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*The Essay On Population, the Facts of "Super-Pop"
and the Rhetoric of Scientific Persuasion*

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and the Rhetoric of Scientific Persuasion

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ABSTRACT

This paper argues that, for the Malthusian theory of population to be accepted as "scientific," it was essential for the theory to be established on wide empirical evidence. A close examination of the "facts" provided by Malthus shows however that many of his crucial facts are based on distortions of the available evidence. Malthus was probably aware of much of this weakness but rhetorical reasons made him persist with the sandy empirical foundations he began from.

THE ESSAY ON POPULATION, THE FACTS OF "SUPER-POP"
AND THE RHETORIC OF SCIENTIFIC PERSUASION

It is something of a truism to state that the eighteenth century took the model of Newtonian mechanics as its scientific paradigm; scholars also know that the Malthusian theory of population was an attempt to apply the Newtonian model to economics. In an age when political economy was widely asserted to be capable of exact scientific accuracy,¹ many people, such as the historian Henry Hallam, saw Malthusian population theory as an exact doctrine whose mathematical basis was as secure as the multiplication table.² What role did the mass of demographic evidence collected in Books I and II of the second and later editions of the Essay on the Principle of Population play in convincing readers of the scientific nature of the book? For many scholars, it is the careful accumulation of relevant facts that serves to distinguish science from speculation. In The Economics of Industry Alfred Marshall referred to the arguments of the Essay as³

One of the most crushing answers that patient and hard-working science has ever given to the reckless assertion of its adversaries.

Marshall returned to this aspect of Malthus in his famous Principles of Economics where we are told that Malthus "proves" his case "by a careful study of the facts"⁴ in the second and later editions of the Essay; Lord Keynes also spoke in a similar vein in his biographical essay on Malthus⁵

in the later editions political philosophy gives way to political economy, general principles are overlaid by the inductive verifications of a pioneer in sociological history.

It is the primary aim of this essay to query the scientific status of the "facts" presented by Malthus in the Essay.

The central importance of facts in scientific discourse cannot be denied. Whether they serve to make the basic assumptions plausible or whether they serve to confirm the deductions of hypotheses accepted provisionally, the importance of facts in eliciting assent is considerable. When the facts produced are so carefully chosen as to be capable of only one reasonable explanation--the crucial experiments of the physical sciences--their presence is so naturally called for that the facts are not seen as possessing any rhetorical impact. It is otherwise in cases where we have to rely upon incomplete, contaminated and poorly designed data, as is frequently the case in the social sciences. A multiplicity of independent confirmations of a hypothesis is most desirable, almost essential, under such circumstances, so that the omissions and errors of one instance can be "compensated" by the different deficiencies of another instance.

A critical examination of the scientific status of the "facts" of the Essay would appear to be valuable not only because of the several references to Malthus in popular discussions on economic development, a level of discourse scholars can presumably ignore, but also because recent scholarship seems bent on ignoring even those aspects of Malthus' scholarship which were well-known in the nineteenth century. That Malthus had significantly misquoted the German statistician J. P. Sussmilch was known in 1807, the charge repeated in 1830 and described at length again in 1951.⁶ Yet it is ignored in all the works on Malthus in the last two decades, including the scholarly biographies of

Mrs. Patricia James and of William Peterson. Indeed, the Travel Diaries of Malthus provide some of the strongest evidence on this score and yet they have been quite ignored.⁷

It is no doubt an unpleasant thing to have to query the scholarly merits of an illustrious economist and the seriousness of the question requires some discussion of the methodology of such an inquiry. What are the ways in which an author may fail to present impartially the facts relevant to a scientific hypothesis? In ascending order of seriousness, these would appear to be the following. First, the facts provided may be impeccable, yet susceptible to more than one interpretation. A scholar can bias the issue by providing only that interpretation which serves to forward his own case. Secondly, of the many available sources of data, only those sources may be chosen which support the author. Thirdly, the sources that are chosen may be quoted out of context, so as to create a different impression than that provided by the original. Fourthly, the sources used may actually be significantly misquoted. Finally, the author can directly misrepresent evidence that he has personally obtained. I shall present examples to show that Malthus failed on each count.

Of all the above faults scholarly work can display, the first is the least blameable--it is hard enough finding confirmatory evidence for one's own hypothesis, without having to discover other hypotheses the data may also be consistent with. Furthermore, Malthus was most frequently criticized on this ground in the early nineteenth century. For example, the data from Leyzin in Switzerland, which Malthus laid such stress upon, was provided a reasonable alternative explanation by

Piercy Ravenstone, while the nub of the later debate between him and Malthus was not on the fact of American population growth but whether this increase was better explained by natural growth or by immigration.⁸ To scrutinize Malthus' treatment of such issues would require a consideration of demographic questions, such as the age-structure of growing populations, a question I do not wish to enter into. My concern is with a much "lower" level of fact--what may be called primary evidence. Since Malthus could not travel to places like the South Seas, India and Peru to collect evidence for his thesis, he necessarily had to rely on others for his evidence. The accounts that he did use can thus be referred to as the sources of his facts. How did Malthus go about choosing books on worldwide demographic evidence? How accurately did he represent those authors whom he did use?

All the facts stated by Malthus are not, of course, of equal importance. Those to be selected for careful scrutiny should have some direct bearing on Malthus' major thesis. For this purpose it is necessary to begin by discussing what was Malthus' most original and important thesis, a task attempted in section II. The longest part of this paper is section III in which the main deficiencies in the facts of the Essay are noted. Section IV concludes the paper by noting how important this section was for rhetorical purposes.⁹

II.

The Essay on the Principle of Population begins by stating the general principle that population, unless checked, grows faster than the supply of food. Population can grow in the geometric progression of 1, 2, 4, 8, 16, ... while food can grow, at best, in the arithmetic progression of 1, 2, 3, 4, ... Hence there must exist checks to population. The existence of such checks in all societies for which information was available is then illustrated. This takes up practically half the book. Malthus then applies his theory to such institutions as the Poor-Laws and Emigration and concludes with a lengthy discussion of the prospects of ameliorating the evils arising from the principle of population.

The first edition of the Essay on Population was written with the intention of upholding the benefits of private property and civilized government. To the plans of Condorcet and Godwin for abolishing the structure of society as it existed and remodeling it on the basis of an egalitarian community, Malthus believed he had found an irrefutable objection. This lay in the power of population to increase very much more rapidly than the potential increase of food. If a communistic society were established, Malthus argued, then the principal check on early marriage, which consisted in the responsibility of the parents to feed their children, would be abolished. A spate of early marriages would follow, promiscuity being impossible in the Malthusian Utopia, population would rapidly multiply and soon threaten the existing food supply. Faced with starvation, the community would rapidly degenerate

into the Hobbesian state of nature, where life would be "nasty, cruel, brutish and short."

