

THE DIFFERENTIAL GROWTH OF PEOPLES

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Early historical background.

Man's early groping existence must have been precarious, for disease, starvation, violent death and other causes must have severely limited his numbers. Human numbers grew so slowly over a period of centuries that the population remained almost stationary over a vast stretch of time. When hunting and fishing were the only sources of subsistence, there must have been vast areas all over the world with no human beings in sight. So sparse must have been the population that the density may be set down as one person per two hundred square miles.

But when agriculture was discovered, some useful animals were domesticated, and crude pottery and textiles were invented, man began to multiply faster because this economic resources became larger and more stable and reliable, even though the advent of medicine and sanitation and the conquest of disease were yet to be thought of. Even then there was no question of man's migration in search of new land for food or habitat as there was abundance almost everywhere in terms of human needs of that day. This must have been so even though man had not thought yet of human conquest of nature and pressing her forces into his service.

Past trends and processes of change.

By 1650, population in particular areas was growing faster though the total world population was only about 465 millions — about one fourth of the present world population. By 1750, the population had grown to 660

millions; and in 1850, a century later, it exceeded the billion mark and became 1098.

The tremendous growth of population in Europe during the eighteenth century was accompanied by the industrial revolution which began in England and spread over the whole of Europe. The features of this revolution are two: (1) the development of power machines for manufacture of goods and for the extraction of nature's economic wealth, and (2) the application of power to transportation and communication. Yet, there were many other phases of the Industrial Revolution, but these two had most to do with the growth of population, because they made possible both the cheaper production of goods and the rapid transportation of goods, persons and ideas from place to place.

The improvements in production and transport following upon the application of steam power to machines made it possible for Europeans to free themselves largely from the action of the positive checks to population growth for more than a century. They enabled the population to tap new resources and to gather a bounty from nature which had been inaccessible to man. It requires no argument to convince anyone to day that this is so, that power-driven machinery has enabled us to produce many times the amount of goods that we could have produced by hand power alone. But probably more important than the increase in man's power to produce goods was the increase in his power to transport these goods.

With the rapid extension of Commerce during the eighteenth century went an almost equal rapid spread of ideas, which resulted in a quickening of the whole mental life of western Europe and thus helped to prepare the way for the growth of the present social order. Markets became larger and more stable and thus a new stimulus was given to human enterprise in the economic field.

The methods of agriculture were revolutionized also; it was no longer necessary for each locality to be wholly selfsufficing in food and fiber production. European agriculturists began to produce staples for markets some distance away, generally cities, as well as for the local community; and this led to a revolution in agricultural methods which greatly increased the efficiency of labour on the land. Between the increased productiveness of agriculture and the better transport, local famines were practically done away with in the West by the Middle of the nineteenth century, and one of the important factors making for slow population growth ceased to operate.

Fortunately, a major part was played by a fourth revolution — the revolution in birth control. At some stage, usually towards the end of the last century, parents began to control the size of their families, and birth-rates

began to decline rapidly; had they not done so, the increase of population in many cases might have had to starvation and disaster (1).

These trends may be seen from Diagram I which presents the data for the World and its major geographic areas on a logarithmic scale. This scale

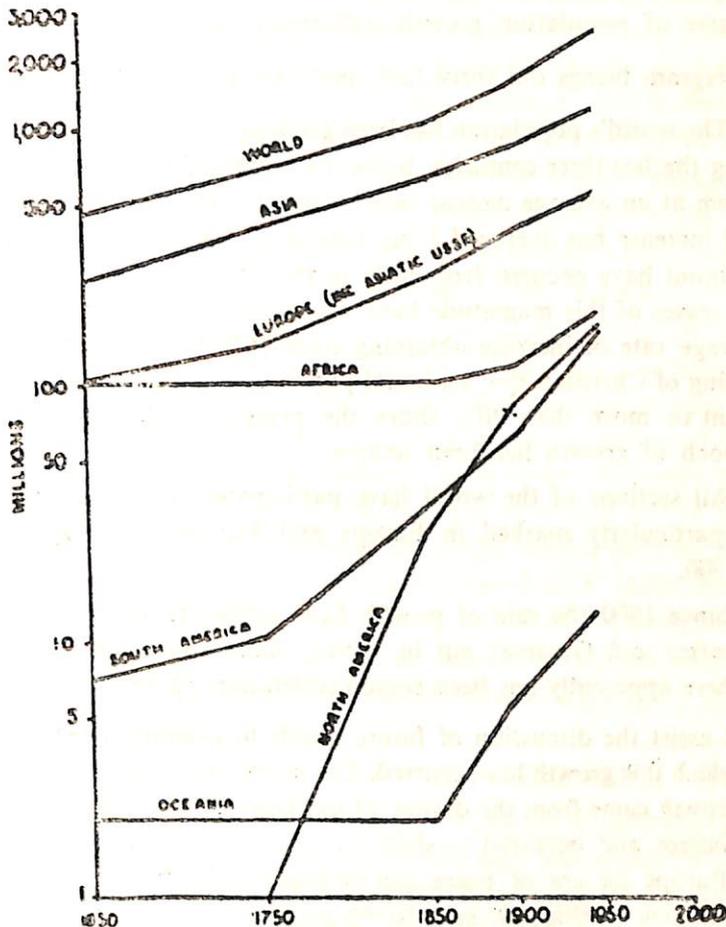


Diagram I. — The Growth of World Population
By Continental Divisions (2)

