ESSAY
ON THE
PRINCIPLE OF POPULATION.

BOOK I.

OF THE CHECKS TO POPULATION IN THE LESS CIVILISED PARTS OF THE WORLD AND IN PAST TIMES.

CHAPTER I.

STATEMENT OF THE SUBJECT. RATIOS OF THE INCREASE OF POPULATION AND FOOD.

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

1. To investigate the causes that have hitherto impeded the progress of mankind towards happiness; and,

2. To examine 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 increase of population and food.

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 overspread 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.¹

This is incontrovertibly true. Throughout 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 the nourishment necessary to rear them. The germs of existence contained in this earth, if they could freely develop themselves, would fill millions of worlds in the course of a few thousand years. Necessity, that imperious, all-pervading law of nature, restrains them within the prescribed bounds. The race of plants and the race of animals shrink under this great restrictive law; and man cannot by any efforts of reason escape from it.

In plants and irrational 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 doubts about providing for their offspring. Wherever, therefore, there is liberty, the power of increase is exereted, and the superabundant effects are repressed afterwards by want of room and nourishment.

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 endeavouring to increase beyond the means of subsistence. But as, by that law of our 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.

That population has this constant tendency to increase beyond the means of subsistence, and that it is kept to its necessary level by these causes, will sufficiently appear from a review of the different states of society in which man has existed. But, before we proceed to this review, the subject will perhaps be seen in a clearer light, if we endeavour to ascertain what would be the natural increase of population, if left to exert itself with perfect freedom; and what might be expected to be the rate of increase in the productions of the earth, under the most favourable circumstances of human industry.

It will be allowed that no country has hitherto been known, where the manners were so pure and simple, and the means of subsistence so abundant, that no check whatever has existed to early marriages from the difficulty of providing for a family, and that no waste of the human species has been occasioned by vices customs, by towns, by unhealthy occupations, or too severe labour. Consequently in no state that we have yet known, has the power of population been left to exert itself with perfect freedom.

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 a 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 has been found to double itself, for above a century and a half successively, in less than twenty-five years.¹ Yet, even during these periods, in some of the towns, the deaths exceeded the births,² a circumstance which clearly proves that, in those parts of the country which supplied this deficiency, the increase must have been much more rapid than the general average.

In the back settlements, where the sole employment is agriculture, and vicious customs and unwholesome occupations are little known, the population has been found to double itself in fifteen years.³ 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 inhabitants, probably, are occasionally subject to the incursions of the Indians, which may destroy some lives, or at any rate diminish the fruits of 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

¹ It appears, from some recent calculations and estimates, that from the first settlement of America, to the year 1800, the periods of doubling have been but very little above twenty years. See a note on the increase of American population in Book ii. chap. xi.

² Price’s Observ. on Revers. Pay. vol. i. p. 274, 4th edit.

³ Id. p. 282.
period of doubling will be only twelve years and four-fifths. And this proportion is not only a possible supposition, but has 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, will not be so easy to determine. Of this, however, we may be perfectly certain, that the ratio of their increase in a limited territory must be of a totally 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 melioration of the land already in possession. This is a fund, which, from the nature of all soils, instead of increasing, must be gradually diminishing. 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.

From the accounts we have of China and Japan, it may be fairly doubted, whether the best directed efforts of human industry could double the produce of these countries even once in any number of years. There are many parts of the globe, indeed, hitherto uncultivated and almost unoccupied; but the right of exterminating, or driving into a corner, where they must starve, even the inhabitants of these thinly-peopled regions, will be questioned in a moral view. The process of improving their minds and directing their industry would necessarily be slow; and during this time, as population would regularly keep pace with the increasing produce, it would rarely happen that a great degree of knowledge and industry would have to operate at once upon rich unappropriated soil. Even where this might take place, as it does sometimes in new colonies, a geometrical ratio increases with such extraordinary rapidity, that the advantage could not last long. If the United States of America continue increasing, which they certainly will do, though not with the same rapidity as formerly, the Indians will be driven farther and farther back into the country, till the whole race is ultimately exterminated, and the territory is incapable of further extension.

