

---

Europe's Initial Population Explosion

Author(s): William L. Langer

Source: *The American Historical Review*, Vol. 69, No. 1 (Oct., 1963), pp. 1-17

Published by: [The University of Chicago Press](#) on behalf of the [American Historical Association](#)

Stable URL: <http://www.jstor.org/stable/1904410>

Accessed: 22/10/2010 19:39

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=aha>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).



*American Historical Association and The University of Chicago Press* are collaborating with JSTOR to digitize, preserve and extend access to *The American Historical Review*.

*The*  
AMERICAN  
HISTORICAL  
REVIEW

VOLUME LXIX, NUMBER 1

OCTOBER 1963

---

Europe's Initial Population Explosion

WILLIAM L. LANGER\*

THE use of the dramatic term "explosion" in discussions of the present-day population problem may serve to attract attention and underline the gravity of the situation, but it is obviously a misnomer. The growth of population is never actually explosive, and as for the current spectacular increase, it is really only the latest phase of a development that goes back to the mid-eighteenth century.

Prior to that time the history of European population had been one of slow and fitful growth. It now took a sudden spurt and thenceforth continued to increase at a high rate. From an estimated 140,000,000 in 1750 it rose to 188,000,000 in 1800, to 266,000,000 in 1850, and eventually to 400,000,000 in 1900. The rate of increase was not uniform for all parts of the Continent, but

\*Mr. Langer, Archibald Cary Coolidge Professor of History, Harvard University, is the author of *The Diplomacy of Imperialism* (New York, 1935; rev. ed., 1951). His primary interest is modern European history.

it was everywhere strikingly high. Even in Spain, where there had been a remarkable loss of population in the seventeenth century, the population grew from 6,100,000 in 1725 to 10,400,000 in 1787 and 12,300,000 in 1833.<sup>1</sup>

This tremendous change in terms of European society has received far less attention from historians than it deserves. In the early nineteenth century it troubled the Reverend Thomas Malthus and precipitated a formidable controversy over the problem of overpopulation and the possible remedies therefor. But the discussion remained inconclusive until reopened in more recent times by British scholars, making use of the rather voluminous English records and directing their attention almost exclusively to their own national history. It is not unlikely that this focusing on the British scene has had the effect of distorting the issue, which after all was a general European one.

The point of departure for recent attacks on the problem was the publication, in the same year, of two closely related books: G. T. Griffith's *Population Problems in the Age of Malthus* (Cambridge, Eng., 1926) and M. C. Buer's *Health, Wealth and Population in the Early Days of the Industrial Revolution* (London, 1926). To these should be added the keen corrective criticism of T. H. Marshall's essay, "The Population Problem during the Industrial Revolution."<sup>2</sup>

Taken together, these writings provided a coherent, comprehensive analysis. Based on the proposition that the unusual increase of the population in the late eighteenth century was due primarily to a marked decline in the death rate, they attempted to show that this decline must, in turn, have been due to an alleviation of the horrors of war, to a reduction in the number and severity of famines, to an improvement in the food supply, and finally to a falling off of disease as a result of advancing medical knowledge and better sanitation.

These conclusions were not seriously challenged until after the Second World War, when a number of demographic and sociological analyses by British and American scholars called various items of the accepted theory seriously into question. Because of the inadequacy of the statistical data some aspects of the problem can probably never be disposed of definitively. However, the very foundation of the Griffith thesis has now been badly sapped. A number of specialists have come to the conclusion that the spectacular rise in the European population may have been due not so much to a reduction

<sup>1</sup> Albert Girard, "Le chiffre de la population de l'Espagne dans les temps modernes," *Revue d'histoire moderne*, IV (Jan.-Feb. 1929), 3-17. The growth of population was equally or even more spectacular in the United States and French Canada, to say nothing of China, but this paper considers only the problem as it emerged in Europe.

<sup>2</sup> T. H. Marshall, "The Population Problem during the Industrial Revolution," *Economic History*, I (Jan. 1929), 429-56.

in the death rate as to a significant rise in the birth rate which, according to Griffith, did not vary greatly throughout the period.<sup>3</sup>

From these excellent studies of fertility and mortality there has not, however, emerged any satisfactory explanation to replace the argumentation of Griffith and Buer about underlying causes. It may not be amiss, then, for a historian to join the debate, even though he must disclaim at the outset any professional competence in demography or statistics.

From the strictly historical standpoint none of the previous interpretations of the initial spurt of the European population has been satisfactory. At the time it was commonly thought that the so-called "Industrial Revolution," with its high requirement for child labor, may have induced larger families.<sup>4</sup> This explication could at best apply primarily to Britain, where the demographic revolution was roughly contemporaneous with industrialization. Since the rate of population increase was just as striking in completely unindustrialized countries like Russia, a less parochial explanation was clearly required. At the present time it seems more likely that industrialization saved Europe from some of the more alarming consequences of overpopulation.<sup>5</sup>

Griffith's theses, inspired by Malthusian doctrine, are unacceptable, for the historical evidence provides little support for the notion of a marked decline in the death rate. Take, for instance, the mortality occasioned by war. Granted that no conflict of the eighteenth or early nineteenth centuries was as deadly as the Thirty Years' War is reputed to have been, there is yet no evidence of a difference so marked as to have made a profound change in the pattern of population. It is well known that nations usually recover quickly from the manpower losses of war. If it were not so, the bloody conflicts of the French revolutionary and Napoleonic periods should have had a distinctly retarding effect on the growth of the European population.