(1) The causes of falling birth-rates are more complex than those of falling death-rates and are indeed not fully understood. No doubt a major factor is that whereas children were once an economic asset, they increasingly became an economic burden as periods of education grew longer and views on parental responsibilities more enlightened; similarly, as people became richer and better able to improve their standard of life and social status by spending money, they increasingly shirked the financial sacrifices involved in having large families. The emancipation of women led to a revolt against excessive domestic drudgery, and moreover, it gradually ceased to be necessary to bear half a dozen children in order to ensure the survival of two.

(2) Source - Population Bulletin No. 1, United Nations, December 1951.

permits the comparison of rates of change but sharply distorts the amounts of change. Obviously the values are estimates even at the most recent dates. In the case of Asia, Africa and Central and South America they are little better than informed guesses. For China, opinions concerning the size of the present population differ sharply. Nevertheless the chart gives a description of the course of population growth sufficiently accurate for our purpose.

The diagram brings out three facts pertinent to this discussion.

1. — The world's population has been growing at a rapid and accelerating pace during the last three centuries. Since the middle of the seventeenth century it has grown at an average annual rate of about 5 per thousand. Since 1900 the annual increase has averaged 8 per thousand. Such prolonged and rapid increase cannot have occurred frequently in the history of the race, and, obviously increases of this magnitude have never occurred before. For example if the average rate of increase obtaining since 1650 had been in force since the beginning of Christian Era, an initial population of only 10 million would now amount to more than fifty times the present world population. The present epoch of growth has been unique.

2. — All sections of the world have participated in this growth, but it has been particularly marked in Europe and Europe overseas, especially prior to 1900.

3. — Since 1900 the rate of growth have tended to decline in Europe, North America and Oceania; but in Africa, Asia, and Central and South America there apparently has been some acceleration of the rate of increase.

It will assist the discussion of future trends to examine briefly the processes by which this growth has occurred. The essentials of the story are simple enough. Growth came from the decline of mortality. This decline arose from different sources and occurred in different degrees in various parts of the world. In Europe an era of peace and domestic order began to restore the ravaged continent during the seventeenth century. Then shortly afterwards there followed a series of agricultural innovations that greatly increased the food supply, which was further augmented by the vast resources of the new World. Industrial innovations began to bring spectacular increases in product. Finally, sanitary and medical advances brought control over the ravaging diseases of childhood and young adult life. In short, the whole process of modernization in Europe and Europe overseas brought rising levels of living, new controls over disease and reduced mortality.

Meanwhile fertility was much less responsive to the processes of modernization. So far as we can tell from available evidence no substantial part of the the modern population growth has come from a rise in fertility. On the other hand, neither did fertility with mortality. The reasons why fertility failed to

decline with mortality are clear enough in general terms. Any society having to face the heavy mortality characteristic of the premodern era must have high fertility to survive. All such societies are therefore ingeniously arranged to obtain the required births.

Their religious doctrines, moral codes, laws, education, community customs, marriage habits, and family organizations are all focused toward maintaining high fertility. These change only gradually and in response to the strongest stimulation. Therefore, mortality declined, but a fertility high enough to permit survival in an earlier period began producing rapid growth.

Eventually fertility also began to decline, the trend in Europe starting in the northwest in the latter part of the nineteenth century. From this focus it moved east and south across the continent, meanwhile having become well established in North America, Australia and New Zealand.

In the more industrialized countries the margin between the birth and death rates began to narrow to such an extent that the population became almost stationary. And this stationary population became comparable with the stationary or slow growth of population in the pre-industrial days. The significant difference between the stationary state, or the slow growth of today and that of pre-industrial days lies in the present control of the birth rate. In the past, the population remained stationary because of the high fluctuating death rate, but to-day the reason is not merely the definite decline in the death rate. This rough picture of the growth and decline of the population in the western industrialized world through the primitive, agrarian and industrial stages yields us the concept of the "demographic cycle".

STAGES IN POPULATION GROWTH

If this concept of a "demographic cycle" is applied to the world as a whole, different countries cut the cycle at various stages, depending on the nature of the population growth of these countries. An empirical consideration of all the countries for which some kind of statistical information is available reveals five stages or phases of the demographic cycle which may be termed as (1) high stationary; (2) early expanding; (3) late expanding; (4) low stationary, and (5) declining. (1)

1. — High Stationary Phase.

