,441,980	67·6
'94-95...	5,080,060	5,506,180	10,586,240	48·0	24,013,920	14,182,160	38,196,080	62·9
'95-96...	6,200,860	5,942,760	12,143,620	51·1	23,721,220	16,074,040	39,795,260	59·6
'96-97...	6,841,320	6,988,880	13,830,200	49·5	25,743,000	17,269,480	43,012,480	59·9
'97-98...	6,300,760	7,969,540	13,260,300	40·0	23,599,660	19,629,000	43,228,660	54·6
'98-99...	5,267,760	8,576,060	13,843,820	38·1	23,704,740	19,397,420	43,102,160	55·0
'99-1900	6,298,340	8,523,120	14,821,460	42·5	26,062,660	20,266,320	46,328,980	56·3
1900-01...	5,577,400	8,490,940	14,068,340	39·6	25,200,980	20,935,840	46,136,820	54·6
'01-02...	4,808,620	8,444,100	13,252,720	36·3	25,174,840	20,488,100	45,662,940	55·1
'02-03...	5,011,100	7,005,140	12,016,240	41·7	24,448,080	18,745,360	43,193,440	56·6
'03-04...	5,943,600	7,365,380	13,308,980	44·7	24,904,420	20,594,520	45,498,940	54·7
'04-05...	6,501,160	7,516,060	14,017,220	46·4	25,833,200	20,789,000	46,622,200	55·4
'05-06...	5,166,960	7,494,080	12,661,040	40·8	24,870,720	21,842,900	46,713,620	53·2
'06-07...	4,847,860	7,193,440	12,041,300	40·3	24,835,260	21,364,720	46,199,980	53·8
'07-08...	5,791,100	7,660,280	13,451,380	43·1	25,313,020	21,537,360	46,850,380	54·0

* Including "meat unenumerated" and less exports of dead meat (British and foreign).

TABLE VI.—*Annual prices of cattle and beef, 1877-1908.*

Year.	Cattle (British). Per 14-lb. stone (dead weight).			Beef. Per 14-lb. stone.								Im- ported fresh beef. Value per 14 lb.
	Inferior quality.	Second quality.	Prime quality.	London (Central Market).		Liverpool.		Glasgow.		Average of cols. 5—7.		
				s. d.	s. d.	s. d.	s. d.	s. d.	s. d.			
1877....	7 10½	9 7½	10 4	4 11½	to 9 4	6 1½	to 8 4	7 7	to 8 9	7 6	6 10	
'78....	7 10½	9 7½	10 6	5 1	„ 9 6	6 5	„ 8 11	7 2	„ 8 5½	7 7	6 7½	
'79....	7 2	8 7	9 7½	4 6	„ 8 7	6 1½	„ 8 7	7 0	„ 8 2	7 2	6 8	
1880....	7 10½	9 6	10 4	5 1	„ 9 0½	5 5	„ 7 10½	7 2	„ 8 4	7 2	6 6	
'81....	7 9	8 11	9 7½	5 3	„ 8 5½	5 5	„ 7 10½	7 0	„ 8 2	7 0	6 7½	
'82....	7 7	9 9	10 6	5 6½	„ 9 4	5 6½	„ 8 0	7 9	„ 9 0½	7 6½	6 11	
'83....	7 7	9 9	10 8	5 10	„ 9 6	6 1½	„ 8 5½	7 7	„ 8 11	7 9	7 0	
'84....	7 2	9 4	10 1	5 1	„ 8 11	5 1	„ 7 9	7 2	„ 8 7	7 1	6 9	
'85....	6 10	8 4	9 2	4 6	„ 7 10½	4 4½	„ 7 9	6 5	„ 8 0	6 6	6 6	
'86....	5 8	7 5	8 5½	3 11	„ 7 5	3 9½	„ 7 0	6 0	„ 7 3½	5 11	5 9	
'87....	5 3	6 5	7 9	3 4	„ 6 7	3 11	„ 6 5	4 10	„ 6 3	5 3	5 7½	
'88....	4 1	7 3½	8 7	3 9½	„ 7 5	4 3	„ 7 0	6 1½	„ 7 0	5 11	5 8½	
'89....	4 1	7 9	8 5½	4 1	„ 7 5	4 3	„ 6 10	5 6½	„ 7 3½	5 11	5 5½	
1890....	4 1	7 7	8 5½	3 11	„ 7 5	4 6	„ 7 0	5 5	„ 6 7	5 9½	5 3½	
'91....	4 10	7 7	8 7	3 9½	„ 7 7	3 4	„ 6 8½	4 6	„ 6 8½	5 5	5 3	
'92....	5 1	7 2	8 4	3 6	„ 7 3½	3 2½	„ 5 10	4 4½	„ 6 8½	5 2	5 4	
'93....	4 11½	7 2	8 4	3 8	„ 7 5	3 6	„ 6 1½	4 4½	„ 6 8½	5 3	5 3½	
'94....	4 3	6 10	7 10½	3 2½	„ 7 2	3 4	„ 6 0	4 1	„ 6 7	5 1	5 0	
'95....	4 8	6 10	7 10½	3 4	„ 7 3½	4 11½	„ 6 5	4 10	„ 7 0	5 7½	4 10½	
'96....	4 1	6 7	7 9	2 9	„ 6 10	3 9½	„ 5 10	4 1	„ 6 3	4 11	4 8½	
'97....	4 3	6 10	7 10½	3 9½	„ 7 2	4 4½	„ 6 1½	4 4½	„ 6 8½	5 5	4 10	
'98....	4 1	6 5	7 5	3 8	„ 6 10	3 11	„ 6 0	4 4½	„ 6 3	5 2	4 9	
'99....	4 4½	6 10	8 0	3 11	„ 7 0	4 3	„ 6 7	4 8	„ 6 7	5 6	4 10	
1900....	5 5	7 3½	8 5½	4 6	„ 7 3½	4 8	„ 7 0	5 6½	„ 6 10	5 11½	4 11	
'01....	4 1	6 10	8 0	4 1	„ 7 0	4 8	„ 6 8½	5 5	„ 6 8½	5 9	4 11	
'02....	5 1	7 7	8 7	4 11½	„ 8 0	4 10	„ 7 9	7 2	„ 9 2	6 11½	5 4	
'03....	4 11½	7 2	8 2	4 1	„ 7 0	4 10	„ 7 0	6 3	„ 8 0	6 2	5 0½	
'04....	4 10	6 3	8 0	3 11	„ 7 2	4 6	„ 6 8½	6 1½	„ 7 10½	6 0½	4 7½	
'05....	4 11½	6 1½	8 0	3 9½	„ 7 0	4 3	„ 6 10	6 0	„ 8 2	6 0	4 5	
'06....	4 10	6 1½	8 0	3 8	„ 6 10	4 4½	„ 6 7	5 6½	„ 8 0	5 10	4 5	
'07....	4 10	6 3	8 2	3 11	„ 7 2	4 4½	„ 6 8½	6 1½	„ 8 5½	6 1½	4 6½	
'08....	4 8	6 7	8 4	3 11	„ 7 7	4 4½	„ 7 2	6 1½	„ 8 9	6 4	4 7	