That population always tended to increase when supplied with food was almost a truism by 1800--having been stated by David Hume, Robert Wallace and Sir James Steuart, to name but a few. The distinctive point about Malthus was his emphasis on the impossibility of increasing the supply of food sufficiently in all settled countries. Wallace too had considered the possibility of forming virtuous Utopias some 50 years before Malthus, and had considered the plan impracticable for precisely the same reason as Malthus--the pressure of population. Wallace, however, felt that the pinch of hunger would be felt only when the earth had been fully cultivated. It was Malthus' distinct contribution to emphasize that the pressure of population is always felt in settled countries like England. At any point in time, population could increase much faster than the supply of food could. If this potential population were allowed to materialize, as there was not enough food for everyone, some must starve to death; if the potential were repressed, this would almost certainly be achieved by promiscuity or by some "unnatural" means such as birth-control. The former was misery, the latter vice. Without ever having mentioned bad government, Malthus has demonstrated the necessary existence of vice and misery on earth.¹⁰

The motivation of the first edition was to defend existing institutions against wholesale reform. But in the process Malthus reached a much more radical conclusion. He informs us that Godwin's great error was to attribute all vice and misery to political institutions.¹¹

"But the truth is, that though human institutions appear to be the

obvious and obtrusive causes of much mischief to mankind, yet in reality they are light and superficial, they are mere feathers that float on the surface, in comparison with those deeper seated causes of impurity that corrupt the springs and render turbid the whole stream for human life." With the exception of the phrase, "they are mere feathers that float on the surface," this passage occurs in all editions and may be taken as fairly representative of Malthus' view on the subject. But it is one thing to show a Utopia impracticable and another to show that the influence of Government can only be "light and superficial." It is incumbent on Malthus to demonstrate that his version of the population mechanism is so much stronger than that of his predecessors as to validate such a formidable conclusion.

The approach to demography before Malthus certainly recognized the food-population nexus but cast its net much wider. The Rev. Joseph Townsend had written very pointedly about the importance of food in his Travels through Spain. Indeed, Malthus praised highly Townsend's work on Spain in the Essay for its clear grasp of true principles of population. Townsend did not limit his attention to food alone¹² and listed eight causes of depopulation: 1) want of food, 2) diseases, 3) want of commerce, 4) war, 5) priestly celibacy, 6) emigration, 7) want of land, and 8) want of habitations. If the state of knowledge existing prior to Malthus is to be summarized we must acknowledge that the dependence of population upon food was recognized but not given primary emphasis. In modern terminology, a sociological multivariate approach was prevalent. Normatively, it was widely accepted that a state that could be populous and healthy was most desirable. Consider, for example, the words of Adam Ferguson¹³

The number in which we should wish mankind to exist is limited only by the extent of place for their residence and of provision for their subsistence and accommodation; and it is indeed commonly observed . . . that the numbers of mankind in every situation do multiply up to the means of subsistence. . . . To extend these limits is good; to narrow or contract them is evil; but although the increase of numbers may thus be considered an object of desire, and although we may wish, in every instance, that the people should multiply, yet it does not follow that we ought to wish the species thus indefinitely multiplied.

Why did Malthus make such a great impression in 1798? Everything that we consider significant in the theory of population had been stated, and well stated, before Malthus. What were his virtues? First and foremost, one has to admire the literary style of the first Essay. In the words of another considerable stylist, Lord Keynes, the first Essay had¹⁴ "bravura of language and sentiment," and was written with "the brilliance and high spirits of a young man writing in the last years of the Directory."

The political message of Malthus, its violent conservatism at a time when many people were turned away by the excesses by the French Revolution, must also be given importance. Ever since it was first enunciated, Malthusian population theory has been attacked as an apologetic for oppression. A frustrated William Goodwin wrote in his reply to Malthus¹⁵ "Never certainly was there so comfortable a preacher as Mr. Malthus. No wonder then that his book is always to be found in the country seats of the courts of aldermen, and in the palaces of the great." This point was repeated more forcefully by Karl Marx, and opposition to Malthus is still a plank of contemporary Marxism.

It would be a mistake to think however that the success of Malthus rested solely on style and timing. Malthus did give a new turn to population thought in two ways. First, whereas previous authors had seen the potential power of population to increase as a possibility, Malthus saw this potential as a reality. Population not only grew, it supergrew, if I may coin a word. Babies were always read to appear, like cockroaches from the woodworks, unless checked by some "obvious and powerful" forces. Malthus was called "Old Pop" by his students at Haileybury and it is convenient to call this idea of the super-growth of population as "Super-Pop." Secondly, Malthus tried hard to compress all the other checks to population into a single one--food. All the variety and richness of his predecessors were taken to be so many facets of a single cause--a scarcity of subsistence. These are both points of considerable importance. If Malthus had been able to prove them adequately it would have been a tremendous achievement. The burden of establishing these propositions falls upon the historical chapters in Books I and II.

Of the two points that constitute Malthus' original contributions, the reality of population supergrowth is the more fundamental and the proofs of "super-pop" will be considered in some detail in the next section. That war, pestilence, famine and infanticide, were all manipulations of an inadequate food supply, the second original contribution of Malthus, may appear to be an excessive form of economic determinism but there can be little doubt of Malthus' intentions.

It is not that Malthus was unaware of sociological variables or that he denied their practical importance. The curious aspect of

Malthus is that he traces these social norms and customs to their origin in the food supply. Whether it is infanticide, polygamy or even cannibalism, Malthus repeatedly ascribes the origins of these practices to a scarcity of subsistence. Even warfare by ambush among the American Indians is said to be "evidently produced by a consciousness of the difficulties attending the rearing of new citizens under the hardships and dangers of savage life."¹⁶ The confidence of Malthus in the importance of food shortages in shaping social mores in all parts of the world is evident when he takes issue with Montesquieu on the marriage customs of the Nayrs of India. Among the people of this tribe, from the Brahmins to the lower castes, only one brother actually marries while the other brothers cohabit with Nayar women without marriage. Both inheritance and succession among the Nayrs take place through the female line.¹⁷

Montesquieu takes notice of this custom of the Nayrs on the coast of Malabar, and accounts for it on the supposition that it was adopted in order to weaken the family ties of this cast, that as soldiers they might be more at liberty to follow the calls of their profession; but I should think that it originated more probably in a fear of the poverty arising from a large family, particularly as the custom seems to have been adopted by the other classes.

The predecessors of Malthus granted considerably autonomy to social customs from economic pressures and it is only by failing to recognize how hard Malthus strove to compress this variety into a one-sided explanation that one can call the Essay¹⁸ "a painstaking sociological treatise deploying a mass of detailed evidence."

III. THE EVIDENCE FOR SUPER-POP.

At the end of Chapter II of the Essay Malthus presents his principal theses with these words:¹⁹

The following propositions are proposed to be proved:

1. Population is necessarily limited by the means of subsistence.
2. Population invariably increases, where the means of subsistence increase, unless prevented by some very powerful and obvious checks.
3. These checks, and other checks which regress the superior power of population, and keep its affects on a level with the means of subsistence, are all resolvable into moral restraint, vice and misery.

