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SOCIAL DEMOCRACY AND POPULATION

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SOCIAL DEMOCRACY AND POPULATION

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PREFACE

Sociologists are no longer hypnotized by the so-called organic theory of society. On the psychological side the awakening is complete. On the biological side, however, release from this long-dominant idea has not led to the same intellectual freedom. On the one hand the "anthropo-sociologists," brandishing calipers and "the survival of the fit," and, on the other hand, Mr. Benjamin Kidd focusing attention on Weismann's "panmixia" and degeneration have obstructed the free play of thought in this field.

At the same time, although Darwin has revolutionized other departments of scientific investigation, the doctrine of population as applied to human society has remained largely as Malthus left it. The economists seem to have monopolized the subject, and in their pursuit of psychological refinements of general economic theory appear to have gone unscathed by the Darwinian awakening. They have modified the original formula, but have failed to take into account influences, other than economic, which effect population changes.

Meanwhile the world is moving faster than ever before. Population is increasing with tremendous rapidity. Social conditions are becoming more and more complex. In consequence the question has even been raised seriously whether the giant, society, does not grow more rapidly in bulk and in complexity than in self-command. No one questions that its desires have increased. Within the past quarter-century has developed an insistent popular demand

for realization of Lowell's idea of democracy—"a society in which every man has a chance and knows that he has it." The question is, can society realize its desires?

To sociology falls the task of dealing with this problem in its entirety. The special social sciences of economics and politics have already faced the question in part. The distribution of wealth and the administration of states have long been studied with relation to it. Another step is for sociology to develop the social implications of biological facts as applied to society, gather together principles already formulated by its own leaders, and analyze and synthesize, more fully than has yet been done, the forces other than economic or political that will make or mar this social ideal.

It is indeed true that biology as well as sociology has not yet gathered all the necessary information. The problem of the heredity of acquired characteristics is still unsolved. In many other vital respects the conclusions reached are but tentative. Nevertheless there has been slowly gathering a body of knowledge respecting the biological aspects of population movements which not only needs formulation but also requires to be brought into relationship with other known factors of social dynamics. The task here outlined cannot be quickly accomplished. Only by the cooperation of many minds for many years can a fairly authoritative body of theory be developed on this subject. The present essay is designed purely as a preliminary skirmish in the field.

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CHAPTER I

The Meaning of Social Democracy

"Democracy, anarchy, despotism"—such for decades, in the opinion of English statesmen, was the inevitable destiny of any people hardy enough to apply again the theories that swayed the mind of the mob in the French Revolution.

To this pessimistic doctrine there was later added a note of despair. The bitter results of the poor laws of England in the early part of the nineteenth century had led to a ready acceptance of the Malthusian law of population and the iron law of wages. Political Economy had been dubbed the "Dismal Science," and the Manchester school discouraged all projects for social reform. The climax was reached in that form of Darwinism which led Huxley to say: "Even the best of modern civilizations appears to me to exhibit a condition of mankind which neither embodies any worthy ideal nor even possesses the merit of stability." [1]

In spite of this trend of scientific thought the ideal of society which posits a permanent diminution of poverty as practicable not only persists but is growing. To the dreams of a More or a Kingsley have been added the works of a Shaftsbury, a Howard and a Toynbee. Social-welfare expenses of states increase faster than debts of war. Monopoly and privilege are attacked. Regulation of industry and trade becomes more detailed. Responsibility of di-

[1] Thomas Huxley, "Government." *Nineteenth Century*, vol. xxvii, p. 862.

rectors of corporate wealth grows more definite. Police power encroaches on freedom of contract for the benefit of the worker. Housing and sanitary conditions arouse interest as never before. The very word "social" is in the air. The people at large appear to have caught an enthusiasm for social betterment which shrinks not from inquiry into the depths of human misery. In a more or less vivid way they seem to share the philanthropist's vision of "a society in which dependence, preventable disease, undue congestion of population and other such social distempers are unknown." [1]

At bottom these practical efforts are but an attempt to attain for all, in every relation of life, the realization of that current educational norm "the full development of the individual's powers."

In the United States this belief in the practicability of better conditions is especially potent. The term "democracy" is now beginning to coincide in the popular view with this social ideal. The phrase "social democracy" takes the place of the single word. Lincoln's formula yields to Lowell's. "Government of, by and for the people" becomes "that form of society no matter what its political classification in which every man has a chance and knows that he has it." [2]

This demand is evidently based on an optimism much at variance with the pessimistic social theories of the last century.

With a somewhat similar sort of logical opposition, the actual conditions in the United States in certain respects also seem to have presented a paradox. As a matter of fact social democracy has been more nearly attained in this

[1] Edward T. Devine, *Efficiency and Relief*, p. 35.

[2] James Russell Lowell, *Democracy and Other Addresses*, p. 37.

country during the past century than ever before in history. For two centuries this country drew from Europe the best of her middle classes. From a population in which democracy had already made progress, doubtless in part because the crusades, pestilence and war had weakened the power of the aristocracy to exploit and had removed those least able to resist, this country continued the process of selecting men of exceptional force. With free land and the wholesale application of new discoveries in science to rich natural resources, full opportunity to develop the individual's powers to the limit set by the stage of culture reached was practically attained. True, the utilization of the opportunity has been largely economic, but if economic independence be the basis of opportunity in other ways, this was a matter of choice. The successful business man was merely the preferred social type.

But conditions have changed. There are no more Oklahomas. Great extremes exist in private wealth. The man without capital in business starts with a tremendous handicap. He accepts a salary with little prospect of great reward for initiative or great loss for apparently minor mistakes. Commercial methods have become so complicated that *caveat emptor* cannot always apply. Even the "square deal" has become a political issue. The former immediate interest of the worker in simple civic relationships has been replaced to a considerable extent by more general interests, the importance of which is beyond his grasp. The industrial system is aggravating these ills of concentrating population. The Slav goes to the mill where the Irish girl entered the family. The child in the mill becomes dwarfed in body and mind. In cities the Ghetto and "Little Italy" grow so rapidly that the individual is helpless to create an effective demand for even water, sunlight and air. Housing—the classic third want of man in the economic cate-

chism—has become a social question. Opportunity for the individual to develop is thus growing less than it was, in many directions.

If this analysis be correct the trend of events relating to social democracy in the last century has been: scientific pessimism, practical optimism, actual realization, threatened loss.

Recognition of these changes is causing the formulation of the demands of social democracy in this country [1] and a re-examination of classic theories. At the same time other changes whose bearing on the question are not so obvious are taking place. One of these is increase in knowledge of the laws, physical and social, by which humanity is limited. Another is the growing realization of this country that its internal welfare will more and more become conditioned on events in other lands.

As a result of the re-examination of the older doctrines we are now told by both socialist and conservative that in many respects the classic theories were wrong. Changes in the economic system are recommended. For this readjustment the surplus now created by the wonderfully productive American laborer is to suffice. Industrial development is expected to be so rapid that diminishing returns in agriculture are to be offset.[2]

[1] In this connection the following citation which has caused some comment in this country may not be amiss:—

"Die Aufgabe, die ich mir gesteckt habe, ist die: im Anschluss an die einleitenden Ausführungen, die ich bisher gemacht habe *nachzuweisen, dass alle Momente, die bis heute die Entwicklung des Sozialismus in den Vereinigten Staaten aufgehalten haben, im Begriffe sind, zu verschwinden oder in ihr Gegenteil verkehrt zu werden und dass infolgedessen der Sozialismus in der Union im nächsten Menschenalter aller Voraussicht nach zu vollster Blüte gelangen wird.*" Werner Sombart: "Studien zur Entwicklungsgeschichte des nordamerikanischen Proletariats," in *Archiv für Sozialwissenschaft und Sozialpolitik,* vol. xxi, p. 611.

[2] *Cf.* John Bates Clark, *The Philosophy of Wealth,* pp. 100-103.

When examined, however, the evidence for these conclusions is found to rest almost altogether upon a consideration of the present internal economic conditions of this and other civilized countries. The tariff has been almost the sole topic calling for a wider basis for generalization, and the debate, even on that subject, has turned chiefly upon results expected in the immediate future. In this country, at least, the economist in his recent theorizing has thus touched but one aspect of the problem. He has failed to take a long view. In applying his ideas to the problem of social democracy he has dealt but incidentally with foreign relations. Inconveniently persistent social factors in western civilization he classes as "causes of friction," and fails to examine whether in eastern civilization these factors may not very largely determine the part oriental nations will play in the struggle of nations. For the economist a race question merely interferes with mobility of labor. Uncivilized society he disdains to notice. Organized society posited as fundamentally the same in all the nations with which he considers it worth while to deal is taken as a datum. The bearing of the greatest biological generalization—that of the action of selection—he has but cursorily examined. As in his general doctrine, the principles of biology, anthropology and sociology play little part, so in his treatment of social democracy they are neglected. If it be said that these things are not within his legitimate field there is but one reply—he should not assume, as he often does, that an economic interpretation of history can be essentially complete, nor make the problem of social democracy turn solely on economic considerations.

It is the purpose of this essay to present various other considerations that also seem to have a bearing on the question. In the first place the attempt will be made to show

that differences in the rate of increase of populations are sufficiently great to make general conclusions based on the so-called "Malthusian law of population" or on "increase in population as such" invalid. Second, it will be maintained that as a social democracy is conditioned upon the maintenance of a reasonable plane of living, it becomes necessary to consider the effect these differences in population increase may have upon the permanency of such a democracy once established. Third, assuming that certain populations have a rate of increase sufficiently low in comparison to their social income to maintain a reasonable plane of living, providing the distribution of that income were placed on a satisfactory basis, the inquiry will relate to the conditions under which such a state of affairs may remain secure from disastrous influences of other populations not thus favored. This will require an examination of the basis of social stability and its conditions, geographical and otherwise. Fourth, on the assumption that the attainment of a fairly satisfactory distribution of wealth, the maintenance of a low birth-rate and continuous attainment of a comfortable plane of living are possible in communities which fulfill the conditions of social stability—providing, of course, the intelligence of the population is developed by the educational system—the inquiry will relate to the biological conditions which affect the standard of individual ability in peoples. This will require a review of theories of degeneration, heredity and selection, and a discussion of the amount of innate differences between different peoples and between individuals within social groups. Finally, the practical bearing of these subjects on the possible attainment and maintenance of social democracy in the United States will briefly be considered.

This program, it will be seen, eliminates, among other things, discussion of the distribution of wealth, political

and administrative questions, and the place of education in a social democracy. It concentrates attention upon biological factors which may affect social democracy, and considers social, economic, geographic and other relationships only so far as these seem to affect the biological questions directly. In addition to "The Meaning of Social Democracy" already considered, the topics discussed will be as follows:

Chapter II.—Increase of Population and Social Stability.

Chapter III.—The Doctrine of Selection.

Chapter IV.—Degeneration and Improvement.

Chapter V.—The Supply of Brains.

Chapter VI.—Social Limitations on the Biological Process.

Chapter VII.—Summary and Application.

CHAPTER II

Increase of Population and Social Stability

POPULATION INCREASE

In its modern generalized form the Malthusian law of population has been formulated as follows: "In any given state of industry and the arts, population tends to increase faster than it is possible to raise the general plane of living." [1]

Now the "plane of living," or in the usual inaccurate phrase "standard of life," differs among different peoples and at different times. In Asiatic countries it is so low that it touches in large classes the minimum of subsistence. The population of India, despite adverse influences and the uninterrupted series of famines, has increased under British rule from two hundred to three hundred millions.[2]

New methods of production combined with the *Pax*

[1] Franklin H. Giddings, *Elements of Sociology*, p. 306.

[2] Sir Robert Giffen writes: "There are now more than 300,000,000 of people for whose government we are responsible in India; and of these, 73,000,000 have been added, mainly by the ordinary growth of population, since 1871. One is almost staggered by such figures, especially when it is remembered that resources hardly grow in proportion, and that there are many millions in this vast multitude in a state of the extremest poverty." *Economic Inquiries and Studies* vol. ii, p. 230. Elsewhere he also remarks apropos of the same subject, "Others of our leading public men and economists [in addition to Mr Bagehot] are also deeply impressed by the fact though it is considered almost too delicate for public discussion." *Ibid*, p. 19.