Not much more can be said of the argument on food supply. What reason is there to suppose that Europe suffered less from famine? We know that there were severe famines in the first half of the eighteenth century and that the years 1769-1774 were positively calamitous in terms of crop failures. The

<sup>3</sup> Halvor Gille, "The Demographic History of the Northern Countries," *Population Studies*, III (June 1949), 3-66; K. H. Connell, "Some Unsettled Problems in English and Irish Population History," *Irish Historical Studies*, VII (Sept. 1951), 225-34; H. J. Habakkuk, "The English Population in the Eighteenth Century," *Economic History Review*, 2d Ser., VI (Dec. 1953), 117-33; J. T. Krause, "Changes in English Fertility and Mortality, 1781-1850," *ibid.*, XI (Aug. 1958), 52-70; *id.*, "Some Implications of Recent Work in Historical Demography," *Comparative Studies in Society and History*, I (Jan. 1959), 164-88; Phyllis Deane and W. A. Cole, *British Economic Growth, 1688-1959* (Cambridge, Eng., 1962), 129-33.

<sup>4</sup> Joseph J. Spengler, "Malthus's Total Population Theory," *Canadian Journal of Economics and Political Science*, XI (Feb. 1945), 83-110.

<sup>5</sup> This question is well discussed in H. J. Habakkuk, "The Economic History of Modern Europe," *Journal of Economic History*, XVIII (Sept. 1958), 486-501.

early 1790's and the years immediately following the peace in 1815 were almost as bad, while at much later periods (1837-1839, 1846-1849) all Europe suffered from acute food shortages. Even in Western and Central Europe famine was a constant threat until the railroads provided rapid, large-scale transportation.

Griffith was convinced that the important advances in agronomy (rotation of crops, winter feeding of cattle, systematic manuring, improved breeding of livestock, and so forth) as well as the practice of enclosure all made for more productive farming and greatly enhanced the food supply. But even in Britain, where agriculture was more advanced than elsewhere, these improvements did not make themselves generally felt until the mid-nineteenth century. There were many progressive landlords, on the Continent as in Britain, and no doubt there was improvement in grain production, but it was too slow, and grain imports were too slight to have had a decisive bearing on the rate of population growth. Even in mid-nineteenth-century Britain the three-field system was still prevalent, ploughs and other implements were old-fashioned and inefficient, grain was still cut by sickle or scythe and threshed with the flail, and ground drainage was primitive. Of course, more land had been brought under cultivation, but the available data reflect only a modest increase in the yield of grain per acre in this period.<sup>6</sup>

Crucial to the argumentation of Griffith and Buer was the proposition that improved health entailed a significant reduction in the death rate. The disappearance of bubonic plague, the falling off of other diseases, the advances in medical knowledge and practice (especially in midwifery), and progress in sanitation were in turn alleged to have produced the greater health of the people.

No one would deny that the disappearance of plague in the late seventeenth and early eighteenth centuries rid the Europeans of their most mortal enemy, and so reacted favorably on the development of the population. For the repeated plague epidemics had been fearfully destructive of life, especially in the towns. In the Black Death of 1348-1349 fully a quarter of the population had been carried away, while even as late as the epidemic of 1709-1710 from one-third to one-half of the inhabitants of cities such as Copenhagen and Danzig fell victims. In Marseilles in 1720 there were 40,000 dead in a total

<sup>6</sup> See esp. James Caird, *English Agriculture in 1850-1851* (2d ed., London, 1852), 474 ff.; R. E. P. Ernlé, *English Farming, Past and Present* (6th ed., Chicago, 1961), 108, 135, 265, 357 ff.; G. E. and K. R. Fussell, *The English Countryman* (London, 1955), 126; H. W. Graf Finckenstein, *130 Jahre Strukturwandel und Krisen der intensiven europäischen Landwirtschaft* (Berlin, 1937); M. K. Bennett, "British Wheat Yield per Acre for Seven Centuries," *Economic History*, III (Feb. 1935), 12-29.

population of 90,000. In Messina in 1743 over 60 per cent of the population was carried off.<sup>7</sup>

But whatever may have been the gains from the disappearance of plague they were largely wiped out by the high mortality of other diseases, notably smallpox, typhus, cholera, measles, scarlet fever, influenza, and tuberculosis. Of these great killers smallpox flourished particularly in the eighteenth century and tuberculosis in the eighteenth and nineteenth, while the deadly Asiatic cholera was a newcomer in 1830-1832.

Smallpox, though it reached up on occasions to strike adults, even of high estate, was primarily a disease of infancy and early childhood, responsible for one-third to one-half of all deaths of children under five. In 1721 the practice of inoculating children with the disease, in order to produce a mild case and create immunity, was introduced into England. It was rather widely used by the upper classes, but quite obviously had little effect on the epidemiology of the disease.<sup>8</sup> There appears to have been a gradual falling off of the disease after 1780, but even the introduction of vaccination by Edward Jenner in 1798 did not entirely exorcise the smallpox threat, though vaccination was offered gratuitously to thousands of children and was made compulsory in England in 1853. Mortality remained high, especially in the epidemics of 1817-1819, 1825-1827, 1837-1840, and 1847-1849. In the last great epidemic (1871-1872), when most people had already been vaccinated, the toll was exceedingly heavy: 23,062 deaths in England and Wales, 56,826 in Prussia in 1871 and 61,109 in 1872. Small wonder that opponents of vaccination stamped it a dangerous and futile procedure.<sup>9</sup>

Typhus, often associated with smallpox, attacked adults and was just as lethal. Like smallpox, it began to disappear only after 1870, to be replaced in part by measles, scarlet fever, and influenza.<sup>10</sup>

Tuberculosis, which no doubt was as old as human history, was the chief cause of premature deaths in the nineteenth century. It seems to have been widespread even in the mid-eighteenth century and continued so for well

<sup>7</sup> Karl F. Helleiner, "The Vital Revolution Reconsidered," *Canadian Journal of Economics and Political Science*, XXIII (Feb. 1957), 1-9, and more generally Hans Zinsser, *Rats, Lice and History* (New York, 1935); L. F. Hirst, *The Conquest of Plague* (London, 1953).

