

# The Use of the Potato Crop in Pre-Famine Ireland

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## INTRODUCTION

The first definite newspaper reports that potato blight had made its way into Ireland were published on 6 September 1845.<sup>1</sup> In London, Professor John Lindley at once realised the grim implications of the news,<sup>2</sup> but in Ireland itself there was little immediate reaction. This home complacency was in some measure due to confidence about the food situation; the extent of land under potatoes had increased by 6% over the previous year's sowing to reach a figure of 2½ million statute acres,<sup>3</sup> and both potato and grain crops showed promise of above average yields. Thus on the very same 6 September 1845 an editorial in the *Leinster Express* began as follows: "Our correspondents on all sides transmit to us the pleasing intelligence that the harvest will be abundant and of good quality, and the deepest gratitude pervades the hearts of the farmers for the bountiful dispensations of a gracious Providence". The farmers were "in the height of good spirits", the peasantry "grateful and contented", the country "happy and prosperous". The editor foresaw, not the imminent famine, but "the dawning of a bright and glorious era in the history of Ireland". Indeed, the only ones not overjoyed were "some knowing old farm labourers" who had, earlier, expressed "their regret at having gone to the expense of sowing potatoes this season, they promise to be so cheap and plenty".<sup>4</sup>

<sup>1</sup> *Waterford Freeman; Dublin Evening Post*.

<sup>2</sup> *Gardeners' Chronicle*, 13 September 1845.

<sup>3</sup> Bourke, P. M. A.: The extent of the potato crop in Ireland at the time of the famine. *Journal of the Statistical and Social Inquiry Society of Ireland*, XX (1959), pp. 1-19. In the Appendix Note III to his 'Irish Agricultural Production: Its volume and structure' (Cork University Press, 1966), Mr. D. C. Crotty argues in a rather confused way in favour of what he terms 'the more traditional figure of one million acres' under pre-famine potatoes, a value which would accord with Mr. Crotty's unorthodox theses of a constant 'corn/root ratio' before as well as after the Famine, and of no substantial drop in tillage as a result of that disaster. The pertinent question of how a potato crop of 2½ million acres fitted with grain and tillage requirements into the available cultivated land in 1845 is discussed quantitatively in P. M. A. Bourke's 'Potato, blight, weather and the Irish Famine' (Ph.D. thesis, N.U.I., 1965, Appendix 4). The other point of substance in Mr. Crotty's criticism, the usage of the pre-famine potato crop, is dealt with in the present paper.

<sup>4</sup> *Limerick Chronicle*, 21 June 1845.

Had the yield been even an average one of 6 tons per acre,<sup>5</sup> it would seem from these and similar comments that the production of 15 million tons of potatoes would for once, have met the various calls upon the crop. In the present paper, we shall attempt to draw up a balance of how this enormous crop would have been used.

There are difficulties in reaching an accurate picture of the consumption of the potato crop even in modern Ireland.<sup>6</sup> It may, therefore, seem a hopeless task to attempt to do so for the Ireland of the 1840s. However, the dominant role played by the potato as food for men and pigs, and the abundant information on amounts consumed in those days, makes the problem rather less difficult than in these days of heterogeneous diet. In fact, in a pioneer effort which shows a remarkably modern approach, Dowdall<sup>7</sup> drew up in 1846 just such a balance sheet as a means of determining the acreage under different crops in the early 1840s. We shall follow his general line, with some changes in detail and presentation. This is far from being a mere arithmetical exercise or just a further check on the accuracy of the acreage and yield figures; it presents, in fact, a quantitative picture of the structure of the pre-famine population and of the relative dependence on the potato of the different classes of society and of farm animals. It provides the basic data necessary to understand the repercussions of the potato losses in the years 1845 and 1846.

Sukhatme<sup>8</sup> gives the following formulation of the structure of a food balance sheet:

$$P = G + F + (E - I) + M + W + S + (J_2 - J_1)$$

where

P = production of the food during the year.

G = human consumption.

<sup>5</sup> The question of the average pre-famine yields (and seeding rates) of major crops in Ireland is considered in Appendix I of Bourke's Ph.D. thesis (see Note 3). It is curious that the determined figure of 6 tons per acre as a representative national potato yield in the pre-famine decade should differ so little from that of 6.1 tons calculated by Wakefield in 1812 or that of 6.5 tons found by Arthur Young in 1780. It appears that the decline in average fertility of land arising from extension of the crop and the competition for manure was almost exactly compensated by the development and extended cultivation of inferior but prolific potato varieties, with the 'Irish Apple' being ousted by the 'Cup' and it in turn giving way to the notorious 'Lumper'.

The average potato seeding rate in the early 19th century was found to be 16cwt. per statute acre i.e. much the same as modern usage.

<sup>6</sup> A broad reconstruction of the use of the potato crop in all Ireland in 1951 is given in Appendix 2 of Bourke's Ph.D. thesis (see Note 3). It is based on published data for Northern Ireland and on information supplied by C.S.O., Dublin for the rest of the country, and indicates that in 1951 7% of potato production was exported, 11% reserved for seed for the home crop, 23% eaten as human food, 44% used as animal food and 15% lost in disease and other forms of wastage.

<sup>7</sup> Dowdall, F. 1846. Series of anonymous articles on Irish agricultural statistics in *Dublin Evening Herald* of November 5, 10, 14, 19, 24, 26 and December 1, 8, 1846. Briefly summarised and attributed to Dowdall in *Thom's Gazette and Official Directory*, 1848, pp. 165-7.

<sup>8</sup> Sukhatme, P. V., 1961, p. 467. The world's hunger and future needs in food supplies.

*Journal of the Royal Statistical Society*, Ser. A, 124, pp. 463-508.

F=animal consumption

E=exports.

I=imports.

M=use in manufactures other than food.

W=waste.

S=used as seed.

$J_1$ =stock in hand at beginning of year.

$J_2$ =stock in hand at end of year.

Question of the adjustment for carried-over stock ( $J_2 - J_1$ ) do not arise in the case of the potato. P is known as 15 million tons. We shall consider each of the other items in turn.

#### *Human consumption of the potato*

To assess human food requirements, we need:<sup>9</sup>

- (1) information about the food requirements of individuals according to age, sex and occupation (physiological data);
- (2) information on the numbers to be fed, together with their ages, sex and occupations (demographic data).

The Census of 1841 gives the second category of data; the first is provided in numerous official reports of the time, particularly those dealing with the Poor Law. We consider first the basic yardstick, the daily food requirement of a healthy adult male living exclusively on potatoes.

#### *Consumption of an adult male*

Connell<sup>10</sup> reviews much of the evidence regarding pre-famine human consumption of the potato and concludes:

Perhaps if we take 10 pounds a day as the average potato-consumption of the adult man from the 1780s to the famine we shall approach the real position as closely as our information permits: it is evident, however, that any such figure acquires its convenience at the cost of neglecting both any tendency there was for consumption per head to increase, and the undoubtedly wide regional differences.

Dowdall<sup>7</sup> in his contemporary analysis sets the consumption of a potato-fed adult male in the 1840s at 14 lbs a day. In so far as there is any disagreement between the two conclusions, the weight of authoritative evidence favours the higher figure for the years immediately preceding the famine. Trevelyan<sup>11</sup> says that a hundredweight of potatoes will not last a man more than eight days; he is echoing evidence repeatedly given before the Poor Inquiry,<sup>12</sup> where eight days is the period most frequently cited, but with occasional variants from five to ten days. In Tipperary<sup>13</sup> it was

<sup>9</sup> Passmore, R., 1962, p. 387. Estimation of food requirements. *Journal of the Royal Statistical Society*. Ser. A, 125, pp. 387-97.

<sup>10</sup> Connell, K. H., 1950, pp. 147-150. The population of Ireland, 1750-1845. Oxford.

<sup>11</sup> Trevelyan, C. E., 1848, p. 10. The Irish crisis, London.