Britannica have merely permitted the existence of a greater number of persons in the same old misery.[1]

On the other hand, in various parts of the world, not only has the plane of living risen faster than the population has increased, but the birth rate itself has rapidly declined. In France from 1801 to 1810 the number of births was 32.3 per 1000; from 1811 to 1820 it was 31.6, and in the next decade 30.8. These rates were low in comparison with those of Prussia, Bavaria, Italy, Austria, Hungary and Switzerland. Nevertheless they assured an annual excess of nearly 200,000 births over deaths. As the century advanced, however, the decline already apparent became accentuated. In the decade 1850 to 1860, and again from 1860 to 1870, the rate was 26.3; in the next decennial period it was 25.4, and by 1888 it had fallen to 23.4.[2] The decline still continues. In England in 1876 there were 3,630 births to every 100,000 of population; in 1904 only 2,790.[3] Rapid diminution in the birth rate has also appeared in Italy, Prussia, Bavaria, the Netherlands, Switzerland, Belgium, England, and other European countries.[4] In Australia the decline has been particularly marked.[5] For the United States a similar state of affairs is shown by the following self-explanatory table:[6]

[1] *Cf.* Frank A. Fetter, *Principles of Economics,* p. 192.

[2] Paul Leroy-Beaulieu, *Journal of the Royal Statistical Society,* vol. liv, pp. 375, 376.

[3] *Sixty-seventh Annual Report of the Registrar-General* (1904), p. cxi. For these rates "corrected" for age, sex and marital conditions see studies by Newsholme, Stevenson and Yule in *Journal of the Royal Statistical Society,* vol. lxix, pt. i.

[4] Paul Leroy-Beaulieu, *op. cit.*

[5] *Cf.* Edward A. Ross. "Western Civilization and the Birth-Rate," *American Journal of Sociology,* vol. xii, no. 5, p. 608.

[6] U. S. Dept. of Commerce and Labor, Bureau of the Census, 1905. *Bulletin,* no. 22, p. 11.

Continental United States.	Number of children under 5 yrs. of age to 1000 females 15 to 49 yrs. of age.	Decrease in number during Preceding 10 yrs.	Preceding 20 yrs.
1900	474	11	85
1890	485	74	87
1880	559	13	75
1870	572	62	54
1860	634	8[1]	
1850	626		

By some writers such facts as these have been held to demonstrate the improbability of a too rapid increase in population in Christendom—at least in the near future. Even a stationary or declining population has been thought not impossible.[2] Whether such a conclusion is valid or not, the fact that the decline has coincided with a period of a rising plane of living[3] would seem to show that any merely biological tendency of population to increase indefinitely is, over wide areas, actually counteracted by resisting forces.

Certainly not all societies respond alike to the stimulus of increased means of subsistence.

This fact is vital to social democracy. If all populations responded as do India and China the most rapid advances in the arts and industry would not give to great bodies of men in any society sufficient economic independence to fulfill the conditions of social democracy as the term has been defined in the opening chapter. As with the individual, an unchecked tendency to lower the standard of living creates resistance directly in proportion to the increasing mental distress, until actual starvation produces desperation

[1] Increase.

[2] Frank A. Fetter, *Principles of Economics,* p. 194.

[3] Richmond Mayo-Smith, *Statistics and Sociology,* p. 379.

as a limit, so does this instinct of self-preservation on the part of many individuals with common interests tend to produce classes in the same ratio. When sacrifice is absolutely necessary, the stronger force the weaker to assume it. A class system or loss of civilization are thus the only alternatives when population increases too fast.

If these contentions be valid, it follows that some more or less definite rate of population increase is tacitly assumed by those who contend that increased control over nature will keep sufficiently ahead of population. Their formula might just as well read, "with a given rate of increase in population the plane of living will tend to rise with progress in industry and the arts." As a matter of fact there are, in any formula, two variables; (1) rate of increase in population and (2) rate of progress in the arts. Of both of these the plane of living is a function. The plane of living itself, of course, reacts in turn on both of these variables. A general formula, therefore, means little without examination of particular conditions. On the basis of the few particular conditions already noted, however, it is possible to assert that in some countries at present the rate of population increase precludes the possibility of a social democracy, while in others certain forces have reduced the rate to a point where rapid progress in arts and industry, together with favorable natural resources, permit a maintenance of the necessary level in the plane of living.

The foregoing argument rests partly upon the assertion that the instinct of self-preservation produces classes whenever a material reduction in the plane of living is threatened. Apparently but one form of society has existed in which this was not so. That appeared, if ethnologists are right, in the tribal state. In some tribes all men are said to have had equal opportunity to develop their abilities as fully as the state of culture allowed; then, if one suffered,

all suffered; of classes produced by fear of want, at least, there were none.[1] Such conditions, however, cannot obtain in a society which has passed out of the tribal state. Numbers with a resulting division of labor, and private property with resulting inheritance, prevent. The first by producing comparative isolation of large bodies of men in the same political group renders impossible that sense of social solidarity by which, in small groups, society is sometimes able to subordinate the individual absolutely. The second furnishes the means by which the stronger entrench themselves and their class. Neither Greek democracies nor democratic cities of the Middle Ages were exceptions to this rule.[2] Slavery precludes the first from classification under social democracy as defined in this essay, and the boasted industrial independence of the free cities was shared only by those who benefited by the jealous guardianship of monopoly in craft mysteries.

It seems within reason to hold, therefore, as a first condition of social democracy, a population reaction to the stimulus of increased means of subsistence such that a plane of living may be maintained sufficiently high to permit a reasonable degree of economic independence to all normally constituted citizens. More briefly, democracy requires a rate of population increase less rapid than the rise in the standard of living. As already noted, some societies meet this condition, some do not.

CONDITIONS OF STABILITY

In a future chapter will be discussed some of the social

[1] *Cf.* Herbert Spencer, *Principles of Sociology* (Appleton & Co., 1900), vol. iii. p. 575.

[2] *Cf.* Francois Pierre G. Guizot, *Histoire de la Civilisation en Europe* (1873) pp. 217-218. (Hazlitt's English Translation, Appleton & Co., 1850, vol. i. pp. 169-170.)

facts that limit and control the effect of the differences just considered, in the rates at which populations increase. Whatever controlling influence social relations may be found to exert, however, nothing can obscure the fact that these differences determine to a great extent the ability of different populations to maintain their own forms of social organization and attain their own social ideals. No fact in history stands out more plainly than the danger incurred by any nation which fails to increase its population with sufficient rapidity to meet other peoples on an equal footing and repel attack. As far back as the anthropologist can go he finds the wandering to and fro of the peoples of the earth accompanied by the subjection of one social group by another. So impressed with the importance of this fact was Gumplowicz that he thought the whole social process could be interpreted in terms of group conflicts. In his famous work, *Der Rassenkampf,* he sums the situation thus: "So geht es mit Grazie fort—Rasse gegen Rasse, Kampf um Herrschaft—doch stehen sich immer neue Rassen entgegen von denen jede ein tausendfaches ethnisches amalgam ist." [1] Political theorists have often taken this aspect of history as the basis of their systems. Machiavelli and Hobbes both held that conflict was the state of nature. The mercantile theory in economics reflected the same view. The tariff systems of the modern world are but an echo of the same refrain.

The immediate circumstances to which may be traced the origin of particular conflicts are, of course, of infinite diversity. Nevertheless it can hardly be gainsaid that the numerical superiority of any people, considered in itself, is a menace to less numerous groups. In so far, then, as differences in the response of different peoples to increased

[1] *Loc. cit.*, p. 277.

means of subsistence affect numerical superiority, these differences in response become of importance in group conflicts. Such differences, unless their effects be offset by other conditions, may evidently determine whether a plane of living required by social democracy can be maintained. The "heavier battalions" may be wanting at a critical moment.

But history is not a mere record of war. In various times there has been attained in various places a sufficient period of stability for the development of civilization. In such periods have occurred those advances in arts and sciences, in the exploitation of natural resources, and in that perfection of the social organization of peoples upon which rests the highest achievement of the modern world—the advance in opportunity for the development of the entire personality of the individual. Brief review, therefore, of the main conditions which have given at least temporary security to social groups in the past may not be wholly amiss in an inquiry into the conditions which must be met by a social democracy.

An indispensable circumstance has been, of course, the occupation of a region rich in natural resources. In addition, the possession of one or more of the following conditions appears to have been necessary:

1. Relatively high culture.
2. Relatively great numbers.
3. An easily defended situation.

The rise of the early civilizations of Peru, Mexico, Egypt, Chaldea, India and China may perhaps be accounted for only because their populations were situated in fertile, hot, dry climates.[1] Their stability, however, seems to have

[1] *Cf.* Henry Thomas Buckle, *History of Civilization in England,* (Longmans, Green & Co., London, 1873), vol. i, pp. 45-50. Herbert Spencer, *Principles of Sociology,* vol. i, pp. 21-3.

depended on possession of one or more of the conditions just mentioned. If Rome thanked the gods for snow-capped Alpine barriers against the northern foe, Egypt had no less reason to thank the sun-god Re for scorching desert wastes upon her flanks. In struggles with savage foes the Incas found advantage in the Andes; the Aztecs in the waters of their inland lake. India and China have held their own because of overwhelming numbers—their conquerors were absorbed. In Mesopotamia, where natural barriers failed, the ancient cities seem to have arisen or declined according to the temporary advantages their culture gave them or as a resulting greater population proved their greater strength. With them, as later with the Greeks, new inventions, improvements in military tactics or in weapons, better political and social organization, a more educated body of citizens or other advantage properly classed as cultural, proved decisive for long periods.

How large an area may prove to be an easily defensible situation depends, of course, upon the control over nature attained by the inhabitants, and upon their social organization. For rude Teutonic tribes the morasses and forests of Northern Germany were sufficient barriers to insure a social coherence within small groups so persistent as to make subsequent fusion a difficult task. For civilized nations to-day, high mountain ranges, deserts or oceans form the chief lines of defense. In two ways has advancing culture caused this change. By increasing production it has rendered possible the maintenance of larger populations; by perfecting means of communication, both in space and in time, it has permitted co-operation over larger territory. As conflicts arose a feeling of social solidarity was possible over wider areas. Former barriers were overcome, and as a result "der Ewige Kampf verminderte die Zahl der

Rassen und schaffte den Siegenden immer grössere Verbreitung." [1]

Certain it is that European nations have more and more conformed their political boundaries to those geographic barriers which make the included areas easily defensible.[2] Their stability has, therefore, come to depend upon their relative numbers and their culture—including in the latter term their power to produce wealth.

What the result of these conditions is to be no man can tell. At the present time the conflict between the larger groups is taking the form of a world struggle for markets and the development of sparsely settled regions. The strain that might otherwise exist in the attempt of growing populations to establish an equilibrium with other populations increasing with lesser rapidity is to a large extent relieved. The field for settlement seems almost unlimited. South America alone possesses 7,500,000 square miles, of which a large part lies within the temperate zone, with an equable and invigorating climate. Further north in the tropics are enormous expanses of high table lands stretching from the Atlantic to the foot-hills of the Andes. Lifted far above the tropical heats vast forests grow untouched from a soil of incredible richness. Hundreds of millions of men can find sustenance in this great territory. As yet the population is less than six to the square mile.[3] Africa is likewise almost untouched. Such conditions have produced a suspension of the more brutal phases of the group conflict. Nevertheless this suspension may prove of far

[1] Ludwig Gumplowicz, *Der Rassenkampf* (1883), p. 277.

[2] *Cf.* John W. Burgess, *Political Science and Comparative Constitutional Law*, vol. i, pp. 21-29 and 40-44.

[3] Secretary Root's speech before the Trans-Mississippi Commercial Congress, in *New York Tribune*, Nov. 21, 1906, p. 1, col. 1.

shorter duration than is anticipated. One need not go further back than the civil war to find a widely spread opinion that the domains of the United States were "practically inexhaustible." To-day this nation joins the European rush for foreign markets. What assurance is there that when diminishing returns are yielded from the foreign field the group struggle for the equalization of conditions among the peoples of the earth will not be resumed with all its rigor? What then will be the result of competition among peoples of different planes of living and different rates of population increase? Can the ideal of social democracy be maintained under such conditions? Evidently not, unless the plane of living throughout the world is raised to the minimum requisite for social democracy, or unless countries of a high plane can protect themselves against those of a lower plane, and thus have opportunity to work out the ideals of social democracy within their own limits.