<sup>8</sup> Genevieve Miller, *The Adoption of Inoculation for Smallpox in England and France* (Philadelphia, 1957). For excellent general historical studies of smallpox, see Charles Creighton, *A History of Epidemics in Britain* (2 vols., Cambridge, Eng., 1891-94), II, Chap. IV; Alfons Fischer, *Geschichte des deutschen Gesundheitswesens* (2 vols., Berlin, 1933), II, 563 ff.; Jean Bourgeois-Pichat, "Évolution de la population française depuis le XVIII<sup>e</sup> siècle," *Population*, VI (Oct.-Dec. 1951), 635-62.

<sup>9</sup> W. Scott Tebb, *A Century of Vaccination* (2d ed., London, 1899), 58-59; David Johnston, *A History of the Present Condition of Public Charity in France* (Edinburgh, 1829), 539 ff.; and for the rest, Creighton, *Epidemics in Britain*, II, 606, and Fischer, *Deutsches Gesundheitswesen*, II, 556.

<sup>10</sup> See Creighton, *Epidemics in Britain*, for a detailed history of each of these diseases.

over a hundred years.<sup>11</sup> But it was less spectacular than the terrifying cholera, which carried off half its victims within one to three days, and which struck Europe in four great epidemics during the nineteenth century. Paris in 1832 had 7,000 dead in eighteen days. Palermo in 1836-1837 lost 24,000 out of a population of 173,000. The epidemics of 1849 and 1866 were particularly lethal, especially on the Continent. Paris in three months of 1849 had 33,274 cases, of which 15,677 were fatal. Prussia in 1849 had 45,315 deaths, and in 1866, 114,683, while Russia in 1848-1849 registered over 1,000,000 dead.<sup>12</sup>

Considering the terrible and continuing ravages of disease in the days before the fundamental discoveries of Louis Pasteur and Robert Koch, it is hard to see how anyone could suppose that there was an amelioration of health conditions in the eighteenth century sufficient to account for a marked decline in the death rate.

Recent studies have pretty well disposed also of the favorite Griffith-Buer theme, that advances in medical knowledge and practice served to reduce mortality, especially among young children. Doctors and hospitals were quite incompetent to deal with infectious disease. The supposed reduction in child mortality was certainly not reflected in the fact that as late as 1840 half or almost half of the children born in cities like Manchester or even Paris were still dying under the age of five.<sup>13</sup>

Malthus thought the cities of his day better paved and drained than before, and this observation of the matter was exploited to the full by Griffith and Buer. Actually the improvements were mostly in the better sections of the towns, and Buer felt obliged to admit that living conditions were horrible, despite some amelioration. If one reviews these conditions even in the mid-nineteenth century, in any large European city—the dank cellar dwellings, the overcrowded courts, the vermin-infested rookeries, the filthy

<sup>11</sup> René and Jean Dubos, *The White Plague* (Boston, 1952), 6 ff.; Fischer, *Deutsches Gesundheitswesen*, II, 570 ff.; Arturo Castiglione, *History of Tuberculosis* (New York, 1933); S. R. Gloyne, *Social Aspects of Tuberculosis* (London, 1944); S. L. Cummins, *Tuberculosis in History* (Baltimore, 1949).

<sup>12</sup> The first great epidemic (1831-1832) has of late attracted a great deal of attention. See Sergei Gessen, *Cholernye Bunty, 1830-1832* (Moscow, 1932); *Le choléra: La première épidémie du XIX<sup>e</sup> siècle*, ed. Louis Chevalier (Paris, 1958); R. E. McGrew, "The First Cholera Epidemic and Social History," *Bulletin of the History of Medicine*, XXXIV (Jan.-Feb. 1960), 61-73; Asa Briggs, "Cholera and Society in the Nineteenth Century," *Past and Present* (July 1961), 76-96. For the rest, see Francesco Maggiore-Perni, *Palermo e le sue grandi epidemie* (Palermo, 1894), 190, 244; Creighton, *Epidemics in Britain*, II, Chap. IX; Fischer, *Deutsches Gesundheitswesen*, II, 557; Georg Sticker, *Abhandlungen aus der Seuchengeschichte und Seuchenlehre* (2 vols., Giessen, 1908-12), II, 110 ff., 158 ff.; C. Macnamara, *A History of Asiatic Cholera* (London, 1876), 86 ff.

<sup>13</sup> Fischer, *Deutsches Gesundheitswesen*, II, 341, 369, 388 ff., and the fundamental articles of Habakkuk, "English Population in the Eighteenth Century," 117-33; Thomas McKcown and R. G. Brown, "Medical Evidence Related to English Population Changes in the Eighteenth Century," *Population Studies*, IX (Nov. 1955), 119-41; Richard H. Shryock, "Medicine and Society in the Nineteenth Century," *Journal of World History*, V (No. 1, 1959), 116-46.

streets, the foul water supply—one can only shudder at the thought of what they may formerly have been. One can hardly persuade oneself that the improvements were such as to have effected a drop in the death rate.<sup>14</sup>

For Malthus “the whole train of common diseases and epidemics, wars, plague and famine” were all closely linked to “misery and vice” as positive checks to population growth. But misery and vice also included “extreme poverty, bad nursing of children, excesses of all kinds.”

In this context it may be said that in Europe conditions of life among both the rural and urban lower classes—that is, of the vast majority of the population—can rarely have been as bad as they were in the early nineteenth century. Overworked, atrociously housed, undernourished, disease-ridden, the masses lived in a misery that defies the modern imagination. This situation in itself should have drastically influenced the population pattern, but two items in particular must have had a really significant bearing. First, drunkenness: this period must surely have been the golden age of inebriation, especially in the northern countries. The per capita consumption of spirits, on the increase since the sixteenth century, reached unprecedented figures. In Sweden, perhaps the worst-afflicted country, it was estimated at ten gallons of *branvin* and *akvavit* per annum. Everywhere ginshops abounded. London alone counted 447 taverns and 8,659 ginshops in 1836, some of which at least were visited by as many as 5,000–6,000 men, women, and children in a single day.<sup>15</sup>