The first of these propositions scarcely needs illustration. The second and third will be sufficiently established by a review of the past and present state of society. [emphasis added]

Malthus speaks quite strongly of what could be expected from Books I and II. The three propositions involved are "to be proved" and "the second and third will be sufficiently established" by the historical evidence. The presentation of demographic facts from around the world is thus begun with the appearance of an inductive exercise, meant to let us learn from the data. How could Malthus provide reasonable proof of his thesis from the data?

If Malthus could display a country where there were no checks to population growth, he could establish the natural, meaning unimpeded, rate of growth of population. This is a direct mode of establishing the geometrical rates of growth. On the other hand, if checks to population could be shown to exist, this would not suffice to prove his thesis that population was checked by subsistence, unless the checks themselves could be traced to a want of food. If a people were sparsely scattered over a fertile land due to frequent wars, this would support the Malthusian thesis only if these wars were caused by food shortages

likewise, it would be just as true to say that population growth was checked by man's aggressive instincts as by his need for food.

Since the supply of food was basically exogenous in the Malthusian schema, it is possible to devise other tests to verify the supergrowth of population. If a disease like the plague sweeps away a large number of people then since, on Malthusian assumptions, the food supply is unaffected we can expect the survivors of the plague to find plentiful subsistence. This will immediately induce super-pop and we should expect the marriages and births of such years to be significantly higher than the pre-plague years. Since any calamity, such as a famine or a war, would induce such a spurt of population, this procedure may be called "the spurting method."

The two most important facts in the Malthusian schema are the potential rates of growth of food and of population. It is notorious that Malthus asserted that food supplies could only grow at an arithmetical pace, at best. Scholars are now agreed that this was an unlucky guess, made with little attempt to understand the potential of scientific agriculture. The potential rate of growth of population is more carefully built up by Malthus. The rate of growth of population in the English colonies of North America is of central importance since the Americans did not want for food and a direct proof is therefore applicable.²⁰

In the northern states of America, where the means of subsistence have been more ample, the manners of the people more pure, and the checks to early marriages fewer, than in any of the modern states of Europe, the population was found to double itself for some successive periods every twenty-five years. Yet even during these periods, in some of the towns,

the deaths exceeded the births; and they consequently required a continued supply from the country to support their population.

Since some cities suffered actual depopulation Malthus is sure that this rate is short of the maximum possible.²¹

In the back settlements, where the sole employment was agriculture, and vicious customs and unwholesome occupations were unknown, the population was found to double itself in fifteen years. Even this extraordinary rate of increase is probably short of the utmost power of population.

In order to emphasize the possibility of a doubling of population in much less than 25 years, Malthus enlists the authority of the mathematician Euler and of Sir William Petty.²²

According to a table of Euler, calculated on a mortality of 1 in 36, if the births be to the deaths in the proportion of 3 to 1, the period of doubling will be only $12 \frac{4}{5}$ years. And these proportions are not only possible suppositions, but have actually occurred for short periods in more countries than one.

Sir William Petty supposes a doubling possible in so short a time as ten years. [emphasis added]

Having established the fact of a doubling of population in as little as 12 years Malthus' conclusion is moderation itself.²³

But to be perfectly sure that we are far within the truth, we will take the slowest of these rates of increase; a rate, in which all concurring testimonies agree, and which has been repeatedly ascertained to be from procreation only. [emphasis added]

Since the American data is the foundation stone of Malthus' edifice it is worth investigating how carefully Malthus developed the American evidence. Fortunately for students of Malthus, he was asked just this question by William Godwin in 1818; Malthus replied that he had relied solely on the references provided by Dr. Price for the first

edition of 1790, which is curious since Price was a noted supporter of civil and religious liberty as well as of large populations who would have been only too prone to exaggerate the American rate of growth.²⁴ Only in the second edition does Malthus claim to have made acquaintance with some extracts from the sermon of Ezra Styles.²⁵

I have had an opportunity of seeing some extracts from the sermon of Dr. Styles, from which Dr. Price has taken these facts. Speaking of Rhode Island, Dr. Styles says, that though the period of doubling for the whole colony is 25 years, yet that is different in different parts, and within land is 20 and 15 years. The five towns of Gloucester, Situate, Coventry, Westgreenwich, and Exeter, were 5033, A.D. 1748 and 6986 A.D. 1755; which implies a period of doubling of 15 years only. He mentions afterwards that the county of Kent doubles in 20 years; and the country of Providence in 18 years.

Why is Malthus so careful to claim that Styles refers to periods of doubling, without reference to immigration? After all, the fact that the American population increased rapidly was never in doubt. What was in dispute was whether the increase was due solely to procreation or arose largely from immigration. Consider the claim Malthus makes for a doubling every 25 years.²⁶

Throughout all the northern provinces the population was found to double itself in 25 years. The original number of persons which had settled in the four provinces of New England in 1643 was 21,200. Afterwards, it was calculated, that more left than went to them. In the year 1760, they were increased to half a million. They had, therefore, all along, doubled their number in 25 years.

As the half-million figure is arrived at solely by doubling the original 21,200 for 120 years the really important sentence above is the one that claims that more people left the colonies than went to them. Where is the evidence for this vital piece of information? Malthus provides none.

At the end of the same footnote which ~~contains the figures from~~ pamphlet of Ezra Styles, Malthus quotes some data showing the population of the United States to have doubled in less than 16 years. Malthus claimed that the data was based upon returns to Congress and could be relied upon. Such a claim engaged the attention of Adam Seybert, who pointed out that no such returns existed. He goes on to examine the probable reasons for such an error on the part of Malthus because the stated period of increase "is so very extraordinary" and would imply an increase double that obtained from later data. This part of the footnote was quietly removed in 1826.²⁷

Contemporary critics were also concerned that the manner in which Malthus arrayed his authorities would lead the unwary reader astray. The American evidence does at least relate to an actual rate of increase. Euler's calculation and that of Petty relate however to entirely hypothetical calculations. In Petty's case this is not so apparent because his data are partly based on observation, but there can be no mistaking Euler's intent. The words in quotation marks below are Euler's own, while the comments on it are those of Godwin.²⁸

"If in any country there are 100,000 persons living, and the annual mortality is one in thirty-six, then, supposing the annual proportion of deaths to births to be variously, as 10 to 11, 10 to 12, and so on, up to as 10 to 30, what will be the number of persons who will yearly be added to the society, and what will be the number of years required for the original 100,000 persons to become 200,000?"

[Euler's answer is that] "the period of doubling on the first supposition would be 250 years, and--on the last would be twelve years and four-fifths."