The countries in this phase are marked by high birth rates and high death rates. It characterizes the conditions of a mainly agricultural population

(1) To demarcate the various regions of the world under these five stages implies a knowledge of the birth rates, death rates and migration movements of all peoples of the world. But the scanty nature of such data for certain countries makes it difficult to list them as positively belonging to anyone of the five stages.

living near the Malthusian subsistence levels. Such communities sustain themselves under the shadow of natural vicissitudes over which they have acquired but scanty control. Birth rates are constantly high ranging somewhere between forty and fifty per thousand; death rates approximately balance them, but fluctuate between wide extremes. In a sequence of good years, when harvest are rich and livestock flourishes, food will be abundant and numbers will amount, but a year of drought, an epidemic disease which kills the cattle, the flooding of a river-basin so that a wide area is inundated, a serious outbreak of a pestilence (typhus, plague, cholera and other diseases are endemic in many parts of the world) may cause death on a large scale.

It is easy to surmise that at one time the entire world must have been in this phase. But — as stated above — with the advent of agricultural, industrial and commercial revolutions and the consequent improvements in the standard of living, certain western countries have left the other parts of the world behind in this original and undeveloped stage.

The countries that are now in this high stationary phase are Afganistan, Arabia, Ethiopia, Indonesia, Persia, parts of south America and perhaps China. The native peoples of central Africa are also at this stage.

As to China, it is difficult to write about it with any authority; for the authorities themselves disagree with a large margin as to the very size of the population. Dr. Warren S. Thompson who estimates the population of China at somewhat between 375 and 425 millions writes, "It seems reasonably certain that the birth rate in China is not under 40 and belief is that it will average at least as high as that recorded for Formosa (45.6) and possibly even higher. The data on the death rate are even less consistent than those on the birth rate but seem to justify the statement that the death rate seldom falls below 35 and then only under conditions quite exceptional in China, such as in small area where there is some health work or in a "good" year when the harvest is abundant and epidemic disease is mild. The death rate in China is highly variable from year to year and from place to place.... This violent fluctuation, much more violent than the fluctuation in birth rates, is probably characteristic of all populations which like that of China, have practically no health service and live close to the subsistence level, even in good years" (1)

2. — Early Expanding Phase.

The early expanding phase of demographic cycle is characterized by high birth rates of the "high stationary" level and by lower, often falling, death

(1) Warren S. Thompson "Population and Peace in the Pacific" The University of Chicago Press — p. 180-181.

TABLE I.
COUNTRIES IN EARLY EXPANDING PHASE OF POPULATION GROWTH
BIRTH AND DEATH RATES COMPARED 1911-1953

Country	Rate	Period or Year													
		1911 1913	1921 1925	1926 1930	1931 1935	1935	1939	1943	1946	1949	1950	1951	1952	1953	
EGYPT	Birth R.	42.3	43.0	44.3	42.9	44.3	42.2	28.7	41.2	41.8	44.4	44.7	—	—	
	Death R.	25.8	25.4	26.2	27.4	28.9	26.0	26.9	21.3	20.6	19.1	19.3	—	—	
BURMA	Birth R.	28.5	24.3	27.4	—	—	32.1	—	—	—	—	46.1	49.3	49.2	
	Death R.	—	—	21.1	19.1	18	22	—	—	—	—	39.3	34.2	39.5	
CEYLON	Birth R.	—	38.5	40.6	37.8	35.7	36.0	46.6	40.6	39.9	40.4	40.5	39.5	39.4	
	Death R.	—	—	28.9	24.9	22.4	24.5	20.3	14.3	13.2	12.6	12.9	12.0	10.9	
MALAYA	Birth R.	—	—	—	37.0	40.2	40.7	—	35.0	43.8	42.0	43.6	44.4	43.7	
	Death R.	—	—	—	21.6	20.8	20	19.4	16.3	14.2	15.8	15.3	13.6	12.4	
INDIA	Birth R.	—	33.0	33.5	34	33.9	32.7	26.1	28.8	26.4	24.9	24.9	24.8	—	
	Death R.	—	26.8	24.3	23.7	22.6	18.7	19.5	17	15.8	16.1	14.4	13.6	—	
PAKISTAN	Birth R.	—	—	—	—	—	—	—	24.9	20.7	18.0	—	—	—	
	Death R.	—	26.3	29.3	25.6	—	20.8	—	—	—	—	—	—	—	

rates. The difference between these two rates, migration being ignored, is the measure of the natural increase. All of the non-white countries of Eastern Asia except China (which is in the high stationary phase) and Japan (which is in the late expanding phase) are in this stage. So are the countries of Central America and of the North and West coasts of South America, most of the continent of Africa and the Moslem countries. Some examples are given in the following table. (*see Table I, page 93*)

The economic system of the countries in this phase are characterized by improved agricultural methods, with the introduction of irrigation facilities and flood control measures. Better seeds, natural and chemical fertilizers, crop rotation and storage facilities increase agricultural production and enable the farmer to save what little surplus he can for a lean day. Industrialization has also begun with a nominal survey of the region's mineral resources and the harnessing of quasi-modern machinery. A small fragment of the labour force is technically trained to man the few industrial establishments. Transportation by road, rail and water is improved to facilitate the movement of food to areas of scarcity, alleviating the vigours of regional famines. The beginnings of public sanitation and health services appear and combat the forces of disease and epidemics sufficiently to decrease the high death rate. A network of schools although inadequate to the needs of the total population makes inroads into the tremendous illiteracy of the population in these areas. A relatively strong central government and police force banish insecurity enabling the people to enjoy a measure of peace. The net result of all these elements, for our purpose, is the large and significant increase in the population of these countries.