So grave was the problem of intemperance in 1830 that European rulers welcomed emissaries of the American temperance movement and gave full support to their efforts to organize the fight against the liquor menace. To what extent drunkenness may have affected the life expectancy of its addicts, we can only conjecture. At the very least the excessive use of strong liquor is known to enhance susceptibility to respiratory infections and is often the determining factor in cirrhosis of the liver.<sup>16</sup>

Of even greater and more obvious bearing was what Malthus euphemisti-

<sup>14</sup> Diseases such as typhus and cholera were dirt diseases, carried often through contaminated water supply. Vienna secured an adequate water supply only in 1840; Hamburg in 1848; Berlin in 1852. In London there were still 250,000 cesspools in 1850; in Berlin only 9 per cent of all dwellings had water closets. For contemporary accounts, see Thomas Beames, *The Rookeries of London* (London, 1851); George Godwin, *London Shadows* (London, 1854); Fischer, *Deutsches Gesundheitswesen*, II, 500 ff.; Laurence Wright, *Clean and Decent: The Unruffled History of the Bathroom and the W.C.* (New York, 1960).

<sup>15</sup> James S. Buckingham, *History and Progress of the Temperance Reformation* (London, 1854), 28 ff.; Adolf Baer, *Der Alkoholismus* (Berlin, 1878), 196, 203 ff.

<sup>16</sup> On the liquor problem, see P. S. White and H. R. Pleasants, *The War of Four Thousand Years* (Philadelphia, 1846), 240 ff.; P. T. Winskill, *The Temperance Movement and Its Workers* (4 vols., London, 1891–92), I, Chap. iv; John C. Woolley and William E. Johnson, *Temperance Progress of the Century* (Philadelphia, 1905), Chap. xv; Johann Bergmann, *Geschichte der anti-Alkoholbestrebungen* (Hamburg, 1907), Chap. xii.



cally called "bad nursing of children" and what in honesty must be termed disguised infanticide. It was certainly prevalent in the late eighteenth and nineteenth centuries and seems to have been constantly on the increase.<sup>17</sup>

In the cities it was common practice to confide babies to old women nurses or caretakers. The least offense of these "Angelmakers," as they were called in Berlin, was to give the children gin to keep them quiet. For the rest we have the following testimony from Benjamin Disraeli's novel *Sybil* (1845), for which he drew on a large fund of sociological data: "Laudanum and treacle, administered in the shape of some popular elixir, affords these innocents a brief taste of the sweets of existence and, keeping them quiet, prepares them for the silence of their impending grave." "Infanticide," he adds, "is practised as extensively and as legally in England as it is on the banks of the Ganges; a circumstance which apparently has not yet engaged the attention of the Society for the Propagation of the Gospel in Foreign Parts."

It was also customary in these years to send babies into the country to be nursed by peasant women. The well-to-do made their own arrangements, while the lower classes turned their offspring over to charitable nursing bureaus or left them at the foundling hospitals or orphanages that existed in all large cities. Of the operation of these foundling hospitals a good deal is known, and from this knowledge it is possible to infer the fate of thousands of babies that were sent to the provinces for care.<sup>18</sup>

The middle and late eighteenth century was marked by a startling rise in the rate of illegitimacy, the reasons for which have little bearing on the present argument. But so many of the unwanted babies were being abandoned, smothered, or otherwise disposed of that Napoleon in 1811 decreed that the foundling hospitals should be provided with a turntable device, so that babies could be left at these institutions without the parent being recognized or subjected to embarrassing questions. This convenient arrangement was imitated in many countries and was taken full advantage of by the mothers in question. In many cities the authorities complained that unmarried mothers from far and wide were coming to town to deposit their unwanted babies in the accommodating foundling hospitals. The statistics show that of the thousands of children thus abandoned, more than half were the offspring of married couples.

<sup>17</sup> Alexander von Öttingen, *Die Moralstatistik* (3d ed., Erlangen, 1882), 236 ff.

<sup>18</sup> In the years 1804-1814 the average annual number of births in Paris was about 19,500. Of these newcomers, roughly 4,700 were sent to the country by the *Bureau des Nourrices*, and another 4,000 were sent by the foundling hospital (*Maison de la Couche*). With the addition of children privately sent, it appears that a total of about 13,500 babies were involved. (Louis Benoiston de Chateauneuf, *Recherches sur les consommations . . . de la Ville de Paris* [Paris, 1821], 37.)

There is good reason to suppose that those in charge of these institutions did the best they could with what soon became an unmanageable problem. Very few of the children could be cared for in the hospitals themselves. The great majority was sent to peasant nurses in the provinces. In any case, most of these children died within a short time, either of malnutrition or neglect or from the long, rough journey to the country.

The figures for this traffic, available for many cities, are truly shocking. In all of France fully 127,507 children were abandoned in the year 1833. Anywhere from 20 to 30 per cent of all children born were left to their fate. The figures for Paris suggest that in the years 1817-1820 the "foundlings" comprised fully 36 per cent of all births. In some of the Italian hospitals the mortality (under one year of age) ran to 80 or 90 per cent. In Paris the *Maison de la Couche* reported that of 4,779 babies admitted in 1818, 2,370 died in the first three months and another 956 within the first year.<sup>19</sup>

The operation of this system was well known at the time, though largely forgotten in the days of birth control. Many contemporaries denounced it as legalized infanticide, and one at least suggested that the foundling hospitals post a sign reading "Children killed at Government expense." Malthus himself, after visiting the hospitals at St. Petersburg and Moscow, lavishly endowed by the imperial family and the aristocracy, could not refrain from speaking out:

Considering the extraordinary mortality which occurs in these institutions, and the habits of licentiousness which they have an evident tendency to create, it may perhaps be truly said that, if a person wished to check population, and were not solicitous about the means, he could not propose a more effective measure than the establishment of a sufficient number of foundling hospitals, unlimited as to their reception of children.