Without any further evidence, from a calculation so explicitly hypothetical, Malthus concludes that "this proportion is not only a

possible supposition, but has actually occurred for short periods in more countries than one" Malthus does not explicitly point out any country which would provide such strong support so it is worth turning to one of the countries where Malthus does claim that his hypotheses apply--the Tahitian Islands of the South Seas. Let it be repeated once again that the issue is not the real rate of population growth but rather the credibility of the evidence on which such a rate is to be accepted.

Malthus thought the Tahitian islands as providing an excellent test-case for his theory. With plenty of food and a healthy climate, with no need for hard labor in order to stay alive, procreation would surely be most desirable? And yet, if the population did double itself every 25 years, as Malthus had no doubt that it could, then how could the people possibly feed themselves?²⁹

The difficulty, here, is reduced to so narrow a compass, is so clear, precise, and forcible, that we cannot escape from it. It cannot be answered in the usual vague and inconsiderate manner, by talking of emigration, and further cultivation. In the present instance we cannot but acknowledge, that the one is impossible, and the other glaringly inadequate. The fullest conviction must stare us in the face, that the people on this group of islands could not continue to double their numbers every twenty-five years; and before we proceed to inquire into the state of society on them, we must be perfectly certain, that, unless a perpetual miracle render the women barren, we shall be able to trace some very powerful checks to population in the habits of the people.

Malthus turns to describing the wide variety of means by which the population is prevented from increasing. Infanticide is widespread and Malthus describes this practice at some length; he then goes on to point out that promiscuity was widespread, and Malthus firmly believed

that promiscuity reduced fertility. Infanticide and promiscuity were enough in themselves, Malthus thought, to keep population in check. "Yet these," he tells us, "are not all." War is both frequent and destructive of human and animal life. These wars make the spurting method applicable to Tahiti. In 1768 Captain Cook found the islands swarming with hogs while in 1773 hardly any were to be had. "This was attributed by Captain Cook" Malthus tells us "principally to the wars which had taken place during that interval." So great however is the potency of population that famine has to be added to the above list to make the checks complete.³⁰

The great checks to increase, appear to be the vices of promiscuous intercourse, infanticide, and war, each of these operating with very considerable force. Yet powerful in the prevention and destruction of life as these causes must be, they have not always kept down the population to the level of the means of subsistence. According to Mr. Anderson, "Notwithstanding the extreme fertility of the island, a famine frequently happens in which it is said many perish. Whether this be owing to the failure of some seasons, to over-population, which must sometimes almost necessarily happen, or wars I have not been able to determine; though the truth of the fact may fairly be inferred from the great economy that they observe with respect to their food, even when there is plenty."

Malthus does not actually have evidence of famines but he accepts fully the inference made by one of his informants that famines must exist because the natives were observed to be very careful in their use of food. These checks can occasionally be so strong as to actually lead to a decline in population.³¹

From the late accounts of Otaheite, in the Missionary Voyage, it would appear, that the depopulating causes

above enumerated, have operated with most extraordinary force since Captain Cook's last visit: A rapid succession of destructive wars, during a part of that interval, is taken notice of in the intermediate visit of Captain Vancouver; and, from the small proportion of women remarked by the Missionaires, we may infer that a greater number of female infants had been destroyed than formerly. This scarcity of women would naturally increase the promiscuous intercourse, and, aided by the ravages of European diseases, strike most effectually at the root of population.

Malthus therefore considers the typical pattern of population in these islands to consist of violent fluctuations of population depending upon the ratio of population to subsistence.³²

It would appear from these accounts, that the population of Otaheite is at present considerably below the average means of subsistence, but it would be premature to conclude that it will continue long so. The variations in the state of the island which were observed by Captain Cook, in his different visits, appear to prove that there are marked oscillations in its prosperity and population. And this is exactly what we should suppose from theory.

Malthus has succeeded in painting a picture of Tahitian demography quite in keeping with his own world-view. His sources are the voyages of Captain Cook, of LaPerouse and the Missionary Voyage. It remains to be seen how far Malthus has painted his picture by an accurate representation of his sources.

Consider, to begin with, the scarcity of hogs which, according to Malthus, "was attributed by Captain Cook principally to the wars which had taken place during that interval." Here are the words of Cook³³

The scarcity of Hogs and Fowls may be owing to two causes, first to the number which have been consumed and carried off by the Shipping which have touched here of late years and secondly by their frequent wars which not only distroy great numbers but does not allow time to breed others. Two distructive

Wars hath happen'd between the two Kingdoms sence the year 1767, at present they are at Peace but doth does not seem to entertain much friendship for each other. I never could learn the cause of the late War or how [who] got the better in the conflict in the Battle which I think put an end to the dispute, many were kill'd on both sides. . . .

Cook does not make the wars the principal cause of the scarcity of hogs and his general statements are too vague for the specific inference Malthus drew from them. Nonetheless, Malthus is bent on making the wars very destructive. A little later, Malthus speaks of Captain Vancouver having noted a "rapid succession of destructive wars." What Vancouver has to say about the wars is as follows:³⁴

We have become acquainted by subsequent visitors, that, shortly after the last departure of Captain Cook from these islands, considerable disputes had arisen between Maheine...and Pomurrey...by which means, for a considerable space of time, Pomurrey was materially worsted, and his own districts laid entirely waste.

In the several pages that follow the fortunes of several individuals in these wars is described but nowhere is there any mention of the numbers that died. If Malthus knew nothing more about these wars it would still be a permissible inference that many people had indeed been killed during these wars. It so happens however that the Missionary Voyage, the more recent source available to Malthus, does describe the fatalities involved at some length in some subsequent wars; here are the relevant extracts.³⁵

[In the first war of 1793], one skulking behind a tree was shot...two more were slain in the chase... This secured the districts of Matavai, Oparre and Tettaha...[five days later]...one woman was killed ...[three days later]...no less than twenty-five of their number being slain; which, considering

their address to close in battle since the introduction of a few muskets, was certainly a great number. This victory [gave]...all the northern side of the peninsula...to Pomarre.

Of the subsequent war which gave control of the rest of the peninsula to Pomarre only five deaths are recorded! Nor is this the only place where Malthus shows no judgment in the way he treats the Missionary accounts; he is similarly negligent in presenting their account of the population of the islands. The Missionary account describes their computation as follows³⁶

It has already been noticed, that some of the brethren had made a tour of the island, and supposed the number of inhabitants on both peninsulas to be about fifty thousand: this sum, though less than a quarter of what Captain Cook calculated them at, was still thought by us as greatly exceeding the population. Therefore Captain Wilson agreed with Peter to accompany me in a circuit of the island, and to try some method of estimating the number of people in each district.

After a careful, inquiring trip through the island the Missionary came to an even smaller number; indeed he is even struck at coming at the figure of 1242 for a district.³⁷

This may be thought but a small number for so large a district, especially when the magnitude of Captain Cook's and Lieutenant Corner's estimations is considered; but according to the best of my judgment, after passing through it, and paying every attention, I think even this small number exceeds the truth; and surely it is no argument in favour of great population, that at this house where I got the account, no more than thirty people should be collected at any time while I staid, including Inna Madua's retinue, and those whom eager curiosity brought to see me.