TABLE VII.—*Annual prices of sheep and mutton, 1877-1908.*

Year.	Sheep (British). Per lb. (dead weight).			Mutton. Per lb.				Im- ported fresh mutton. Value per lb.
	Inferior quality.	Second quality.	Prime quality.	London (Central Market).	Liverpool.	Glasgow.	Average of Cols. 5-7.	
	d.	d.	d.	d.	d.	d.	d.	d.
1877....	8 $\frac{1}{4}$	9 $\frac{3}{4}$	10 $\frac{3}{8}$	4 $\frac{5}{8}$ to 9 $\frac{1}{4}$	7 $\frac{3}{8}$ to 9 $\frac{1}{8}$	6 $\frac{1}{4}$ to 7 $\frac{5}{8}$	7 $\frac{3}{8}$	—
'78....	8	9 $\frac{1}{8}$	10 $\frac{1}{4}$	4 $\frac{3}{4}$ „ 9 $\frac{1}{8}$	7 „ 9 $\frac{1}{8}$	6 „ 7 $\frac{3}{8}$	7 $\frac{1}{8}$	—
'79....	8 $\frac{1}{8}$	9 $\frac{1}{8}$	9 $\frac{7}{8}$	4 $\frac{5}{8}$ „ 8 $\frac{5}{8}$	6 $\frac{3}{4}$ „ 8 $\frac{7}{8}$	5 $\frac{7}{8}$ „ 6 $\frac{7}{8}$	6 $\frac{7}{8}$	—
1880....	8 $\frac{1}{4}$	9 $\frac{1}{2}$	10 $\frac{1}{4}$	4 $\frac{7}{8}$ „ 8 $\frac{3}{4}$	6 $\frac{3}{4}$ „ 8 $\frac{3}{4}$	5 $\frac{5}{8}$ „ 7	7	—
'81....	8 $\frac{1}{2}$	9 $\frac{1}{2}$	10 $\frac{1}{4}$	5 „ 9	6 $\frac{1}{2}$ „ 8 $\frac{3}{8}$	6 $\frac{1}{8}$ „ 7 $\frac{1}{4}$	7	—
'82....	9 $\frac{1}{8}$	10 $\frac{1}{8}$	10 $\frac{3}{4}$	5 $\frac{3}{8}$ „ 9 $\frac{1}{2}$	7 $\frac{1}{2}$ „ 9 $\frac{3}{8}$	6 $\frac{3}{8}$ „ 7 $\frac{1}{2}$	7 $\frac{5}{8}$	7 $\frac{1}{8}$
'83....	9 $\frac{1}{4}$	10 $\frac{5}{8}$	10 $\frac{7}{8}$	5 $\frac{5}{8}$ „ 9 $\frac{3}{8}$	7 $\frac{1}{2}$ „ 9 $\frac{3}{8}$	6 $\frac{1}{2}$ „ 7 $\frac{1}{8}$	7 $\frac{3}{8}$	6 $\frac{1}{4}$
'84....	8 $\frac{1}{2}$	8 $\frac{7}{8}$	9 $\frac{5}{8}$	4 $\frac{7}{8}$ „ 8 $\frac{5}{8}$	6 $\frac{1}{2}$ „ 8	6 „ 7 $\frac{1}{4}$	6 $\frac{1}{2}$	6
'85....	6 $\frac{3}{4}$	7 $\frac{3}{4}$	8 $\frac{1}{2}$	4 $\frac{1}{4}$ „ 7 $\frac{5}{8}$	4 $\frac{5}{8}$ „ 7 $\frac{3}{4}$	6 „ 7 $\frac{1}{4}$	6 $\frac{1}{4}$	5 $\frac{1}{2}$
'86....	6 $\frac{1}{2}$	8 $\frac{1}{8}$	9	4 $\frac{5}{8}$ „ 8 $\frac{1}{8}$	5 „ 7 $\frac{5}{8}$	6 $\frac{1}{8}$ „ 7 $\frac{1}{4}$	6 $\frac{3}{8}$	4 $\frac{5}{8}$
'87....	5 $\frac{3}{8}$	7	7 $\frac{7}{8}$	3 $\frac{3}{4}$ „ 7 $\frac{1}{4}$	5 $\frac{7}{8}$ „ 7 $\frac{1}{8}$	5 $\frac{1}{4}$ „ 7	6	4 $\frac{1}{4}$
'88....	4 $\frac{7}{8}$	7 $\frac{3}{8}$	8 $\frac{3}{4}$	3 $\frac{5}{8}$ „ 7 $\frac{3}{4}$	5 „ 7 $\frac{3}{8}$	6 $\frac{3}{4}$ „ 7 $\frac{5}{8}$	6 $\frac{3}{8}$	4 $\frac{1}{4}$
'89....	5 $\frac{1}{4}$	8 $\frac{3}{8}$	9 $\frac{1}{2}$	4 „ 8 $\frac{3}{8}$	6 $\frac{3}{8}$ „ 8 $\frac{1}{4}$	6 $\frac{3}{4}$ „ 8	7	4 $\frac{1}{2}$
1890 ...	6 $\frac{3}{4}$	8 $\frac{1}{4}$	9 $\frac{3}{8}$	3 $\frac{1}{2}$ „ 8	5 $\frac{3}{8}$ „ 8 $\frac{1}{8}$	6 $\frac{1}{2}$ „ 7 $\frac{7}{8}$	6 $\frac{1}{2}$	4 $\frac{1}{2}$
'91....	5 $\frac{5}{8}$	7 $\frac{7}{8}$	8 $\frac{3}{4}$	3 „ 7 $\frac{3}{8}$	5 $\frac{1}{4}$ „ 7 $\frac{1}{4}$	5 $\frac{1}{2}$ „ 7 $\frac{1}{2}$	6	4 $\frac{1}{4}$
'92....	5 $\frac{5}{8}$	7 $\frac{3}{8}$	8 $\frac{3}{8}$	3 $\frac{1}{8}$ „ 7 $\frac{1}{8}$	4 $\frac{1}{2}$ „ 7	5 $\frac{1}{8}$ „ 7 $\frac{3}{8}$	5 $\frac{3}{8}$	4 $\frac{3}{8}$
'93....	5 $\frac{1}{2}$	7	8 $\frac{1}{8}$	3 „ 6 $\frac{7}{8}$	4 $\frac{1}{4}$ „ 6 $\frac{7}{8}$	4 $\frac{7}{8}$ „ 7 $\frac{1}{8}$	5 $\frac{1}{2}$	4 $\frac{1}{4}$
'94....	5 $\frac{3}{8}$	7 $\frac{3}{4}$	8 $\frac{3}{4}$	2 $\frac{3}{4}$ „ 7 $\frac{3}{8}$	4 $\frac{1}{2}$ „ 7 $\frac{1}{8}$	5 $\frac{1}{4}$ „ 7 $\frac{1}{4}$	5 $\frac{3}{4}$	4
'95....	5 $\frac{7}{8}$	8	8 $\frac{5}{8}$	2 $\frac{7}{8}$ „ 7 $\frac{5}{8}$	5 $\frac{1}{8}$ „ 7 $\frac{1}{8}$	5 $\frac{1}{2}$ „ 7 $\frac{3}{8}$	6	3 $\frac{3}{4}$
'96....	4 $\frac{7}{8}$	7 $\frac{1}{2}$	8 $\frac{1}{8}$	2 $\frac{3}{8}$ „ 7	4 $\frac{1}{2}$ „ 7 $\frac{1}{2}$	4 $\frac{7}{8}$ „ 6 $\frac{3}{4}$	5 $\frac{3}{8}$	3 $\frac{1}{2}$
'97....	5 $\frac{1}{2}$	7 $\frac{1}{2}$	8 $\frac{1}{2}$	2 $\frac{1}{2}$ „ 7 $\frac{1}{4}$	4 $\frac{1}{2}$ „ 7 $\frac{1}{2}$	5 $\frac{1}{8}$ „ 7	5 $\frac{5}{8}$	3 $\frac{1}{4}$
'98....	4 $\frac{3}{4}$	7 $\frac{1}{8}$	8 $\frac{1}{4}$	2 $\frac{3}{4}$ „ 7 $\frac{1}{8}$	5 „ 7	4 $\frac{3}{4}$ „ 6 $\frac{7}{8}$	5 $\frac{3}{8}$	3 $\frac{1}{8}$
'99....	5	7 $\frac{1}{2}$	8 $\frac{1}{2}$	3 „ 7 $\frac{1}{4}$	5 $\frac{1}{4}$ „ 7 $\frac{3}{8}$	5 $\frac{1}{2}$ „ 6 $\frac{7}{8}$	5 $\frac{7}{8}$	3 $\frac{3}{8}$
1900....	5	7 $\frac{7}{8}$	9	3 $\frac{1}{4}$ „ 7 $\frac{5}{8}$	5 $\frac{3}{8}$ „ 7 $\frac{7}{8}$	6 „ 7 $\frac{3}{4}$	6 $\frac{1}{4}$	3 $\frac{5}{8}$
'01....	4 $\frac{7}{8}$	7 $\frac{1}{4}$	8 $\frac{1}{2}$	3 „ 7 $\frac{1}{4}$	5 $\frac{1}{4}$ „ 7 $\frac{1}{2}$	5 $\frac{3}{4}$ „ 7 $\frac{1}{4}$	6 $\frac{1}{8}$	3 $\frac{7}{8}$
'02....	5 $\frac{3}{8}$	7 $\frac{3}{8}$	8 $\frac{5}{8}$	3 $\frac{5}{8}$ „ 7 $\frac{1}{8}$	5 „ 7 $\frac{7}{8}$	6 $\frac{5}{8}$ „ 8 $\frac{7}{8}$	6 $\frac{1}{2}$	4
'03....	5 $\frac{1}{2}$	7 $\frac{5}{8}$	8 $\frac{3}{4}$	3 $\frac{5}{8}$ „ 7 $\frac{3}{4}$	5 $\frac{3}{8}$ „ 8 $\frac{1}{4}$	6 $\frac{1}{4}$ „ 9 $\frac{1}{8}$	6 $\frac{3}{4}$	4 $\frac{1}{8}$
'04....	5 $\frac{3}{4}$	7 $\frac{7}{8}$	8 $\frac{5}{8}$	3 $\frac{3}{4}$ „ 7 $\frac{5}{8}$	5 $\frac{5}{8}$ „ 8 $\frac{3}{4}$	6 $\frac{1}{2}$ „ 9	6 $\frac{5}{8}$	4 $\frac{1}{4}$
'05....	5 $\frac{7}{8}$	7 $\frac{5}{8}$	8 $\frac{1}{2}$	3 $\frac{1}{2}$ „ 7 $\frac{5}{8}$	5 $\frac{3}{8}$ „ 8 $\frac{1}{2}$	5 $\frac{7}{8}$ „ 9 $\frac{3}{8}$	6 $\frac{5}{8}$	4 $\frac{1}{8}$
'06....	6 $\frac{5}{8}$	8	9 $\frac{1}{8}$	3 $\frac{1}{4}$ „ 7 $\frac{5}{8}$	5 $\frac{1}{2}$ „ 8 $\frac{1}{2}$	6 $\frac{5}{8}$ „ 10 $\frac{5}{8}$	7	4
'07....	6 $\frac{1}{2}$	8 $\frac{1}{8}$	9 $\frac{1}{4}$	3 $\frac{3}{8}$ „ 7 $\frac{3}{4}$	5 $\frac{5}{8}$ „ 8 $\frac{3}{8}$	6 „ 10 $\frac{1}{8}$	6 $\frac{7}{8}$	4
'08....	5 $\frac{5}{8}$	7 $\frac{1}{2}$	8 $\frac{3}{4}$	3 $\frac{1}{8}$ „ 7 $\frac{5}{8}$	4 $\frac{3}{4}$ „ 8 $\frac{1}{4}$	5 $\frac{1}{2}$ „ 9 $\frac{3}{8}$	6 $\frac{3}{8}$	4