In the light of the available data one is almost forced to admit that the proposal, seriously advanced at the time, that unwanted babies be painlessly asphyxiated in small gas chambers, was definitely humanitarian.<sup>20</sup> Certainly the entire problem of infanticide in the days before widespread practice of contraception

<sup>19</sup> Léon Lallemand, *Histoire des enfants abandonnés et délaissés* (Paris, 1885), 207, 276. Among contemporary commentators, see Johnston, *Public Charity in France*, 319 ff.; Frederic von Raumer, *Italy and the Italians* (2 vols., London, 1840), I, 180 ff., 266; II, 80, 284; Richard Ford, *Gleanings from Spain* (London, 1846), Chap. xvii; and among later studies F. S. Hügel, *Die Findelhäuser und das Findelwesen Europas* (Vienna, 1863), 137 ff.; Arthur Keller and C. J. Klumper, *Säuglingsfürsorge und Kinderschutz in den europäischen Staaten* (2 vols., Berlin, 1912), I, 441 ff.; Joseph J. Spengler, *France Faces Depopulation* (Durham, N. C., 1938), 45 ff.; Roger Mols, *Introduction à la démographie historique des villes d'Europe du xiv<sup>e</sup> au xviii<sup>e</sup> siècle* (3 vols., Louvain, 1954-56), II, 303 ff.; Krause, "Recent Work in Historical Demography," 164-88; Hélène Bergues, *La prévention des naissances dans la famille* (Paris, 1960), 17 ff.

<sup>20</sup> "Marcus" (pseudo.), *Essay on Populousness and on the Possibility of Limiting Populousness* (London, 1838). The quotation from Malthus is in the last edition of his *Essay* (6th ed., London, 1826), reprinted by G. T. Bettany (London and New York, 1890), 172.

deserves further attention and study. It was undoubtedly a major factor in holding down the population, strangely enough in the very period when the tide of population was so rapidly rising.

Summing up, it would seem that in the days of the initial population explosion one can discern many forces working against a major increase and few if any operating in the opposite direction. It is obviously necessary, then, to discover one or more further factors to which a major influence can fairly be attributed.

If indeed the birth rate was rising, this was presumably due primarily to earlier marriage and to marriage on the part of a growing proportion of the adult population. Even slight variations would, in these matters, entail significant changes in the birth rate.<sup>21</sup>

Unfortunately the marriage practices of this period have not been much investigated. Under the feudal system the seigneur frequently withheld his consent to the marriage of able-bodied and intelligent young people whom he had selected for domestic service in the manor house. Likewise under the guild system the master had authority to prevent or defer the marriage of apprentices and artisans. Whether for these reasons or for others of which we have no knowledge, there appears to have been a distinct decline in the number of marriages and a rise in the age of marriage in the late seventeenth and early eighteenth centuries. Some writers have even spoken of a "crise de nuptialité" in this period. But by the mid-eighteenth century the old regime was breaking down, soon to be given the *coup de grâce* by the French Revolution. With the personal emancipation of the peasantry and the liquidation of the guild system, the common people were freer to marry, and evidently did so at an early age. There is, in fact, some indication that the duration of marriages was extended by as much as three years, at least in some localities.<sup>22</sup>

The rapid increase of the population was at the time often attributed to these changes, and before long a number of German states tried to counter the trend by laws specifically designed to restrict marriage: men were refused marriage licenses until they were thirty and received them then only if they could show that they had learned a trade and had a job waiting for them. Those who had been on relief in the preceding three years were denied a license on principle. Under these circumstances it is altogether likely that many of the young people who emigrated from Germany in these years did so chiefly in order to get married.<sup>23</sup>

<sup>21</sup> This aspect is rightly stressed by Habakkuk, "English Population in the Eighteenth Century," 117-33.

<sup>22</sup> On the problem of marriage, see esp. the excellent discussion in Mols, *Démographie historique*, II, 267 ff.

<sup>23</sup> A. S. (Alexander Schmeer), "Über die Zunahme der Bevölkerung in dem mittleren Europa und die Besorgnisse vor einer Überbevölkerung," *Deutsche Vierteljahrschrift*, III (1844), 98-

Marriage practices, though obviously important, seem hardly to provide a complete explanation of the population growth. To discover a further, possibly decisive factor, it is necessary to return to consideration of the food supply, recalling the proposition advanced by the physiocrats and heavily underlined by Malthus, that the number of inhabitants depends on the means of subsistence—more food brings more mouths.<sup>24</sup> That population tends to rise and absorb any new increment of the food supply is familiar to us from the history of underdeveloped societies. Historically it has been demonstrated by studies of the relationship between harvest conditions on the one hand and marriage and birth rates on the other. In Sweden, for example, where careful statistics were kept as long ago as the seventeenth century, the annual excess of births over deaths in the eighteenth century was only 2 per thousand after a poor crop, but 6.5 after an average harvest, and 8.4 after a bumper crop. Invariably, and as late as the mid-nineteenth century, high wheat prices have been reflected in a low marriage and to some extent in a low birth rate.<sup>25</sup>

The addition of an important new item to the existing crops would necessarily have the same effect as a bumper crop. Such a new item—one of the greatest importance—was the common potato, a vegetable of exceptionally high food value, providing a palatable and satisfying, albeit a monotonous diet. Ten pounds of potatoes a day would give a man 3,400 calories—more than modern nutritionists consider necessary—plus a substantial amount of non-animal protein and an abundant supply of vitamins.<sup>26</sup> Furthermore, the potato could be grown on even minute patches of poor or marginal land, with the most primitive implements and with a minimum of effort. Its yield was usually abundant. The produce of a single acre (the equivalent in food value of two to four acres sown to grain) would support a family of six or even

141; Wilhelm G. Roscher, *Die Grundlagen der Nationalökonomie* (Stuttgart, 1854), 490 ff. The eminent jurist, Robert von Mohl, considered antimarriage laws indispensable unless the poorer classes exercised prudence in marriage. See D. V. Glass, "Malthus and the Limitation of Population Growth," in his *Introduction to Malthus* (London, 1953), 25-54.