In view of the care taken by the Missionaries the reasonable conclusion would have been that Captain Cook had simply been misled.

Instead Malthus prefers to speak of violent changes in population caused by ebbs and flows in the "checks."

Malthus appears to be in the same frame of mind when presenting the evidence from the Easter Islands.³⁸

The fluctuations in the population of Easter Island appear to have been very considerable since its first discovery by Roggewein in 1722... When Captain Cook visited it in his second voyage, he calculated the population at six or seven hundred, Perouse at two thousand.

Malthus does not tell us what evidence he has for fluctuations between 1722 and 1774, the date of Cook's second voyage. Malthus does not tell his readers that Perouse visited the islands in 1786, thereby presenting Malthus with a tripling of population, from about 650 in 1774 (Cook) to 2000 in 1786 (Perouse), in only twelve years! Only Malthus could have solemnly presented such evidence, without any comment as to its accuracy.

The next countries to be exhibited are the ancient inhabitants of North Europe. At the very beginning of the chapter he points out how migrations help to establish his theses.³⁹

A history of the early migrations and settlements of mankind, with the motives which prompted them, would illustrate in a striking manner the constant tendency in the human race to increase beyond the means of subsistence.

To illustrate his thesis Malthus uses the Biblical example of Abram and Lot, who had so much cattle that the land would not bear them both. So Abram proposed to Lot that they separate. Quite oblivious of the fact that this separation was being caused by an overabundance of cattle and not by a shortage of food, Malthus infers that⁴⁰

This simple observation and proposal is a striking illustration of that great spring of action which overspread the whole earth with people.

The main problem facing Malthus in this chapter was to provide an explanation for the seemingly endless irruptions of Northern tribes that had so constantly harassed the Romans and served to amaze subsequent ages. This very problem is later taken up by Malthus in his discussion of the Romans and he is led to make some acute observations on the Hume-Wallace debate. Malthus is convinced that the frequent invasions of the Northern tribes provide good evidence of the amazing power of population. He notes the virtuous marital habits of the ancient Germans as well as their disdain for agriculture and concludes that these were excellent conditions for breeding a redundant population. This is certainly a good prima facie case for the thesis of Super-Pop. The Malthusian hypothesis is a plausible explanation for the ability of the northern tribes to man their armies despite so many defeats.

What the reader misses at this point is the concrete data that would drive the thesis home. No dates, no numbers or historical accounts of these invasions are provided and the entire discussion is left at a vague general level which can perhaps satisfy the casual reader but leaves the interested reader curious for details. Why Malthus chose not to press this advantageous example it is impossible to determine, but there is one problem that he would have had to face up to. Three of his principal authorities, Mallet, Montesquieu and Gibbon were all agreed that it was not a want of food that drove the invaders. The author whom Malthus relies most upon, Gibbon, is quite

explicit on this point and even goes so far as to describe the accounts of "innumerable swarms" of invaders to the "fears of the vanquished" and the "credulity" of succeeding ages.⁴¹

If a country could be found where early marriage was encouraged, agriculture was skilfully undertaken and the government was just, then Malthus would have to show that there was much vice and misery in such a country. Given the truth of Super-pop and the non-existence of the preventive checks, the positive checks would have to operate with doubled force. In view of the general benevolence of the Chinese government and the industriousness of its people, it was essential for Malthus' theory that vice and/or misery abound in China. Since it is Malthus' scholarship and not Chinese demography that is the primary issue my concern is with the use Malthus makes of his authorities. He makes most frequent use of the Jesuit Letters Edificatory and Curious even though the inaccuracy of these letters had already been noted by subsequent authors. The more recent accounts of Barrow and Ellis find no place in this chapter. Malthus finds only slight exaggeration in Father Premare's assertion that "A third part of this infinite population [of China] would hardly find sufficient rice to support itself properly." But then, how did the other two-thirds survive?⁴²

Perhaps Malthus felt that subsequent accounts were still too imprecise for his purposes. This may well be true but it cannot be denied that the account Malthus provided of China did leave readers with some impression and that it was Malthus duty to make this impression as accurate as possible. If Malthus wished to rely so heavily on missionary accounts, why did he not refer to the widely known account of Mendoza.

There is one difficulty that would arise in referring to such accounts; there appear to have been public institutions for maintaining the poor in China. (Whether China really was "welfare state" is besides the point. The early missionaries certainly thought it to be so.) Malthus could never attack such welfare systems sufficiently strongly; if the poor were assured maintenance by the state they would breed in season and out of season. Since Malthus thought such welfare infeasible even in England, he would have had to explain how a country teeming with so many people as China maintain such a system?⁴³

When we turn to modern Europe, there are only two places where Malthus claims he finds direct evidence of Super-Pop. The spurting method is applied here to look at demographic behavior after a scarcity or after a plague. It is sufficiently exemplified by Malthus' treatment of Swedish data provided by Wargentin. Malthus prefaces this data by pointing out that Sweden is generally self-sufficient in food and that therefore the checks must operate so as to keep the population exactly balanced with the food supply. A shortage of food causes more deaths, this is plausible enough; but Malthus would extend the argument to marriages and suggests that couples marry only when there is enough surplus food visible for their future children.⁴⁴

The consequence of this state of things is, that the population of Sweden is in a peculiar manner affected by every variation of the seasons; and we cannot be surprised at a very curious and instructive remark of M. Wargentin, that the registers of Sweden shew, that the population and the mortality increase or decrease, according as the harvests are abundant or deficient.

	Marriages	Births	Deaths
Barren 1757	13799	81378	68554
Years 1758	19584	83299	74370
Abundant 1759	23210	85579	62662
Years 1760	23383	90635	60083

It can be readily granted that more people will die when there is less food and in fact the second barren year, 1758, produces the greatest number of deaths. In his eagerness to compare the two barren years with the two abundant years Malthus fails to note the problematic aspects of 1758. Why should more people marry in the second barren year? Unless couples practiced some form of birth control within marriage, a practice Malthus never refers to in his accounts, why should the births have any necessary relationship with the price of grain? On the other hand, if couples were (implicitly) assumed to practice such control, how could the number of births rise in 1758? These questions appear not to have bothered Malthus, who drew the following general conclusion from his examination of the tables.⁴⁵

If accurate observations were made in other countries, it is highly probable that differences of the same kind would appear, though not to the same extent. With regard to Sweden, they clearly prove that its population has a very strong tendency to increase; and that it is not only always ready to follow with the greatest alertness any average increase in the means of subsistence, but that it makes a start forwards at every temporary and occasional increase of food, by which means, it is continually going beyond the average increase, and is repressed by the periodical returns of severe want, and the diseases arising from it. [emphasis added]

Malthus was even more excited by some data provided by the German population theorist, Johann Peter Süßmilch.

The following table is copied from Malthus's work in the short work the original table of Süssmilch regarding the effects of the plague.