Whichever of these alternatives is ultimately offered to such nations as attempt to work out a social democracy there are two facts which will more and more have to be taken into account. The first is that the largest possible areas of easy defense are approaching their final outlines. The manifest destiny idea is applicable to more regions than the United States. The second is that imitation of the means of production spreads much more rapidly than imitation of social organization or social custom. Science is becoming international. With the use of movable type has come the means of a quick transfer of knowledge. Only by a failure of other peoples to grasp the importance of conscious imitation and adaptation can improved agricultural, industrial and commercial methods remain a monopoly of any nation. By means of trade journals the former work of centuries can now be done in a week. Records of invention are avail-

able everywhere. Though patent laws may produce an artificial monopoly for a time, the use of the patented article is usually open to all on equal terms.

Such rapid imitation of social customs, however, is impossible. More people have to be reached, a greater resistance has to be overcome. A comparatively few men at the top in Japan have placed her navy and army in fighting trim, reorganized her commercial relations with other peoples, changed her financial and political conditions. The social customs of the people at large have not altered so rapidly. The influence of ancestor worship on the size of the family has not become less effective than formerly. Western influence has not greatly affected the age at marriage of the people at large. Still less has change appeared in Chinese customs affecting the birth rate. As to India the statistics already quoted from Giffen prove the point.

There can be but one result of these conditions. Nations which quickly adopt modern methods of production but retain the social customs which favor a low plane of living and a high birth rate will increase in population much more rapidly than they have increased in the past. The tendency will be for them to outstrip their high-plane-of-living competitors in rate of population increase. It may indeed be that social customs affecting the birth rate will change in low-plane-of-living nations before the group conflict is eventually resumed in its sternest form. Whether so or not, however, it is evident from the foregoing argument that those groups which possess easily defended situations will fulfill at least one condition which under no circumstances can be harmful, and under some circumstances may prove to be one of the factors without which social stability, and therefore social democracy, is impossible.

From the considerations presented in this chapter, then, it is perhaps reasonable to assert that permanent mainte-

nance of a social democracy requires a rate of population increase less rapid than the rise in the standard of living; that some communities have fulfilled this condition and some have not; that the advanced culture of the high-standard nations may not in itself be a sufficient protection to them because of the increasing rapidity with which methods of production are imitated, and because of the relative persistence of customs affecting the birth rates in low-standard nations; and that those groups which possess easily defended situations have an advantage which may prove indispensable to the working out of their own ideals if the group conflict discernible in all history, but at present somewhat suspended, shall eventually be resumed.

CHAPTER III

The Doctrine of Selection

"The ruin of Spain," says Lecky, "may be chiefly traced to the expulsion or extirpation of her Moorish, Jewish and heretical subjects." [1] The institution of religious celibacy has been charged with brutalizing Europe by causing the gentlest natures of the Middle Ages to vanish in monastery and convent without reproduction of their kind.[2] Caesar's legions were mainly raised in Gaul, it is said, because the martial type no longer bred in Rome. Even the Roman general disappeared soon after. Trajan was Spanish, Aurelian an Illyrian peasant, Diocletian a Dalmatian slave, Constantius Chlorus a Dardanian noble, and Constantine the Great the son of a Dacian woman.[3] In the Senate, provincials replaced a vanished stock. "Auch aus den unterworfenen Nationen zog Rom das edelste Blut an sich, um es nutzlos zu verspritzen." [4] Recruits of '91 in France and Germany, begotten during the Franco-Prussian war when the strongest were in the field, were physically far below the normal.[5]

[1] *History of England in the Eighteenth Century,* vol. i, p. 188.

[2] Francis Galton, *Hereditary Genius,* (Macmillan & Co. 1869) pp. 357-358.

[3] Brooks Adams, *Law of Civilization and Decay,* p. 29.

[4] Otto Seeck, *Geschichte des Untergangs der antiken Welt,* vol. i. p. 291.

[5] G. Vacher de Lapouge, *Les Sélections Sociales,* p. 235. *Cf.* also Seeck, *op. cit.,* vol. i, p. 281; and *Anhang,* vol. i, pp. 546-7.

It were an easy task to multiply such statements by the score. They merely show the social importance attributed by certain writers of repute to a process by which individuals possessing one set of hereditary characteristics are substituted for other individuals of supposedly different hereditary traits—a process which for want of a better term may be called selection.

The validity of attributing vast social changes to this influence is a matter of dispute. To it Seeck, already quoted, ascribes the downfall of the ancient world. On the other hand, those who are chiefly impressed with the control which increased knowledge gives over nature,[1] or who see in the development and decay of institutions the rise and fall of national welfare, are inclined to minimize the importance of this process. The following chapters will not present an argument on either side of the question. The aim will be to explain and to illustrate the nature of the evidence upon which may rest the claim that selection is at least one of the processes that must be understood, and if possible utilized, by a social democracy.

No fact is plainer than that different sub-groups and families increase their representation in a social group from generation to generation at different rates. Many stocks die out completely, others increase to an indefinite extent. That this has a social result purely because parental influence, irrespective of heredity, affects the adaptation of the child to its environment needs no emphasis. White children captured by Indians have learned the Indian's mode of life. Children educated as Roman Catholics retain the faith. The more rapid increase of sections of a population which sustain or oppose particular social institutions may thus by the simple fact of a higher birth rate cause a substi-

[1] *Cf.* Lester F. Ward, *Applied Sociology.*

tution of stocks, entailing radical social results. The importance of this process in any society is apparent. Its influence, however, is measurable with comparative ease. The way in which it may be modified by the educational system is also susceptible of fairly accurate statistical treatment. But with this pseudo-social heredity and selection this essay has to do in only an incidental way. The inquiry is in regard to the effect of the substitution of one set of physically transmitted traits for another set of traits similarly transmitted.

The first task, then, will be to obtain a clear idea of what the process of selection is from a biological point of view, to study its relation to so-called laws of heredity, and finally to attempt to formulate in a conservative way the extent to which the principle is certainly of social importance.

Before proceeding to this task, however, it may be well to indicate the relation of this section of the inquiry to the main problem—the conditions necessary for maintaining a social democracy. The relation is a simple one. Democracy as a form of government requires more brains per capita than any other form. A social democracy requires a still greater supply—a supply, withal, in which there exists the basis not merely for intelligence, but for virtues founded upon temperamental qualities. Self-control is needed as well as clear vision. If good ground be found for the oft-made assertion that the amount of these qualities in a people is largely dependent upon the direction taken by selection no other justification is needed for the inclusion of this topic in an inquiry relating to the conditions for the maintenance of a social democracy. Especially is this true when it is remembered that the high plane of living necessary in an advanced society so organized can be maintained only if the grade of ability and self-control in the population be kept at a high level.

What, then, is meant by the term selection in the biological sense, and what may be said as to its scope and social implications.

The term selection is of course derived from its use in the greatest book of the last century—Darwin's *Origin of Species*. For the formulation of the conception the Malthusian law of population in its original form was responsible. If, as Malthus held of men, all organisms tend to propagate in geometrical ratio while food supply increases in arithmetical, then some of the offspring, Darwin reasoned, would fail to obtain sufficient sustenance. Only the strongest, or at least only those better adapted to meet the conditions necessary to obtain sustenance, would survive. On the supposition that the characteristics giving the advantage were hereditary, the offspring of the favored individuals would of course be likewise at an advantage over their fellows. Finally, as the number of favored ones increased, those at a disadvantage would be eliminated in the struggle for existence. Thus a change in type might be induced sufficient to account for differences between species. Such in simple form was the doctrine of natural selection.

Applied to man the doctrine of selection in Darwin's sense evidently implies two fundamental points respecting inherited characters: (1) individuals resemble their ancestors more than they do the general population, (2) descendants may differ in some respects from their ancestors and from each other. Now, theories dealing with transmissible qualitative or quantitative resemblances of descendants to parents are theories of heredity and theories dealing with subsequently transmissible quantitative or qualitative differences between ancestors and descendants or between descendants of the same generation are theories of variation. It is evident, then, that theories of heredity deal not

only with the way in which characteristics of long standing in a family or species reappear, but also with the way in which parental variations reappear in subsequent generations. This follows from the fact that in subsequent generations the characteristics which in the parents were variations may become, in the children, resemblances to the parents. With respect to the doctrine of selection, therefore, interest in theories of heredity lies in the extent to which the characteristics of near or remote ancestors reappear in offspring, and whether the reappearance is partial or complete. Upon the relative importance of near and remote ancestors depends the number of generations during which selection must operate, if the Darwinian theory is correct, in order to "fix" (i. e., uniformly reproduce) a characteristic of an ancestor. Upon the completeness of the reappearance of the characteristic depends the completeness of the result. Again with respect to the doctrine of selection, interest in variation lies in the amount of variation and its character. Upon the amount of variation depends the amount of change selection may produce in offspring, and upon its character depends the value of the change.

At present there is no accepted theory of heredity, nor is there likely to be until Neo-Darwinian, Mutationist, Mendelian and Biometrician find a basis for agreement as to the nature of variation. Examination of various theories, however, will serve to show that none of them denies the possibility of very rapid changes as a result of selection.

The most definitely formulated theory, perhaps, is that expressed in Galton's so-called "law of ancestral heredity." This may be stated as follows: the two parents contribute together, on the average, one-half, or 0.5, of the total heritage of the offspring; the four grandparents, one-quarter, or 0.5^2; the eight great-grandparents, one-

eighth, or 0.5^3, and so on.[1] Thus the sum of the ancestral contributions is expressed by the series $[(0.5) + (0.5)^2 + (0.5)^3 \ldots]$, which being equal to 1, accounts for the whole heritage.

From Galton's writings it would appear that he sometimes thought of this generalization as applicable to individuals,[2] and sometimes regarded it as a purely statistical law applicable only to averages.[3] Darbeshire has pointed out that there is a general belief in the proposition that the amount of the contribution of ancestors to posterity is large in proportion to the nearness of the progenitor. Concerning this he remarks, "it is a very good type of biological law; it has the advantage of simplicity; it is also, except in a few cases, untrue."[4] Without reference to its validity, Darbeshire proposes to call this idea the "law of diminishing individual contribution" in contra-distinction to Galton's law. In his estimation, what Galton's law really states is, how on the average the characteristics of a large group of ancestors will reappear in subsequent generations taken as a whole. From the knowledge that the parents of a given generation of cats are tabbies, and that half the grandparents of the generation are tabbies, a quarter white and a quarter black, Galton's law gives the proportions in which these three kinds of cats will occur in subsequent generations. But whether the law be taken as statistical

[1] Francis Galton, *Natural Inheritance*, p. 136.

[2] *Ibid.*

[3] *Proceedings of the Royal Society of London*, vol. 61, p. 402. Here he says, "neglect of individual prepotencies is justified in a law that avowedly relates to average results; they must of course be taken into account when applying the law to individual cases."

[4] On the Difference between Physiological and Statistical Laws of Heredity." *Memoirs and Proceedings of the Manchester Literary and Philosophical Society*, vol. l, part iii, no. 11, p. 9.

only, or as applicable to individuals as well, the impossibility of increasing or diminishing the representation of any particular ancestral characteristic by its action alone is apparent. According to it, on a basis of random mating and equal fertility, the characteristics of all members of the population have equal opportunity for representation in future generations and according to the law of chance will be so represented. Whether the traits of particular ancestors blend with corresponding traits of other ancestors and reappear in reciprocally modified forms, or whether certain descendants follow one ancestor and others another, nevertheless in the long run all ancestral traits will be reproduced.