TABLE VIII.—*Value of imported pig-meat.*

[Per 14 lbs.]

Year.	Fresh pork.	Bacon.	Hams.	Year.	Fresh pork.	Bacon.	Hams.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>		<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
1877....	6 10½	6 0	6 9	1892....	5 10½	5 1½	5 10½
'78....	6 1½	4 10	6 0	'93....	6 3	6 7½	7 4
'79....	5 7½	4 4	5 5½	'94....	6 1	5 6	6 1½
				'95....	5 9	4 10½	5 7½
1880....	5 9	5 0	5 10	'96....	5 9	4 4	5 4½
'81....	5 10½	5 9	6 1½	'97....	5 6	4 5	5 4
82....	6 1	6 7½	6 11	'98....	5 3	4 6	4 11
'83....	6 7	6 7½	7 7	'99....	5 3	4 6	5 2
'84....	6 6	6 1½	7 4½	1900....	5 4½	5 2½	5 10½
'85....	6 7	5 1	6 4½	'01....	5 5	5 10½	6 1
'86....	6 2	4 8½	5 11	'02....	5 6	6 7	6 6
'87....	6 2	5 3	6 6	'03....	5 6	6 7½	6 10½
'88....	5 9	5 7	6 7½	'04....	5 7½	5 10½	6 3
'89....	6 1½	5 2	6 4½	'05....	5 9	5 10	5 11
				'06....	5 9	6 7½	6 8
1890....	6 1	4 7½	5 11	'07....	5 10½	6 11	7 2
'01....	5 11	4 9	5 9½	'08....	5 10	6 4½	6 3½

TABLE IX.—*Monthly prices of cattle. (a) Shorthorns, England and Wales.*
Per stone of 14 lbs. dead weight.

Month.	First quality.					Second quality.						
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
January	s. 7 5 d. 7 3	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 10	s. 7 9 d. 7 10	s. 7 7 d. 7 7	s. 6 10 d. 6 9	s. 7 1 d. 7 0	s. 6 10 d. 6 11	s. 7 2 d. 7 2	s. 7 2 d. 7 3	s. 7 0 d. 7 0
February	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 0	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
March	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
April	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
May	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
June	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
July	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
August	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
September	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
October	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
November	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
December	s. 7 5 d. 7 4	s. 7 7 d. 7 6	s. 7 5 d. 7 5	s. 7 9 d. 7 9	s. 7 9 d. 8 1	s. 7 7 d. 7 7	s. 6 9 d. 6 11	s. 6 11 d. 6 11	s. 6 11 d. 6 11	s. 7 1 d. 7 1	s. 7 2 d. 7 4	s. 6 11 d. 7 1
Year	7 7	7 7	7 6	7 10	7 11	7 8	7 1	7 0	6 11	7 2	7 3	7 1

(b) *Polled Scots, Scotland.*

Per cwt. live weight.

	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
January	36	2	37	3	36	5	37	4	38	5	37	1	33	6	34	5
February	35	4	36	5	36	3	37	3	37	11	36	8	33	8	33	7
March	34	10	36	9	36	1	37	1	37	10	32	6	33	2	34	8
April	35	2	37	2	36	6	37	6	38	2	36	11	33	6	35	1
May	38	0	37	1	36	4	37	8	38	8	37	2	33	5	34	3
June	39	3	37	0	37	8	38	11	39	5	38	3	34	3	35	7
July	39	9	36	10	37	9	39	2	39	6	38	8	34	9	36	4
August	39	0	36	7	37	4	39	2	39	5	37	2	34	9	36	6
September	38	5	37	2	37	0	37	9	39	4	37	11	33	7	35	11
October	38	7	36	10	36	8	37	8	39	11	37	11	33	8	35	6
November	38	0	36	6	37	2	38	4	39	8	37	11	33	10	35	10
December	37	8	37	2	38	1	38	10	40	5	38	5	34	4	35	9
Year	37	4	36	11	36	11	38	2	39	1	37	8	34	6	34	0
													33	8	34	8
															35	8
															34	6

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TABLE X.—*Monthly prices of beef. (a) English.*
Per 14-lb. stone.

Month.	First quality.						Second quality.					
	1904.		1905.		1906.		1907.		1908.		1909.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
January	6	4	6	4½	5	11	6	5	6	6	6	1
February	6	3	6	3½	6	1	6	4	6	1½	5	10
March	6	1½	6	4½	6	2	6	4½	5	9	5	10
April	6	4½	6	6	6	4	6	6	5	8	6	0
May	6	7½	6	7½	6	4½	6	7	6	9	6	9
June	6	10½	6	7½	6	6	7	0	5	11	6	2½
July	7	0	6	6	6	5	7	3	6	7	7	1
August	6	9	6	6	6	4	6	9	6	10½	6	4
September	6	5	6	3	6	2	6	4	6	6	6	1½
October	6	3	6	0	5	11	6	1	5	10½	5	10½
November	6	0	5	8	6	1½	6	1	5	9	5	8
December	6	3½	6	0	6	2	6	4	5	7½	5	9
Year	6	5½	6	3½	6	2½	6	5½	5	9	6	4
Average.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
	6	3½	6	3½	6	9½	6	5	5	9	5	11½

(b) *Scotch long sides.*

Per 14-lb. stone.