Annual Average	Marriages	Births	Deaths
5 years to 1697	5747	19715	14862
5 years to 1702	6070	24112	14474
6 years to 1708	6082	26896	16430
In 1709 & 1710	a plague	no. destroyed in 2 yrs.	247733
In 1711	12028	32522	10131
In 1712	6267	22970	10455

What would Malthus look for in such a table? If his doctrine be true then sudden deaths would remove the necessity of the preventive check on the existing population and many more would be enabled to marry. Malthus was delighted to see his view confirmed in the above table and commented on it thus:⁴⁶ "...above one third of the population was destroyed by the plague; and yet...the number of marriages in the year 1711 was very nearly double the average of the six years preceding the plague. To produce this effect, we may suppose that almost all who were at the age of puberty were induced, from the demand for labor and the number of vacant employments, immediately to marry."

If the table above be correct it certainly demonstrates Malthus' point; potential additions to the human race are being restrained only by the threat of starvation, and an occasional plague not only has its ravages repaired almost immediately but may actually add to the sum of happiness by permitting young couples to marry and carrying away the weak and senile. But is the table really credible? What of the economic principle, widely adopted by Malthus' contemporaries, that larger

populations were beneficial because more people were married, and more laborers?

While the omission of an important economic principle can be faulted, it certainly does not impair the truth of Malthus', or rather Sussmilch's facts. Twice as many people married in the year following a plague. Is this not incontrovertible evidence that in normal years population is held down by the preventive check? Malthus might have asked himself whether such extraordinary data were really plausible but it is a little hard to be harsh on data that so beautifully illustrates one's own theory.

A reasonable solution presents itself in the suggestion that the figure for 1711 is actually a total for the years 1709-1711 or at least for 1710 and 1711. If it were the latter then the marriages in each of 1710 and 1711 would average 6014, in plausible conformity with the other years of the table. This is precisely how Sussmilch set out his table, as shown below?⁴⁷

1709	5477	23977	59196
1710	"	"	188537
1711	12028	32522	10131
<hr/>			
S. 3 J	17505	56499	

It is sad to note the continuance in edition after edition of this blatant distortion, despite the error having been distinctly pointed out,⁴⁸ with only the addition of a footnote remark that while it was possible that the plague years had been added to the total of 1711, it was, however, "a matter of no great importance," because, "The other

years are sufficient to illustrate the general principle." However, we would like to say that the evidence from "the other years" illustrates Malthus' beliefs, it is curious to quote false data and then claim that the truth of the data is uninteresting because data which has not been presented suffice to establish the contested point. It so happens that the data from the other years do not prove Malthus' claim. The epidemic of 1736-1737 caused the number of marriages to drop to 5280 in 1736 from 5424 in 1735, then rise to 5765 in 1737 and fall to 5582 in 1738. The detailed data is quite inconclusive.

In a careful scrutiny of Malthus' handling of data a number of features have presented themselves. First, Malthus selects his sources so as to present only the facts that favor his case (China). Secondly, if the data does not say exactly what he wants it to, Malthus edits his sources to provide a more agreeable view (South Seas). Thirdly, he is not above suppressing relevant data in order to provide himself with corroborative evidence, and to persist even when his error had been pointed out (Susmilch). Malthus outdoes himself however when he comes to Norway, a country whose demographic characteristics he is quite enamoured with. It is relatively underpeopled and with few cities, hence the subject of population "is not involved in the same obscurity" as in populous countries where each individual cannot perceive the influence of his individual actions upon the aggregate. The number of additional families which can be maintained is apparent to everyone, even in the cities, and individuals consequently do not marry unless they are sure of subsistence. "A redundant population is thus

prevented from coming into existence, instead of being destroyed after it has taken place." As a result the lower classes were better off "than could be expected from the nature of the soil and climate." This degree of happiness, he felt sure arose "almost exclusively from the degree in which the preventive check to population operated; and the establishment of a system of poor-laws, which would destroy this check, would at once sink the lower classes of people into a state of the most miserable poverty and wretchedness."⁴⁹ Certainly the Norwegians were to be congratulated.

Malthus derived his knowledge of Norway from a tour he had made of that country in 1799 with some friends. One of these friends was Edward Clarke, who published an account of his many travels in 1819. In reading Clarke's Travels contemporaries were worried by the fact that Clarke distinctly referred to the existence of early marriages in Norway. How could the two friends have seen Norway so differently and why did Malthus not incorporate his friend's evidence into his chapters?

What might have given contemporaries further room for wonder was Clarke's explicit acknowledgment that he had relied on Malthus' diary of their Scandinavian travels for many of his facts. This diary has recently been discovered and published and it is worth comparing Malthus' Norwegian diary with what he wrote of Norway. In his diary we find that two of the towns Malthus visited did definitely possess public institutions for the poor while at no point does he mention that he had inquired about poor laws and been told there were none.

Certainly it is strange that he would have so forgotten his diary as to speak of Norway as a country with no poor laws.⁵⁰

But there are even more damaging passages in his diary. Malthus carefully speaks of the prudential check to population as being extensively operative in Norway. The general tone of the chapter is one of wholehearted approval and one can almost hear him sigh for such thoughtfulness on the part of the rest of the world. As he makes no mention of promiscuity, his readers would naturally assume that an Anglican clergyman would only approve of a people were chaste and moral. His diary however tells a different story.⁵¹

"I have understood from 2 or 3 authorities that the country girls generally have sweethearts for a considerable time before they marry. A marriage seldom takes place but when a child is about to appear." And a little later he writes "I understood from Count Molk another gentleman, that much irregularity prevails among the common people before marriage, and that in some districts, it is even approved of and sanctioned by the parents. In general however, it is not thought creditable to have more than one sweetheart at a time."

Whether or not readers were justified in assuming from Malthus' account that the Norwegians were a chaste people, he was surely duty bound to provide all the relevant demographic facts. If the behavior of the Norwegians was good, then as it involved promiscuity Malthus should have been explicit about this. And as such promiscuity did not lead to excessive children, some form of birth control must have been practiced and once again Malthus should have made up his mind and spoken up plainly on the question. If both the above alternatives were

unpalatable or impracticable would it not have been less dishonest to have omitted Norway altogether from his survey? It is with some surprise that one finds the editor of Malthus' Travel Diaries, Mrs. Patricia James, write in her subsequent account of Malthus' life that⁵² "the pursuit of accurate statistics and their correct interpretation were among the intellectual passions of his life."

STATISTICAL IMPORTANCE OF FACTS

When critics turned a careful eye on the "facts" presented in the Essay Malthus protested that the facts were of little consequence.⁵³

It has been said that I have written a quarto volume to prove, that population increases in a geometrical, and food in an arithmetical ratio; but this is not quite true. The first of these propositions I considered as proved the moment the American increase was related, and the second proposition as soon as it was enunciated. The chief object of my work was to inquire what effects these laws, which I considered as established in the first six pages, had produced, and were likely to produce, on society; a subject not very readily exhausted. The principal fault of my details is, that they are not sufficiently particular; but this was a fault which it was not in my power to remedy.