It is evident, then, that Galton's law does not explain change in the hereditary characteristics of groups from generation to generation. Now the process of selection operates, as has been noted, whenever a group having hereditary characteristics differing from those of the general population leaves a disproportionate number of offspring. The important question then arises as to the rapidity with which change, in view of Galton's law, can be produced by this process, and whether such a change will be permanent if the process of selection ceases. It is obvious from Galton's law that a characteristic becomes more evident in offspring the more fully it is represented in the parents, grandparents and more remote ancestors. Now in any selected group of persons certain characteristics are more fully represented than in the general population. Some of the ancestors of the members of the selected group, however, have descendants in the present general population outside the selected group. The characteristics of these ancestors, therefore, were at least intermediate between those of the selected group and those of the present general population. Inasmuch as these general-population characteristics of the

ancestors of the selected group, according to Galton's law, will to some extent reappear in the offspring of the selected group, these offspring must of course be less pure than the selected group.[1] To preserve the purity of the selected group, continued selection is necessary. With respect to the rapidity of the action of selection, Pearson, taking into account the regression just considered, calculated that if grandparents, as well as parents, have been selected in respect to the same characteristics the offspring will exhibit the characteristics in .8049 of their full strength; if the great-grandparents also, then in .9027 of their strength; and if still three other generations be selected, then in .9879 of their full strength. Thus a race with six generations of selections, according to Pearson, will breed within 1.2 per cent of truth.[2] If, as some biologists think, this process of selection tends to produce prepotency in the characteristic selected, the characteristic against which selection proceeds might be entirely eliminated.

If these deductions of Pearson's be correct it appears that, on the basis of Galton's law, a rapid change in hereditary characteristics may be expected through rigid selection. The law itself does not account for change.

But the so-called statistical laws of heredity advanced by Galton and Pearson have not passed unchallenged. In 1900 certain facts of inheritance were independently noted

[1] This does not support the theory of indefinite regression through panmixia because regression of this sort could not, on Galton's supposition, proceed further than the mean of the general population.

[2] "Mathematical Contributions to the Theory of Evolution," *Proceedings of the Royal Society of London*, vol. lxii, no. 386 (1898) pp. 309-402. *Cf. Biometrika*, vol. ii, pp. 227-228, however, where he holds that, although two or three generations of selection would produce a stock of upwards of 90% of the selected characteristic no amount of selection unless of a greater than the desired amount of characteristic would give more than 92% of it.

by the biologists de Vries,[1] Correns,[2] and Tschermak,[3] which confirmed the long unrecognized views put forward by Gregor Mendel, Abbot of Brünn, as early as 1866.[4] Mendel's observations were made upon seven different characteristics in peas, the consideration of one of which, seed-color, will sufficiently illustrate his results. The colors of seeds used in the experiment were yellow and green. When crossed the hybrid always produced yellow seeds. Yellow-seededness was therefore called a dominant characteristic and greeness of seed a recessive characteristic. When one hundred (yellow) hybrids were allowed to breed by self-propagation, twenty-five of the offspring were green-seeded and seventy-five yellow-seeded. The greens bred true (*i. e.*, when self-fertilized always produced greens). Twenty-five of the yellows also bred true, but fifty of the yellows (self-fertilized) produced offspring twenty-five per cent of which were green and seventy-five per cent yellow *i. e.*, the fifty were true hybrids—able to reproduce the characteristics of both ancestors. In Mendel's language the first set of 100 hybrids really consisted of 25 recessives (pure greens), 50 hybrids (yellow), and twenty-five dominants (yellow). It was found that for generation after generation the hybrids gave this same proportion of recessives, hybrids and dominants. This process, now known as segregation, consists in the dispatch by the hybrids, at

[1] "Sur la loi de disjonction des hybrides," in *Compte Rendu de l'Académie de Paris,* vol. cxxx (1900), pp. 835-847.

[2] "G. Mendel's Regeln über das Verhalten der Nachkommenschaft der Rassenbastarde." *Berichte der Deutschen botanischen Gesellschaft,* vol. xviii (1900), pp. 158-168.

[3] Ueber künstliche Kreuzung bei Pisum sativum," in *Zeitschrift für das landwirthschaftliche Versuchswesen in Osterreich,* vol. iii (1901), pp. 465-555.

[4] "Versuche über Pflanzenhybriden," in *Verhandlungsschriften des naturforschenden Vereins in Brünn,* vol. iv (1866), pp. 3-47.

each generation, of offspring into the dominant and recessive ranks—from which, so long as like mates with like, there is no returning.[1]

Castle, whose experiments have been chiefly on guinea-pigs and mice, worked out the relation of the selective process to the Mendelian law as follows. On the hypothesis of random mating and equal fertility of all individuals, and starting with an equal number of males and females, he finds that by rejecting all recessives as they appear the percentage of individuals showing dominant characteristics would be 100 per cent in the first generation, 75 in the second, 88.8 in the third, 93.7 in the fourth, 96 in the fifth, 97.2 in the sixth, 98 in the seventh, 98.4 in the eighth.[2] Selection for four generations would thus produce a fairly pure race.

To many biologists the Mendelian law and the statistical results of Galton and Pearson have seemed altogether inconsistent. If Galton's law be taken as valid for individual cases this may prove to be the case. Galton's and Pearson's results, however, are derived from the consideration of large numbers of cases and by methods of the average, while Mendelian generalizations are obtained by experiment involving isolation in a way that seldom occurs in nature. Moreover, as yet, alternative inheritance according to the Mendelian formula has been proven for only a few characteristics in a comparatively few animals and plants. The present trend of biological thought is that both the statistical and the Mendelian results will be found to harmonize.[3]

[1] *Cf.* A. D. Darbeshire, *Memoirs and Proceedings of the Manchester Literary and Philosophical Society,* vol. xlviii, part iii, no. 24, pp. 3-4.

[2] W. E. Castle, *Proceedings of the American Academy of Arts and Sciences,* vol. xxxix, no 8., p. 235.

[3] *Cf.* Karl Pearson. "On a generalized theory of alternative In-

Whatever be the truth in these theories, however, the preceding account will have served to show that their advocates have discovered nothing to minimize the importance of Darwin's doctrine of selection. Whether inheritance is blended or alternative, any characteristic will reappear generation after generation unless selection occurs. With proper selection any characteristic which varies may be removed or fixed. In the case of recessive characteristics, however, it is apparent that the dominants would have to be removed entirely from the race to get a pure strain. Nevertheless, even in this case, selection for recessive characteristics would always increase the chance of recessive mating with recessive, and thus increase the number of individuals possessing the desired characteristic.

So much then for the relation of selection to the statistical and Mendelian laws of heredity.

But the supposed validity of the Darwinian theory of selection has itself been attacked. The importance which Darwin ascribed to a continuous selection of individuals exhibiting slight variations from the parent type in the final production of a group regularly transmitting the new characteristic has been challenged. It is maintained that in all probability a definite range of fluctuating variation is one of the fixed characteristics of a species.[1] This would mean, in the language of Prof. Morgan, that "a new race of men cannot be produced by selection of those individuals that show fluctuating variations."[2]

The mutationists in advancing this theory do not, how-

heritance with special reference to Mendel's Laws," in *Philosophical Transactions of the Royal Society of London*, vol. 203 A (1904) pp. 73-4.

[1] Hugo de Vries, *Species and Varieties*, pp 17-18. For criticism of this theory see W. F. R. Weldon, *Biometrika*, vol. i, p. 365 *et seq.*

[2] *Popular Science Monthly*, vol. lxvii, p. 60.

ever, deny the power of selection within the limits of variation which they posit. Their contention is, for instance, in the case of the race horse, that increasing speed is gained with more and more intensive breeding, but that the increase approaches a maximum which cannot be passed except by a sudden shift in the limits of variation of the species—a shift which selection, in their opinion, does not necessarily tend to facilitate.

As far as man is concerned, however, the mutation theory in its present state leaves things much as they were before. If substantiated, the hypothesis, of course, makes tenable the supposition that a new species might suddenly be produced, which by reason of characteristics very different from those of existing types could find subsistence without mixing or competing with other species. But man is too complex for such a result. The extremes of existing differences between individuals are already so great and occur in so many characteristics without disturbing the interfertility of all races of men that single mutations—admittedly small when compared with these differences —cannot materially alter conditions of selection. Societies which fail to show ability to meet competition with others are being eliminated or assimilated too fast for mutations to create non-competing groups. Practically, then, for man mutations would seem equivalent merely to extreme variations or, possibly a short series of progressively selected variations. As long as the causes of variation or, if you will, mutations, are unknown, greater "spontaneous" changes cannot be predicted in one rather than another society. The case is reduced, as before, to the empirical fact that selection may make one existing type more numerous than another.

Such, then, in general outline, is the theory of selection, and such are the more prominent theories of heredity.

From the data presented in regard to them it has appeared that neither the so-called statistical laws of heredity nor the Mendelian laws minimize the importance of selection in the least. On the contrary, whether they can be reconciled or whether each is true in respect of certain traits, both of these generalizations show the phenomena of heredity to be such that, in the opinion of competent investigators, selection may with comparative rapidity determine which of two different innate traits shall be perpetuated. Nor does the mutation theory militate against this fact. It has therefore been proven that selection is a force capable of producing vast social changes if, as a matter of fact, the innate traits on which it works are of as much importance in social life as many writers claim. It has been shown also that, if the differences in innate traits are thus important, selection is a fact which must be reckoned with by a social democracy. For in the complicated social relations of modern days a social democracy must have citizens who are capable of meeting complex conditions. Selection seems a potent influence in determining whether the level of citizenship required shall be maintained.

In Chapter V under the title, "The Supply of Brains," data will be presented respecting the importance of innate traits, and in regard to the general problem of variation upon which, as already noted, depends the amount of change and the character of the change that selection may accomplish.

Prior to consideration of these topics, however, the claim that cessation of selection necessarily produces degeneration will be considered, together with the modes or ways in which selection may give evidence of itself in human society. The latter subject is but a continuation of the theory of selection presented in this chapter. The former must be considered because, if the claim just referred to is true,

there may be ground for supposing that the relatively low rate of population increase required by a social democracy will cause the process of elimination by selection to cease, and thereby produce biological degeneration. These two topics will therefore form the subject of the next chapter.

CHAPTER IV

Degeneration and Improvement

From the considerations presented in the last chapter it is evident that selection may be progressive or regressive. Variations usually looked upon as desirable may be the ones preserved or the reverse. But before considering further the effects which selection may produce it will be of advantage to clear away the notion that biological degeneration necessarily results from a cessation of the selective process. At the present time there is a popular tendency to look upon a simple decline in the birth rate as an evidence of degeneration. The vogue of the term "race suicide" in this country reflects this belief. The strenuous efforts now being made in France to increase population are attributed to fear of such degeneration.[1] Great Britain, indeed, seems more concerned over her unemployed than over any supposed degeneracy in the population, and France, perhaps, fears Germany's growing power rather than a change for the worse in the quality of her citizens. Nevertheless, it was solemnly asserted in the name of biology not many years ago that unless man multiplies beyond the limits for which the average conditions of life comfortably provide, a process of steady degeneration will result.[2] The idea in its crude form is still cur-

[1] "How Paris provides for the housing of large families," in *Review of Reviews*, vol. xxxiii, p. 312 *et seq.*

[2] Benjamin Kidd, *Social Evolution*, p. 37.

rent. It must be considered here, therefore, lest objection be made that if democracy be dependent on a comparatively low birth rate biological progress is impossible.

Mr. Kidd's view, which is essentially that with a rapid decline in birth rates degeneration must follow, was advanced on the basis of Weismann's theory of panmixia.[1] In both the application and in the original theory, however, invalid assumptions were made. In brief form Weismann's idea as put forth in 1886 was this:[2] accepting the Darwinian doctrine that progressive adaptation of organisms to their environment results from a life and death struggle, in which the ill-adapted succumb, Weismann maintained that the cessation of this selection would not only arrest adaptation, but would cause retrogression. Let all individuals have equal opportunity to have offspring who in turn interbreed (panmixia); then, as breeders who cease to select their best stock for the stud find the strain retrograding, so must mankind degenerate. The implication is that this regression must be without limit. Some time after its first promulgation Mr. Herbert Spencer challenged this view, because it implied that variations of offspring from the parental type in the direction of degeneration habitually exceed those in the opposite direction—in degree or in number or in both.[3] Mr. Spencer complained that Weismann never met the argument. It is interesting, therefore, to find Weismann saying in 1902: "Es muss also noch etwas anders mit im Spiele sein welches bewirkt,

[1] *Cf.* Edward A. Ross, *Foundations of Sociology*, pp. 333-4.