Month.	1904.		1905.		1906.		1907.		1908.		1909.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
January	6	7	6	10	6	8	6	10	6	2	6	4
February	6	6	6	7	6	7	6	7	6	3	6	6
March	6	4	6	7	6	7	6	7	6	6	6	6
April	6	7	6	8	6	5	6	10	6	5	6	8
May	7	4	6	8	6	5	7	5	6	5	6	8
June	7	7	6	10	7	0	7	5	6	11	7	0
July	7	4	6	10	7	0	7	5	6	10	7	0
August	7	4	6	10	7	0	7	5	6	11	7	0
September	7	4	6	10	7	0	7	5	6	11	7	0
October	7	11	6	9	6	8	6	10	6	9	6	5½
November	6	10	6	8	6	8	6	11	6	7	6	3½
December	6	11	6	10	6	9	6	11	6	7	6	4½
Year	6	10½	6	9	6	8½	6	11	6	8½	6	4½
Average.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
	6	7	6	9½	6	8	6	10	6	7	6	4½

TABLE X—*Contd. Monthly prices of beef. (c) Cow and bull.*

Per 14-lb. stone.

Month.	First quality.					Second quality.				
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.
January	5 2	5 4	5 11	5 4	5 6	5 4	4 10	4 7	4 5	4 7
February	5 0	5 1	5 2	5 4	5 4	5 2	4 10	4 4	4 4	4 5
March	5 1	5 1	5 3	5 7	5 7	5 3	4 10	4 4	4 4	4 6
April	5 2	5 2	5 3	5 4	5 10	5 5	5 1	4 7	4 1	4 8
May	5 6	5 6	5 3	5 7	5 11	5 7	4 10	4 6	4 6	4 10
June	5 8	5 5	5 4	6 0	6 2	5 11	5 5	4 11	4 6	5 0
July	5 10	5 4	5 4	5 10	6 1	5 8	5 13	4 9	4 7	5 0
August	5 8	5 4	5 3	5 7	5 10	5 7	5 13	4 9	4 9	4 10
September	5 6	5 4	5 3	5 4	5 5	5 4	4 10	4 7	4 5	4 8
October	5 1	5 1	4 10	5 0	5 5	5 2	3 11	4 4	3 11	4 4
November	5 1	4 9	5 0	5 1	5 4	5 1	4 7	4 0	4 4	4 4
December	5 3	5 1	5 1	5 2	5 6	5 3	4 4	4 4	4 3	4 5
Year	5 4	5 3	5 2	5 5	5 8	5 4	4 6	4 6	4 4	4 7

(d) *U.S.A. and Canadian. Port killed.*

Per 14-lb. stone.

Month.	First quality.					Second quality.				
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.
January	6 1	6 3	5 9	6 4	6 6	6 2	5 2	5 5	5 3	5 9
February	5 9	5 10	5 10	6 2	6 5	6 0	5 3	5 2	5 3	5 9
March	5 7	6 10	6 0	6 3	6 5	6 0	5 4	5 2	5 5	5 7
April	6 1	6 2	6 0	6 5	7 0	6 3	5 8	5 7	5 6	6 1
May	6 1	6 4	6 0	6 10	7 3	6 7	6 0	5 10	5 8	6 4
June	6 6	6 4	6 1	6 8	7 1	6 7	6 1	5 9	5 7	6 3
July	6 6	6 3	6 0	6 6	7 1	6 5	5 11	5 5	5 7	6 3
August	6 4	6 0	6 0	6 4	6 5	6 1	5 5	5 4	5 2	5 11
September	6 13	5 11	5 10	6 6	6 5	6 1	5 5	5 4	4 11	5 10
October	6 13	5 8	5 9	6 3	6 5	6 1	5 4	5 1	4 6	5 9
November	5 9	5 4	5 11	6 2	6 3	6 0	5 1	4 8	5 6	5 7
December	6 1	5 9	6 0	6 4	6 8	6 2	5 2	5 2	5 4	5 9
Year	6 1	5 11	5 11	6 4	6 8	6 2	5 6	5 4	5 5	5 11

TABLE X—*Contd. Monthly prices of beef. (e) American chilled.*
Per 14-lb. stone.

Month.	Hind quarters. First quality.					Fore quarters. First quality.				
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	6 1½	6 8	6 9	6 9	6 10	6 5	4 2	4 5	3 9	4 7
February	6 0	6 1½	6 7	6 6	6 8	6 4½	4 3	4 1	4 5	4 6
March	6 2	5 11	6 1½	6 6	6 8	6 3	4 3	4 2	4 0	4 4
April	6 1½	6 7½	6 1½	6 7½	7 7	6 7	4 3	4 4	4 3	4 4
May	6 9	6 10	6 4½	6 8	7 10	6 11	4 1½	4 4	4 2	4 5
June	6 9	6 10½	6 7	7 0	8 1½	7 1	4 1	4 3	4 0	4 7
July	7 9	6 10½	6 7½	7 0	7 9	7 2	5 0	4 1	4 0	4 8
August	7 11	6 7½	6 11	7 0	8 0	7 2½	4 11	4 0	4 3	4 6
September	6 4	6 8	6 10	7 3	7 3	6 10	4 1	4 3	4 1	4 8
October	7 0	6 7½	6 9	7 2	7 6	7 0	4 3	4 2	4 1	4 5
November	6 4	6 2	6 9	7 3	6 9	6 8	4 0	4 0	4 7½	4 8
December	6 10	6 6	6 5	6 10½	6 11	6 8½	4 3	4 1½	4 4½	4 7½
Year	6 8	6 6½	6 6	6 10½	7 4	6 9½	4 3½	4 2	4 2	4 6½
										4 11
										4 5

(f) *Argentine chilled.*

Per 14-lb. stone.

Month.	Hind quarters. First quality.					Fore quarters. First quality.				
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	4 7½	5 3	4 0	4 10	4 11	4 9	3 6	3 11	3 2	3 11
February	4 6	4 10	4 5	4 11	5 1½	4 10½	3 8	3 6	3 9	3 9
March	4 4½	4 4	4 5	4 11	5 2	4 8	3 7	3 6	3 10	3 10
April	4 5	4 11	4 5	5 3	6 1	5 0	3 9	3 7	3 4½	3 9
May	5 4	5 4	4 7½	5 4	6 3	5 4½	3 7	3 7	3 5	3 11
June	5 5	5 3	4 9	5 10½	6 9	5 7	3 5	3 4½	3 3	4 1½
July	5 6	5 4	4 9	5 7	5 10	5 7	4 0	3 5	3 2	4 0
August	6 7	5 1	4 9	5 7	6 6	5 9	3 11	3 2	3 5	3 11
September	4 8	4 10	5 1	5 8	5 10	5 3	3 2	3 3	3 4½	3 10
October	4 9½	4 7	4 8	5 5	5 8	5 0	3 3	3 4	3 3	3 7
November	4 7	4 1½	5 1	5 4½	5 0	4 10	3 1½	3 4½	4 0	3 8
December	4 10½	4 7	4 10½	5 0	5 1½	4 11	3 6	3 7½	3 10½	3 7
Year	5 4½	4 10½	4 8½	5 3½	5 8	5 1½	3 6½	3 5½	3 5½	3 10
										4 1
										3 8

TABLE XI.—*Monthly prices of sheep. (a) Downs, England and Wales.*
Per lb. dead weight.

Month.	First quality.					Second quality.						
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
January	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
February	8½	9	9½	9½	9	9	7½	8½	8½	8½	8½	8½
March	8½	9	9½	9½	9½	9	7½	8½	8½	8½	8½	8½
April	8½	9	9½	9½	8½	8½	8½	8½	8	8½	8½	8½
May	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
June	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
July	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
August	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
September	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
October	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
November	8½	8½	8½	9	8½	8½	7½	8½	8	8½	8½	8
December	8½	9	9½	9	7½	8½	8½	8	8½	8½	7	8
Year	8½	8½	8½	9	8½	8½	8	8	8	8½	7½	8

(b) *Cross-breds, Scotland.*

Per lb. dead weight.

Year	1904					1905					1906					1907					1908					Average
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.					
January	8½	9½	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
February	8½	9	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
March	8½	9	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
April	9½	9½	10	10	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½				
May	10½	10½	10	10	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½				
June	10½	10½	10	10	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½	10½				
July	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
August	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
September	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
October	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
November	9	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
December	9½	9	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				
Year	9½	8½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½				

TABLE XII.—*Monthly prices of mutton. (a) English.*
Per lb.