<sup>24</sup> Richard Cantillon, *Essai sur la nature du commerce en général* (London, 1755), argued that an increase in subsistence would positively provoke a rise in the population; Malthus wrote: "The only true criterion of a real and permanent increase in the population of any country is the increase of the means of subsistence." (*Essay*, 6th ed., 294.)

<sup>25</sup> E. E. Heckscher, "Swedish Population Trends before the Industrial Revolution," *Economic History Review*, 2d Ser., II (No. 3, 1950), 266-77; Dorothy S. Thomas, *Social and Economic Aspects of Swedish Population Movements, 1750-1933* (New York, 1941), 81 ff.; Jean Mevret, "Les crises de subsistance et la démographie d'ancien régime," *Population*, I (Oct.-Dec. 1946), 643-50; F. G. Dreyfus, "Prix et population à Trèves et à Mayence au XVIII<sup>e</sup> siècle," *Revue d'histoire économique et sociale*, XXXIV (No. 3, 1956), 241-61; C. H. Pouthas, *La population française pendant la première moitié du XIX<sup>e</sup> siècle* (Paris, 1956), 29; Louis Chevalier, *Démographie générale* (Paris, 1951), 338-39.

<sup>26</sup> Redcliffe N. Salaman, *The History and Social Influence of the Potato* (Cambridge, Eng., 1949), 122 ff.; K. H. Connell, *The Population of Ireland, 1750-1845* (Oxford, Eng., 1950), 151 ff.

eight, as well as the traditional cow or pig, for a full year. The yield in terms of nutriment exceeded that of any other plant of the Temperate Zone.<sup>27</sup>

The qualities of the potato were such as to arouse enthusiastic admiration among agronomists and government officials. It was spoken of as "the greatest blessing that the soil produces," "the miracle of agriculture," and "the greatest gift of the New World to the Old." The eminent Polish poet, Adam Mickiewicz, writing as a young man in the hard and hungry years following the Napoleonic Wars, composed a poem entitled *Kartofla*, celebrating this humble vegetable which, while other plants died in drought and frost, lay hidden in the ground and eventually saved mankind from starvation.<sup>28</sup>

The history of the potato in Europe is most fully known as it touches Ireland, where in fact it became crucial in the diet of the people. It was introduced there about the year 1600 and before the end of the seventeenth century had been generally adopted by the peasantry. By the end of the eighteenth century the common man was eating little else:

Day after day, three times a day, people ate salted, boiled potatoes, probably washing them down with milk, flavouring them, if they were fortunate, with an onion or a bit of lard, with boiled seaweed or a scrap of salted fish.<sup>29</sup>

Because this was so, Ireland provides a simple, laboratory case. There were in Ireland no industrial revolution and no war, but also no fundamental change in the pattern of famine or disease. The unspeakable poverty of the country should, it would seem, have militated against any considerable population increase. Yet the population did increase from 3,200,000 in 1754 to 8,175,000 in 1846, not counting some 1,750,000 who emigrated before the great potato famine of 1845-1847.<sup>30</sup>

It was perfectly obvious to contemporaries, as it is to modern scholars, that this Irish population could exist only because of the potato. Poverty-stricken though it might be, the Irish peasantry was noteworthy for its fine physique. Clearly people were doing very well physiologically on their potato fare. Young people rented an acre or less for a potato patch. On the strength of this they married young and had large families.

<sup>27</sup> On its qualities, see the detailed report of Antoine Parmentier, *Examen chymique des pommes de terre* (Paris, 1773), 3; also Berthold Laufer, "The American Plant Migration: Part II, the Potato," *Field Museum of Natural History*, Anthropological Ser., XXVIII (July 1938), 11.

<sup>28</sup> Adam Mickiewicz, *Poet of Poland*, ed. Manfred Kridl (New York, 1951), 242 ff.; see also Henry Phillips, *The History of Cultivated Vegetables* (2d ed., 2 vols., London, 1822), II, 85 ff.; Georges Gibault, *Histoire des légumes* (Paris, 1912), 243 ff.

<sup>29</sup> K. H. Connell, "The Potato in Ireland," *Past and Present* (Nov. 1962), 57-71. Salaman, *History and Social Influence of the Potato*, is little short of an economic-social history of the British Isles; on Ireland, see esp. Chaps. xi-xvi.

<sup>30</sup> Connell, *Population of Ireland*, *passim*.

So impressive was the role of the potato in Ireland that Arthur Young, in *The Question of Scarcity Plainly Stated and Remedies Considered* (London, 1800), urged the British government, as a hedge against failure of the grain crop, to endow every country laborer who had three or more children with a half acre of land for potatoes and enough grass to feed one or two cows: "If each had his ample potato-ground and a cow, the price of wheat would be of little more consequence to them than it is to their brethren in Ireland."

Malthus at once objected to this proposed remedy for want. Young's system, he argued, would operate directly to encourage marriage and would be tantamount to a bounty on children. Potatoes tended to depress wages and living standards by making possible an increase in the population far beyond the opportunities of employment.<sup>31</sup>

Why should not the impact of the potato have been much the same in Britain and on the Continent as in Ireland? If it made possible the support of a family on a small parcel of indifferent soil, frequently on that part of the land that lay fallow, and thereby encouraged early marriage, why should it not in large part explain the unusual rise in the population anywhere?

A definitive answer is impossible partly because the history of potato culture has not been intensively studied, and partly because the situation in other countries was rarely if ever as simple or as parlous as that of Ireland.<sup>32</sup> The most nearly comparable situation was that obtaining in the Scottish Highlands and the Hebrides, where the potato proved to be "the most beneficial and the most popular innovation in Scottish agriculture of the eighteenth century." By 1740 the potato had become a field crop in some sections, grown in poor soil and sand drift and soon becoming the principal food of the population, much as in Ireland. In these areas also the spread of potato culture ran parallel to a marked expansion of the population.<sup>33</sup>

In the Scottish Lowlands, as in England, the potato met with greater resistance. Scottish peasants hesitated to make use of a plant not mentioned in the Bible, and it was feared in many places that the potato might bring on leprosy. In southern England in particular, the peasants suspected that the potato would tend to depress the standard of living to the level of that of the Irish. Nonetheless the potato, having in the early seventeenth century been a

<sup>31</sup> Thomas Malthus, *Essay on the Principle of Population* (London, 1798; 2d enlarged ed., 1803), Bk. I, Chap. II, 7.