<sup>12</sup> Poor Inquiry (E), 1836, pp. 1-37. Appendix (E) to the first report of inquiry into the condition of the poor in Ireland. H.C. 1836 (37), xxxii, 1

<sup>13</sup> Poor Inquiry (E), p.30.

said that while a hundredweight of good potatoes would support a man for eight days, the same quantity of 'the inferior sorts' would last only six days. In Co. Down, it was considered that a labouring man would "be hard set to do on" a stone of potatoes a day, and "would want something with it to work upon".<sup>14</sup>

Perhaps the most convincing testimony, not quoted by Connell, is contained in two consecutive reports by Hall and Hawley given in the Sixth Annual Report of the Poor Law Commissions.<sup>15</sup> The authors were engaged on the necessary but difficult task of fixing a poor law dietary scale less abundant and of inferior quality than that of the majority of the labouring class. "Evils that cannot be contemplated without dread are sure to follow" unless things were so arranged "that the seeking the shelter of the workhouse should be the test of destitution, and that none but those absolutely in want should ever be induced to claim its shelter".<sup>16</sup> As one step in this direction it was suggested, in line with the procedure followed generally in gaols and institutions, "that two meals a day will be sufficient for the paupers in the workhouse, namely, a breakfast and a dinner but no supper".<sup>17</sup>

To determine what the labouring poor actually ate, Hawley<sup>18</sup> did a careful survey in thirteen areas in Cos. Limerick, Tipperary and Clare. The results show considerable uniformity. Just under 14 lbs of potatoes were eaten in three equal meals; in one area (Ennistymon) Cups, a superior variety, were specified. Supper was, according to Hawley, not always taken, especially where there was a shortage of potatoes or fuel.

Both Hall<sup>19</sup> and Hawley<sup>20</sup> give useful information on the theory and practice of dieting in Irish prisons and institutions. The Act for Consolidating and Amending the Laws Relating to Prisons in Ireland (7th Geo. IV, cap. 74) laid down alternative diets, per prisoner per day, as follows:

*Bread diet*—2 lbs. bread, 1 quart of pure milk.

*Potato*—9 lbs potatoes, 1 pint of new milk, 1 pint buttermilk.

*Mixed diet*—8oz. meal for stirabout, 4 lbs. potatoes, 1 pint of new milk and 1 pint of buttermilk.

In general, the Irish prisons adhered rigidly to this schedule. Most provided the mixed diet, but Wicklow Gaol and Parsonstown Bridewell, no doubt catering to a mainly rural clientele, served potatoes exclusively. Among the twenty-two 'public establishments' listed, the Limerick Mendicity Society offered least — 5½ lbs of potatoes and 2 pints of skim milk per day. Despite this frugality, it was crowded, because discipline was low and the paupers managed "to obtain extra supplies of food from their

<sup>14</sup> Poor Inquiry (E), pp. 34-5.

<sup>15</sup> Sixth annual report of the poor law commissioners. H.C. 1840 (253), xvii, 447. Appendix (D), report No. 21 (pp. 238-42): Hall, R., Report on workhouse dietaries Appendix (D), report No. 22 (pp. 242-8): Hawley, W. H.T., Report on workhouse dietaries.

<sup>16</sup> Hall, pp. 238, 241 (see Note 15).

<sup>17</sup> Hall, p. 241 (see Note 15).

<sup>18</sup> Hawley, p. 244 (see Note 15).

<sup>19</sup> Hall, p. 239 (see Note 15).

<sup>20</sup> Hawley, pp. 245-8 (see Note 15).

friends out of the house". Limerick County Gaol supplemented the approved mixed diet by an extra three-quarters of a pound of potatoes. Although Hawley concedes that this was still inferior to the dietary of the peasantry, he notes with displeasure that it "has been found to offer sufficient inducements to abandoned characters to commit crimes, in order to enjoy its advantages during the winter months, notwithstanding the terrors of the treadmill".

The most marked disapproval is reserved for the County of Limerick Lunatic Asylum, which is excluded from the summary of public establishments "because of its evident disparity". It served three meals per day. Breakfast always consisted of 7 oz. oatmeal (called cutlins) in stirabout and a pint of new milk, and supper of 8 oz. bread and half a pint of new milk. Dinner was variable but far from frugal; on Wednesdays it consisted of "half a stone of boiled potatoes to each and 1 pint of new milk". Hawley does not say whether abandoned characters were induced to simulate madness, but it would seem to have been worth an effort.

There was an interesting exchange at the Maryborough sitting of the Poor Inquiry<sup>21</sup> which supplements Hawley's evidence. The governor of the gaol remarked that the prisoners engaged in hard labour got nine pounds of potatoes and a quart of milk a day, and were in better health than when at home. This claim was vigorously contested by a number of those present, who said that men in gaol got into bad health from the low diet. The governor then admitted that those prisoners who dieted themselves ate a stone of potatoes a day.

The contemporary evidence can be multiplied at will. Wilde<sup>22</sup> estimates that "nearly a stone of the root was taken into the stomach of the Irish labour per diem". Dr. J. F. Hodges of Belfast put the figure at fifteen pounds.<sup>23</sup> 'No less than 15 lbs.' said Spooner<sup>24</sup>, adding that "an Englishman would, I take it, find considerable difficulty in stowing away this enormous quantity of vegetable food, and how an Irishman is able to manage it is beyond my ability to explain." Bain,<sup>25</sup> who had lived in Co. Cork, recalls that "in wholly feeding with potatoes 90 or 100 people at harvest time, the custom was to lay down a weight, i.e. 21 lb, of potatoes to each four men, to breakfast, dinner and supper." This gives a figure of nearly 16 lbs. to each man, but the circumstances were exceptional and Bain puts the normal daily requirements at "only 14 lbs."

The evidence is overwhelmingly in favour of a figure of 14 lbs., when potatoes were in good supply. It is equally clear that as potato supplies diminished in Spring, the tendency was to reduce to two meals rather than three. For the purpose of our annual food balance, we accordingly scale down the allowance to *12 lbs. a day* for an adult male, as defined in the Census of 1841, i.e. one of over 15 years.

<sup>21</sup> Poor Enquiry (E), p. 21.

<sup>22</sup> Wilde, W. R., 1854, p. 131. The food of the Irish. *Dublin University Magazine*, xliii, pp. 127-46.

<sup>23</sup> *Irish Farmers' Journal* (Dublin), 1846, p.112.

<sup>24</sup> *Gardeners' Chronicle*, 1846, p. 11

<sup>25</sup> Bain, D., 1848, pp. 1-2. Observations upon the potatoe disease of 1845 and 1846 (Edinburgh).

*Consumption of women, children, and the aged*

Hawley,<sup>26</sup> in his investigations into the diet of the working classes in Limerick, Tipperary and Clare, found that adult women on a potato diet used 80% of the amount consumed by adult men. He comments:

The quantity of food consumed by able-bodied women is invariably less than that consumed by able-bodied men, but in quality is precisely similar. Males up to sixty years of age fully consume as much as young men in the prime of life, and those above sixty very little less. There is more difficulty in obtaining any correct data as to the relative consumption of food by children of all ages; but, from the best information I can obtain, I am led to suppose that those upwards of ten years of age require fully as much as full-grown women to sustain them, at a period when muscular expansion and rapid digestion require equivalent support.

The problem of determining the consumption of the young arose from their irregular eating habits. McAdam<sup>27</sup> mentions that in every cottage little children were allowed to roast potatoes in the turf ashes for their own use as often as they pleased. "As you ride by a cabin you frequently see a group of children run to the door, each holding in his hand a roasted potato".

Dowdall<sup>7</sup> got around the problem by basing the food requirement of young children on the dietary of the House of Industry in Dublin. In his analysis the food consumption of an adult woman is taken to be 80% of that of a man; the same figure is adopted for children between 11 and 15 years and a value of 35% for children under eleven years.

Considering the altered circumstances, these figures are not radically different from those used by modern authorities,<sup>28</sup> and we shall adopt them without change.

*The statistical family*

The *Census of 1841*<sup>29</sup> gives data which enable us to divide the population into adult males and females (over 15 years), into older children (11 to 15 years) and younger children (under 11 years):

Following the procedure suggested by Dowdall,<sup>7</sup> we associate with each adult male the appropriate proportion of adult females (1.080), older children (0.417) and younger children (0.993), to make a statistical "family" of 3.49 persons. This is, of course, an entirely artificial concept, but it provides a valid and effective method of dividing the population into

<sup>26</sup> Hawley, p. 245 (see Note 15).

<sup>27</sup> McAdam, R. S., 1835, p. 322. On the potato. *Quarterly Journal of Agriculture*, v, pp. 321-43.

<sup>28</sup> (i) Household budget inquiry, 1951-52, p. xxviii, Central Statistics Office, Dublin, 1954.