Month.	First quality.					Second quality.						
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
January	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
February	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
March	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
April	7½	7½	7½	7½	7½	7½	6½	6½	7	6½	7½	6½
May	7½	7½	7½	7½	7½	7½	6½	6½	6½	7½	7½	6½
June	7½	7½	7½	8½	7½	7½	6½	6½	6½	7½	7	7
July	7½	7½	7½	7½	7½	7½	6½	6½	6½	7	6½	6½
August	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
September	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
October	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
November	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6	6½
December	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6	6½
Year	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½

(b) *Scotch.*

Per lb.												
Month.	First quality.					Second quality.					Average.	
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
January	d. 7½	d. 7½	d. 7½	d. 7½	d. 7½	d. 7½	d. 6½	d. 6½	d. 6½	d. 6½	d. 6½	d. 6½
February	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
March	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
April	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
May	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
June	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
July	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
August	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
September	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
October	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
November	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
December	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½
Year	7½	7½	7½	7½	7½	7½	6½	6½	6½	6½	6½	6½

TABLE XII—*Contd. Monthly prices of mutton. (c) Imported frozen.*

Month.	Per lb.						
	Argentina. First quality.				New Zealand. First quality.		
	1904.	1905.	1906.	1907.	1908.	Average.	Average.
January	d.	d.	d.	d.	d.	d.	d.
February	3½	3½	3½	4	4½	4½	4½
March	4	3½	3½	4	4½	4½	4½
April	3½	3½	3½	3½	4½	4½	4½
May	3½	3½	3½	3½	4½	4½	4½
June	3½	3½	3½	3½	4½	4½	4½
July	3½	3½	3½	3½	4½	4½	4½
August	3½	3½	3½	3½	4½	4½	4½
September	3½	3½	3½	3½	4½	4½	4½
October	3½	3½	3½	3½	4½	4½	4½
November	3½	3½	4½	3½	4½	4½	4½
December	4½	3½	4	3½	4½	4	4½
Year	3½	3½	3½	3½	4½	4½	4½

TABLE XIII.—*Monthly prices of pigs. (a) Porkers: England and Wales.*
Per stone of 14 lbs. dead weight.

Month.	First quality.						Second quality.					
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
January	6 3	6 5	7 6	7 6	6 9	6 11	5 10	5 11	7 1	7 0	6 4	6 5
February	6 0	6 8	7 8	7 6	6 8	6 11	5 9	6 3	7 3	7 0	6 3	6 5
March	6 1	6 10	7 9	7 5	6 7	6 11	5 9	6 5	7 5	7 0	6 2	6 7
April	6 1	6 10	7 7	7 1	6 6	6 10	5 9	6 6	7 2	6 9	6 1	6 5
May	6 1	7 0	7 5	7 2	6 4	6 10	5 9	6 7	6 11	6 9	5 11	6 5
June	6 0	6 10	7 3	7 0	6 2	6 8	5 9	6 4	6 10	6 7	5 7	6 3
July	5 11	6 8	7 2	7 0	6 4	6 7	5 8	6 3	6 8	6 7	5 11	6 3
August	6 2	6 10	7 4	7 2	6 8	6 10	5 11	6 5	6 11	6 9	6 2	6 5
September	6 4	7 2	7 5	7 1	6 10	7 0	6 0	6 9	7 1	6 8	6 5	6 7
October	6 4	7 5	7 7	7 0	6 9	7 0	6 1	7 1	7 1	6 6	6 3	6 7
November	6 5	7 7	7 6	6 11	6 8	7 0	6 1	7 1	7 0	6 6	6 3	6 7
December	6 5	7 6	7 7	6 11	6 9	7 0	5 11	7 1	6 11	6 6	6 3	6 6
Year	6 2	7 0	7 6	7 2	6 7	6 11	5 10	6 7	7 0	6 9	6 2	6 6

(b) *Bacon pigs: England and Wales.*

Per stone of 14 lbs. dead weight.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	5 7	5 8	6 11	6 8	6 4	6 3	5 2	5 4	6 6	6 4	5 11	5 10
February	5 6	6 1	7 1	6 10	6 3	6 4	5 2	5 8	6 8	6 5	5 9	5 11
March	5 7	6 3	7 2	7 0	6 1	6 5	5 3	5 11	6 9	6 7	5 8	6 0
April	5 7	6 5	7 2	6 10	6 1	6 5	5 2	6 0	6 9	6 4	5 8	6 0
May	5 6	6 6	6 11	6 9	5 11	6 4	5 2	6 0	6 6	6 4	5 6	5 11
June	5 6	6 6	6 10	6 8	5 10	6 3	5 2	5 11	6 5	6 4	5 3	5 10
July	5 6	6 4	6 9	6 8	6 0	6 3	5 2	5 9	6 3	6 3	5 9	6 0
August	5 8	6 7	6 11	6 10	6 4	6 6	5 5	6 1	6 5	6 4	5 9	6 0
September	5 10	6 8	6 11	6 9	6 6	6 6	5 6	6 4	6 6	6 3	6 0	6 1
October	5 9	6 9	6 10	6 6	6 4	6 5	5 5	6 4	6 5	6 0	5 10	6 0
November	5 7	6 11	6 7	6 4	6 3	6 4	5 3	6 6	6 4	5 11	5 9	5 11
December	5 7	6 10	6 7	6 5	6 2	6 4	5 3	6 6	6 2	5 11	5 8	5 11
Year	5 7	6 5	6 11	6 8	6 2	6 4	5 3	6 0	6 6	6 3	5 8	5 11

TABLE XIV.—*Monthly prices of pig-meat. (a) British pork: Great Britain.*

Per 14-lb. stone.

Month.	First quality.						Second quality.					
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
January	6 8	6 7½	8 0	7 10½	7 4½	7 3½	5 5	5 7½	7 1½	7 0	6 7	6 4
February	6 5	6 10½	8 1	7 10	7 1	7 3	5 4	5 11	7 4	6 11	6 4½	6 4½
March	6 6	7 2	8 0	7 9	6 11	7 3	5 4	6 1½	7 2	6 11	6 2	6 4
April	6 6	7 2	7 9	7 4½	6 11	7 1½	5 4½	6 4½	7 0	6 8	6 2	6 4
May	6 4	7 0	7 4½	7 1½	6 8	6 11	5 4	6 1½	6 7½	6 6	5 10½	6 1
June	6 2	6 10½	7 1½	7 1½	6 7½	6 9½	5 3	6 1½	6 4½	6 5	5 10	6 0
July	6 1½	6 10	7 1	7 2	6 7	6 9	5 3	5 10½	6 6	6 4½	5 8	5 11
August	6 4	6 10½	7 3	7 2	6 9	6 10½	5 6	6 1	6 7	6 5	6 1	6 1½
September	6 9	7 6	7 6	7 3	7 1	7 2½	5 10½	6 8	6 10½	6 6	6 4½	6 5½
October	7 0	7 10½	7 11	7 5	7 1½	7 5½	6 0	7 0	7 3	6 7½	6 4½	6 8
November	6 9	7 10½	7 11	7 4½	7 2	7 5	5 8	7 0	7 1	6 7	6 6	6 7
December.....	6 8	7 10½	7 11	7 4	7 2	7 4½	5 8	7 0	7 1	6 6	6 6	6 6½
Year	6 6	7 2	7 8	7 4½	6 11	7 1½	5 6	6 4	6 11	6 7½	6 2	6 3½

TABLE XIV—*Contd. Monthly prices of pig-meat. (b) Irish bacon: Great Britain.*
Per 14 lbs.