India may serve to illustrate the nature of the situation. Its problems, are in principle those of the other area, and its statistical records are superior to those of other areas. Diagram II traces the course of its total population from 1872 to 1941. It is apparent that prior to 1921, decades of slow increase due to famine and epidemic alternated with decades of rapid growth. The last check to growth came during the decade of the first World War, when influenza epidemic alone appears to have caused more than 15 million death. Since 1920, and for the first time in recorded history, there have been two successive decades of rapid growth. In twenty years the population increased by 83 million. At present it exceeds 400 million and is about as large as that of all Europe west of the Soviet Union.

The factors bringing about this growth are characteristic of this type of demographic situation. Strong government, improved means of communication, increasingly productive agriculture, a little sanitation and epidemic control, have all been essential to the development of the area as a source

of specialized raw materials and as market for manufactured goods. The result has been population growth without substantial increase in the levels of living. Mortality, low enough to permit growth, nevertheless remains high, the expectation of life at birth falling below thirty-five years even in times of relative order and prosperity.

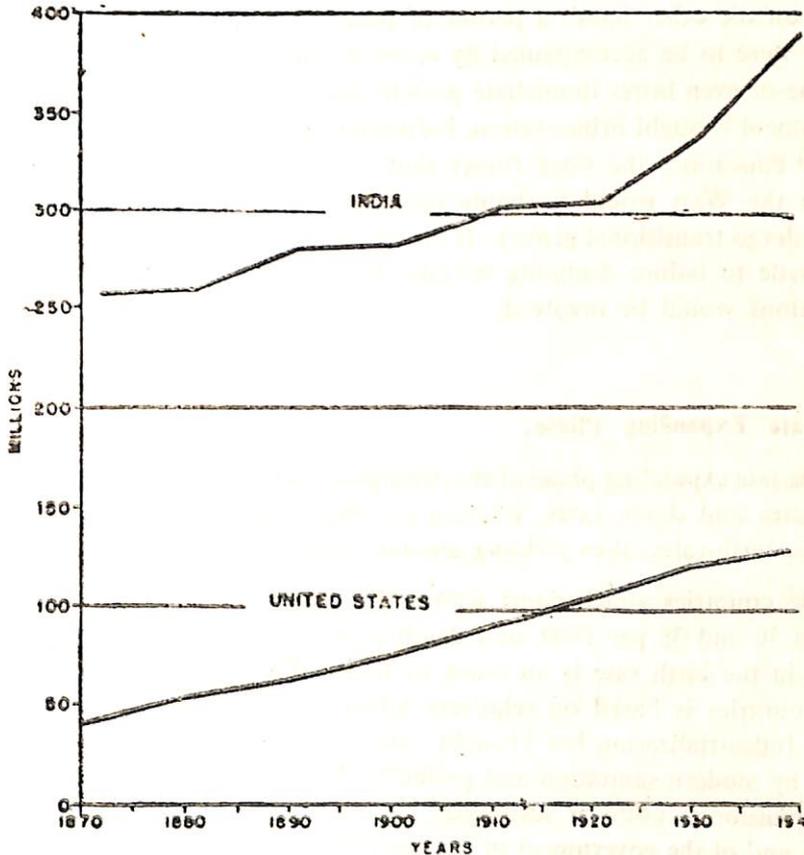


Diagram II. — The Growth of the population of India and of the United States.

The future growth of such populations in this early expanding phase of the demographic cycle depends almost entirely on events to come. Prolonged periods of political or economic chaos might result in considerable depopulation. On the other hand, a period of peace and order in which there was a rapid advance in production would bring rapid growth.

Such an epoch of growth could be terminated in two ways. If the essentials of existing agrarian society are maintained, there is every prospect the growth will continue until the potentialities for increased production are exhausted. Then it will be checked by repeated catastrophs and generally increased mortality. In this case, however, large and poverty stricken populations would be left the potentiality for a new cycle any time circumstance permitted.

If, on the other hand, a period of peace, order, and rapidly rising production were to be accompanied by economic development, we could expect the same or even faster immediate growth but a different termination. If such development brought urbanization, industrialization, rising levels of living and popular education, the same forces that eventually induced a declining fertility in the West would probably come into effect. The population would then undergo transitional growth. If events marched swiftly and studied efforts were made to induce declining fertility, perhaps only a doubling of present populations would be involved.

3. — Late Expanding Phase.

The late expanding phase of the demographic cycle is marked by declining, birth rates and death rates, wherein the death-rates are consistently lower than the birth-rates, thus yielding annual increases in population.