These observations are, in a degree, applicable to all the parts of the earth where the soil is imperfectly cultivated. To exterminate the inhabitants of the greatest part of Asia and Africa, is a thought that could not be admitted for a moment. To civilise and direct the industry of the various tribes of Tartars and Negroes, would certainly be a work of considerable time, and of variable and uncertain success.

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 (Great Britain) might be supposed to increase under circumstances the most favourable 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 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 pre-
sent average state of the earth, the means of subsistence, under cir-
cumstances 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 popu-
lation 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 popu-
lation would be forty-four millions, and the means of subsistence only
equal to the support of thirty-three millions. In the next period the
population would be eighty-eight millions, and the means of subsis-
tence just equal to the support of half that number. And, at the con-
cclusion 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.

CHAPTER II.

OF THE GENERAL CHECKS TO POPULATION, AND THE MODE OF THEIR
OPERATION.

The ultimate check to population appears then to be a want of food,
arising necessarily from the different ratios according to which
population and food increase. But this ultimate check is never the
immediate check, except in cases of actual famine.

The immediate check may be stated to consist in all those customs,
and all those diseases, which seem to be generated by a scarcity of
the means of subsistence; and all those causes, independent of this
scarcity, whether of a moral or physical nature, which tend pre-
naturally to weaken and destroy the human frame.

These checks to population, which are constantly operating with
more or less force in every society, and keep down the number to the
level of the means of subsistence, may be classed under two general
heads—the preventive and the positive checks.

The preventive check, as far as it is voluntary, is peculiar to man,
and arises from that distinctive superiority in his reasoning faculties
which enables him to calculate distant consequences. The checks
to the indefinite increase of plants and irrational animals are all
either positive or, if preventive, involuntary. But man cannot look
around him, and see the distress which frequently presses upon those
who have large families; he cannot contemplate his present possess-
ions or earnings, which he now nearly consumes himself, and cal-
culate the amount of each share, when with very little addition they
must be divided, perhaps, among seven or eight, without feeling a
doubt whether, if he follow the bent of his inclinations, he may be
able to support the offspring which he will probably bring into the
world. In a state of equality, if such can exist, this would be the
simple question. In the present state of society other considerations
occur. Will he not lower his rank in life, and be obliged to give
up in great measure his former habits? Does any mode of employ-
ment present itself by which he may reasonably hope to maintain a
family? Will he not at any rate subject himself to greater diffi-
culties, and more severe labour, than in his single state? Will he
not be unable to transmit to his children the same advantages of
education and improvement that he had himself possessed? Does
he even feel secure that, should he have a large family, his utmost
exertions can save them from rags and squalid poverty, and their
consequent degradation in the community? And may he not be
reduced to the gratifying necessity of forfeiting his independence, and
of being obliged to the sparing hand of charity for support?

These considerations are calculated to prevent, and certainly do
prevent, a great number of persons in all civilised nations from pur-
suing the dictate of nature in an early attachment to one woman.

If this restraint do not produce vice, it is undoubtedly the least evil
that can arise from the principle of population. Considered as a
restraint on a strong natural inclination, it must be allowed to pro-
duce a certain degree of temporary unhappiness; but evidently
slight, compared with the evils which result from any of the other
checks to population; and merely of the same nature as many other
sacrifices of temporary to permanent gratification, which it is the
business of a moral agent continually to make.

When this restraint produces vice, the evils which follow are but
too conspicuous. A promiscuous intercourse to such a degree as to
prevent the birth of children, seems to lower, in the most marked
manner, the dignity of human nature. It cannot be without its effect on men, and nothing can be more obvious than its tendency to degrade the female character, and to destroy all its most amiable and distinguishing characteristics. To which, that among those unfortunate females with which all great towns abound, more real distress and aggravated misery are, perhaps, to be found, than in any other department of human life.

When a general corruption of morals, with regard to the sex, pervades all the classes of society, its effects must necessarily be to poison the springs of domestic happiness, to weaken conjugal and parental affection, and to lessen the united exertions and ardour of parents in the care and education of their children—effects which cannot take place without a decided diminution of the general happiness and virtue of society; particularly as the necessity of art in the accomplishment and conduct of intrigues, and in the concealment of their consequences, necessarily leads to many other vices.