Tucked away in the midst of an Appendix to the fourth edition, this footnote is not a little curious. Malthus appears to be saying that practically two volumes were needed to convince us that infanticide, famine and war exist! This is scarcely consistent with Malthus' own language which, as was noted earlier, speaks of his propositions as "to be proved." Later, Malthus emphasizes that the truth of the Malthusian view of population has been arrived at by examining the evidence.⁵⁴

Must it not then be acknowledged by an attentive examiner of the histories of mankind, that, in every age and in every state in which man has existed or does now exist [the Malthusian theory is true].

This is hardly the language of someone who has fully proved his theory in his "first six pages." The same appeal to experience appears again in a later chapter.⁵⁵

As it appears that, in the actual state of every society which has come within our review, the natural progress of population has been constantly

and powerfully checked; and that no improvement of government, no plans of emigration, no benevolent institutions, and no degree or direction of national industry, can prevent the continued action of a great check to population in some form or other; it follows that we must submit to it as an inevitable law of nature. [emphasis added]

And in 1817, a decade after claiming that his facts were scarcely the issue, Malthus responded thus to John Weyland's criticism that if the Malthusian premises be granted the conclusions were undeniable.⁵⁶

I desire no other concession than this; and if my premises can be shewn to rest on unsolid foundations, I will most readily give up the inferences I have drawn from them.

To determine the point here at issue it cannot be necessary for me to repeat the proofs of these premises derived both from theory and experience, which have already so fully been brought forwards. [emphasis added]

Does Malthus really mean to refer only to the American evidence, two paragraphs and a footnote, as facts which have "so fully been brought forwards"? It would appear that the factual material of Books I and II play a more important role than that of simple illustration.

Malthus himself was keenly aware of the deficiency of his data. From the preface to the second edition of 1803 through all his subsequent writings he made a note, at some point or other, that the evidence was really not good enough for scientific purposes.⁵⁷ Why then did he persist in publishing these sections, virtually unchanged, for over a quarter of a century? Perhaps the answer lies in the need to fit scientific work within the recognized format of scientific discourse. "Induction" and "experience" were two mighty talismans in the age of Malthus and Malthus himself testifies to their importance in one section of the Essay⁵⁸

When a man faithfully relates any facts, which have come within the scope of his observation, however confined it may have been, he undoubtedly adds to the sum of general knowledge, and confers a benefit on society. But when from this confined experience, from the management of his own little farm, or the details of the workhouse in his neighborhood, he draws a general inference, as is frequently the case, he then at once erects himself into a theorist; and is the more dangerous, because, experience being the only just foundation for theory, people are often caught merely by the sound of the word, and do not stop to make the distinction between that partial experience which, on such subjects, is no foundation whatever for a just theory, and that general experience, on which alone a just theory can be founded.

Given the demand for general experience, how could Malthus avoid providing a plethora of evidence if he were to avoid the charge of being a system-builder? Even if the American evidence were all that Malthus wished it to be, he would not have been nearly as convincing if he appealed to America alone.

Considered only as a rhetorical device, in the narrowest sense of the term, the decision to present worldwide demographic evidence was a good one. One cannot dismiss the subliminal effect on the general reader of passages like the following⁵⁹

The Chiriguanes, originally only a small part of the tribe of Guaranis, left their native country in Paraguay, and settled in the mountains towards Peru. They found sufficient subsistence in their new country, increased rapidly, attacked their neighbours, and, by superior valour, or superior fortune, gradually exterminated them, and took possession of their lands, occupying a great extent of country; and having increased, in the course of some years, from three to four thousand, to thirty thousand,

When such statements are repeated on several occasions over the course of some four hundred pages the reader is insensibly prepared for the scientific truth of the general theory.

It is no doubt a difficult thing to follow Malthus through all his travels, check all his sources, scrutinize all his facts and reconstruct the logic of his arguments, but the task was not insuperable. If one were willing to accept the help of earlier authors, the task was even manageable. In point of fact, it appears that none of the significant critics of Malthus read each other.⁶⁰ But why did not the Malthusians themselves clean up their case? Perhaps the persuasiveness of the Malthusian case went beyond the facts. In the late eighteenth and early nineteenth century the word "experiment" did not have its current connotation but could refer to any knowledge derived from experience; an evangelical, for example, could refer to his version of Christianity as an "experimental religion." Faced with the task of grounding science on experience, yet unable to perform the experiments of the physical sciences, social scientists of this period began to emphasize instead the connotation of experiment as knowledge gained by experience. Dugald Stewart's defence of Free-Trade was based heavily on the notion that the premises of economic theory were repeatedly affirmed in daily life--the existence of wealth maximizing selfish individuals in particular--hence the conclusion must be quite beyond doubt.⁶¹ Malthus had made brilliant use of this broader interpretation of experience in the first edition of his Essay in 1798, when he repeatedly distinguished between the continuous but indefinite improvement that his age had observed and the unlimited improvement that the Utopians claimed was possible.⁶² This appeal to everyday experience as corroboration of theory is not emphasized in later editions of the

Essay, presumably because of the wealth of facts presented, but in reference to England Malthus remarks that⁶³

The most cursory view of society in this country must convince us, that throughout all ranks the preventive check to population prevails in a considerable degree.

Is it not possible that the combination of two features--the conformity of the Essay to the requirements of experience, as well as its simplicity and "testability" by everyday experience--contributed essentially to the success of Malthasian ideas?⁶⁴ How else can we explain the complete conviction of someone like John Stuart Mill on the empirical basis of Malthusian population theory?⁶⁵

It is a very low estimate of the capacity of increase, if we only assume, that in a good sanitary condition of the people, each generation may be double the number of the generation which preceded it.

Twenty or thirty years ago, these propositions might still have required considerable enforcement and illustration; but the evidence of them is so ample and incontestable that they have made their way against all kinds of opposition, and may now be regarded as axiomatic.

Almost seventy years after Mill, James Bonar describes graphically just the rhetorical effect being claimed in this paper.⁶⁶

If the essayist [Malthus] had done no more than put half-truths together into a whole ... he would have convinced the understanding without convincing the imagination.... Even the most competent reader has seldom all the relevant facts marshalled in his memory, ready to command; and he will always be thankful for illustrations. The Essay on Population in its second form certainly excelled all economic works, save one [The Wealth of Nations], in its pertinent examples from life and history.

Many commentators have wondered why Malthus persisted in using his ratios and his facts when both had such dubious existence. The dif-

difficulty in sustaining a defense of these aspects of the Essay has led some scholars to surmount the difficulties almost by fiat.⁶⁷

... there are good reasons for using Malthus as a point of departure in the discussion of population theory. These are the reasons that made his work influential in his day and make it influential now. But they have little to do with whether his views are right or wrong.... Malthus' theories are not now and never were empirically valid, but they nevertheless were theoretically significant....