(ii) McArthur, M., 1964, p. 402. Some factors involved in estimating calorie requirements, with special reference to persons engaged in agricultural labour in Asian countries. *Journal of the Royal Statistical Society, Ser. A*, 127, pp. 392-408.

<sup>29</sup> Census of 1841, pp. 438-9. Report of the Commissioners appointed to take the census of Ireland for the year 1841. H.C. 1843 (504), xxiv.

TABLE 1

COMPOSITION OF THE POPULATION  
OF IRELAND, 1841

Adult males .....	2,341,895
Adult females .....	2,529,660
Older children .....	977,020
Younger children .....	2,326,549
<hr/>	
TOTAL	8,175,124

reasonable homogeneous dietary groups on the basis of the occupations of the adult males.

The next step is to weight each section of the statistical family in accordance with the food needs of sex and age, as discussed in the previous section. If an adult man in a particular occupational group eats, on an average, M lb. of potatoes a day, the daily consumption of the associated group of men, women and children (3.49 persons) may be calculated as 2.55 M lb., equivalent over a period of  $10\frac{1}{2}$  months,<sup>30</sup> to 0.364 M tons. For instance, in the section of the population which was entirely fed on potatoes and for which M=12, the corresponding annual consumption of the statistical family is 4.368 tons.

*Potato consumption according to occupation*

The next important question is to define more precisely the social group which lived entirely on potatoes.

There is ample evidence of the complete identity in poverty and diet of small farms (of up to about 20 or even 30 statute acres) with labourers and cottiers.

Martin Doyle<sup>31</sup> was primarily addressing the small-holders of the relatively prosperous Co. Wexford when he wrote:

After paying the necessary demands against you, there remains little or nothing for the support of your families. In winter, milk, so necessary to human life, is seldom within your reach; and meat is a luxury which never falls to your share, except at Christmas and Easter. I have often seen a very large family picking delicately at one salt herring for dinner, the only addition to their potatoes, and even this relish not afforded every day, while the father of the family rented from 10 to 20 (Irish) acres of land.

<sup>30</sup> Allowance is made here for the average length of the summer 'oatmeal period' (or 'potato gap') between the exhaustion of the old potato supply and the availability of the new. 'There was in Ireland what was called a "starving season" for about six weeks before the new harvest' (Daniel O'Connell in a speech in the House of Commons, 30 March 1846). For a detailed consideration see Bourke's Ph.D. thesis (Note 3), chapter 1, pp. 73-7.

<sup>31</sup> Doyle, M., 1830, p. 24. The works of Martin Doyle, Dublin.

A witness before the Devon Commission<sup>32</sup> spoke of the farmers "from thirty acres downwards" as being united with the labourers in opposition to the eviction of tenantry. The Society of Friends<sup>33</sup> considered that:

"the landed gentry and the clergy formed the first rank of society; and there were very few between them and the lowest class, which was composed of the labouring peasantry and the small landholders. The latter were scarcely removed above the labourer, either in circumstances or education".

Green<sup>34</sup> found that, in the Lagan valley area, "the division between thirty acre holdings and those below thirty marked a powerful social barrier". There was, of course, another at a higher level; a witness before the Devon Commission considered that "when you come to a farm of 100 acres, you get a creature between a hawk and a hound, and it is difficult to know how to deal with him. He is not a gentleman, and not a farmer".<sup>35</sup>

The limits of farm sizes which we may assign to the different categories of landholders is circumscribed by the sizes in which the reliable statistical evidence is grouped. We shall combine smallholders of under 20 statute acres with cottiers and labourers to form the group on an exclusive potato diet, and divide the remaining farmers into those holding below and above 50 statute acres.

Even outside the lowest group, considerable amounts of potato were eaten. Of the bigger farms, Salaman<sup>36</sup> says:

"If necessity made the potato the food of the masses, the habit it created was certainly not confined to them. The middle-class, though free to choose a more varied diet, became confirmed potato addicts and consumed what we today would consider preposterous quantities. A vignette from one of Griffin's novels ('The Half Sir', p. 123) gives one an intimate glimpse into a comfortable Munster farmhouse in the first quarter of the nineteenth century: 'Minnie O'Lone was quietly seated by the breakfast table making a rapid progress through the reeking mountain of steak-coated potatoes and virgin-white milk that covered the board.'

The more prosperous Irish landowners, on tour in Europe, surprised the continentals by their addiction to potatoes. When the Polish Countess Myscelska called on Lady Mountcashel in Paris, she found her:

eating plain boil'd Potatoes for her luncheon in the middle of the day. She then heard for the first time that *that* was the principal food of the Irish, and immediately resolv'd on giving Lady Mount Cashell a break-

<sup>32</sup> Devon Report, 1845, witness 1051, question 24. Evidence taken before Her Majesty's commission of enquiry into the state of the law and practices in respect to the occupation of land in Ireland H.C. 1845 (606), xix, 57; (616), xx, 1; (657), xxi, 1; (672), xxii, 1; (673), xxii, 225.

<sup>33</sup> Society of Friends, 1852, p. 100. Transactions of the Central Relief Committee of the Society of Friends during the famine in Ireland, Dublin.

<sup>34</sup> Green, E. R. R., 1949, p. 125. The Lagan valley, 1800-1850. London.

<sup>35</sup> Devon Report, 1845, witness 431, question 55 (see Note 32).

<sup>36</sup> Salaman, R. N., 1949, p. 279. The history and social influence of the potato. Cambridge.



fast in compliment to her country. We went there and literally found nothing but Potatoes dress'd in fifty different fashions.<sup>37</sup>

In the case of the different artisans and tradesmen, Dowdall<sup>7</sup> illustrates that his estimates of their degree of dependence on the potato are reasonable in the light of their earnings and way of life. In assigning values to M for each social group, as shown in Table 4, we follow the proportions suggested by Dowdall, who had contemporary experience; in some mixed groups which are marked as 'unclassified' we use an average value of  $M=6$ .

It would be pointless to discuss in detail the values assigned to M in Table 4 for the various groups other than that made up of cottiers, labourers and smallholders, for they alone account for 75% of the total human consumption of potatoes. If we assigned a mean value of  $M=6$  to all outside this group, the value derived for total potato consumption would be only 3% higher than under the system we have adopted; if we assigned a figure as low as  $M=4$ , the total would be reduced by only 4%. In other words, the rather arbitrary figures of potato consumption assigned to all except the lowest class may be altered to personal taste without creating any radical change in the deduced total human consumption.

#### *Regional differences in potato consumption: the oatmeal zone*

In any calculation of potato consumption allowance must be made for the areas in which oats formed a regular part of the diet of the people throughout the year. The core of the oatmeal zone was centred in Ulster, home of the "stirabout-eaters" whom Wilde<sup>38</sup> considered had "inherited the peculiar appetites and culinary knowledge of their Scotch ancestors." Dowdall<sup>7</sup> defines the main area as that north of a line from Dundalk to Finnea, Co. Westmeath, and thence to Ballyshannon, but excluding the counties of Cavan and Donegal. On the basis of a survey made by the Poor Inquiry, Bourke<sup>39</sup> calculates that about 30% of the poorer classes had at least an oatmeal breakfast in place of the full potato diet which was the lot of their counterparts in most of Ireland.

#### *Occupational groups and total human potato consumption*

The Census of 1841<sup>40</sup> gives a detailed breakdown of the occupations of 2,213,457 of the adult males of 15 years and upwards. In Table 2, these have been grouped into seven major categories, and an 'unclassified' group of 128,438 added to agree with the total of adult males in Table 1.

The large and heterogeneous agricultural section (group 1 of Table 2) needs to be broken down into subsections according to size of agricultural holding. For this purpose the more reliable statistics<sup>41</sup> are the Poor Law Returns. Table 3 summarises these returns as given in the Devon Report.<sup>42</sup>

<sup>37</sup> Wilmont, C., 1920, p. 80. An Irish peer on the Continent (1801-1803). Ed. by T. U. Sadlier, London.

<sup>38</sup> Wilde, W. R., 1854, p. 128 (see Note 22).

<sup>39</sup> Bourke, Ph.D. thesis, chap. 1, pp. 65-6 (see Note 3).

<sup>40</sup> Census of 1841, p. 440.

<sup>41</sup> Bourke, P. M. A., 1965, pp. 377-81. The agricultural statistics of the 1841 census of Ireland: a critical review. *Economic History Review*, Second Ser., xviii, pp. 376-91.