[2] August Weismann, *Retrogressive Development in Nature* (1886), translated in *Essays upon Heredity*, edited by Edward B. Poulton and Arthur E. Shipley (Oxford, 1892), vol. ii, pp. 1-30. *Cf.* Herbert Spencer, "On the Inadequacy of Natural Selection," *Principles of Biology* (Appleton & Co., 1900), vol. i, Appendix B, p. 602 *et seq.*

[3] *Contemporary Review*, vol. lxvi, p. 605.

dass bei einem nutzlos gewordenen Organ die Minus-variationen die Plus-variationen stets und dauernd überwiegen, und dieses etwas kann nirgends anders liegen als da, wo die Wurzel aller erblichen Variationen liegt—im Keimplasma." [1] Of what may be discovered "im Keimplasma" he remarks, however, "wohl können wir von dem feinsten Bau des Keimplasmas direkt Nichts erfahren" [2]—a practical acknowledgment that the original doctrine is purely speculative.[3] It is perhaps significant that one of the latest authoritative general treatises on biology [4] does not even refer to "panmixia," though reviewing Weismann's more valid ideas at length.

Rejection of Weismann's theory of panmixia, however, does not imply denial of the possibility of a certain amount of regression if selection ceases. The fact that a breeder sometimes fails to obtain a stock that "breeds true" after many selections cannot be overlooked.[5] Pearson maintains that the reversion thus observed has what he terms a focus of regression. Basing his contention on the theory that variations occur according to the law of chance, he says that in man "both as to mean and variation the population with suspended natural selection tends to rapidly regress on the general population from which it was selected." [6]

[1] *Vorträge über Descendenztheorie* (Jena, 1902), vol. ii, p. 131.

[2] *Ibid.*, p. 132.

[3] The further elaboration of Weismann's theory on this point is open to the criticism that either it requires sexual selection, if not natural selection, for its efficiency—an assumption contrary to hypothesis—or it is still open to a modified form of Spencer's original contention.

[4] Oscar Hertwig (Direktor d. anatomisch-biologischen Instituts der Universität Berlin), *Allgemeine Biologie* (Gustav Fischer, Jena, 1906).

[5] Though this is sometimes the case, the general opinion of breeders seems to be that a character can be "fixed" by repeated selection. (*Cf.* Karl Pearson, *Philosophical Transactions of the Royal Society of London*, vol. 187 A, p. 314.

[6] *Ibid.*, p. 309.

Such statistics as he has been able to gather of sensibly stable populations point to "a focus of regression close to the mean of the current population." [1]

Dr. G. Archdall Reid, a pronounced Neo-Darwinian, though rejecting Weismann's explanation, still contends that cessation of selection involves degeneration. Contrary to the usual theory of biologists that in bi-parental reproduction is to be found a cause of progressive variation, he maintains that its chief function is to produce regressive variation—a tendency only offset by selection. It remains to be seen whether biologists will admit the validity of this wholly novel idea. As though not entirely convinced of his contention that "ancient characters are prepotent over less ancient," [2] Reid himself admits the possible validity for men of Galton's law.[3]

It is apparent from these considerations that biology has come to no definite conclusion respecting the limits of regression. Certainly no tendency to indefinite degeneration has been proven. The question is inseparable from the hotly debated problem of the causes of variation.

Were the theory of necessary degeneration tenable, however, the application that man must multiply beyond the means of subsistence to avoid such degeneration does not follow. This contention would imply that selection can occur only through death by starvation. That such is not the fact will become evident in the development of the next topic.

[1] *Cf.* Karl Pearson, *Philosophical Transactions of the Royal Society of London*, vol. 187 A, p. 308. Pearson looks upon "atavism" merely as mathematically improbable variations. *Ibid.*, p. 314.

[2] *Principles of Heredity*, p. 87, note.

[3] *Ibid.*, p. 96.

MODES OF SELECTION

According to the usage given the term selection in this essay, any influence which, without causing the appearance of new variations, tends to produce a change in the hereditary qualities of a population from generation to generation, is a selective influence. The term, therefore, includes more than natural selection in the Darwinian sense. Darwin, as has been noted, applied the term natural selection to the process by which the elimination of a certain strain was produced by a death-rate greater than the reproductive rate of that strain. It is evident, however, that a change in the amount of an hereditary characteristic in a population can be produced by differing birth-rates in differing stocks, even though there is no tendency whatever for any stock to be eliminated. Such a selection is no less natural than the other form, but for clearness it requires a separate name. Genetic or reproductive selection is the usual designation.

Sexual selection, upon which Darwin laid particular emphasis in his *Descent of Man,* is a phenomenon involving genetic selection. The term sexual selection Darwin applied to the process in which individuals of either sex in choosing mates show a distinct preference for particular types, and thereby exclude those of other types from reproducing their kind. Such a process evidently affects birth rates of various classes differently. But, since it also tends to make the rate of some types zero, it could be looked upon with equal propriety as a mode of natural selection—a process by which certain individuals are eliminated without leaving progeny. Sexual selection is therefore merely one process by which natural or reproductive selection is accomplished. Migration is another influence which also may cause changes in the amount of any

hereditary trait present in a population. From the point of view of a particular sub-group, of course, its indirect result may be very great. For example, the introduction of the negro into the Southern States has undoubtedly tended to increase enormously the total amount of negro blood extant. Only, however, as migration thus indirectly affects death or birth rates is it in strictness to be classed as a selective agency. It does not directly increase or decrease the amount of any hereditary trait in existence at a given time. Sexual selection and migration are therefore mere modes of selection which can be reduced to lower terms. It may be shown, likewise, that all other modes resolve themselves into natural and reproductive selection. All perpetuation of hereditary traits is registered in birth rates and all elimination in death rates. Changes in these rates as they affect particular classes of hereditary types are selective.

Classified, therefore, according to the nature of the influence producing such changes, the modes of selection may evidently be as infinite in number as are those influences. Climate, war, persecution, famine, disease, ignorance of sanitary laws, improvement in medicine, concentration of population, crime, suicide, charity, form of occupation, accidents, all affect death rates. Economic prosperity, marriage customs, individual preferences in choosing mates, age differences at time of marriage, natural fertility, artificial checks, all affect birth rates. Little ingenuity is required to extend these lists or to analyze each item into an indefinite number of subsidiary classes. A complete account of the modes of selection thus conceived is, therefore, impossible. Nevertheless, a review of some of the effects of the more important modes already enumerated may indicate their possible power. The instances brought forward may not in all cases be clear examples of the selec-

tion of innate traits. Still, they will certainly show the ability of the modes just enumerated to influence different social classes in different ways. Whether differences in hereditary traits are correlated with the different social classes involved may be open to question. It will certainly be shown, however, that the illustrated modes are capable of profoundly influencing birth and death rates, and are therefore selective in respect to whatever hereditary traits are involved. That in certain of the illustrations such traits are involved is to be inferred from considerations to be presented in Chapter V.

The first example may profitably be taken from the history of persecution in Spain. The results of the Inquisition Galton emphasizes as follows:

As regards martyrdom and imprisonment, the Spanish nation was drained of free-thinkers at the rate of 1,000 persons annually for the three centuries between 1471 and 1781; an average of 100 persons having been executed and 900 imprisoned every year during that period. The actual data during those three hundred years are 32,000 burnt, 17,000 persons burnt in effigy (I presume they mostly died in prison or escaped from Spain), and 291,000 condemned to various terms of imprisonment and other penalties. It is impossible that any nation could stand a policy like this, without paying a heavy penalty in the deterioration of its breed, as has notably been the result in the formation of the superstitious, unintelligent Spanish race of the present day.[1]

Italy and France also have suffered from the same cause. For good reasons did former Prime Minister Jules Simon lament that not less than 80 of the German staff in the Franco-Prussian war were representatives of Protestant families formerly driven out of France.[2] In his thought,

[1] *Hereditary Genius*, p. 359.

[2] Samuel Smiles, *The Huguenots in England and Ireland* (1895), preface, p. vii.

perchance, this merely typified the change produced in France by the loss of her 300,000 exiles [1] and her 100,000 killed because of their religious beliefs.[2] And such thoughts would, indeed, have been mere hints of the role played by persecution throughout history, if, in reality, the differences from the general population which persecuted men undoubtedly exhibited in valor and intelligence were due, as many think, to their differences in innate capacity.

The elimination of the strong or weak by war is a familiar topic. If all members of a community engage in battle and are equally subject to the privations of a campaign, the stronger are likely to survive. If, on the other hand, only the strongest members are enlisted, they alone suffer. Famine and disease attack different classes unequally. That cities tend to draw the strong and virile from the country, and then in a few generations sterilize the stock, is likewise a well-known thesis.[3] Dangerous trades also have their effect. Doubtless many occupations, like those of waiters and peddlers, have a high death rate because they attract the weak in physique and in character and encourage irregular habits. The high death rate in fishing, quarrying, mining and railroading, on the other hand, cuts off men of the better sort physically and in all probability mentally.

Of this nature, then, are some of the influences which affect age classifications in death rates. That to the operation of the more brutal of these forces—famine, disease and war—may be attributed the continuous supplanting of one

[1] Charles Weiss, *History of the French Protestant Refugees*, preface, p. v.

[2] Samuel Smiles, *op. cit.*, p. 64. *Cf.* also John L. Motley, *Rise of the Dutch Republic* (1856), vol. ii, p. 389.

[3] *Cf.* Georg Hansen, *Die drei Bevölkerungsstufen.* Also Otto Ammon, *Die natürliche Auslese beim Menschen*, p. 271 *et seq.*

savage tribe by another throughout the ages, needs little emphasis. The total extinction of Tasmanians, New Zealanders and many tribes of Indians in our own day but feebly illustrates the results of struggles now recalled only from ancient monuments and hoary traditions or found personified in the conquest story of some legendary hero. But here again it will be said that these were struggles between groups in which qualities of race brought to trial by combat were not wholly of an hereditary nature. True; but the effort here is merely to show the power of selection in preserving or eliminating whatever innate qualities were involved. Enough evidence has been given perhaps to show that some classes in a population are far more likely to be eliminated without reproduction than are others. Natural selection is at work.

But genetic selection is still more important. In civilized nations, Karl Pearson has computed, "about twenty-six per cent. of the married population produces fifty per cent. of the next generation." [1] How this may be Galton has strikingly shown in the following manner: first, those who marry when young tend to have the larger families, and, second, they produce more generations within a given period. If A, marrying at 22, produces an increase of 1½ in the next generation, and there are 3¾ generations per century, while, B, marrying at 33, produces an increase of 1¼ in the next generation, and there are 2½ generations per century, then A's children, by following his example, will in 3 centuries have produced 15 times more progeny than B's. It is important in this inquiry, however, to note the difference between gross and net fertility. The former is practically equivalent statistically to the birth rate; the

[1] *The Grammar of Science* (1900), Chapter on "Evolution," p. 413.
[2] *Hereditary Genius* (1892), p. 340.

latter is the number of children per family who reach the reproductive age. The following table, compiled by Pearson [1] from Rubin and Westergaard's Copenhagen statistics, will illustrate the significance of this distinction:

	No. of cases.	Number of children per family. Gross fertility.	Net fertility.
1. Professional class.....	944	4.52	3.31
2. Commercial class	2009	4.58	3.01
3. Artisan class.....	2934	4.95	3.14

The order of increase in these classes measured by gross fertility is 1, 2, 3, by net fertility is 2, 3, 1.

The selective possibilities of differences in reproductive rates are thus very evident.

But not all mature individuals reproduce. Where monogamy is actually observed and a preponderance of one sex exists, certain of the other sex will necessarily fail to find mates. Among polyandrous or polygynous peoples, where the population is fairly stable and there is the usual approximate equality in the number of each sex born, a like result is to be found. Sexual selection occurs. Darwin's emphasis on the importance of this process has already been noted. To it he attributed the greater size, strength, courage, pugnacity, energy and even intellectual vigor and power of invention in man in comparison with the same qualities in woman. In her, he thought, beauty and sweetness of voice were its results.[2] Social relations will, of course, play a large part in controlling such choices. Systems of property inheritance, growth of social classes, relaxation of religious restrictions on marriage, will all be

[1] *The Chances of Death and Other Studies in Evolution,* vol. i, p. 98.