The countries which come within this phase have birth rates ranging between 30 and 35 per 1000, and death rates around 20 per 1000. The very decline in the birth rate is an index of their advancement. The economy of these countries is based on relatively advanced agriculture and modern industry. Industrialization has brought with it urban patterns of living accompanied by modern sanitation and public health services. Religious prejudices and expansionist political ideologies — mainly the desire of the Catholic Church and of the government of the Soviet Union for an increase of population — account for the relatively high birth rates, especially in the rural areas where the country's socio-religious mores still hold sway.

These countries, in general, with one or two exceptions, may be described as the backward of the advanced countries in the demographic sense, where some preventible wastage of human resources still occurs. They are in order of importance, the Soviet Union, Japan, Argentina, Poland, Bulgaria, Romania, Yugoslavia, Italy, Spain, Chile and Uruguay.

The problem in these countries is largely the conflict between political and religious ideologies on the one hand, and the needs of demographic

TABLE II
COUNTRIES IN LATE EXPANDING PHASE OF POPULATION GROWTH
BIRTH AND DEATH RATES COMPARED 1911-1953

Country	Rate	Period or Year													
		1911 1913	1921 25	1926 30	1931 35	1936	1937	1938	1939	1940	1945	1950	1951	1953	
POLAND	Births	37.8	34.7	32.2	27.3	26.4	25.0	24.6	—	—	—	—	—	—	—
	Deaths	21.7	18.5	16.8	14.7	14.3	14.1	13.9	15	14	11.4	11.6	—	—	—
BULGARIA	Births	35.8	39.0	33.1	29.1	25.9	24.3	22.8	21.1	22.2	—	—	—	—	—
	Deaths	23.7	20.8	17.9	15.5	14.3	13.6	13.7	13.4	13.4	—	—	—	—	—
RUMANIA	Births	42.6	37.9	35.2	32.9	31.5	30.8	29.6	28.3	26.5	—	—	—	—	—
	Deaths	24.7	23	21.2	20.6	19.8	19.3	19.2	18.6	19.2	—	—	—	—	—
YUGOSLAVIA	Birth	—	35	34.2	31.8	28.9	27.9	26.7	25.9	—	—	—	—	—	—
	Death	—	20.2	20.0	17.9	16.0	15.9	15.6	15.0	15.9	13	14.2	29.8	28.3	12.4
ITALY	Births	31.7	29.8	26.8	23.8	22.4	22.9	23.7	23.5	23.4	18.3	18.5	17.8	17.2	—
	Deaths	19.3	17.4	16	14.1	13.8	14.2	14.1	13.4	13.6	12.1	10.3	10	9.8	—
SPAIN	Births	31.2	29.8	28.5	27.1	24.9	22.7	20.1	16.5	24.5	23.2	20.2	20.1	20.6	—
	Deaths	22.2	20.2	17.9	16.4	16.7	18.9	19.2	18.5	16.6	13	11.6	9.7	9.8	—
ARGENTINE	Births	37.4	32.4	30.1	26.4	24.4	24	24.1	24	24.1	24	25.5	25.2	24.6	—
	Deaths	16.3	14.4	13.3	12.1	11.8	11.9	12.3	11.2	11.2	9.6	8.9	8.5	8.7	—
CHILE	Births	39.9	39.4	41.6	33.6	33.5	32.3	32.1	33.4	33.4	33.4	32.4	32.4	36.1	—
	Deaths	31.0	30.3	25.8	24.4	24.4	23.1	23.5	23.3	21.6	15.6	15.7	13.8	13.2	—

stability on the other. When the state and church are of one view, it is always in the direction of increasing the country's population. And even when the church has no influence with or over the State, the political demand for a large population is always there and is reflected in an uncounscious, if not deliberate, expansionist population policy.

The countries shown in table II exemplify movements occurring in the late expanding phase. The first four countries are from Eastern or South-Eastern Europe; Italy and Spain are South European countries; the Argentine and Chile are South American countries and it will be seen that the Argentine has, in the last decade reduced her death rate to a low level. All these countries show the following features.

In every year, birth-rates are higher, sometimes much higher, than death rates; birth-rates which rarely exceed 40 per 1000 show a sometime irregular decline throughout the period. Death-rates show a steadier decline with fewer and less striking intermissions.

Some demographic writers put the Soviet Union and Japan among this group. The population of the Soviet Union increased from 147 million in 1926 to 170 millions in 1939 and over 189 million in 1945. Further growth is expected and it will probably exceed the 210 mark in 1960 if the present rate of fertility and mortality continue.

4. — Low Stationary Phase.

The low stationary phase of the demographic cycle is marked by low birth and death rates. But there arises here a difficulty which can be overlooked if birth and death rates alone are considered. The difficulty relates to what is likely to happen in the future. When birth-rates are consistently and conspicuously higher than death-rates, we can assert not only that the population is increasing but that it will probably go on increasing. But towards the end of the late expanding period, a moment arrives when what is at the time happening is an unsafe guide to what is likely to go on happening. An excess of births over deaths in a given year implies that in that year (emigration excluded) the population has increased; but such an excess does not necessarily imply that the increase is likely to continue in the future. The crude birth and death rates give, like a snapshot, a momentary picture of events in a given year; but they have little predictive value.