The positive checks to population are extremely various, and include every cause, whether arising from vice or misery, which in any degree contribute to shorten the natural duration of human life. Under this head, therefore, may be enumerated all unwholesome occupations, severe labour and exposure to the seasons, extreme poverty, bad nursing of children, large towns, excesses of all kinds, the whole train of common diseases and epidemics, wars, plague, and famine.

On examining these obstacles to the increase of population which are classed under the heads of preventive and positive checks, it will appear that they are all resolvable into moral restraint, vice, and misery.

Of the preventive checks, the restraint from marriage which is not followed by irregular gratifications may properly be termed moral restraint. Promiscuous intercourse, unnatural passions, violations of the marriage bed, and improper arts to conceal the consequences of irregular connections, are preventive checks that clearly come under the head of vice.

Of the positive checks, those which appear to arise unavoidably

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1 As the general consequence of vice is misery, and as this consequence is the precise reason why an action is termed vicious, it may appear that the term misery alone would be here sufficient, and that it is superfluous to use both. But the rejection of the term vice would introduce a considerable confusion into our language and ideas. We want it particularly to distinguish those actions, the general tendency of which is to produce misery, and which are therefore prohibited by the commands of the Creator, and the precepts of the moralist, although, in their immediate or individual effects, they may produce pleasure enough to the contrary. The gratification of all our passions in its immediate effect is happiness, not misery; and, in individual instances, even the remote consequences (at least in this life) may possibly come under the same denomination. There may have been some irregular connections with women, which have added to the happiness of both parties, and have injured no one. These individual actions, therefore, cannot come under the head of misery. But they are still evidently vicious, because an action is so denominated which violates an express precept, founded upon its general tendency to produce misery, whatever may be its individual effect; and no person can doubt the general tendency of an illicit intercourse between the sexes to injure the happiness of society.
market, the price of labour must tend to fall, while the price of provisions would at the same time tend to rise. The labourer therefore must do more work to earn the same as he did before. During this season of distress, the discouragements to marriage and the difficulty of rearing a family are so great, that the progress of population is retarded. In the meantime, the cheapness of labour, the plenty of labourers, and the necessity of an increased industry among them, encourage cultivators to employ more labour upon their land, to turn up fresh soil, and to manure and improve more completely what is already in tillage, till ultimately the means of subsistence may become in the same proportion to the population as at the period from which we set out. The situation of the labourer being then again tolerably comfortable, the restraints to population are in some degree loosened; and, after a short period, the same retrograde and progressive movements with respect to happiness are repeated.

This sort of oscillation will not probably be obvious to common view; and it may be difficult even for the most attentive observer to calculate its periods. Yet that, in the generality of old states, some alternation of this kind does exist, though in a much less marked, and in a much more irregular manner, than I have described it, no reflecting man, who considers the subject deeply, can well doubt.

One principal reason why this oscillation has been less remarked, and less decidedly confirmed by experience than might naturally be expected, is, that the histories of mankind which we possess are, in general, histories only of the higher classes. We have not many accounts that can be depended upon, of the manners and customs of that part of mankind where these retrograde and progressive movements chiefly take place. A satisfactory history of this kind, of one people and of one period, would require the constant and minute attention of many observing minds in local and general remarks on the state of the lower classes of society, and the causes that influenced it; and, to draw accurate inferences upon this subject, a succession of such historians for some centuries would be necessary. This branch of statistical knowledge has, of late years, been attended to in some countries, and we may promise ourselves

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1 The judicious questions which Sir John Sinclair circulated in Scotland, and the valuable accounts which he has collected in that part of the island, do him the highest honour; and these accounts will ever remain an extraordinary monument of the learning, good sense, and general information of the clergy of Scotland. It is to be regretted that the adjoining parishes are not put together in the work, which would have assisted the memory both in attaining and recollecting the state of particular districts. The repetitions and contradictory opinions which occur are not, in my opinion, so objectionable; as, to the result of such testimony, more faith may be given than could possibly give to the testimony of any individual. Even were this result drawn for us by some master hand, though much valuable time would undoubtedly be saved, the information would not be so satisfactory. If, with a few subordinate improvements, this work had contained accurate and complete registers for the last 150 years, it would have been inestimable, and would have exhibited a better picture of the internal state of a country than has yet been presented to the world. But this last most essential improvement no diligence could have effected.  