[2] *Descent of Man* (Appleton, 1871), vol. ii, pp. 365-6.

effective. But of this more in the chapter on the social limitations on the biological process. It is of greater importance here to consider further only the more direct influences on birth rates.

Gross and net fertility have already been discussed. But of changes in the crude birth rate more needs to be said. In his *Principles of Biology*, Mr. Herbert Spencer laid down the proposition that "every higher degree of organic evolution has for its concomitant a lower degree of that peculiar organic dissolution which is seen in the production of new organisms." "Ascending from the lowest to the highest types," he says, "there is a decrease of fertility so great as to become absolutely inconceivable and even inexpressible by figures." "Obviously, too," he continues, "survival of the fittest has a share in determining the proportion between the amount of matter that goes to Individuation and the amount that goes to Genesis. Whether the interests of the species are most subserved by a higher evolution of the individual joined with a diminished fertility, or by a lower evolution of the individual joined with an increased fertility, are questions ever being experimentally answered." [1] It is thus very apparent that Mr. Spencer recognized differing degrees of fertility, saw in them an influence capable of producing profound changes in social groups, and thought that between the various changes so caused natural selection was to have a share in the final arbitrament.

Whether, however, the physiological changes by which Mr. Spencer accounts for a lower birth rate with advancing civilization are at the present time as important as other causes of lowered birth rates among certain social groups, may be questioned. It is true that prolonged infancy, upon

[1] *Loc. cit.*, vol. ii, pp. 498-500.

which as a cause of progress Mr. Fiske laid so much emphasis, if it has not necessitated, has at least been accompanied by a lower birth rate. There is reason to believe also that in communities where the nervous strain incident to advancing civilization is greatest there the birth rate is lowest.[1] But physiological changes not produced by selection are usually slow. Moreover, in view of the increased wealth of the past century, natural selection could hardly be shown to have eliminated the more fertile. On *a priori* grounds, therefore, it is difficult to attribute the sudden decline in birth rates noted in the second chapter wholly to a physiological change. But there are stronger reasons for assigning this change to other causes. Dr. John S. Billings, former expert on vital statistics for the United States census, after a careful study of the decline of birth rates in several European countries and in the United States, concluded that probably "the most important factor in the change is the deliberate and voluntary avoidance or prevention of child-bearing on the part of a steadily increasing number of married people, who not only prefer to have but few children, but who know how to obtain their wish."[2]

This opinion was stated in 1893. Since then a large amount of corroborative material has accumulated.[3] One of the most recent efforts to obtain inductive evidence on this point has been made by Mr. Sidney Webb. He has taken a voluntary census of between 600 and 700 married persons, chosen at random as far as possible, throughout

[1] J. L. Brownell, "The Significance of a Declining Birth Rate," in *Annals of the American Academy of Political Science*, vol. v, pt. 1, p. 48 *et seq.*

[2] *Forum*, vol. xv, p. 475.

[3] For recent studies *Cf.* C. J. and J. N. Lewis, *Natality and Fecundity* (1906), and David Heron, *On the Relation of Fertility in Man to Social Status* (1906).

Great Britain. The returns indicate that limitation of the family began to become prevalent about 1875. By the decade 1890-1900 the proportion of marriages in which the family was intentionally limited, to those in which it was not, amounted to 107 to 7 or possibly 8. The numbers are admittedly too small to be more than a mere indication. Nevertheless, these facts are held significant in view of "common report that such deliberate regulation of the marriage state has become prevalent during the last quarter of a century . . . . from doctors and chemists, from the officers of friendly societies and philanthropists working among the poor, and . . . . from those who are engaged in the very extensive business to which this new social practice has given rise." [1]

This influence does not affect all classes in the population in the same degree. In Ireland, for example, the birth rate has not declined to any great extent. What decline there has been has manifested itself chiefly in semi-Protestant Belfast. There has been no decline at all in Roman Catholic Dublin. In the towns of Great Britain the decline is least in Liverpool, Salford, Manchester and Glasgow—towns in which the proportion of Roman Catholics is considerable. Among the principal textile factory towns the decline is least at Preston, which is the one having the largest proportion of Roman Catholics. Among the different metropolitan boroughs the present rate is highest in those boroughs in which Irish Roman Catholics and Jews are most numerous. Although economic differences may partly account for some of these facts, there is, nevertheless, a presumption amounting almost to proof that the strong religious prohibition among Roman Catholics and

[1] Physical Degeneracy or Race Suicide, *London Times,* Oct. 11 and 16, 1906.

Jews against any regulation of the marriage state has been potent in producing these results.

It would not be difficult to cite many other instances to support the natural conclusion from these facts. It is already sufficiently evident, however, that differences in birth rates among nations are paralleled by selective differences among classes within nations.

The significance of the arguments presented in this chapter has already been indicated. If biological degeneration resulted from the reduction of the birth rate to the point required by social democracy, the maintenance of such a democracy would evidently be disastrous in the end. But such is not the fact. Even if it were, however, it has nevertheless been shown that there are many ways in which selection takes place without the elimination produced by a high birth rate.

It remains, therefore, to consider the character and importance of the innate traits which are subject to selection. By so doing and by considering the amount of difference that may appear in hereditary traits, the significance of the selective process will become apparent. For the crux of the whole matter lies in the nature of the supply of brains upon which the selective process may act.

CHAPTER V

The Supply of Brains

Some years ago Mr. Herbert Spencer made a plea for a definite determination of the extent to which various traits are inborn [1] but the answer of biology is not yet.

Whatever be the outcome of the debate over causes of variation, however, and whether Weismann's theory of the non-transmissibility of acquired characteristics is verified or not, there is nevertheless a sufficient number of facts relating to inborn traits to prove that the operation of selection upon them is a matter of real social importance. To one, indeed, who admits the unity of organic life and is familiar with the fundamental datum of biology that like produces like there is no surprise in finding scientific evidence to support the aphorism that "genius is born, not made." Anthropology tests ethnic traits by color of skin and hair, size of body and even minute anatomical details. Physiological psychology measures the accuracy with which acuteness of senses is transmitted. The alienist affirms the hereditary character of many forms of epilepsy, feeble-mindedness, insanity and other affections involving the nervous system. Even the practical business man bases insurance premiums in part upon the mental status of progenitors. The criminal anthropologist maintains that certain fairly definite types of criminals have at least a predisposition to anti-social conduct because of hereditary

[1] *Contemporary Review*, vol. lxvi. p. 608.

traits. Statistical verification has to some extent lent weight to the assertion that a similar causal connection exists between transmission of enfeebled bodily powers and pauperism. Genealogical studies of talented and of poorly endowed families have emphasized the importance of heredity. Studies of the effect of environmental conditions on twins have strengthened the case. These facts thus briefly summarized lead to the conclusion that there are certain classes in society whose inborn characteristics differ so widely from the normal that the rate at which selection is acting upon them becomes of much importance.

To hold this belief is not however to admit the conclusions of those "anthropo-sociologists" who would fain discover by means of calipers a guide to a school curriculum adapted to the mental powers of differing peoples.[1] Nor is it necessary to take too seriously the assertion that in a struggle of the centuries mentally stolid round heads are displacing keener long heads by reason of greater efficient fertility.[2] None the less we do know "perfectly well" as Galton says, "how one baby, dog, horse, differs enormously from another by nature." To affirm that in men these innate differences do not include significant mental traits would be to deny the facts of daily observation.

According to the present method of considering biological and psychological phenomena the assumption must be made that the higher mental traits have developed from lower conditions existing at a previous time and that at one time there certainly must have been races and tribes in which these higher traits were not at all or only slightly developed. It is not in the least inconsistent with this general

[1] *Cf.* Carlos C. Closson, "The Pedagogical Significance of the Cephalic Index," *Journal of Political Economy*, vol. vi, p. 254 *et seq.*

[2] G. Vacher de Lapouge, *Les Sélections Sociales*, p. 67.

assumption to expect that different peoples at the present day will be found differently endowed. As to whether the facts actually bear out this expectation, however, there is no general agreement among scientists. As to differences between individuals within the same race, there is less divergence.

Because of these disagreements it is necessary to review the problem at some length. For convenience the question of racial differences will be treated first and then that of individual differences within social groups. Finally the importance of the results from the point of view of selective influences on society will be presented.

The question of differences among races and subdivisions of races has long been discussed. Mr. Robertson says:

"On the subject of National Character," as Mr. Huxley writes, "more nonsense, and often very mischievous nonsense, has been and is talked than upon any other topic." To begin with, there is the question of discrimination of the known elements of stock in any one nation. There are a dozen historically known elements, as traceable by recorded invasion, dialect and immigration, in the leading European nations. There are the Syrian and Egyptian elements in old Greece, which was a mixture of tribes to begin with; the Greek and Syrian and African elements in Imperial Italy, which had a medley of stocks at the opening of the historic period to begin with; there was an infusion of these mixtures in Spain, Italy, Gaul, Germany and Britain; there were later Teutonic invasions of the South and the Saracen invasion from the East. France, the most compact of modern states, is framed of sections of very different stock, as gathered from language, lore and physique; and Britain is at least as diverse in its stocks. In every section of every state, again, we find different types, so that characteristics loosely called "Celtic" are found in people loosely decided to be Teutonic and *vice versa*. In this vast medley of minute peculiarities, who shall pretend to say that there is

established anything approaching to an agreed-on account of race characters or national character? The theme is but the happy hunting ground of the amateur sociologist.[1]

Likewise in regard to race, Gustavo Tosti writes:—"in the actual state of science the word 'race' is a vague formula to which nothing definite may be found to correspond. On the one hand the original races can only be said to belong to paleontology, while the more limited groups now called races are nothing but peoples, or societies of people, brethren by civilization more than by blood."[2] Thus "the notion of race as a zoological expression in the sense of a pure breed or strain," as Keane remarks, "is falling into the background."[3]

In spite of all this, however, there is good reason for holding that large groups of men have hereditary traits that are considerably different from those of other large groups. No part of Romanes' lectures is more interesting and conclusive than the chapter on Geographical Distribution in which he explains the effect of isolation in permitting the development of different types of fauna and flora in different parts of the world. Fully admitting the fact that isolation might never have been complete, he nevertheless concludes from a practically exhaustive examination of the plants and animals of many islands remote from the mainland that "wherever there is evidence of land areas having been for a long time separated from other land areas, there we meet with a more or less extraordinary profusion of unique species, often running up into unique genera. Moreover there is everywhere a constant correlation between the degree of this peculiarity on the part of the fauna and flora

[1] John M. Robertson, *Buckle and His Critics*, p. 96.

[2] *American Journal of Sociology*, vol. iii, pp. 467-8.

[3] Augustus H. Keane, *Man Past and Present*, p. 32.

and the time during which they have been isolated." [1] When therefore anthropologists are found affirming that "during long ages some of the (human) groups have remained in their original habitats ever since what may be called the first settlement of the earth by man" [2] it is not unreasonable to expect innate differences among human societies. "Even in the same family," says Professor Ross, "we find congenital differences in the strength of the sex-appetite, in the taste for liquor, in the craving for excitement, in migratoriness, in jealousy, in self-control, in capacity for regular labor, in the spirit of enterprise, in the power to postpone gratification—differences which defy eradication by example or instruction. If such diversities declare themselves within a people, why not between peoples?" [3]

The difficulty of acclimatizing various peoples to strange environments lends strong support to this view. So many of the party of Eskimo men and women brought back by Lieutenant Peary in 1897 died of pneumonia that the survivors had to be restored to their homes to save their lives.[4] "The human varieties," says Keane, "are seen to be, like all other zoological species, the outcome of their several environments; they are what climate, soil, diet, pursuits and inherited characters have made them, so that all sudden transitions are usually followed by disastrous results." [5] Ripley remarks that "to urge the emigration of women and children or of any save those of the most robust health to the tropics may not be to murder in the first degree but it should be classed, to put it mildly, as an incitement to it." [6]

[1] *Darwin and after Darwin* (1892), vol. i, p. 235.