The most useful index is here the net reproduction rate; this has been so well and so often explained that it need not be described here beyond saying that it epitomises and condenses in a simple figure the reproductive activities

of all childbearing women in a country. When the index stands at unity the reproductive element in the female population will be exactly replaced (if current trends continue and we ignore migration) in the next generation. When the index falls below unity, the same element is failing to reproduce itself. It can happen, indeed it nearly always happens when a country is passing from the late expanding into the low stationary phase of the cycle, that when low birth-rates exceed still lower death-rates, the net reproduction rate is standing at or below unity. When, therefore, we consider which countries are to be placed in the low stationary category, we do well to be guided by the net reproduction rate and to ignore small disparities between low birth and death rates.

Including among the following seventeen countries are some whose net rates have sunk below and risen above unity in the last ten years. These rates (some not strictly accurate) are fluctuating about unity and justify us in placing the countries concerned in the low stationary group:

TABLE III

COUNTRIES WITH NET REPRODUCTIVE RATE ABOVE AND BELOW UNITY

Country	Year	Net Reproductive Rate
U.S.A.	1937	0.96
	1942	1.18
Great Britain	1937	0.78
	1944	0.99
France	1939	0.90
Belgium	1939	0.85
	1941	0.67
Denmark	1937	0.94
	1943	1.14
Germany	1940	0.97
Austria	1939	1.0
Hungary	1938	1.0
Czechoslovakia	1929-32	0.94
Norway	1939	0.85
Sweden	1941	0.84
Switzerland	1938	0.77
	1943	1.05
Australia	1937	0.98
	1943	1.16
New Zealand	1937	0.99
	1943	1.2
Estonia	1938	0.79
Finland	1938	0.96
Latvia	1939	0.99

The above countries are in western, northern and parts of central Europe; the countries in this phase outside Europe are the United States of America, Australia and New Zealand. It is significant that no country in Asia, Africa or South America comes within this phase (1)

These countries present no problems for the present. If the population in these countries does not increase in the future, either through natural increase or through immigration, they, with their relatively "empty spaces" will present an unhappy contrast to those countries which are expanding despite great demographic wastage. For instance, if Australia's population should cease to increase appreciably in the next ten years and if the population of Japan, China and India, and South East Asia generally, should continue to grow as they have grown in the past half-century, the lack of balance between area and natural resources on the one hand and the population numbers on the other, will lead sooner or later to some effort, violent or non-violent, on the part of the have-nots, to change the status quo in the Pacific and perhaps in the Americas. Whether such efforts would succeed or not is not the question. The world, if it wants to maintain peace, must prevent the root causes of such attempts leading to war. Recent history in Europe and the Far East provides ample evidence that such violent attempts to change the status quo will not be discouraged by threats that such efforts are bound to fail. In every conflict both parties hope to win. The fact that one party is bound to lose in the end does not occur to either of the parties. Otherwise wars would never be waged. The alternative is perhaps peaceful change through economic and technical assistance, apart from planned inter-Asian migration.

5. — Declining Phase.

The fifth or declining phase of the demographic cycle is one which it is the object of all the countries mentioned in the preceding paragraph to avoid. The phase is easy to recognise and define, for it is marked by an actual excess of deaths over births and, unless compensated by immigrating, by a fall in numbers.

The depopulation of certain islands, such as Tasmania, where none of the original native inhabitants survive, or of Tropical Oceania where they have been much reduced; or the disappearance of native races from areas of a continent, as the North American Indians have disappeared from many of their original grounds, are to be counted rather as a reaction to the spread

(1) It is true that for most countries in these continents the statistics necessary for calculating the net reproductive rate are not available. But the fact that their populations are growing fast shows that their net reproductive rate is considerably higher than unity.

over the globe of the white man than as an autonomous phase in a demographic cycle. In recent times, France is the only country which has experienced an actual excess of deaths over births for more than a momentary period; and there are signs that, perhaps as a result of very energetic measures taken since the end of the second world war, this trend is now being reversed.

France's birth and death rates are compared in Table IV.

TABLE IV
BIRTH AND DEATH RATES OF FRANCE, 1911-13 AND 1921-43

Period or Year	Birth-rates	Death-rates
1911-13	18.1	19.0
1921-25	19.3	17.2
1926-30	18.2	16.8
1931-35	16.5	15.7
1936	15.0	15.3
1937	14.7	15.0
1938	14.6	15.4
1939	14.6	15.5
1940	13.4	18.4
1941	13.0	17.4
1942	14.5	16.9
1943	15.9	16.4

Figures exclude Alsace and Lorraine after 1939 and Corsica after 1942. (Statistical Year Book of the League of Nations, Geneva, 1945.)

The figures omit a gloomy page of French demographic history — that relating to the first world war. The war is included in the following two quinquennia (Table V).

