

CLASSICS OF SCIENCE:

Malthus on Population

Biology—Economics

This is the first chapter of the essay which started Darwin on the train of thought that led to his theory of Natural Selection, immortalized by Huxley as the Survival of the Fittest.

An essay on the PRINCIPLE OF POPULATION; or, A View of its Past and Present Effects on Human Happiness; with an inquiry into our prospects respecting the future removal or mitigation of the evils which it occasions. A new edition, very much enlarged. By T. R. Malthus, A. M., Fellow of Jesus College, Cambridge. London: 1803.

Statement of the Subject

In an inquiry concerning the future improvement of society, the mode of conducting the subject which naturally presents itself is:

1. An investigation of the causes that have hitherto impeded the progress of mankind towards happiness; and

2. An examination into the probability of the total or partial removal of these causes in future.

To enter fully into this question, and to enumerate all the causes that have hitherto influenced human improvement, would be much beyond the power of an individual. The principal object of the present essay is to examine the effects of one great cause intimately united with the very nature of man, which, though it has been constantly and powerfully operating since the commencement of society, has been little noticed by the writers who have treated this subject. The facts which establish the existence of this cause have, indeed, been repeatedly stated and acknowledged, but its natural and necessary effects have been almost totally overlooked; though probably among these effects may be reckoned a very considerable portion of that vice and misery, and of that unequal distribution of the bounties of nature, which it has been the unceasing object of the enlightened philanthropist in all ages to correct.

The cause to which I allude is the constant tendency in all animated life to increase beyond the nourishment prepared for it.

It is observed by Dr. Franklin that there is no bound to the prolific nature of plants or animals but what is made by their crowding and interfering with each other's means of subsistence. Were the face of the earth, he says, vacant of other plants, it might be gradually sowed and over-



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spread with one kind only; as, for instance, with fennel: and were it empty of other inhabitants, it might in a few ages be replenished from one nation only; as, for instance, with Englishmen.

This is incontrovertibly true. Through the animal and vegetable kingdoms Nature has scattered the seeds of life abroad with the most profuse and liberal hand; but has been comparatively sparing in the room and nourishment necessary to rear them. The germs of existence contained in this spot of earth, with ample food, and ample room to expand in, would fill millions of worlds in the course of a few thousand years. Necessity, that imperious all-pervading law of nature, restrains them within prescribed bounds. The race of plants and the race of animals shrink under this great restrictive law; and the race of man cannot by any efforts of reason escape from it.

In plants and animals the view of the subject is simple. They are all impelled by a powerful instinct to the increase of their species; and this instinct is interrupted by no reasoning or doubts about providing for their offspring. Wherever, therefore, there is liberty, the power of increase is exerted; and the superabundant effects are repressed afterwards by want of room and nourishment, which is common to plants and animals; and among animals, by their becoming the prey of each other.

The effects of this check on man are more complicated. Impelled to

the increase of his species by an equally powerful instinct, reason interrupts his career, and asks him whether he may not bring beings into the world for whom he cannot provide the means of support. If he attend to this natural suggestion, the restriction too frequently produces vice. If he hear it not, the human race will be constantly endeavoring to increase beyond the means of subsistence. But as by that law of nature which makes food necessary to the life of man, population can never actually increase beyond the lowest nourishment capable of supporting it; a strong check on population, from the difficulty of acquiring food, must be constantly in operation. This difficulty must fall somewhere; and must necessarily be severely felt in some or other of the various forms of misery, or the fear of misery, by a large portion of mankind. . . .

Increase of Population and Food

Whether the law of marriage be instituted or not, the dictate of nature and virtue seems to be an early attachment to one woman; and where there were no impediments of any kind in the way of an union to which such an attachment would lead, and no causes of depopulation afterwards, the increase of the human species would be evidently much greater than any increase which has been hitherto known.

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.

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. Very severe labour is requisite to clear a fresh country; such situations are not in general considered as particularly healthy; and the (*Turn to next page*)

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inhabitants were probably occasionally subject to the incursions of the Indians, which might destroy some lives, or at any rate diminish the fruits of their industry.

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 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.

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.

It may safely be pronounced, therefore, that population when unchecked goes on doubling itself every twenty-five years, or increases in a geometrical ratio.