Month.	First quality.						Second quality.					
	1904.	1905.	1906.	1907.	1908.	Average.	1904.	1905.	1906.	1907.	1908.	Average.
January	s. d. 6 11	s. d. 7 0	s. d. 8 2	s. d. 7 9	s. d. 7 6	s. d. 7 6	s. d. 6 7	s. d. 6 6	s. d. 7 10½	s. d. 7 4½	s. d. 7 1½	s. d. 7 1
February	6 10	7 6	8 4	7 10	7 3	7 7	6 7	6 6	7 11	7 5	6 8	7 1
March	6 11	7 11	8 4½	7 10	7 2	7 7½	6 6	7 5	8 0	7 6	6 8	7 2½
April	7 2	8 3	8 10	8 1½	7 8	8 0	6 8	7 9	8 4½	7 8	7 1	7 6½
May	7 7	8 4½	8 6	8 2	7 10	8 1	6 10	7 10½	8 0	7 10½	7 4	7 7½
June	7 5	8 4½	8 4½	8 3	8 0	8 1	6 9	7 11	8 1	8 1½	7 4	7 7½
July	7 4	8 5	8 7	8 8	8 9	8 5	6 9	7 11	8 3	8 4	8 5	7 11
August	7 10½	8 9	8 10	8 9	8 9	8 7	7 3	8 1	8 3	7 11	8 2	8 1½
September	7 9	8 4½	8 7	8 3	8 4	8 4	7 3	8 1	8 3	7 11	7 10½	7 11½
October	7 5	8 0	8 5	8 1	8 4½	8 1	7 1	7 8	8 1½	7 8	7 8	7 8
November	6 9	8 1	7 9	7 7½	7 11	7 7½	6 4	7 7½	7 4½	7 3	7 4	7 2
December	6 5	8 1	7 6	7 4	7 5	7 4	6 1	7 8	7 2	7 1	6 10½	6 11½
Year	7 2	8 1	8 4½	8 1	7 11½	7 11	6 8	7 7½	8 0	7 8	7 4½	7 5½

(c) *Irish hams: Great Britain.*

Per 14 lbs.

	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
January	10	10	10	10½	12	7	12	4	11	4	11	7½	9	5	11	7½	10	4
February	11	4	10	5	12	7½	12	1	10	1½	11	6	8	11	12	2	10	1
March	11	3	11	0	12	6	12	0	10	7½	11	5½	9	5	11	10½	9	7
April	11	0	11	10	12	7½	11	6	10	10	11	6½	10	1	11	10	9	6
May	11	4	12	1½	12	9	11	7	10	9	11	8½	10	1	12	0	10	4½
June	11	6	12	6	12	9	11	11	10	1½	11	11½	10	9	11	10½	10	2
July	11	8	12	10½	12	10½	12	5	12	3	12	5	11	6	11	10½	11	4
August	12	7½	13	1	12	10½	13	1½	12	7½	12	9½	11	2	12	2	11	6
September	12	4½	12	8	13	1	12	8	12	7½	12	8	11	1½	11	10	11	4½
October	11	10	12	7½	13	2	12	2	12	8	12	6	10	3	12	5	11	2
November	11	5	12	3	12	7½	12	2	12	7½	12	2	9	4½	11	3	10	6
December	11	1½	12	5	13	0	11	7	12	7	12	2	9	6	11	7	11	4½
Year	11	6	12	1	12	10	12	1	11	9	12	0½	10	1½	10	9	12	0
																	11	1½
																	10	7½

PROCEEDINGS *on the* 18TH MAY, 1909.

THE CHAIRMAN said he regretted to have to open their proceedings by announcing to the Fellows that since their last meeting they had lost one of their most esteemed colleagues, one of the oldest members of the Society, and a personal friend of his own—Mr. Frederick Hendriks—whose name must be known to all who studied the annals of the Society, and knew how much he did for it in the past. A Fellow for more than half a century, and a Vice-President on numerous occasions, he had represented that Society at the older series of International Congresses, and was a regular attendant at the more recent gatherings of the International Statistical Institute. In his death, at the good age of 82, they now mourned the loss of a most amiable colleague, an able statistician, and a conscientious worker in all that concerned the management of their Society. At their meeting on Thursday last the Council passed a unanimous vote of regret and of sympathy with his family in the loss they had sustained. The older members of the Society, who had played their part in the statistical work of the nineteenth century, were steadily becoming fewer. Since he last attended a meeting in that place there had been no less than three sad gaps in their ranks, namely, Mr. Wilson-Fox, Mr. Czarnikow, and now Mr. Hendriks.

DISCUSSION *on* MR. R. H. HOOKER'S PAPER.

THE CHAIRMAN, in inviting discussion on this elaborate and timely Paper, said they would all recognise the ability with which the author had handled a singularly complex subject, which offered one of the most puzzling of statistical questions. Much more material was no doubt available now than formerly, thanks to the work of a Committee of that Society and to the increased statistics at command, for starting discussions as to the actual bulk of our meat supply from a better basis of fact than was open to earlier investigators.

MR. HARALD FABER, called upon by the Chairman, said he had not come prepared to take part in the discussion. He had listened to the Paper with the greatest interest, and considered it contained a large amount of very useful information. He noticed the prediction that the next generation would have to pay a high price for its meat was accompanied by a qualification, namely, unless some radical change was made in the diet of the people in the United Kingdom. If the supply of meat should fall short of the demand, and the price rise very much, he thought advocates of a different diet, containing little or no meat, would gain ground; and in that way the smaller supply of meat might be made to go round. With regard to the import of meat from Denmark, Diagram 9 showed

that almost the total imports from Denmark were pig-meat, and this came mostly in the form of bacon. In Denmark some very stringent regulations had been recently passed with regard to the control of the meat exported, and the recommendation of the previous Royal Commission on Tuberculosis had been adopted, to the effect that pig-meat derived from animals with even the slightest trace of tuberculosis should not be used for food. By a law of last year the export of meat was placed under strict control, and no meat whatever from pigs suffering in the slightest degree from disease was now sent to this country. This applied also to bacon, which was not the case in other countries exporting to the United Kingdom. Danish bacon could therefore be relied upon more safely than that from any other country. He had much pleasure in expressing his gratitude to the reader of the excellent paper.

Mr. T. A. WELTON said Mr. Hooker stated on page 327, as a matter of fact, that during the late nineties Australia sent as much beef as mutton to this country; but the diagram seemed to show that since then the supply of beef had shrunk to practically nothing at all. He should be glad to know the explanation. He could confirm from experience one point put forward, viz., as to the greater weight of the animals now being produced in the Argentine. The stock there was being improved, and the weight of the cattle was surprising, which of course meant a larger supply of meat. Another point illustrating possibilities for home supply was that at the time of the Japanese war, and since, the Russian army was considerably provisioned with meat from Australia.

Mr. GEORGE GOODSIR said he might suggest an explanation with regard to the cessation of the beef supply from Australia; it was caused in the first place by the tremendous droughts extending over five years; and, again, the growth of the trade had been checked, so far as this country was concerned, by the fact that the supplies found a better market in the eastern hemisphere. The Chairman had remarked on the puzzling nature of the questions raised by the statistics of meat, but it should be borne in mind that the figures with regard to the supply of meat were different from those of almost any other trade. For instance, in the case of wheat, very nearly the total production of wheat for the year was available for marketing in the year, but no more. In the case of meat, it was only a possible percentage that was marketable; and if prices rose or other conditions varied, the output could be vastly increased, and therefore the annual statistics with regard to the actual supplies in various countries were largely theoretical. The actual number of animals was known, but the proportion that was going to be sent to market was unknown, and that made the statistics very puzzling. Mr. Hooker was quite right in his conclusion—that the centre of supply was shifting from North to South America, for which there was more than one reason. First of all, the farmers in the States were changing their methods, because they were sick of the dealings of the big Trust. They were so much in their hands

at every turn that to a large extent they were giving up the fattening of cattle, and going in for the production of wheat and maize. Another factor was the growth of the population in America. The introduction and use of chilling plant in South America was of great importance. Within the last five or seven years it had been made possible to bring beef from the Argentine in a chilled condition, which was opening up a wider market in this country for the output of the South American herds than when only frozen beef was shipped. That process was being assisted by an invention called the Linley process, which enabled other freezing works to send supplies of chilled beef to this country. The same method was now being experimented with in Australia and New Zealand. The author referred to the supplies from the Southern hemisphere, and especially from Australasia, as a very uncertain quantity; and no doubt the export from Australia was uncertain, but that would be removed to some extent by the growth of irrigation. But whilst the Australian supply was irregular, that from New Zealand, which was the bulk, was very steady, the flocks there remaining much the same during the last ten years—about 20,000,000 head. Another matter which had not been noticed was the large supply of mutton which he believed would be coming in the near future from Patagonia and Uruguay. Patagonia, especially, could not produce beef at all, but could send only mutton, and that would be sent in increasing quantities.