1 If the new labourers thrown yearly into the market should find no employment but in agriculture, their competition might so lower the money-price of labour, as to prevent the increase of population from occasioning an effective demand for more corn; or, in other words, if the landlords and farmers could get nothing but an additional quantity of agricultural labour in exchange for any additional produce which they could raise, they might not be tempted to raise it.
farmers and capitalists are growing rich from the real cheapness of labour. Their increasing capitals enable them to employ a greater number of men; and, as the population had probably suffered some check from the greater difficulty of supporting a family, the demand for labour, after a certain period, would be great in proportion to the supply, and its price would of course rise, if left to find its natural level; and thus the wages of labour, and consequently the condition of the lower classes of society, might have progressive and retrograde movements, though the price of labour might never nominally fall.

In savage life, where there is no regular price of labour, it is little to be doubted that similar oscillations take place. When population has increased nearly to the utmost limits of the food, all the preventive and the positive checks will naturally operate with increased force. Vicious habits with respect to the sex will be more general, the exposing of children more frequent, and both the probability and fatality of wars and epidemics will be considerably greater; and these causes will probably continue their operation till the population is sunk below the level of the food; and then the return to comparative plenty will again produce an increase, and, after a certain period, its further progress will again be checked by the same causes.¹

But without attempting to establish these progressive and retrograde movements in different countries, which would evidently require more minute histories than we possess, and which the progress of civilisation naturally tends to counteract, the following propositions are intended 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.²
3. These checks, and the checks which repress the superior power of population, and keep its effects 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 immediate checks to population in the past and present state of society.

This review will be the subject of the following chapters.

CHAPTER III.

OF THE CHECKS TO POPULATION IN THE LOWEST STAGE OF HUMAN SOCIETY.

The wretched inhabitants of Tierra del Fuego have been placed, by the general consent of voyagers, at the bottom of the scale of human beings.¹ Of their domestic habits and manners, however, we have few accounts. Their barren country, and the miserable state in which they live, have prevented any intercourse with them that might give such information; but we cannot be at a loss to conceive the checks to population among a race of savages, whose very appearance indicates them to be half starved, and who, shivering with cold, and covered with filth and vermin, live in one of the most inhospitable climates in the world, without having sagacity enough to provide themselves with such conveniences as might mitigate its severities, and render life in some measure more comfortable.³

Next to these, and almost as low in genius and resources, have been placed the natives of Van Diemen's land;¹ but some late accounts have represented the islands of Andaman in the East as inhabited by a race of savages still lower in wretchedness than these. Everything that voyagers have related of savage life is said to fall short of the barbarism of this people. Their whole time is spent in search of food; and as their woods yield them few or no supplies of animals, and but little vegetable diet, their principal occupation is that of climbing the rocks, or roving along the margin of the sea, in search of a precarious meal of fish, which, during the tempestuous season, they often seek for in vain. Their stature seldom exceeds five feet; their bellies are protuberant, with high shoulders, large heads, and limbs disproportionally slender. Their countenances exhibit the extreme of wretchedness, a horrid mixture

¹ Sir James Stuart very justly compares the generative faculty to a spring loaded with a variable weight (Polit. Econ., vol. i., b. i., c. 4, p. 20), which would of course produce exactly that kind of oscillation which has been mentioned. In the first book of his "Political Economy," he has explained many parts of the subject of population very ably.
² I have expressed myself in this cautious manner, because I believe there are some instances where population does not keep up to the level of the means of subsistence. But these are extreme cases; and, generally speaking, it might be said that—
1. Population is necessarily limited by the means of subsistence.
2. Population always increases where the means of subsistence increase.
3. The checks which repress the superior power of population, and keep its effects on a level with the means of subsistence, are all resolvable into moral restraint, vice and misery.

It should be observed that, by an increase in the means of subsistence, is here meant such an increase as will enable the mass of the society to command more food. An increase might certainly take place which in the actual state of a particular society would not be distributed to the lower classes, and consequently would give no stimulus to population.

³ Vancouver's Voyage, vol. ii. b. iii. c. i. p. 13.