[2] Augustus H. Keane, *op. cit.*, p. 12.

[3] *Foundations of Sociology*, p. 355, note.

[4] Augustus H. Keane, *op cit.*, p. 13, note.

[5] *Ibid.*, p. 13.

[6] *The Races of Europe*, p. 586.

On the other hand there are those who, admitting the fact of isolation, nevertheless minimize hereditary differences among large social groups. Professor Boas, for instance, holds it "probable that the wide differences between the manifestations of the human mind in various stages of culture may be due almost entirely to the form of individual experience, which is determined by the geographical and social environment of the individual." "It would seem," he continues, "that, in different races, the organization of the mind is on the whole alike, and that the varieties of mind found in different races do not exceed, perhaps do not even reach, the amount of normal individual variation in each race." [1] Nevertheless Professor Boas finds himself forced to admit that "a number of anatomical facts point to the conclusion that the races of Africa, Australia, and Melanesia are to a certain extent inferior to the races of Asia, America and Europe." "We find that on the average the size of the brain of the negroid races," he says, "is less than the size of the brain of the other races; and the difference in favor of the mongoloid and white races is so great that we are justified in assuming a certain correlation between their mental ability and the increased size of their brain." [2]

In spite of these somewhat contradictory opinions of anthropologists Keane has ventured to present a tabular summary, reproduced on the following page, of different traits of the four great types of mankind which he thinks it worth while to recognize. The types of course are "ideal," that is, they represent the "mode" about which the infinite gradations of traits found among all the individuals classed

[1] "The Mind of Primitive Man," *Smithsonian Institution Reports*, 1901, appended papers, p. 460.

[2] *Ibid.*, p. 453.

	Ideal Negro Type.[1]	Ideal Mongol Type.	Ideal American Type.	Ideal Caucasic Type.[2]
Hair	a. Short, jet black, frizzly, flat in transverse section; little or no beard. b. Reddish brown, wooly.	Coarse, black, lusterless, lank, round in transverse section, beardless, but moustache common.	Very long, coarse black, lank, nearly round in section, beardless.	a. Long, wavy, soft, flaxen. b. Long, straight, wiry black; both oval in section, both full bearded.
Colour	a. Blackish. b. Yellowish-brown.	Yellowish.	Coppery, yellowish.	a. Florid. b. Pale.
Skull	a. Dolichocephalous, 72. b. Brachycephalous, 83.	Brachycephalous, 84.	Mesaticephalous, 79.	a. Dolichocephalous, 74. b. Brachycephalous, 83.
Jaws	Prognathous, 60.	Mesognathous, 68.	Mesognathous, 72.	Orthognathous, 76.
Cheek bone	Small, moderately retreating.	Prominent laterally.	Moderately prominent.	Small, unmarked.
Nose	Very broad, flat platyrrhine, 56.	Very small, mesorrhine, 52.	Large, bridged or aquiline, mesorrhine, 50.	Large, straight or arched, leptorrhine, 46.
Eyes	Large, round, prominent, black, yellowish cornea.	Small, black, oblique, outer angle slightly elevated, verticle fold of skin over inner canthus.	Small, round, straight, sunken, black.	a. Blue. b. Black, both moderately large and always straight.
Teeth	Large (macrodont).	Medium (mesodont).	Medium (mesodont).	Small (microdont).
Stature	a. Above average, 5 ft. 10 in. b. Dwarfish, 4 ft.	Below the average, 5 ft. 4 in.	Above the average, 5 ft. 8 in.	a. Above the average, 5 ft. 8 in. b. Average, 5 ft. 5 or 6 in.
Speech	Agglutinating of various prefix and postfix types.	Agglutinating, chiefly with postfixes, isolating, with tones.	Polysynthetic mainly.	Chiefly inflecting; some agglutinating.
Religion	Non-theistic, nature and ancestry worship, fetishism and witchcraft prevalent.	Polytheistic, Shamanism, Buddhism, Transmigration.	Polytheistic, animism, nature worship.	Monotheism Judaism, Christianity, Mohammedanism.
Temperament	Sensuous, indolent, improvident; fitful, passionate and cruel, though often affectionate and faithful; little self-respect, hence easy acceptance of yoke of slavery; science and art undeveloped.	Sluggish, somewhat sullen, with little initiative but great endurance, generally frugal, thrifty and industrious but moral standard low; science slightly, art and letters moderately developed.	Moody, taciturn, wary, deep feeling marked by an impassive exterior; indifference to physical pain; science slightly, art moderately, letters scarcely at all developed.	Active, enterprising, imaginative. a. Serious, steadfast, solid, and stolid. b. Fiery, impulsive, fickle; science, art and letters highly developed in both.

[1] a=Negro. b=Negrito.

[2] a=Xanthochroi. b=Melanochroi.

in the great divisions would group themselves. In all probability no one individual would embody all the traits of his class yet no individual would vary so much in all respects from the type as to fall into another class. In this table the first nine horizontal lines refer to traits evidently determined by heredity. It is, of course noticeable that hereditary differences in the nervous system, or in rapidity and continuity of response to stimulus, observed according to the criteria of physiological psychologists, are not mentioned except in so far as possibly the shape of the skull is an index of psychic qualities. In the absence of such data and with the utter impossibility at present of eliminating differences produced by social environment, an affirmation of a causal connection between the facts of the first nine lines and those of the last line would be unwarranted. Nevertheless the fact that particular temperamental traits are thus associated with particular peoples in a fairly definite way raises a strong presumption that certain moral reactions are more likely to be expected from the descendants of certain stocks than from others.[1]

The relative prevalence of emotional crime and suicide in various nations is perhaps the best general proof as yet adduced of differing temperamental qualities in different peoples. The following table quoted by Mayo-Smith[2] from Bodio, indicates the conditions respecting crime.

NUMBER OF PERSONS CONDEMNED PER 100,000 INHABITANTS.

	For Murder.	Wounding.	Larcenies.
Italy	8.05	226.06	78.17
France	1.46	71.62	114.79
Germany	.80	154.70	177.36
Austria	2.15	285.19	
England	.40		130.97
Scotland	.56		
Ireland	.85		
Spain	5.21		

[1] *Ethnology*, p. 228.

[2] Richmond Mayo-Smith, *Statistics and Sociology*, p. 287.

This perhaps lends some support to the theories of those who see reflected in the plastic arts the emotional quickness which in the words "frivolity," "lightheartedness" and "passionately revengeful" have come to be associated with the Latin peoples. Furthermore, if perchance suicide be associated with a melancholic temperament it may not be altogether without significance that the highest rate is found in central Germany, while the numbers diminish sensibly within groups infused with Celtic, Latin, and Slavonic blood until the lowest rates are found in Ireland, Spain, Southern Italy, Roumania, Russia and Finland.[1]

Statistics on these points are undeniably inadequate, however, and by no manipulation can the importance of the social factor be determined. Until careful studies by the psychologists bring out the correlation of physical characteristics and emotional qualities nothing definite and exact can be affirmed respecting racial traits. It can only be asserted that there is a strong probability of the truth of such general statements as, for instance, that the patience of the Chinaman has been developed very much as his powers of physical endurance seem to have been produced, namely by the continuing elimination of those unable to meet the severe conditions of life confronting the great mass of the population in the Celestial Empire. The veriest stickler for the power of environment cannot but grant the profound effect that may be produced upon a child if congenital myopia or deafness isolate him from his companions. Vivacity, conscientiousness, temper, self-consciousness are all traits largely dependent, in individuals, upon physical characteristics. The man who has inherited good teeth and a strong digestive system is not likely to show the irritability of a dyspeptic. Just so far, likewise, as physical traits under-

[1] Richmond Mayo-Smith, *op. cit.*, p. 244.

lying temperamental differences are found to be distinctive of certain peoples, just so far it is permissible to affirm that significant moral differences among peoples are likely to have an hereditary basis.

So much, then, for hereditary differences among great social groups.

As to differences among individuals within groups the case is much clearer. Even here there is a school of thought, however, that considers the conditions making for effective greatness so complex as to mask alleged regularities in the production of talented men by the fact that particular geniuses born happened not to find congenial tasks.[1] But nowhere has it been argued that the conditions making for inefficient idiocy are so complex as to render uncertain the fairly regular recurrence of somewhat definite numbers in any given society. So long as it is conceded that "a Voltaire, Shelley or Carlyle can hardly be conceived leading a dumb and vegetative life in any epoch," [2] just so long will it be impossible to ignore the exact statistical work of those who assume that, on the whole, achievement is a fair index of ability—non-achievement of the lack of it.

The results obtained by attempting to measure the distribution of ability in accordance with the distribution of achievement are at least sufficiently important to merit careful consideration. Certainly no better way has yet been found to render somewhat exact the general notions all possess of the relative frequency of men highly or poorly endowed by nature. The table on the following page gives Galton's classification of men of the United Kingdom according to their natural gifts as calculated from their achievements. [3]

[1] William James, *Atlantic Monthly*, vol. xlvi, p. 453, note.

[2] *Ibid.*

[3] *Hereditary Genius* (1892), p. 30.

Grades of natural ability separated by equal intervals.		Numbers of men comprised in the several grades of natural ability, whether in respect to their general powers, or to special aptitudes.						
		Proportionate, viz., one in	In each million of the same age.	In total male population of the United Kingdom, say 15 millions, of the undermentioned ages.				
Below average.	Above average.			20–30.	30–40.	40–50.	50–60.	60–70.	70–80.
a	A	4	256,791	651,000	495,000	391,000	268,000	171,000	77,000
b	B	6	161,279	409,000	312,000	246,000	168,000	107,000	48,000
c	C	16	63,563	161,000	123,000	97,000	66,000	42,000	19,000
d	D	64	15,696	39,800	30,300	23,900	16,400	10,400	4,700
e	E	413	2,423	6,100	4,700	3,700	2,520	1,600	729
f	F	4,300	233	590	450	355	243	155	70
g	G	79,000	14	35	27	21	15	9	4
x*	X†	1,000,000	1	3	2	2	2	—	—
On either side of average			500,000	1,268,000	964,000	761,000	521,000	332,000	149,000
Total, both sides			1,000,000	2,536,000	1,928,000	1,522,000	1,042,000	664,000	298,000

* All grades below g. † All grades above G.

In explanation of this table Galton says, "more than half of each million is contained in the two mediocre classes a and A; the four mediocre classes a, b, A, B, contain more than four-fifths, and the six mediocre classes more than nineteen-twentieths of the entire population." Mediocrity is defined to be that grade of ability represented by the bulk of general society of small provincial places. Class C includes men of ability a trifle higher than that of the foreman of an ordinary English jury. D comprises the mass of men who obtain the ordinary prizes of life, E is a stage higher, F and G are composed of men of marked ability, X includes genius. The small letters denote complementary classes on the descending scale. The distribution exhibited in this table is, of course, based on the applicability to this problem of the so-called law of chance in accordance with which a large number of minute causes acting with an equal probability of efficiency, as Galton assumes for the causes of variation, will, with a sufficiently large number of cases, invariably produce such a result as he gives. On this hypothesis a change in the number of groups would not in the least affect the actual distribution. The validity of the method of course rests entirely upon the general accuracy with which the facts meet the hypothesis. Galton showed that for England a distribution of the names in certain standard biographical dictionaries classified by objective and fairly impersonal tests grouped themselves with considerable accuracy in accord with the theoretical requirements of groups F, G and X of the table. Similar studies by others made in as objective a way as possible have tended to confirm his results in these classes. That the rest of the distribution can be verified by similar tests based upon degree of achievement still awaits complete demonstration. Closson, however, has made the following interesting comparison between Gal-

ton's figures and Charles Booth's distribution of the population of London according to degree of comfort.[1]

Booth—General classes—all London.		Booth—Detailed classes—East, Central, South and outlying districts.		Galton—Ability classes.	
	Per cent.		Per cent.		Per cent.
Semi-criminals...	2[2]	Semi-criminals.....	2[2]	x, g, f, e, d	1.8
Casual laborers ..	7.5	Casual laborers	10.9	c	6.4
Poor	22.3	Intermittent earnings.....	10.1	b	16.0
Comfortable.....	51.5	Small regular earnings ..... 13.7 Standard regular earnings 41.7	55.4	a and A	52.4
Middle class and above	17.8	Superintendents, etc.	14.8	B	16.0
		Lower middle class.....	5.5	C	6.4
		Upper middle class.....	1.9	D, E, F, G, X	1.9

The parallelism in the figures may be fortuitous but the results certainly do not conflict with Galton's claims.