<sup>42</sup> Devon Report, 1845, App. No. 94, pp. 280-9 (see Note 32).

TABLE 2

## SUMMARY OF ADULT MALE OCCUPATIONS IN IRELAND, 1841

1. Farmers (452,940), agricultural servants and labourers ((1,105,258), ploughmen, gardeners and herds ... ..	1,586,369
2. Graziers, land agents, land stewards, gamekeepers and dairykeepers ...	7,318
3. Workers in clothing, including weavers (104,987), boot and shoemakers (45,656) and Tailors (34,944) ... ..	212,582
4. Workers in the furniture, building, metal and associated trades, including carpenters (38,672), blacksmiths (24,875), stonemasons (16,450), coopers (9,278), etc. ... ..	158,349
5. Miscellaneous workmen, consisting of non-agricultural domestic servants (59,692), labourers and porters (29,064) fishermen (8,918) carmen (8,279), sailors (4,218), boatmen, coach and car drivers ... ..	115,287
6. Professional classes, including those concerned with health, charity, justice, education and religion; and merchant classes, including bankers, merchants, shopkeepers, vintners and tavern keepers, etc. ... ..	128,127
7. Paupers (self-styled) ... ..	5,425
8. Unclassified ... ..	128,438
TOTAL ... ..	<u>2,341,895</u>

TABLE 3

## NUMBER OF PERSONS HOLDING LAND IN IRELAND, c. 1845

Size of holding	Number
From less than 1 acre to 10 acres ... ..	505,173
Above 10 and not exceeding 20 acres ... ..	187,582
Above 20 and not exceeding 50 acres ... ..	141,819
Above 50 acres ... ..	70,441
Unclassified ... ..	30,433
Total number of persons holding land ... ..	<u>935,448</u>

If this total is subtracted from 1,586,369, the number of farmers and labourers, the residue of 650,921 represents the number of agricultural labourers who did not hold land except in conacre.

It is worth while to digress for a moment to consider the implications of this important statistic. The landless labourers, according to the Census of 1831, totalled at that time 567,441 or 7.3% of the total population (not counting their dependants). In 1834 it was calculated that they probably numbered about 585,000. The figure of 650,921 derived above represents 8.0% of the population in 1841. The rise in proportion to the general population is a reflection of the growing competition for land.

If one adds their dependants, the landless labourers represented a total of nearly 2,272,000 people, or more than one-quarter of the whole population. They were the most vulnerable and insecure section of the people, living their desperate lives under a constantly poised sword of Damocles.

TABLE 4

## POTATO CONSUMPTION BY DIFFERENT GROUPS IN IRELAND, 1841

	No. of Adult Males	No. Including Dependents (thousands)	Basic Daily Potato Food (M. in lbs.)	Annual (10½ month) Use of Potatoes (thousand tons)	
AGRICULTURAL	1. Cottiers, smallholders and landless labourers outside the oatmeal zone ... ..	940,573	3,283	12	4,108
	2. Cottiers, smallholders and landless labourers within the oatmeal zone ... ..	403,103	1,407	8	1,174
	3. Small farmers, holding between 20 and 50 acres ...	141,819	495	6	310
	4. Unclassified farmers mainly in joint tenancy ... ..	30,433	106	6	66
	5. Large farmers, of 50 acres and above ... ..	70,441	246	3	77
	6. Graziers, landagents, etc.	7,318	26	3	8
	SUB-TOTAL ...	1,593,687	5,563	—	5,743
NON-AGRICULTURAL	7. Clothing workers ...	212,582	742	6	464
	8. Furniture, building and other trades ... ..	158,349	553	4	231
	9. Miscellaneous workmen ...	115,287	402	4	168
	10. Professional men and merchants ... ..	128,127	447	1	47
	11. Paupers ... ..	5,425	19	6	12
	12. Unclassified ... ..	128,438	448	6	281
	SUB-TOTAL ...	748,208	2 611	—	1,203
GRAND TOTAL ...	2,341,895	8,174	—	6,946	

In 1845, the amount of potato land set in conacre was about 350,000 acres<sup>43</sup> representing an average produce of 2,100,000 tons, or roughly 75% of the food requirements of the landless group. On this basis, their potato supplies from conacre would be exhausted early in May; the Poor Inquiry<sup>44</sup> confirms that "the labourer never has any of his conacre potatoes remaining at the period at which they become unfit for use, the greater number have used them all at the beginning of April. and scarcely one has a potato remaining at the 1st of May".

Returning to the main argument, the derived figure of landless men is added to the numbers of smallholders and cottiers holdings up to 20 acres to give a total of 1,343,676. Thirty per cent of these, or 403,103 people, lived within the oatmeal zone and are assigned, in the mean, a two-thirds potato diet, leaving 940,573 as the hard core of the potato-eating population. This completes the basis for Table 4.

In round figures, the total annual usage of the potato as human food in Ireland just before the famine may be taken as 7 million tons.

#### *Consumption of the potato by farm animals*

"I calculate" wrote a Mr. Lambert<sup>45</sup> "that five out of the eight millions composing the population had their food or living by the potato, the remaining three million being partly fed on them, and the immense supply of pigs altogether, beside the aid afforded to supply cows, horses and poultry."

It is necessary, therefore, to consider the annual potato consumption by pigs and other animals. An enumeration of livestock was carried out in 1841<sup>46</sup>. The returns of cattle and pigs are considered to be on the low side; there is no means of adjusting the latter, but a corrected figure of 2,250,000 has been calculated for the former.<sup>47</sup> With this adjustment, the pre-famine totals of livestock are as shown in Table 5.

TABLE 5

#### TOTALS OF LIVESTOCK IN IRELAND, 1841

Cattle	...	...	2,250,000
Sheep	...	...	2,106,189
Pigs	...	...	1,412,813
Horses and mules			576,115
Asses	...	...	92,365
Poultry	...	...	8,458,517

<sup>43</sup> Bourke, 1959, p. 8 (see Note 3).

<sup>44</sup> Poor Inquiry (E), p. 1.

<sup>45</sup> *Irish Farmers' Journal*, 1846, p. 687.

<sup>46</sup> Census of 1841, pp. 454-7.

<sup>47</sup> Bourke, 1965, pp. 381-2 (see Note 41).

*Consumption by pigs*

While cattle and horses spent most of the year on grass, pigs were fed on the potato, and almost exclusively on the potato, for as long as the food lasted. They therefore represented the major item in this part of the balance sheet. It is unfortunate that the care and feeding of the pig in Ireland, being largely the poor man's chores, are not discussed in any detail in the agricultural books and journals of the period; nor is modern feeding practice any guide, since the pig of today has been altered so much by breeding and by new introductions as to be virtually a different animal.

Dowdall<sup>7</sup> considers the average daily requirement of food for each pig, "at a very moderate estimate" to be a stone of potatoes. He quotes no supporting evidence. The most specific witness before the Poor Inquiry<sup>48</sup> said that:

he had only one pig this year, which was as much as he could venture to keep, as potatoes were likely to be dear; if distress should not come on him, he would like to keep it for a twelvemonth; it cost him 18s., and it would eat a stone of potatoes a day, and more when grown large; that would be 1½d. or 2d. a day if he had to buy, but they were the small potatoes of his conacre; if not obliged to meet the wants of his family, he would sell the pigs about Christmas for, perhaps, £1 8s. or £1 10s. It would not be worth keeping pigs if one had to buy the food for them.

Another witness<sup>49</sup> said that the small man could not feed his pigs well; raised by gentlemen, they fetched twice the price.

This is confirmed by some results of experiments on the fattening of livestock on potatoes submitted by Blacker.<sup>50</sup> A pig weighing 120 lbs. and costing 30s. was fed for six months on two stone of potatoes a day; at the end of this period the animal weighed 320 lbs. This is consistent with Blacker's claim that each bushel of 4 stone of potatoes will put on two lb. of meat on a pig. The conversion rate of roughly 1 to 6 or 7 barley units is, of course, poor by modern standards.

In another example, Blacker says:

My steward bought a pig in November 1835 for 7s. 6d., and sold him him 1st December 1836, which pig weighed nineteen score seven pounds payable and amounted to £6. 6. 0.

From the period of rearing, final weight (387 lb.) and conversion rate, it can be calculated that the daily consumption in this case also was about two stone of potatoes a day.