<sup>32</sup> Salaman's lengthy and valuable study is by no means as comprehensive as the title would suggest. It is, in fact, restricted to a history of the potato in the British Isles.

<sup>33</sup> James E. Handley, *Scottish Farming in the Eighteenth Century* (London, 1953), Chap. VIII; see also Malcolm Gray, "The Highland Potato Famine of the 1840's," *Economic History Review*, 2d Ser., VII (Apr. 1955), 357-68.

delicacy grown in the gardens of the rich, was strongly urged in the 1670's as a food for the poor. In Lancashire it was grown as a field crop before 1700. During the ensuing century it established itself, even in the south, as an important item in the peasant's and worker's diet. The lower classes continued to prefer wheat bread, but growing distress forced the acceptance of the potato which was, in fact, the only important addition to the common man's limited diet in the course of centuries.<sup>34</sup> Long before the end of the eighteenth century large quantities of potatoes were being grown around London and other large cities. By and large the spread of the potato culture everywhere corresponded with the rapid increase of the population.<sup>35</sup>

Much less is known of the potato's history on the Continent. It was introduced in Spain from South America in the late sixteenth century and quickly taken to Italy, Germany, and the Low Countries. As in England, it was cultivated by the rich in the seventeenth century and gradually adopted by the common people in the eighteenth. It appears to have been grown quite commonly in some sections of Saxony even before the eighteenth century, while in some parts of southern Germany it became common in the period after the War of the Spanish Succession. In several instances soldiers campaigning in foreign lands came to know and appreciate its qualities.

One of the greatest champions of the potato was Frederick the Great, who throughout his reign kept urging its value as food for the poor, prodding his officials to see that it was planted by the peasants, and providing excellent instructions as to its culture and preparation. He met at first with much resistance, but after the crop failures of 1770 and 1772 even the most hidebound peasantry came to accept it. They were impressed by the fact that the potato thrived in wet seasons, when the wheat crop suffered, and that the potato did well in sandy soil. They also realized that it would make an excellent salad and that it went exceptionally well with herring.

By the beginning of the nineteenth century the potato was already a major field crop in Germany, especially in Prussia, Posen, Pomerania, and Silesia. By the mid-century the per capita consumption in Prussia was nine bushels per annum, and potato production almost equaled in volume the production of all other cereals taken together.<sup>36</sup>

<sup>34</sup> G. E. Fussell, "The Change in Farm Labourers' Diet during Two Centuries," *Economic History*, I (May 1927), 268-74; Jack C. Drummond and Anne Wilbraham, *The Englishman's Food* (2d ed., London, 1958), 208 ff.

<sup>35</sup> Salaman, *History and Social Influence of the Potato*, Chaps. xxiii-xxvi and the interesting chart on p. 538; see also Philip Miller, *The Gardener's Dictionary* (6th ed., London, 1752); Ernest Roze, *Histoire de la pomme de terre* (Paris, 1898); Gibault, *Histoire des légumes*.

<sup>36</sup> See the detailed and appreciative account in Johann G. Krünitz, *Ökonomisch-technologische Encyclopädie* (181 pts., Berlin, 1778-1843), Pt. 35, 232-412; Curt Dietrich, *Die Entwicklung des Kartoffelfeldbaues in Sachsen* (Merseburg, 1919), 10 ff. The various instructions and orders

The Austrian government followed Frederick's lead and succeeded in securing the adoption of the potato in the German parts of the monarchy. Galicia, Bohemia, and Hungary became major centers of potato production.<sup>37</sup> In France, too, potato culture had become established in the eastern provinces, such as Lorraine, Alsace, and Burgundy. In 1770 the eminent pharmacist and chemist, Antoine Parmentier, who had become acquainted with the vegetable in Germany during the Seven Years' War, won the prize offered by the Besançon Academy for an essay on the best vegetable to use as a substitute for wheat in times of food shortage. Parmentier was certainly not responsible for the introduction of the potato into France, but he proved himself an able promoter and succeeded in securing the support of Louis XVI. He tells us that in the early 1770's the markets of Paris were already full of potatoes and that they were sold raw or roasted on the streets, much like chestnuts.<sup>38</sup>

By 1800, then, the common people in the Netherlands as in the British Isles, Germany, and Scandinavia were eating potatoes twice a day, and even the French peasantry (passionately devoted to white wheat bread) was rapidly capitulating. In the early nineteenth century French potato production increased from 21,000,000 hectoliters in 1815 to 117,000,000 in 1840. This, be it noted, was a period when the French population was still increasing.<sup>39</sup>

A few words should, perhaps, be said about Eastern Europe. The rate of population growth in the Russian Empire appears to have been higher than in any other continental country. The population increased from about 16,000,000 in 1745 to 37,500,000 in 1801 to 62,000,000 in 1852. Part of this increase

---

of Frederick the Great are printed in Rudolph Stadelmann, *Preussens Könige in ihrer Thätigkeit für die Landeskultur* (4 vols., Leipzig, 1878-87), II, Nos. 144, 158, 186, 258, 294; see further Theodor Freiherr von der Goltz, *Geschichte der deutschen Landwirtschaft* (2 vols., Berlin, 1902), I, 455 ff.; Hans Lichtenfeld, *Die Geschichte der Ernährung* (Berlin, 1913), 95; Kurt Hintze, *Geographie und Geschichte der Ernährung* (Leipzig, 1934), 98 ff.; Kurt Hanefeld, *Geschichte des deutschen Nährstandes* (Leipzig, 1935), 297 ff.; C. F. W. Dieterici, *Handbuch der Statistik des Preussischen Staates* (Berlin, 1861), 264 ff.; Hans W. Graf Finck von Finckenstein, *Die Entwicklung der Landwirtschaft in Preussen und Deutschland* (Göttingen, 1960).