Mr. A. H. H. MATTHEWS (Secretary, Central Chamber of Agriculture) said this Paper was rather beyond his criticism. The only comment he would make was, that he was rather surprised at Mr. Hooker's conclusion that, taking the world over, where grazing land was transformed into arable, mutton disappears. That might be so taking the world over, but in England, with which only he was personally acquainted, it had the contrary effect; where arable land was turned into pasture, the head of stock tended to diminish. He did not know whether it would be possible to give a table showing, over a period of years, the increase or decrease of arable land, and the corresponding increase or decrease of sheep and stock in various countries, but, if such figures were available, they would be interesting and instructive.

Mr. W. S. BARCLAY said he should like to deal with one point mentioned in the paper where the author said that he regarded the production of herd cattle in the United States and Canada as possibly oscillating between two curves, since it was less now in proportion to the increase of the population than it was before. One had to regard the conditions under which this class of cattle had been raised in the past. All herd cattle in the Western States, and even to-day in the West and North-West of Canada, were raised on practically free pasture, and it was very easy to raise cattle at a profit where you got the land and grass for nothing. At present, however, the farmers were invading the large ranch areas in Texas, Kansas, and the South-West, and taking up land

which the stock farmers could not possibly pay the same price for. Even in Canada to-day he regarded ranch cattle farming as being on a false basis, they only made it pay where they got the land for a nominal rental. A man took up a small piece of land as homestead and raised cattle on perhaps 100 square miles of land all round it, for which he paid only a fractional rent. If the drop in rough herd cattle was simply a temporary depression, owing to prices, it would be different, but those who had hitherto raised cattle under those conditions would never raise them again, because when the farmer came in the rancher went out. That had been the course of evolution in the Western States, where even the sheep farmer was encroaching on the cattle rancher. Fights sometimes resulted between the two, and whole droves of sheep had been driven over precipices to get rid of them. If they were going to look for ranch cattle, they must go to countries where it paid the farmer to buy land and raise cattle on it; and such countries were extremely few. The next point was that the supply of mutton for consumption here had not corresponded with the number of sheep; when the world's total number of sheep was smaller, the supplies had been greater. He took it that the supply of mutton was dependent more than any other class of meat on the price of wool and the cost of freight. He had seen as many as 2,000 or 3,000 sheep with their throats cut, left on the beach in Patagonia, simply because they could not be got away. They were raised entirely for wool, not for mutton. In some other parts of the world sheep were boiled down, and their produce came to this country in the shape of mutton fat and not as meat.

Mr. R. H. REW said this was one of the most interesting and valuable papers recently submitted to the Society, and it had obviously entailed a considerable amount of research and great mastery of the available data. He congratulated himself on having been indirectly the cause of its submission to the Society, as it was due to Mr. Hooker's appointment to give evidence on behalf of his Department before the Meat Combinations Committee that he had been led to pursue his inquiries in the direction which had led to this paper. Speaking generally, he thought it might be taken that the paper was on the whole reassuring as to the immediate prospects of our meat supplies, and, although it contained a warning to future generations, the present generation might be fairly certain of getting their beef, at any rate at Christmas. It was also interesting to find that we had been able practically to maintain our home supply of meat within the period dealt with by the paper. It was rather a feather in the cap of British agriculture that in spite of difficulties and competition it had been possible to turn out as much meat from the land of this country as was done twenty years ago. Considering how much some other branches of agriculture had developed, particularly market gardening, the cultivation of vegetables and fruit, and above all the production of milk, notwithstanding a declining acreage not only of arable land but of the farm area as a whole, it would appear that farmers had well

maintained the productivity of the soil. It was to be hoped that, possibly with the assistance of development grants and other means, the productivity per acre of the soil of this country would be still further increased. The most interesting point in reviewing the whole question of meat supplies was the immense development of the dead-meat trade. Things had moved very rapidly within recent years, by reason mainly of the ingenuity of the inventor who had introduced new processes to enable meat to be carried long distances without deterioration. It was, after all, not so very long ago that the only methods of preserving meat for consumption was by salting or drying. Their fathers used to kill the winter supply in the autumn, and live on it till the spring came round; and the same process was used for ship stores. The next stage was the introduction of canning, which had an enormous development. Many of them could remember when tinned meat was almost a novelty; but now there was hardly a corner of the earth where man's tracks were not marked by the debris of civilisation in the shape of old meat tins. Later on came the introduction of freezing as a means of preserving meat in a palatable form. The latest development, which had already been referred to, was the chilling process, by which it was possible to convey meat in a form attractive to the consumer from long distances. If one could forecast the future, he thought it lay in the further development of the dead-meat trade. He thought that the transit of live animals over long distances, whether by road or sea, would before long be regarded as an archaic and barbarous form of bringing meat to the consumer, and would be looked upon as a relic of a bygone age, and as obsolete as the practice of driving beasts by road from Aberdeenshire to Smithfield in the pre-railway era. He agreed with Mr. Goodsir's remarks as to the special difficulty of this subject, owing to the fact that the available statistics largely consisted of not the amount of produce coming into consumption in any year, as in the case of crops, but merely the gross source of supply, from which they had to estimate the amount coming forward in a given time. But so far as this country's consumption was concerned, the conclusions of the Paper were mainly based on the actual imports from time to time, and the estimated figures related only to home production, for which this Society had to bear a certain amount of responsibility.

Mr. C. A. COGGAN said he had been connected for the last seventeen years with this business, so that he had listened to the paper with great interest. There had been an interesting *résumé* of the trade in general; but he differed from the author, where he put down to certain land causes the fall in the number of cattle during certain periods. He (the speaker) put it down to foreign competition. Those who could recall the introduction of American beef would remember that it came at a time when public opinion was very much against everything foreign. Naturally, therefore, in order to force the market, the Americans had to put down their produce to a very low figure. He remembered the time when Scotch loins of beef were selling in Smithfield at 11d., and American at 4d.

or 5*d*. It was that state of things which brought English prices down at the time referred to in the paper. American beef had sprung from the old English stock, which had been exported to the States and to Canada, so that it was really British meat fed in America, and was therefore practically the same article as they had in England. Consumers found it tender, because, having been killed in the States and exported, it was eaten about six weeks from the time when the animal was killed. Seventeen years ago refrigerating, even so far as the local butcher was concerned, was not much attended to; and meat was often killed on Monday and sold on Saturday. Hence the American article got a footing which it would otherwise not have had. Huge sums of money must have been lost by the Americans at the outset, and that led to the fall in the price of English meat. With regard to Canada, he felt very strongly that being such a very cold country it would be well for England if she were once again to look over those Acts which prohibited Canadian cattle coming into this country, in order that our farmers might have more cattle on their land. The cattle could come over here at 10*s*. a head, which would give work to our farmers to fatten them and they might be brought on to the market at a profit. There was no doubt that there was going to be a rise in the price of meat. The meat trade of the world in the course of a few years, if it went on as it had been going, was coming into the hands of four American Beef Trust men, who met at Smithfield every morning to regulate the price of meat; and it seemed as if the world's supply was getting into the hands of those four men. They had practically a working agreement with Argentina, and they expected shortly to have a big control in Australia; they were actually controlling the States, and the bulk of the Canadian store cattle were also going into the States. Unless something was done to make England a bigger feeding ground for cattle, it looked as if we were going to have the price of meat dictated by four men.