But the vast majority of pigs were raised by the small man, if only for the reason that it was uneconomic to feed the inefficient breed on potatoes other than the "peelings and waste of those used by the family".<sup>51</sup> The pig was unlikely to fare better than the head of the family. There are numerous

<sup>48</sup> Poor Inquiry (D), 1836, p. 84. Appendix (D) to the first report of inquiry into the condition of the poor in Ireland. H.C. 1836 (36), xxxi, 1.

<sup>49</sup> Poor Inquiry (D), 1836, p. 85.

<sup>50</sup> Report of Agriculture III, 1836, p. 330. Third report from the select committee appointed to inquire into the state of agriculture. H.C. 1836 (465), viii, 1.

<sup>51</sup> Poor Inquiry (D), 1836, p. 87.

references to under-nourished and even starving pigs which suggest that, in many cases, the food supply actually available was inadequate. Allowing for fluctuations around the year, we have adopted a mean daily rate of 12 lb. of potatoes per pig over 10½ months.

#### *Consumption by cattle*

Dowdall<sup>7</sup> submits that:

it requires one stone of straw and 36 lbs of potatoes to maintain a carefully housed cow during twenty-four hours. An Irish cow is generally so much exposed to the influence of the atmosphere and her necessity for abundant fodder thereby so much increased that less than 21 lbs. of potatoes daily, for the time she is house-fed, would scarcely support life. That period cannot be estimated at less than three months; for although there be a greater number of cattle which, in all weathers except snow, are made to depend on the almost naked fallow or closely nipped pasture, still the livestock of farmers holding about 30 acres are for much more than three months stall-fed on potatoes.

The higher rates of feeding and the longer periods under shelter, as practised by the bigger farmers, are confirmed by Blacker's evidence.<sup>52</sup> In two cases the cattle were stall-fed for five months; in another for four. The rate of feeding was, in most cases, 4 stone of potatoes a day; in one case, as high as 6 stone. "A ton of potatoes would nearly last a beast 40 days". More would be needed "if the beast consumes more than 4 stone, which they often do". Of course, these feeding rates were designed to fatten the cattle for market. They gained weight at about 1½ lb a day, at rates equivalent to about 1 lb of meat to 32-40 lb potatoes.

Similarly a Louth farmer of over a hundred acres, who claimed normally to use 30 stone of potatoes a day for "people, pigs and horses" found that cattle fed on 4 stone of potatoes fattened more rapidly than on 12 stone of turnips. The potato, says Goodiff<sup>53</sup> "is a better food for cattle than turnips, producing sweeter milk and finer beef".

The problem is to strike a mean between the practice of the big cattle men and the small struggling farmers. We accept Dowdall's compromise of 1½ stone of potatoes a day for each beast over a period of three months.

#### *Consumption by horses*

In the case of horses, for whom oats was commonly available as an alternative food, the situation is more complex.

Martin Doyle<sup>54</sup> considered that a sufficiently fed horse required, over the seven month period from October to April, inclusive, a daily diet of one stone of boiled potatoes, plus seven pounds of hay, seven pounds of oaten straw and eight pounds of oats. A Co. Galway farmer<sup>55</sup> found no diet so good for the winter feeding of cart horses "as upland hay, oats and

<sup>52</sup> Report on Agriculture III, 1836, pp. 329-30 (see Note 50).

<sup>53</sup> *Irish Farmers' Journal*, 1845, p. 343.

<sup>54</sup> Doyle, M., 1830, p. 24 (see Note 31).

<sup>55</sup> *Irish Farmer's and Gardener's Magazine* (Dublin), 1838, p. 29.

bruised beans, assisted with 21 lb. of steamed potatoes each night, seasoned with bay salt”.

The problem is not, however, so much the quantity of food desirable for a horse, but rather the amount he actually received. Dowdall<sup>7</sup> asserts that: the horses of the gentry were generally well fed on oats, those of the cottier tenantry half-starved on wastes and fallows; the horses of the farmers were, to a very large extent, during the winter and spring months, supported on potatoes.

Evidence before the Poor Inquiry<sup>56</sup> illustrates the extremes of practice. In the better areas, horses “are turned out to graze from May to November and have then no other food, but from November to May the larger farmers give theirs one stone of oats and one of boiled or steamed potatoes per day, and the smaller farmers two stones of potatoes without oats.” Again in the barony of Gowran, Co. Kilkenny, horses were allowed, from November until May or June, “besides hay, from one to two stones of steamed or boiled potatoes, and from a  $\frac{1}{2}$  stone to a stone of oats per day, according to their work”. At the other extreme, some horses were given hay only during the winter months, and saw oats (generally the “tale” or unsaleable grain) only during the Spring working season.

Taking a conservative mean of these and other accounts, we may consider the horse as living on pasture alone for six months, existing, apart from hay or straw, on a stone of potatoes a day during the three inactive months of winter, and feeding reasonably well on a stone of oats a day during the three busy months of spring.

#### *Consumption by other animals*

Dowdall<sup>7</sup> makes allowance for potatoes eaten by poultry. No doubt they fed in large part on potato refuse,<sup>57</sup> but it seems difficult to make any rational estimate of how much, if at all, they added to the total consumption. Probably they frequently helped themselves to the fringes of the pig’s ration.

There is some evidence<sup>58</sup> of winter feeding of sheep on 4 to 7 lb of potatoes a day per animal. It seems to have been an experimental procedure tried by some enterprising farmers, and was probably not widespread.

#### *Total annual potato consumption by farm animals*

Confirming our attention to pigs, cattle and horses, the total annual consumption of the potato as animal feed is as shown in Table 6.

In round figures, the total annual usage of the potato as animal food in Ireland emerges as 5 million tons.

<sup>56</sup> Poor Inquiry (F), 1836, pp. 372, 376, 383, 385. Appendix (F) to the first report of inquiry into the condition of the poor in Ireland. H.C. 1836 (38), xxxiii, 1.

<sup>57</sup> Dubourdieu, J., 1802, p. 207. Statistical survey of the county of Down. Dublin.

<sup>58</sup> (i) Townsend, H., 1810, p. 654. Statistical survey of the county of Cork. Dublin.

(ii) *Munster Farmers’ Magazine* (Cork), 1811, pp. 37, 70; 1812, p. 121.

TABLE 6

## POTATO CONSUMPTION BY LIVESTOCK, 1841

	Number	Rate and Period	Total Consumption (thousands of tons)
Pigs ... ..	1,412,813	1 stone a day for 320 days	2,826
Cattle ... ..	2,250,00	1½ stone a day for 91 days	1,920
Horses ... ..	576,115	1 stone a day for 91 days	328
Total ... ..		... ..	5,074

*Exports and imports of the potato*

Imports of potatoes are rather easier to assess than exports. In normal years, potato imports were mainly confined to seed potatoes for the more prosperous growers who wished to change seed or to grow the early varieties more common in Britain. In North Dublin, which served the city potato markets:

great care is taken in the selection of seed; all the growers change their seed occasionally, getting it from distant parts of the country, and often from England and Scotland. They find the greatest benefit from this practice and go to considerable expense to pursue it. The vicinity of shipping-ports saves the small holders from the necessity of paying any exorbitant price for this change of seed.<sup>59</sup>

## In Co. Meath:

the gentlemen and large farmers buy seed from other parts of the kingdom, the smaller farmers and labourers content themselves with changing from light (to) heavy land, and vice versa.<sup>60</sup>

Niven<sup>61</sup> refers to such imports and suggests means of organising an Irish seed potato trade to avoid "so many thousands of pounds being sent annually out of the country."

It was, clearly, a fairly limited trade, which Niven's comment suggests did not total more than some thousands of tons, and is, consequently, of little importance to our balance sheet. It has, however, considerable significance from the point of view of plant epidemiology, for it provided a means by which tuber-borne disease would quickly find its way from Britain to Ireland.

As regards trade in the reverse direction, an immediate problem is the ambiguous way in which the word "export" was used at the time. Thus when Townsend<sup>62</sup> speaks in 1810 of "a large export of potatoes" from Co.

<sup>59</sup> Poor Inquiry (F), p. 227.

<sup>60</sup> Poor Inquiry (F), p. 256.

<sup>61</sup> R.D.S. Prize Essays, 1835, pp. 44-5. Prize essays on the potato and the causes of the late partial failures. Royal Dublin Society, Dublin.

<sup>62</sup> Townsend, 1810, p. 228 (see Note 58).