<sup>37</sup> See the scholarly analysis of Ignaz Hübel, "Die Einführung der Kartoffelkultur in Niederösterreich," *Unsere Heimat*, New Ser., V (Mar. 1932), 69-78; Friedrich W. von Reden, *Deutschland und das übrige Europa* (Wiesbaden, 1854), 151.

<sup>38</sup> Parmentier, *Examen chimique des pommes de terre*, 5, 186. Already in 1755 Henri-Louis Duhamel du Monceau (*Traité des cultures des terres* [6 vols., Paris, 1750-51]) had urged the value of the potato in times of want, and Turgot as well as the philosophes had appealed to the people to abandon their superstitions and prejudices. (See Gibault, *Histoire des légumes*, 243 ff.)

<sup>39</sup> B. H. Slicher van Bath, *De agrarische Geschiedenis van West-Europa, 500-1850* (Utrecht, 1960), 291 ff.; Paul Lindemans, *Geschiedenis van de Landbouw in België* (2 vols., Antwerp, 1952), II, 182 ff. On France, see Benoiston-Chateaufneuf, *Recherches sur les consommations . . . de la Ville de Paris*, 99; Charles Dupin, *Les forces productives et commerciales de la France* (2 vols., Paris, 1827), II, 194, 208; Sébastien Charléty, *La Monarchie de Juillet* (Paris, 1921), 190; Henri Sée, *Histoire économique de la France* (2 vols., Paris, 1948-51), II, 181. As late as 1837, however, Stendahl (*Mémoires d'un touriste* [Paris, 1837; new ed., 2 vols., Paris, 1953]) noted that in some sections of France the peasants still looked down on those who subsisted chiefly on potatoes.



was of course due to the substantial territorial acquisitions of Catherine the Great and Alexander I. Yet the territory of 1725 saw a rise from 14,000,000 in that year to 45,000,000 in 1858.<sup>40</sup> In this case the population growth seems indeed to have been due to an exceptionally high birth rate. The death rate too was high (about 39.4 per 1,000 in the period 1840-1860), but the birth rate was substantially higher (49.7 per 1,000 from 1841 to 1850, and 52.4 per 1,000 from 1851 to 1860).

Information available on the culture of the potato in Russia is not sufficient to warrant any firm conclusion. Russian armies became acquainted with the vegetable in Germany during the Seven Years' War, at which time it seems to have been already well established in Poland and the Baltic Provinces. During a famine and epidemic in 1765 a board of medical advisers convinced Catherine the Great and her government of the importance of the potato as a preventive of famine and typhus. The government thereupon embarked on a systematic campaign of propaganda with the result that by 1800 the potato was widely cultivated in the Ukraine and the western *gubernias*. In many areas, however, the superstitions of the peasantry proved almost insurmountable. It was only after the crop failures of 1838-1839, when Tsar Nicholas reinforced the earlier efforts to further its adoption, that it became a key crop in central Russia also. By 1900 Russia was second only to Germany as a potato-producing country.<sup>41</sup>

Any conclusion to be drawn from these data must be tentative. The great upswing in the European population beginning around the middle of the eighteenth century can never be explained with any high degree of assurance or finality. It is extremely difficult to demonstrate whether it was due primarily to a decline in the death rate or to a rise in the birth rate. And beyond any such demonstration would lie the further question of the forces making for such demographic change. It is most unlikely that any single factor would account for it. Thus far the many explanations that have been advanced seem woefully inadequate. It seems altogether probable, therefore, that the introduction and general adoption of the potato played a major role. Its establishment as a field crop and as a basic food item of the general population coincided roughly with the sudden spurt of the population. Furthermore, it would appear that the areas of the most intensive potato culture such as Ire-

<sup>40</sup> There are substantial discrepancies in the figures given by various authors. See Ludwik de Tegoborski, *Études sur les forces productives de la Russie* (3 vols., Paris, 1852-55), and the English translation, *Commentaries on the Productive Forces of Russia* (London, 1855); see also the discussion in Jerome Blum, *Lord and Peasant in Russia from the Ninth to the Nineteenth Century* (Princeton, N. J., 1961), 278.

<sup>41</sup> Tegoborski, *Études*, II, 104 ff.; Baron August von Haxthausen, *The Russian Empire* (2 vols., London, 1856), II, 410, 425; and the exhaustive study of V. C. Lekhnovich, "K Istorii Kulturi Kartofelia v Rossii," *Materiali po Istorii Zemledel'ia CCCP*, II (1956), 248-400.

land, the Scottish Highlands, Lancashire, and western and southwestern Germany were also the areas of exceptionally rapid population increase, population pressure, and early emigration.

So much at least seems clear: that marriage was easier in the generations before and after 1800 than in earlier times, and that there was a much better opportunity for men and women to marry at an early age. For the fact that on a pathetically small patch of ground one could grow in potatoes from two to four times as much food as one could in terms of wheat or other grains, enough indeed to feed a family of more than average size was, I submit, a major revolutionary innovation in European life. In 1844 the eminent German agronomist, Baron August von Haxthausen, noted that the introduction of the potato "has undoubtedly produced immense effects upon Europe, in the moulding and culture of which it has probably operated more powerfully than any other material object." A few years later the equally authoritative German economist, Wilhelm Georg Roscher, declared without qualification that the adoption of the potato had resulted in a rapid growth of population.<sup>42</sup>

Perhaps the time has come, then, for historians to pay greater attention to the evolution of the human diet and its social consequences. As a first step, more intensive research might be initiated to test whether so startling a new departure in European history as the initial population explosion is to be attributed at least in large part to so drastic a change in the people's food as the advent of the common potato.

<sup>42</sup> Haxthausen, *Russian Empire*, II, 425; Roscher, *Grundlagen der Nationalökonomie*, 438.