The CHAIRMAN said the discussion had served to emphasise several features which dominated and changed the whole position of the meat import trade. He regarded as first among these the substitution of a steadily developing dead-meat trade for the dwindling live-meat imports in which a former generation believed. He looked forward to the gradual abolition, within a reasonable time, of the latter trade. Disagreeing with the last speaker he deemed it a very uneconomical method of introducing supplies, to drag over live animals from the other side of the ocean and sell them here either as store cattle or fat cattle. The graphic rise of the recent curves of meat imports from Argentina in the diagram appended illustrated what he meant. The course of events was proving the wisdom of those who originally, and for very good reasons, restricted the trade in these live animals. Had it not been for those restrictions placed on the introduction of animals which were possible vehicles of dangerous contagious diseases, the stock in this country would not

have been maintained at anything like the satisfactory proportions now shewn, nor would the consumer have had anything like the same secure basis for the home-grown section of his food, which had been to a large degree freed from exposure to the risks of imported disease. It was not merely the actual amount of disease which was imported under the old system, but the uncertainty conveyed to the minds of the breeders by the apprehensions of possible invasions of contagious maladies, which hampered the extension of our own herds and reduced the out-turn of meat from the actual head of stock maintained in this country. Coming to the Paper itself he was disposed to object to any very confident deductions based on the census of pigs, being impressed with some doubt as to the mode in which those figures were returned. There was an extraordinary variety in the local distribution of the pig stock of the world, and in the course of exports from different countries at different times. He was not referring only to those parts where the pig was almost a diplomatic factor, like the Balkan States, where there was continual friction as between Austria-Hungary and Servia, Bulgaria and Roumania. There acute questions arose as to the relative magnitude of the pig trade and the movement of swine over the frontiers. Even in their own statistics here one must remember all the pigs might not get into the returns, though they tried to supplement the figure got from occupiers of over an acre of land by those kept by small individual pig owners. In any case, pig totals were a wobbly feature of the returns from one year to another. A census taken on one day might be falsified on the next by the arrival of large litters, so rapidly did this form of live stock move. Another consideration forcibly brought out in the Paper was the unstable and in some respects disappointing character of the Australian live-stock figures. Mr. Hooker recognised that the enormous changes from one year to another in this region prevented a feeling of certainty in estimating our future reliance on these flocks. The 87,000,000 sheep, shewn as the stock at the present time in Australia was, no doubt, a recovery from past losses, but it yielded a very insignificant export. Only something like 672,000 cwt. of mutton in a year, as shown in Table IV, came here; and one wanted more explanation about the total export and the microscopic contribution of the large Australian flocks to the available mutton of the world. From New Zealand, with only one quarter of the sheep, we received here about 2,000,000 cwt., or three times the Australian quantity. It was an invidious task to suggest that such a voluminous and illuminating Paper should be in any way further extended; but he would certainly like, in the population and meat-production table, to add the population for the two intermediate years, not only the first year and the last, so as to give the different movements of production in relation to persons between each of the different decades under discussion. He noticed particularly the very ingenious calculations of the hypothetical equivalent in cattle of the total out-turn of all forms of meat. Had time sufficed he would have been glad to have seen its local application more fully discussed; but as it stood they had a rise from about 1880 to 1908 of some-

thing like 31 per cent., whereas the increase from first to last in the population seemed about 39, or even 40 per cent. A dissection of this movement in each ten years' interval would be interesting, as the Paper showed the progress was not uniform. He should like those population and production figures to be examined in more detail, both as a whole, in groups, and in the individual countries. We had far too little data yet as to the meat consumed as well as that produced, even in the older States. He felt that more had to be discovered about the significance of the position between 1890 and 1900, and from that date to 1908. Some of the movements had been most remarkable in the last few years. In the case, for instance, of the Russian sheep stock, which was the largest in Europe, the data suggested an exceptional fall in the later period which was not entirely explained. It had not been taking place at the same time as the German falling off, nor did it synchronise with other European movements, and was entirely opposed to the development in the Russian Asiatic flocks. Was it possible with regard to European Russia, where sheep had fallen from 61,000,000 to 46,000,000, that there was some alteration in the areas accounted for or some change in the method of collecting statistics, either in the date at which the return was taken, in the proportion of young stock included, or even, possibly, there might be now an exclusion of those goats which in the earlier figures were included with the sheep? The Paper acknowledged the curious nature of the figures representing the British home supply of meat in the earlier years, which were added to the table submitted to the Departmental Committee on Meat Production. He was bound to say that the figures for 1890-91, showing that only 10,000,000 cwts. of beef were produced, struck him as very remarkable, and he should have liked to go still further back and compare them with earlier estimates, in spite of the doubt Mr. Hooker indicated that perhaps there were changing factors, not now recognisable, which would hinder an absolutely fair comparison. Still there seemed no parallel to that particular year in any other part of the table, and it was always unfortunate for any statistical table to begin with an entirely exceptional year. The Paper as a whole would well repay study, and would doubtless be quoted freely hereafter. Taking the conclusions of Mr. Hooker as to the consumption of meat in this country, he thought it was worth remembering that if, according to the data before them, the consumption was slightly checked in the latest three years, the decline seemed to be almost entirely in the comparatively inferior item of pig-meat. There was none in the total consumption of beef, of which they were eating more per head than at any time before; they were even eating as much home beef as ten years ago, and more foreign. With regard to mutton, the foreign quota consumed per head seemed to remain pretty steady for the long period since 1895; and the consumption of home mutton had hardly declined. In the case of pig-meat, however, there was a very remarkable fall, namely, from 17 lbs. per head to 13 lbs. in the home-grown section, and also some decline in the foreign. He might suggest that the general improvement in

the condition of the people was reflected in the consumption of the higher forms of meat rather than the lower, such as pig-meat. He concluded by moving a hearty vote of thanks to Mr. Hooker.

Mr. HOOKER thanked the audience for their kind reception of his paper, and said there was not much original work in it, the actual figures having been mostly prepared for official use by the Department; and any value it might possess was largely due to them. With regard to the decline in the imports of beef from Australia, Mr. Welton would no doubt have noticed that beef from that country lagged behind mutton, but it was true that it had not recovered in the same way as mutton, and Mr. Goodsir had no doubt given the true explanation of this. Mr. Matthews had said that sheep were not pastured in England; this was quite true, and he (Mr. Hooker) had had this country in his mind as the principal exception. But we had so far advanced as to have, so to speak, intensive cultivation, which even extended more or less to sheep; and we had got largely beyond the stage of pasturing. But England was only a small part of the world; and, though other exceptions could also be enumerated, he did not think they invalidated the general broad statement. Mr. Barclay was quite correct in referring to the decline in ranching in the United States; it was disappearing steadily. With regard to the probable increase in sheep in Patagonia, by far the greater part of that district was included in Argentina; but the last census of the Argentine Republic showed a decrease of several million head. He had little doubt that what had happened was, that a much greater decrease than that shown had occurred in the older settled districts, which had been only partly replaced by an increase on the Patagonian side; and it looked to him as if the increase in the south would be largely counterbalanced by the decrease in the centre and north. South America seemed to have passed its maximum in sheep, though very good mutton prices might cause it to swing round again. He sympathised entirely with Mr. Rew and other speakers as regarded the transit of dead meat instead of live animals. With regard to Mr. Coggan's remarks on American competition in 1883 to 1887, the peculiar part of it was that they were sending in very much less when prices were falling rapidly. No doubt they competed as much as they could, but the decreased imports did not seem very strong evidence of dumping in those years. With regard to the action of the meat trust, he could only refer to the very judicious and judicial Report of the Departmental Committee which had just been issued; and he could not add anything to what was there said. With regard to the Chairman's remarks as to the unreliability of the pig census, he was afraid they knew too much about that. But however unreliable they might be as actual figures, he thought they might be used in making comparisons from period to period. Major Craigie had no doubt observed the remarkable regularity of the oscillations in the pig numbers of this country; you could almost forecast from one year to another what they would be, though he must say that the present year presented unusual difficulties. The sequence of figures indicated that they were near the maximum;

but the decreased imports of pig-meat of late years, and the good prices prevailing, might induce further breeding. But there were many significant signs that last year would be about a maximum for the United Kingdom, which was likely to be followed by a decrease, though, of course, the swing of the pendulum might be delayed.

The CHAIRMAN asked if Mr. Hooker had noticed the difference between the Russian and German movements in pigs?

Mr. HOOKER had referred to the development of the German pig industry as being most remarkable, but he did not know much about Russia. Major Craigie had also referred to the variations in the Australian statistics, but, although the fluctuations were very violent, he would no doubt have observed that they moved in great waves, and that the individual Colonies all moved together. Australia was subject to terrible droughts; and, as had been pointed out, the steadiness of the imports from New Zealand was due to that island being on a totally different footing as to climate; New Zealand did not get those droughts, and could develop steadily.

Mr. GOODSIR said that in Australia only 5 per cent. of the stock were fit to be shipped to this country. The fluctuations were chiefly in the number of merinos, and not so much in the cross-bred sheep.

Mr. HOOKER said that that was largely the point which had led him to look mainly to Australia for our mutton in future. If the price of mutton became sufficiently high, it was quite conceivable that extensive cross-breeding to improve the meat yield of the sheep might be adopted there, and it was because of this present unsuitability of so large a proportion of the sheep that there was so much more room there than anywhere else for development.

The following were elected Fellows of the Society :—

Percy Matthew Hendrie.

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Charles Fraser Adair Hore.