Cork he is speaking primarily of an internal Irish trade; he goes on to give a most interesting account of the coastal potato trade as plied between Cork and Dublin. This domestic exchange between the areas of dense and sparse potato cultivation had been long in existence. Pococke,<sup>63</sup> writing in 1752, mentioned that Dungarvan was famous for an export of potatoes to many parts of Ireland. The Drummond Report<sup>64</sup> of 1837-8 gives the main potato shipping ports, in order, as Strangford, Ardglass-Killough, Donaghadee, Belfast, Waterford and Baltimore (Co. Cork). Dublin and Balbriggan are named as potato importing centres. The annual amounts quoted, which include true exports as well as the coastal trade, are not impressive; Strangford shipped just under 10,000 tons, The figure given for Belfast (2,924 tons) is of the same order as the 3,500 tons given by Lewis<sup>65</sup> for the same port in 1845. A problem with the trade statistics given in the Drummond Report and elsewhere, apart from their speculative nature, is that potatoes are not separately listed in all returns.

It does seem, however, that by the 1840s Ulster had emerged as a strong competitor in a potato trade which had formerly been the monopoly of Munster. Carlingford now shipped cargoes of potatoes to Dublin,<sup>66</sup> while Cork was forced to seek alternative markets in Limerick City.<sup>67</sup> Perhaps the northerners had a keener sense of marketing; Dubourdieu<sup>68</sup> gives an illustration of a mechanical potato washer which had been invented by Mr. Crawford of Crawfordsburn, Co. Down.

That there was a persistent foreign market for Irish potatoes is clear from occasional unambiguous references. Rye<sup>69</sup> wrote as early as 1730 of exports from Ireland "to our garrisons of Gibraltar and Portmahon, and to some other parts." A list of Irish imports into Bristol in the period 1839-42 includes potatoes.<sup>70</sup> Cargoes of Irish potatoes were reaching the London market in 1844.<sup>71</sup>

The trouble in assessing the amounts involved is that the subject came up for active discussion only in seasons of food scarcity in Ireland; if, as seems possible, proposals to prohibit the export of potatoes in such seasons were designed as a diversionary tactic to draw attention from grain exports, then the extent of the potato trade may have been deliberately exaggerated.

The matter had arisen, for instance, in the hungry spring of 1817.<sup>72</sup> The Lord Lieutenant of the time pressed Peel to authorise the stopping of potato

<sup>63</sup> Cited in Davidson, 1937, p. 298. The history of the potato and its progress in Ireland, *Journal of the Department of Agriculture*, xxxiv, pp. 286-307.

<sup>64</sup> Drummond Report, 1837-8, App. B, No. 9. Second Report of the commissioners appointed to consider and recommend a general system of railways for Ireland H.C. 1837-38 (145), xxxv, 449.

<sup>65</sup> Lewis, S., 1849, i, p. 187. A typographical dictionary of Ireland, 2 vols, 2nd Edn. London.

<sup>66</sup> Lewis, 1849, i, p. 244 (see Note 65).

<sup>67</sup> *Limerick Chronicle*, 30 July 1845.

<sup>68</sup> Dubourdieu, 1802, p. 51 (see Note 57).

<sup>69</sup> Rye, G., 1730. Considerations on agriculture. Dublin.

<sup>70</sup> *Thom's Almanac*, 1846, p. 173.

<sup>71</sup> *Gardener's Chronicle*, 1844, p. 270.

<sup>72</sup> Gash, N., 1961, pp. 220-2. Mr. Secretary Peel: the life of Sir Robert Peel to 1830. London.

exports from Ireland. Peel insisted on "precise information" before taking action; the figures eventually obtained indicated that in the months January to March 1817, potato exports from Ireland totalled 391 tons and imports 967 tons. Peel was not unnaturally indignant:

I cannot tell you how embarrassed I am . . . After having had a meeting of the Government . . . and seriously discussed the policy of immediately prohibiting the export of potatoes from Ireland, I must now inform those that attended that meeting that the imports into Ireland exceeded the exports from it in the last two months in the proportion of three to one.

Did this experience temper Peel's attitude when the question of prohibiting potato exports came up again in 1845? And yet, the 1817 figures were quite unrepresentative of a complete year's exchange. Exports, even in a normal year, would largely take place soon after harvesting; in a season of internal food shortage like 1816-7, they inevitably fell off rapidly in the new year. Furthermore, the period of the test was that in which imports of seed potatoes of early varieties was likely to be concentrated.

Some references in 1845 may refer to the normal export trade, A policeman comments on "the demand for Irish potatoes in the Liverpool and Glasgow markets. The exports of potatoes to these markets by the steamers from the Port of Londonderry has commenced".<sup>73</sup> New potatoes were being sent twice a week by steam packets from Cork to Plymouth;<sup>74</sup> there was a similar trade with Devonport.<sup>75</sup>

A new development in autumn 1845, however, was a demand for Irish potatoes from the Low Countries where blight had struck early and destructively.<sup>76</sup> "It is said that orders to the extent of 5 to 6,000 tons have been received in this country from affected continental areas".<sup>77</sup> There was as yet no general alarm for the Irish crop; the *Dublin Evening Post*<sup>78</sup> was confident that "a full average crop of sound potatoes will be available for home consumption even if we should export some to England and the Netherlands." And so a considerable trade began, from Cork, Dublin, Belfast and other ports to Holland and other parts of the Continent.<sup>79</sup> By the second week of October, it was clear that the Irish crop was seriously damaged, and some concern began to be expressed about the potato exports. "We have great fears that our country will shortly be drained of this crop also, if, in every port in Ireland, shipments are made in the same ratio as from Drogheda last week".<sup>80</sup> But the trade continued unabated

<sup>73</sup> Constabulary Reports, 1845, Londonderry, 21 September. Constabulary reports on the condition of the potato crop. Relief commission papers. Public Record Office, Dublin. 1A.50.73.

<sup>74</sup> *Limerick Chronicle*, 17 September 1845.

<sup>75</sup> *Cork Constitution*, 7 October 1845.

<sup>76</sup> Bourke, P. M. A., 1964. Emergence of potato blight, 1843-46. *Nature*, 203, pp. 805-8.

<sup>77</sup> *Newry Commerical Telegraph*, 25 September 1845.

<sup>78</sup> 13 September 1845.

<sup>79</sup> *Northern Whig*, 27 September 1845; *Leinster Express*, 4 October; *Southern Reporter*, 9 October; *Dublin Mercantile Advertiser*, 10 October.

<sup>80</sup> *Drogheda Conservative*, 11 October

even as alarm about blight in Ireland mounted,<sup>81</sup> the argument aired now in the *Cork Constitution* was that it was advantageous to permit the export of potatoes which, if kept, might contract disease.<sup>82</sup> But local bodies<sup>83</sup> and the Dublin Corporation brought pressure on the Lord Lieutenant, who in turn, pressed Peel for instructions regarding the "great cry" for the prohibition of the export of foodstuffs.<sup>84</sup> Peel echoed the earlier comment of the *Cork Constitution* in his answer:

If potatoes have a tendency to decay, and other countries are notwithstanding ready to take them, and if a profit can be made by the export of them, and if with that profit other articles of subsistence can be bought, we are not adding to our available means by the prohibition of export.<sup>85</sup>

No doubt, both were pleased to read shortly that in both Holland and Belgium cargoes of potatoes from Ireland arrived in a rotten condition. In Antwerp, potatoes from Londonderry were seized by the police and thrown in the river.<sup>86</sup>

We are left with the problem of estimating the amount of potatoes exported in a normal year. No doubt it fluctuated with the abundance or otherwise of local supplies and with the extent of British demand. Two numerical guesses are available. In an editorial which, in other respects, is not particularly sound, the *Gardeners' Chronicle*<sup>87</sup> speaks of Ireland as "an exporting country, sending her potatoes elsewhere in large quantities" and by inference, estimates these exports as high as 800,000 tons. Dowdall<sup>7</sup> made no allowance for potato exports in his original calculations, and may have been called to task for the omission, for in a later postscript<sup>88</sup> he admits that allowance should be made for "the land in Ulster devoted to the production of potatoes for exportation. . . . Several captains employed in the transit trade between Ulster and Scotland variously estimated the exportation of the potatoes at from 100,000 tons annually."