The rate according to which the productions of the earth may be supposed to increase, it will not be so easy to determine. Of this, however, we may be perfectly certain, that the ratio of their increase must be totally of a different nature from the ratio of the increase of population. A thousand millions are just as easily doubled every twenty-five years by the power of population as a thousand. But the food to support the increase from the greater number will by no means be obtained with the same facility. Man is necessarily confined in room. When acre has been added to acre till all the fertile land is occupied the yearly increase of food must depend upon the amelioration of the land already in possession. This is a stream, which, from the nature of all soils, instead of increasing, must be gradually diminished. But population, could it be supplied with food, would go on with unexhausted vigour; and the increase of one period would furnish the power of a greater increase the next, and this, without any limit.

Europe is by no means so fully peopled as it might be. In Europe there is the fairest chance that human industry may receive its best direction. The science of agriculture has been much studied in England and Scotland; and there is still a great portion of uncultivated land in these countries. Let us consider, at what

rate the produce of this island might be supposed to increase under circumstances the most favorable to improvement.

If it be allowed, that by the best possible policy, and great encouragements to agriculture, the average produce of the island could be doubled in the first twenty-five years, it will be allowing probably a greater increase than could with reason be expected.

In the next twenty-five years it is impossible to suppose that the produce could be quadrupled. It would be contrary to all our knowledge of the properties of land. The improvement of the barren parts would be a work of time and labour; and it must be evident to those who have the slightest acquaintance with agricultural subjects, that in proportion as cultivation extended, the additions that could yearly be made to the former average produce, must be gradually and regularly diminishing. That we may be the better able to compare the increase of population and food, let us make a supposition, which, without pretending to accuracy, is clearly more favourable to the power of production in the earth than any experience that we have had of its qualities will warrant.

Let us suppose that the yearly additions which might be made to the former average produce, instead of decreasing, which they certainly would do, were to remain the same; and that the produce of this island might be increased every twenty-five years by a quantity equal to what it at present produces: the most enthusiastic speculator cannot suppose a greater increase than this. In a few centuries it would make every acre of land in the island like a garden.

If this supposition be applied to the whole earth, and if it be allowed that the subsistence for man which the earth affords, might be increased every twenty-five years by a quantity equal to what it at present produces, this will be supposing a rate of increase much greater than we can imagine that any possible exertions of mankind could make it.

It may be fairly pronounced, therefore, that, considering the present average state of the earth, the means of subsistence, under circumstances the most favourable to human industry, could not possibly be made to increase faster than in an arithmetical ratio.

The necessary effects of these two different rates of increase, when

brought together, will be very striking. Let us call the population of this island eleven millions; and suppose the present produce equal to the easy support of such a number. In the first twenty-five years the population would be twenty-two millions, and the food being also doubled, the means of subsistence would be equal to this increase. In the next twenty-five years, the population would be forty-four millions, and the means of subsistence only equal to the support of thirty-three millions. In the next period would be eighty-eight millions, and the means of subsistence just equal to the support of half that number. And at the conclusion of the first century, the population would be a hundred and seventy-six millions, and the means of subsistence only equal to the support of fifty-five millions; leaving a population of a hundred and twenty-one millions totally unprovided for.

Taking the whole earth instead of this island, emigration would of course be excluded and supposing the present population equal to a thousand millions, the human species would increase as the numbers 1, 2, 4, 8, 16, 32, 64, 128, 256, and subsistence as 1, 2, 3, 4, 5, 6, 7, 8, 9. In two centuries the population would be to the means of subsistence as 256 to 9; in three centuries as 4096 to 13, and in two thousand years the difference would be almost incalculable.

In this supposition no limits whatever are placed to the produce of the earth. It may increase for ever, and be greater than any assignable quantity; yet still the power of population being in every period so much superior, the increase of the human species can only be kept down to the level of the means of subsistence by the constant operation of the strong law of necessity acting as a check upon the greater power.

Thomas Robert Malthus (1766-1834) at the age of 32 had an argument with his father on the subject of Condorcet's and Godwin's plans for making everybody happy, and convinced him that such a course is impossible. The father was so impressed with his son's arguments that he asked him to write them down. So appeared the first edition of the *Essay on Population*. Malthus went abroad to study economic conditions in other countries. The findings were incorporated in a new form of the *Essay*, published in 1803, from which the "Classic" above was taken. Malthus was professor of modern history and political economy in Haileybury College from 1805 until his sudden death from heart disease at the age of 69.