TABLE V
BIRTH AND DEATH RATES OF FRANCE, 1911-20 (1)

Period	Birth-Rates	Death-Rates
1911-15	17.4	21.5
1916-20	13.2	22.1

Gross and net reproduction rates have been published for France since 1806. Table VI gives figures from 1901.

(1) Figures from Huber, Bunle and Boverat's *Population de la France*, 1936.

TABLE VI
GROSS AND NET REPRODUCTION RATES IN FRANCE
OVER VARIOUS PERIODS

Period or Year	Gross R.R.	Net R.R.
1901-5	1.37	0.98
1906-10	1.27	0.95
1911-15	1.10	0.84
1916-20	0.80	0.59
1921-25	1.18	0.95
1926-30	1.12	0.92
1931-35	1.06	0.90
1935	1.00	0.87
1936	1.01	0.88
1937	1.02	0.89
1938	1.04	0.91
1939	1.06	0.93
1940	0.97	0.82
1941	0.90	0.77
1942	0.98	0.85

It will be seen from Table V that during the decade 1911-20 deaths exceeded births by wide margins; yet in the following fifteen years (1921-35, Table IV) births again predominated. But from 1936 onwards, unfavourable trends reasserted themselves. Since the end of the second world war, however, the new French Government has pursued a very vigorous population policy with what are claimed as satisfactory results.

Since the turn of the century, the effects of low birth-rates were heavily offset by the encouragement of immigration. Precise figures cannot be given because of France's long land-frontiers; but there was on balance an inward movement from 1872, which reached its maximum in the decade 1921-31 when no less than 1,953,000 immigrants were computed to have entered the country (1). Many of these were young adults employed in the reconstruction of areas devastated in the first world war; some of them — about 332,000 between 1931 and 1936 — became naturalized Frenchmen.

The strange phenomena in France after 1942 is the continuous rise in both the Gross and Net reproduction rates, as shown by the following table.

(1) Huber, Bunle and Boverat, *op. cit.*, p. 199.

TABLE VII

Gross and Net Reproduction Rates in France in the very recent times.

France	G.R.R.	N.R.R.
1943	1.050	0.900
1944	1.090	0.940
1945	1.120	0.930
1946	1.446	1.265
1947	1.465	1.311
1948	1.451	1.331
1949	1.449	1.328
1950	1.425	1.323
1951	1.350	1.256
1952	1.330	1.244

This phenomena cannot be explained but by the fact that France after the German Invasion at the beginning of the Second World War had to consider the question of increasing its population. The main factor that helped her in this policy of expansion was that England after the close of the second war adopted the same policy.

We are aware that such social and economic policies if proved successful in one country will be transferred as by contagion to others.

Thus we begin to doubt whether we should include France in the declining phase of the demographic cycle. All the same, time will prove to us the validity of this opinion.

The Emerging World Picture.

What is the World picture which emerges from our review of the five phases above described of the demographic cycle ?

Figure 1 is a map of the world wherein are distinguished the countries in these five phases. The United Nations' Population Division, using three sets of figures (high, medium, and low) and following roughly the course of the present and probable future population cycles in various countries has produced the following tentative projections for 1950-80 (1).

(1) World Population Conference, 1954, Paper No. 243.

TABLE VIII
PROJECTED POPULATION IN 1980 (MILLIONS)

1950		1980	
World 2,454	High 3,990	medium 3,628	Low 3,295
Africa 198.....	329	289	255
Americas 330.....	575	535	487
Asia Excluding Asiatic U.S.S.R. 1,320	2,227	2,011	1,86
Europe (including Asiatic U.S.S.R.) 593.....	840	776	721
Oceania 13.....	19.2	17.5	16.1

How valid are these projection ? The set the limits within which the world's population in 1980 may be expected to be.

“Barring events of an unforseeable nature, it is unlikely that the population of the world in 1980 will be greater than 4.0 or less than 3.3 billion (1),,.

For the purpose of this article the medium figure for world population has been adopted, i.e., approximately 3600 million in 1980, representing an increase in thirty years of nearly 1,200 million — more than the growth of the past century, or of the whole of human history up to 1850.