This does not allow for exports from Munster, probably on a lower scale. With considerable lack of confidence, we take a figure to cover potato exports of 250,000 tons a year; it may well be an over-estimate. We ignore the small potato drain caused by emigrants from Ireland to North America who were required to provision themselves on the long sea voyage; in any case, it was offset by the saving of food of seasonal migrants to Britain:

#### *Use of the potato in manufactures*

The main industrial applications of the potato are in the manufacture of farina, starch and alcohol.

<sup>81</sup> *Dublin Mercantile Advertiser*, 17 October.

<sup>82</sup> *Cork Constitution*, 21 October.

<sup>83</sup> *Nenagh Guardian*, 22 October.

<sup>84</sup> O'Neill, T. P., 1952, p. 102. Food problems during the great Irish famine. *Journal of the Royal Society of Antiquaries of Ireland*, lxxvii, pt. II, pp. 98-108.

<sup>85</sup> Peel Papers (British Museum). Add. Ms. 40, 476, f. 500.

<sup>86</sup> *Dublin Evening Post*, 8 November 1845.

<sup>87</sup> *Gardeners' Chronicle*, 1845, p. 783.

<sup>88</sup> *Dublin Evening Herald*, 19 November 1846.

The Supervisor of Rates for Co. Clare reported<sup>89</sup> in 1845 that flour made from farina had been ground in Ennis gaol for the past eighteen years and sold in the London market. Potatoes bought at 3d per stone produced a profit of 75% in this way.

The principal application of potato starch was in the cotton industry.<sup>90</sup> This may explain the location of a starch factory in Co. Laois, which formerly possessed several cotton mills; now, the starch was mainly sent to Dublin.<sup>91</sup> There was also, in Kilmonogue, Co. Cork, "a manufactory of starch from potatoes alone".<sup>92</sup>

These are the only references which have been found to the commercial extraction of farina or starch from the potato in Ireland. Clearly the "industry" was negligible.

The potato was used extensively, in France, Germany and northern Europe generally, for the manufacture of spirits.<sup>93</sup> It was even alleged to have made a contribution to "the best brandy that comes from France", and to have been used "to give added strength and richness" to the poorer French wines.<sup>94</sup> Aitken<sup>95</sup> says the extraction of spirits from potatoes had been tried in Scotland "with different degrees of success." McAdam<sup>96</sup> describes the use of potatoes in distilleries in France and in Guernsey; he makes no reference to any similar use in Ireland. Smee<sup>97</sup> writing in 1846, discusses the industry in France, and says that potatoes are not used by any distiller in the U.K. at present because:

- (i) of the high capital cost of new utensils and machinery;
- (ii) the spirit from potatoes is inferior to that from corn, and
- (iii) the operation of the revenue laws discriminates unfairly against spirit made from any material other than corn.

Some years ago a French enterprise had erected a potato distillery "near Vauxhall turnpike", but it became insolvent because of the operation of the excise laws.

The revenue laws were no restraint to the use of potatoes for the making of poteen, but the greater bulk of the raw material and the lower prestige of the end product seem to have been effective deterrents. It is still the opinion in the West of Ireland today that spirit distilled from potatoes is markedly inferior to that distilled from grain. Connell<sup>98</sup>, despite spreading his net wide, found no evidence of other than recent use of potatoes in making illicit spirit. Wilde,<sup>99</sup> in a passing comment, says the potato was

<sup>89</sup> *Limerick Chronicle*, 1. November 1845.

<sup>90</sup> *Journal of Agriculture* (Edinburgh). October, 1845, p. 93.

<sup>91</sup> Lewis, 1849, ii, p. 437 (see Note 65).

<sup>92</sup> Lewis, 1849, ii, p. 146 (see Note 65).

<sup>93</sup> Pinkert, F. A., 1843. *Die Kartoffelnot unserer Zeit und ihre Abhilfe*. Weimar.

<sup>94</sup> *Journal of Agriculture*, October 1845, p. 95.

<sup>95</sup> Aitken, W., 1837, p. 11. The potato rescued from disease and restored to pristine vigour. Edinburgh.

<sup>96</sup> McAdam, 1835, p. 337 (see Note 27).

<sup>97</sup> Smee, A., 1846, p. 42. The potatoe plant, its uses and properties; together with the causes of the present malady. London.

<sup>98</sup> Connell, K. H., 1961, p. 59, Note 7. *Illicit distillation: an Irish peasant industry*. In *Historical Studies III*, ed. by J. Hogan, pp. 58-91.

<sup>99</sup> Wilde, 1854, p. 133 (see Note 22).

“occasionally” made into poteen; an ambiguous reference in Rutt<sup>100</sup> suggests that a “liquor like ale” was produced from the potato, it “being malted and amnaged by barley.” With so many critics poised to underline the improvidence and insobriety of the peasantry, it is certain that, had there been any substantial conversion of the food of the people into inebriating liquor, more downright comment than these uncertain references would have been widespread.

It is a little surprising, then, to find the Lord Lieutenant, in late October 1845, considering the desirability of prohibiting “distillation from potatoes”<sup>101</sup>, and an editorial call<sup>102</sup> “to stop distillation and brewing from grain or potatoes”. In so far as this movement was more than a diversionary tactic to save interference with the grain export trade, it can refer only to what was clearly a small-scale and harmless piece of temporary opportunism: “Mr. Dixon of Belturbet is distilling from damaged potatoes, and buying them up all round the country”.<sup>103</sup>

We can, for the purpose of the balance sheet of potato use, ignore its contribution towards the liquor trade, legal or illegal.

#### *Wastage of potatoes*

The loss of the modern potato crop due to shrinkage and disease in storage, and to other sources of waste, is put as high as 15%.<sup>104</sup> In the pre-famine crop, storage losses due to blight were not a factor, and the pig ate up both the peelings and the small and damaged potatoes which today normally go to waste. Rats and other vermin were a problem, of course,<sup>105</sup> and watery varieties like the Lumper were basically poor keepers even over the 10½ months we are catering for. Nevertheless, an allowance of 5% for wastage may be excessive; we adopt that figure primarily because it gives a perfect balance to our potato accounts.

#### *Potatoes for seed*

At a rate of 16 cwt of potato seed per acre,<sup>5</sup> the planting of 2,500,000 acres require two million tons of potatoes.

#### *The potato balance sheet*

The various significant items in the balance sheet of the disposal of the pre-famine crop in Ireland are brought together in Table 7.

The least confident figures – those for export and wastage – luckily play the least role in this balance sheet. The major elements have been checked for two relatively self-contained communities for which data (including the area under potatoes) are available. These are the co-operative group at

<sup>100</sup> Rutt, J., 1772, pp. 82-3. An essay towards a natural history of the county of Dublin. Dublin.

<sup>101</sup> O'Neill, 1952, p. 102 (see Note 84).

<sup>102</sup> *Limerick Chronicle*, 1 November 1845.

<sup>103</sup> *Limerick Chronicle*, 22 November 1845.

<sup>104</sup> (i) Thirteenth general report of the Ministry of Agriculture (Northern Ireland). Cmd. 348. Belfast, 1956, pp. 44, 98.

(ii) Neenan, M., 1966. Potato losses in storage. *Biatas*, xx, pp. 257-9.

<sup>105</sup> *Irish Farmers' and Gardeners' Magazine*, 1835, p. 202.

TABLE 7

**UTILISATION OF THE POTATO  
CROP IN PRE-FAMINE IRELAND**

	AMOUNT (in thousands of tons)	PROPORTION (as a per- centage)
Human food ...	7,000	47%
Animal food ...	5,000	33%
Export ... ..	250	2%
Wastage ... ..	750	5%
Seed ... ..	2,000	13%
<b>Total production</b>	<b>15,000</b>	<b>100%</b>

Ralahine, Co. Clare, whose gallant experiment in the years 1831-3 still makes moving reading<sup>106</sup> and the people of the Aran island of Inishmore, for which the population structure is given in the *Census of 1841* and potato acreage in the constabulary reports of 1845.<sup>107</sup> It would be tedious to repeat the details of the computations here, but they tend to confirm the essential accuracy of Table 7.

#### DISCUSSION

*Dr. O'Loan*: who proposed the vote of thanks, posed the proposition – how near might we have been to dealing effectively with blight at the time of the famine had there been a little more enlightenment on the part of those posing as leaders in agriculture for a century prior to the famine?