This is not a very useful procedure. It bypasses the factual question--did Malthus treat his data in scholarly fashion--as well as the rhetorical one--how did Malthus convince so many people of his scientific attainments? I have argued in this essay, by restating several nineteenth century objections, and adding some new ones, that Malthus' reputation as an open-minded student of population problems cannot be sustained by an examination of his treatment of the facts presented in the Essay on Population. Malthus partially recognized this, but knew that it was impossible to succeed in scientific controversy unless he tried to be both factual and mathematical. The demon set forth by David Hume had to be exorcised.⁶⁸

If we take in our hand any volume--of divinity or school metaphysics, for instance--let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames, for it can contain nothing but sophistry and illusion.

It was not so much the merits of the Essay as a scientific work in the positivistic tradition (an anachronistic criteria to be sure) but rather its aptness within the numerico-experimental scientific atmosphere of

the early nineteenth century that gained its author such an enormous and lasting reputation.

FOOTNOTES

This is a revised and shortened version of a paper originally presented at the HES session of the American Economic Association meeting in Dallas, December 1984. I am grateful to Geoffrey Gilbert, David Levy and Larry Neal for their comments and especially to Larry Neal for suggesting that I lay more emphasis upon Malthus' rhetoric than I had originally done.

¹J. B. Say, "[Distinguished persons] are too apt to suppose that absolute truth is confined to the mathematics and to the results of careful observation and experiment in the physical sciences; imagining that the moral and political sciences contain no invariable facts or indisputable truths ... the general facts constituting [political economy] exist independently of all controversy. They as certainly proceed from the nature of things as the laws of the material world. [emphasis added] Treatise on Political Economy (Philadelphia, 1853), xxiv-xxv.

²James Bonar (1924), 85.

³Quoted in Flew (1970), Introduction, 13.

⁴(Cambridge 1961) ed. C. W. Guileband, 178.

⁵Reprinted in Essays in Biography (Norton 1951), 99.

⁶Smith (1951), 268-271.

⁷James (1979), Petersen (1979), James (1966).

⁸Smith (1951), 127-135 and 263-265.

⁹The importance of rhetoric in economic "science" has been beautifully illustrated by Donald McCloskey in "The Rhetoric of Economics," Journal of Economic Literature (June 1983), xxi, 481-517. The greatest difficulty I have faced in discussing Malthus is the fear on the part of my colleagues that by attacking Malthus one is also attacking programs of birth control. Logically, of course one may well abuse Malthus virulently and believe strongly in birth control, as in fact the Communists do. For what it is worth let me state at the very outset that, under proper safeguards, I am prepared to support compulsory participation in family planning.

¹⁰David Hume (1711-1776), philosopher, political economist and historian. Robert Wallace (1697-1771), Scots minister and political economist. Sir James Steuart (1712-1780), political economist.

¹¹Essay, 1st ed., 133.

¹²Townsend, A Journey Through Spain (London 1791), II, 107.

¹³ Adam Ferguson, Principles of Moral and Political Science (Edinburgh 1792), II, 409-410.

¹⁴ Keynes, op. cit., 99.

¹⁵ Godwin (1820), 565.

¹⁶ Malthus (1871), I, 61.

¹⁷ op. cit., I, 283-84.

¹⁸ Flew (1970), 13.

¹⁹ Malthus, op. cit., 33-35.

²⁰ op. cit., 7.

²¹ op. cit., 7-8.

²² op. cit., 8.

²³ op. cit., 8-9.

²⁴ Godwin (1820), 121-123 where the correspondence is stated in full.

²⁵ Malthus (1817), II, 194. I have been unable to locate a copy of this pamphlet.

²⁶ op. cit., 193.

²⁷ Statistical Annals ... of the United States (Philadelphia 1818), 26-27. The actual contribution of immigration during the eighteenth century is still subject to widely divergent estimates.

²⁸ As quoted by Godwin (1820), 132-133.

²⁹ Malthus (1817), I, 105.

³⁰ Ibid., 113-114.

³¹ Ibid., 115.

³² Ibid., 116.

³³ Cook (1971), 133.

³⁴ Vancouver (1967), 137.

³⁵ Missionary Voyage (1966), 182-186.

- ³⁶ Ibid., 181.
- ³⁷ Ibid., 193.
- ³⁸ Malthus (1817), I, 124.
- ³⁹ op. cit., 132.
- ⁴⁰ op. cit., 133.
- ⁴¹ Gibbon ().
- ⁴² Malthus (1817), I, 305.
- ⁴³ Donald Lach, Asia in the Making of Europe (Chicago 1965), I, Book 2, 775. For the English translations see pp. 744 and 748.
- ⁴⁴ op. cit., 394.
- ⁴⁵ op. cit., 396.
- ⁴⁶ op. cit., II, 170-173.
- ⁴⁷ Susmilch, Die Gottliche Ordnung (Berlin 1765-76), I, 83, Table 21.
- ⁴⁸ Susmilch's Table is completely ignored by James (1979) and Petersen (1979). Jane Soames Nickerson speaks of Malthus as "driven by a disinterested love of truth and the need to define it." Homage to Malthus (Port Washington, 1975), 138.
- ⁴⁹ Malthus (1817), I, 373-374 and III, 96.
- ⁵⁰ Travel Diaries (1966), 160, 185. These discrepancies are not noted by M. Drake in "Malthus on Norway," Population Studies, 2 (1966).
- ⁵¹ Readers interested in a lesser example of Malthusian prevarication should compare the chapter on Sweden in the Essay with the relevant parts of the Travel Diaries.
- ⁵² James (1979), 114.
- ⁵³ Malthus, op. cit., III, 343-344.
- ⁵⁴ Malthus, op. cit., II,
- ⁵⁵ Malthus, op. cit., III, 63-64.
- ⁵⁶ op. cit., 398.
- ⁵⁷ See the prefaces to the second and the fifth editions of the Essay.
- ⁵⁸ Malthus, op. cit., III, 282.

⁵⁹ Malthus, op. cit., I, 76.

⁶⁰ Goodwin does not appear to have read Thomas Jarrold or the Rev. Robert Ingram. Sadler does not appear to have read Goodwin.

⁶¹ I have covered this issue in more detail in "Dugald Stewart, Baconian Methodology and Political Economy," (forthcoming, Journal of the History of Ideas).

⁶² Malthus, 1st ed.,

⁶³ Malthus, op. cit., II, 42.

⁶⁴ This would bear directly on the issue of rhetoric as raised by McCloskey (see for 9).

⁶⁵ Principles of Political Economy.

⁶⁶ Bonar (1924), 85-86.

⁶⁷ Kinglsey Davis, as quoted by Eversley (1959), 238.

⁶⁸ David Hume, An Inquiry Concerning Human Understanding, ed. C. W. Mendel [1748] (Indianapolis 1955), 173.

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