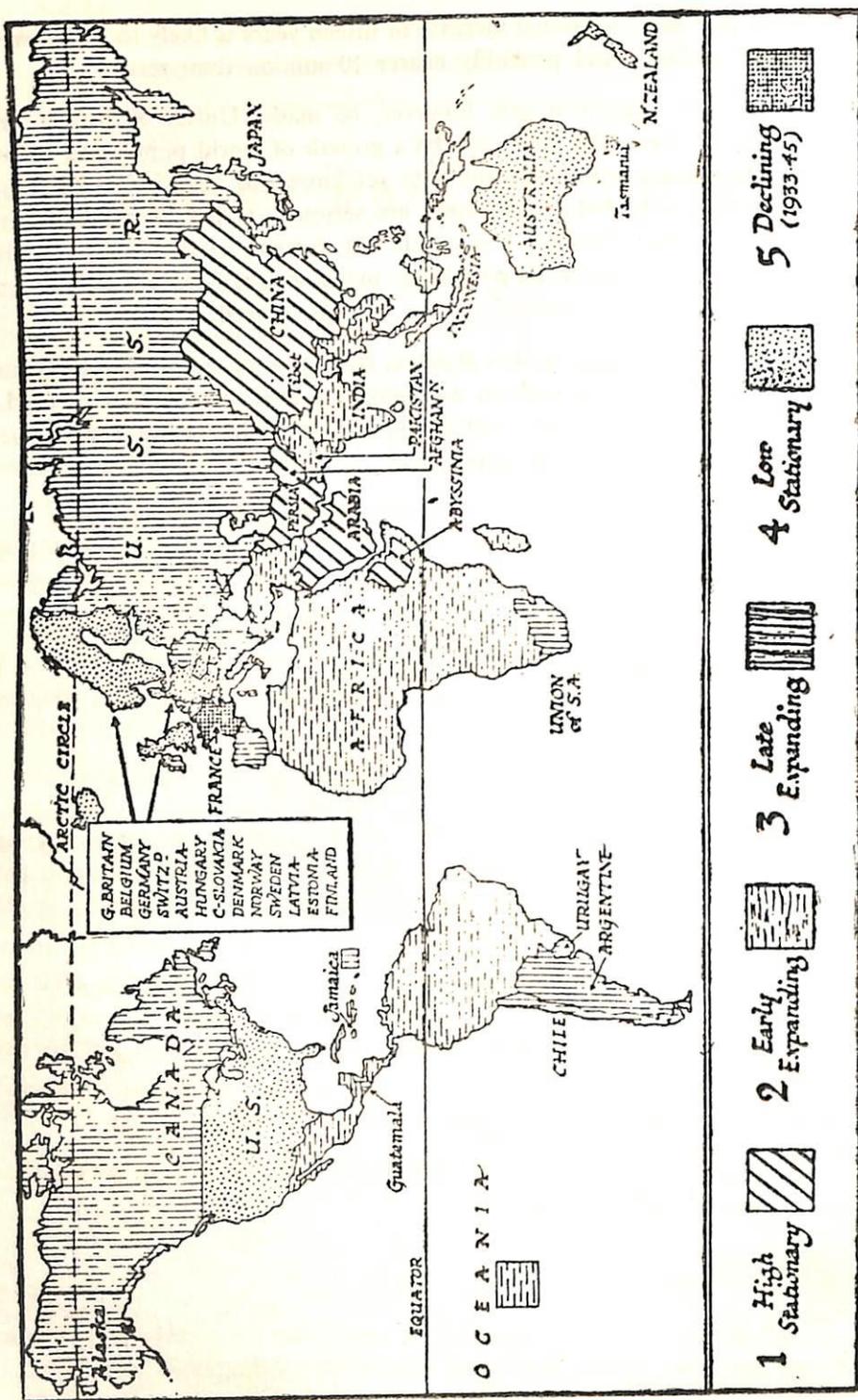
In forecasting growth of population during the next generation it seems reasonable to assume that, given peace, the already much reduced death-rates in the under-developed countries will continue to fall until they ultimately reach Western levels. It is, however, impossible to forecast with any certainty the future course of birth-rates, which are still forty or more a 1000 in most of the under-developed countries, though they have fallen to thirty in or few of them. On the extent to which these rates decline depends the magnitude of future growth of the World's total population. For example, if India's deathrate could in due course be reduced to that of Ceylon and if the birth-rate stayed the same, there would be an annual increase of about 10 million Indians; but, if the birth-rate were halved, the annual increase could be reduced to nothing, even with a falling death-rate. All that can be said with

(1) Note that these figures assume the continuation of peace. It is, of course, possible that atomic war may wipe out large numbers of people in years to come, but this possibility is a matter for speculation. All that can be stated definitely about war and population growth is that so far the effects of modern warfare have been negligible. European losses in World War II are put at fifteen million, (G. Frumkin: Population Change in Europe since 1939 (Kelley: New York — 1953, p. 181) and even if this appalling figure is doubled to take account of losses in Asia and of the children who might have been born but for the war, it would barely account for one year's increase in world population at the present rate. The same is true of losses in World War I.

certainty is that India's annual increase in fifteen years is likely to be between zero and 10 million, and probably nearer 10 million than zero.

One, definite statement can, however, be made. Unless birth-rates are rapidly reduced there will very soon be a growth of world population on an incomparably vaster scale than anything yet known to mankind. Among the larger countries only India and Japan are seriously trying to reduce birth-rates, and the difficulties are formidable. At current rates of growth the world will nearly double its population in the next half-century and burden itself with another 2.5 thousand million mouths to feed.

The question is whether this prospect is a cause of alarm. The problem cannot be properly faced without assessing, the available supplies of food, power, and vital raw materials, and the possibilities of increasing them. These tasks will be attempted in my next article.



1 High Stationary

2 Early Expanding

3 Late Expanding

4 Low Stationary

5 Declining (1933-45)