Dubourdieu, commenting on his *Statistical Survey of Antrim* (1802) on the common farm practice of treating wheat seed with lime or arsenic (two basic fungicides) against smut says “It certainly seems extraordinary that so small a quantity of any substance, as a grain of wheat can imbibe should have so strong an influence during growth – the operator must certainly take the smut for a living animal?” That this lack of enlightenment prevailed in “enlightened” circles over Europe is reflected in the contemporary description of the incidence of potato blight and consequent hunger in Switzerland 1845-48 in Jeremias Gotthelf’s novel *Kathi die Grossmutter*.

In discussing the introduction of the potato into Europe and this country Dr. O'Loan referred to the evidence of two Irish poems reproduced in translation in McKay’s *Anthology of the Potato*. One was by O'Rachtaire dated 1705. In both the potato is repeatedly referred to as “An Spanach”, indicating that the popular understanding of those who spoke and wrote Irish at the time was that the potato came from Spain – this in contrast to the Sir Walter Raleigh story of later times.

<sup>106</sup> Craig, E. T., 1920, pp. 27, 85, 93, 135. *An Irish commune: the history of Ralahine, Dublin.*

<sup>107</sup> Constabulary returns, 1845 (see Note 73).

He referred to an early record of potatoes having been introduced into Germany through the offices of a Belgian Papal legate under the name of "tartaffel" (dialect Italian for potato). This was obviously the origin of the German "Kartoffel"; Cruffels, the name of an old variety in cultivation in Co. Antrim a century ago was probably of similar origin; the sound is probably what some Antrim coast hooker skipper caught or remembered of the word picking up stores at some North Sea or Baltic port. The famous variety "Skerries" had been introduced into the Braid Valley as a couple of tubers in a barrel of flax seed from Riga and grown in the townland of Skerry.

*Dr. Nowlan*, seconded the vote of thanks.

*Carmel Frost*: We have been fortunate to have been able to learn, so easily and enjoyably, of the results of Mr. Bourke's considerable research on the use of the potato crop.

The figure of 5% for waste is not, in my opinion, excessive. It agrees well with the losses due to shrinkage, sprouting and diseases other than blight, which have been reported in recent years. Drew and Deasy (Journal Department of Agriculture I.F.S. 40, 1943) reported a 5-11% loss in weight in three varieties after six months storage in a clamp. The maximum level of disease was 5%. Wilson (Eur. Pot. Jour. Vol. 5, No. 2) found a loss of 5% by shrinking alone when main crop potatoes were stored in clamp until the end of May. Because of the lower incidence of mechanical damage, losses in store in pre-famine days, might have been less than today.

The notes on the paper indicate that in 1951 44% of the crop was used as animal food, 15% was lost. A study by the Agricultural Institute suggests that in 1962 the total of animal feed and waste was 65%. Can we afford to grow a crop, two thirds of which is used as a by-product or goes to waste? The use of potatoes for feeding animals is hardly justified nowadays.

The reason why farmers accept this situation may be historical. The low production standards still prevalent in many areas, and the feeling of the inevitability of blight may be due to his loss of faith in this crop. Many no longer consider potatoes as a crop to be grown for profit. Recent advances in cultivation techniques and the control of blight make this attitude indefensible.

*Dr. Neenan* (written contribution): The difficulty of estimating yields and consumption in 1845 must have been great. Woodham Smith has suggested that the human population may have been greatly underestimated in the 1841 census. What credence should we give to Dowdall's estimates of consumption? an intake of 12 lbs per day means the eating of 50-80 potatoes per day.

The figures for numbers of livestock are interesting; perhaps the lecturer would explain the correction made to the numbers of cattle in the 1841 enumeration. The time of the census is of importance if there is a seasonal breeding cycle in pigs. The figure of 12 lb per pig is equivalent to 7-8 cwt

of balanced feeding stuff. In 1841 diets were not balanced, the fattening period was longer and the housing probably poorer than at present. Unless there is a compensatory effect due to a seasonal variation in number, the estimate of 12 lb appears low.

On the other hand, unless all potatoes were cooked, the daily intake of cattle was rather high.

*Dr. Bourke:* thanked Dr. O'Loan and Dr. Nowlan for their kind remarks and interesting comments in proposing and seconding the vote of thanks. He was also grateful to Miss Frost not only for her own contribution but also for the points raised through her by Dr. Neenan.

The present paper did not stand in isolation; it was just one piece of a large and complex jigsaw which covered the whole agricultural economy of 1845. For instance the sections of the paper which dealt with the oatmeal period, the oatmeal zone and the feeding of horses interlocked with a corresponding study of the use of the Irish oat crop, which in turn was related to the acreage under the crop and the national yield. The measure of agreement was remarkably high and justified confidence in the various statistics involved. The grand total of the acreages as calculated for the different crops (including hay and grass) corresponded closely with available total of usable farming land; and the transition, both in acreages and yields, across the Famine to the first official agricultural statistics of the era 1847-51 could be shown to be reasonable. The details would be found mainly in the speaker's works, referred to in notes 3 and 41, where a number of related matters which had come up during the discussion were treated in detail.

There was one point raised by Dr. Neenan which deserved a few moments consideration, since the prestige and wide circulation of Mrs. Cecil Woodham-Smith's book involved a risk that her readers might be deceived into rejecting the enumeration of population which was carried out in the census of 1841.

What Mrs. Woodham-Smith had written (*The Great Hunger*, p. 31) was as follows:

It seems possible, moreover, that the census figure may be too low. Through the numerators of 1841 were largely members of the Irish Constabulary, superior to their predecessors and a 'highly disciplined body of men', much time, local knowledge and courage were needed to track down the communities of evicted and unemployed who existed in caves, sod huts and under tree-roots. An intelligent relief officer wrote that the census of 1841 was 'pronounced universally to be no fair criterion of the present population'. He had tested it in Co. Clare and found the population to be one third greater than had been recorded; therefore in 1845 when famine came the population might well have been above nine millions.

This conclusion is at variance with the consensus of informed opinion which has always considered that the 1841 enumeration of population had profited from the lessons of earlier censuses and could be accepted as accurate, whatever might be the deficiencies of agricultural data which



were being collected for the first time. On reading it on the first publication of the book in 1962, Dr. Bourke was convinced that it must be based on a misunderstanding of the evidence. In making written application to examine the original report in the State Paper Office, he had justified his request in the following terms: the test carried out in Co. Clare could not conceivably have extended to the entire county, with its population of over a quarter of a million people; it was almost certainly confined to a small area containing no more than some thousands of people; his hope was that the original report would specify the area and prove his theory that it was a seaside district with access to seaweed for manure and possibly waste land to reclaim. If this were so, the evidence was not of an overall rise in population but of a *redistribution* arising from the well-documented flight from inland to the seashore, originating in the first place in the rise of the seaweed traffic as manure for the potato crop and supplemented later, after the onset of the famine, by reason of the availability of seafood.

The original document, a copy of a letter dated 5 December 1846 from Captain E. Wynne, Inspecting Officer of West Clare to Captain T. Larcom, proved to be even more specific than Dr. Bourke had dared hope (Registered Papers, C.S.O., 1846, W. 22248. S.P.O., Dublin):

The census of 1841 being pronounced universally to be no fair criterion of the present population and consequent destitution, I tested the creation of the present population and consequent destitution, I tested the matter in the parish of Clondigad, Barony of Islands, where I found the present population more than a third greater than that of 1841. This I believe to be the case in all the districts along the coast, and to be caused entirely by the seaweed traffic, which has done an infinity of mischief. Squatters from all the southern counties have settled down and converted the county into one monster cottier farm.

Clondigad or Clondagad, on the estuary of the river Fergus, had returned in 1841 a population of 5,088 people, made up of 810 families. It was, according to Lewis' "Topographical Dictionary" (Second edition), a parish of 16,978 statute acres of which 4,711 acres were good arable and pasture, and the remainder improvable bog and mountain. There was "a small rudely constructed quay at Ballycorrig" which would have facilitated the gathering of seaweed.

Captain Wynne's complaint was thus not against the 1841 census as such, but against the use of its fine detail to quantify the 1845 population situation in those seaside parishes where the number of inhabitants had recently mushroomed, mainly because of the seaweed boom. There were several such districts in Co. Clare, notably in Kilmurry Ibrickan (Quaker's Transactions, p.179); they were the scene of particularly severe suffering during the famine years.

Mrs. Woodham-Smith was seriously in error in assuming that the rapid rise of population in these areas was representative of the country as a whole or that it cast doubt on the figures for total population collected in 1841.