In further application of Galton's figures Ammon gives the graphic illustration herewith reproduced on the opposite page (Figure 1), by which he intimates that the social pyramid is really a social turnip—and rather flat even at that.[3] Closson has amplified it into Figure 2.[4] The argument with respect to this figure is that inasmuch as Booth thinks the slight amount of work done by the group of casual laborers could be better done by the next higher grade with advantage to society as a whole he would probably draw the line of positive social utility between b and c. Closson also infers from

[1] *Journal of Political Economy*, vol. vii, pp. 221-3.

[2] Includes one-half the inmates of institutions in addition to Booth's figures.

[3] *Gesellschaftsordnung*, p. 83. (The terms of classification in the figures are Closson's.)

[4] *Journal of Political Economy*, vol. vii, p. 220.

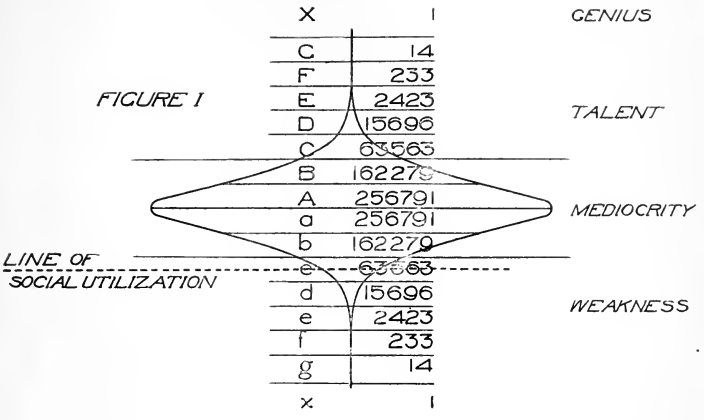

FIGURE I

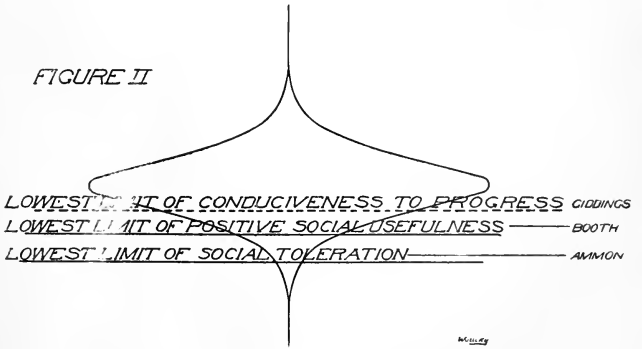

FIGURE II

Professor Giddings' article on "The Ethics of Social Progress" [1] that the limit of conduciveness to social progress would be placed by him at class b. This inference is drawn from Professor Giddings' statement that "laborers that have no adaptiveness, that bring no new ideas to their work, that have no suspicion of the next best thing to turn to in an emergency might much better be identified with the dependent classes than with the wealth-creators." [2]

Very much stress is not to be laid on the accuracy of such comparisons as have just been cited from Closson. They do serve to show, however, that social conditions parallel to a considerable extent the effects which present knowledge of the laws of heredity would lead us to expect if the effect of environment were shown to be comparatively small. Whether Galton be correct or not in the details of his doctrine there is little reason to doubt the existence of sufficient differences in natural ability among individuals to make the social effect of the selective process of great importance in maintaining the quality of a population.

The material presented in this and the two preceding chapters now admits of summary. It has been shown first, that there is no adequate reason as yet advanced by biology for assuming a diminishing birth rate to entail necessary degeneration; second, that the selective process is a reality; third, that the laws of heredity so far as formulated by biologists are such as to permit rapid selection; fourth, that the modes of selection are as infinite in number as are the influences affecting birth and death rates; fifth, that although a certain amount of difference may exist among the abilities of the great groups of mankind nevertheless those differences are probably not great enough to justify distin-

[1] Reprinted as "The Costs of Progress" in *Democracy and Empire*.
[2] *Ibid.*, p. 83.

guishing between the abilities of particular individuals on the ground of their racial affinities; sixth, that there are differences between the innate traits of individuals both physical and psychic sufficiently great to warrant the presumption that the selective processes operating upon them are of great social importance.

If these contentions be valid two things of great practical value become apparent. The first is that so far as present knowledge is a guide the treatment of different social groups cannot safely be based on supposed differences in innate traits until the particular groups in question have been inductively shown to be composed of individuals who upon separate examination of each and every one are severally found to possess the particular traits in question. The second is that no society can afford to ignore the selective processes that are taking place in it. The innate differences between individuals are known to be great and the selective process has been shown to be capable of great rapidity in action. Especially, therefore, should a social democracy, dependent as it is on the high quality of its citizens for maintenance, take these processes into account.

CHAPTER VI

Social Limitations on the Biological Process.

Unless preceding chapters have wholly failed of their purpose, it has become clear that there are reasonable grounds for holding the maintenance of a social democracy to be conditioned upon, first, a lower rate of population increase in response to increasing means of subsistence than obtains among some peoples; second, upon social stability guaranteed by an easily defensible situation, and, third, upon a favorable selection of stocks. Furthermore, it has appeared that the social process has involved both a struggle among racial and national groups and selection of individuals within these groups. With respect to the intergroup struggle it has been pointed out that increased control over nature has permitted the formation of larger and larger groups, and with respect to the selection of individuals it has been noted that both death and birth rates are largely determined by social relations.

With this preparation it is now possible to consider certain specific effects of these social limitations on the biological process—limitations which may prove of importance in determining the conditions for maintaining a social democracy. Among these effects two facts stand out preëminent. The first, already referred to in Chapter II, is that the more imitation spreads among all peoples the knowledge of agricultural, industrial and commercial processes by which increased control over nature is possible, the less does the relative increase of the populations of different groups de-

pend on their physical ability to maintain a high birth rate —the more does it depend on the social relations which determine such rates. Knowledge is power but it may be used either for better living or more livers. Second, as the group conflict produces larger and larger groups, the physical differences and, in certain respects, the social differences, among populations comprising the opposing groups become greater and greater. Once tribe met tribe in a single valley; later Greek met Greek on a wider field; now Slav meets Jap and the world looks on. There are fewer contests, larger numbers engaged, greater cultural and physical differences among the contestants. Thus occur two processes. The impediments to blood amalgamation are removed over wider and wider areas as the groups enlarge. On the other hand, such amalgamation has greater and greater differences to overcome among the remaining groups. The paradox arises of wider tolerance tending to produce greater intolerance. Opposing these greater physical and cultural differences among groups, however, is of course the process of imitation whereby mental and moral likenesses arise as a basis for possible future toleration and amalgamation. But at the present time there is little need of illustrating the fact that racial and cultural differences between Western and Eastern civilization limit the process of blood-amalgamation to-day almost wholly to individuals within each of these groups. Doubtless there are peoples whom it would be difficult to classify as Eastern or Western. Within them the toleration of both cultures may to some extent remove the barrier to amalgamation. By and large, however, the Occidental stands for a moderate birth rate, a high plane of living and democracy, the Oriental for high birth rate, a low plane of living and caste. The economic antagonisms growing out of these facts combined with accompanying differences in religion, education,

general culture, physical characteristics and geographic situation are not likely to lead to rapid amalgamation.

To a less extent minor social differences within each sub-group likewise tend to prevent mixture. Here again, however, the difficulty is increased when marked physical differences appear among members of the same sub-group. Such differences are usually accompanied by cultural differences. In spite of a particular individual's worth there is a tendency to attribute to him all the distasteful characteristics of the general class whose physical traits he bears. A race question exists. Amalgamation must proceed without social sanction. Religious differences at times are also very effective hindrances to the process of amalgamation in sub-groups. In New York City, for example, when German immigration was chiefly Protestant there were few mixed marriages with the Roman Catholic Irish. As soon, however, as Roman Catholics from South Germany began to arrive in force, mixed German and Irish marriages became frequent.[1] The effect of social position also needs no emphasis. Morganatic marriages by aristocrats of wealth excite quite as much comment as do alliances properly so-called. Maud Muller seldom marries the judge. Few women of note elope with their coachmen. There is thus a tendency in self-conscious social sub-groups to develop a distinct limitation upon the choice of mates which its members may make without incurring the danger of losing cast. The larger and more self-conscious the group, moreover, the greater is the retarding effect upon amalgamation.

The most interesting circumstance regarding social limi-

[1] Statistical treatment of these facts has apparently not yet appeared in print. The statements are based upon observations by settlement-workers and others competent to judge.

tations upon the biological process, however, is perhaps the fact that these limiting social relations are becoming more and more subject to rational control. During the past century there was indeed a tendency to remove altogether the old limitations on freedom of domicile inherited from feudal times. It is true, moreover, that under the influence of the doctrine of the brotherhood of man treaties were negotiated by which the nations of Europe acknowledged the right of expatriation [1] and that the United States even declared this to be a natural and inalienable right of the individual.[2] But an incident of the debate in the United States Senate preceding the passage of the exclusion bill of 1879 is perhaps of some significance. The sole protest against that unseemly disregard of China's treaty rights which was offered on the ground that this country should be a refuge for the outcast of every nation came from the aged Senator from Maine—a state which boasted a population of just eight Chinamen.[3] The gradual growth of restrictions by the United States since that date is common knowledge. The new Aliens bill in England and the numerous restriction laws passed by British colonies within the past few years reflect the same growing tendency toward control. Increased attention to this subject is being given by almost all European countries.[4] Even propositions for international regulation of migration have ceased to be novelties. Social limitations on the process of amalgamation among the great national groups are thus unlikely to decrease in the near future.

[1] *Cf.* Richmond Mayo-Smith, *Immigration and Emigration*, pp. 288-290.

[2] *Ibid.*, pp. 251-2.

[3] *Census of 1880.* Vol. on Population, pt. i, p. xxxviii.

[4] *Cf.* James D. Whelpley, *The Problem of the Immigrant*, p. 17 *et seq.*

But rational control over the biological process is not confined to inter-group relations. Within each sub-group the effects of social relations on birth and death rates are awakening interest. As yet those effects are but dimly recognized. A long step forward, however, has been taken in the recognition, for instance, that the criminal law is not to dispense justice but to attain socially expedient results—social justice. No longer an eye for an eye but reformation and prevention are the watchwords. And theories of prevention throughout the field of philanthropy are more and more taking account of the broader social causes of distress. Such tendencies will inevitably produce attempts to gauge accurately the effect that social conditions have upon the quality of the population through their influence on birth rates and death rates. Little has been done in this field. There has been much *a priori* speculation like that of Kidd on theories of necessary degeneration. There has been wild talk of race suicide. Well-known men have written as though actual effects upon the blood of nations of such selections as are now taking place were actually known.[1] But the true conditions are not known.

Nevertheless a very significant change is taking place. Already both in Europe and in this country explicit and practical recognition has been given the principle that purposive modification of social conditions should be made in part at least with respect to the effect of such modifications on the birth rates of different classes in the population. The beginning has been made. The question now is, to what extent can the principle be pushed wisely?

In the United States the explicit recognition referred to consists in the attempt of various commonwealths to prevent the marriage of persons having certain hereditary maladies

[1] *Cf.* David S. Jordan, *The Blood of the Nation.*

and in the custodial care of the feeble-minded. Further, recognition is, of course, implicit in the total exclusion of certain classes of immigrants. At the present time the practical results of these measures is perhaps relatively small. Nevertheless it is something to find increasing interest in legislation affecting marriages between epileptics and feeble-minded persons and in custodial care. In 1903 Dr. J. C. Carson of the Syracuse State Institution for feeble-minded children was able to report that during the year legislation affecting these classes was had in no less than twelve commonwealths of the Union and that seven governors of states had called official attention to their needs. Since 1900 four states have either raised the age limit for receiving inmates into custodial asylums or have increased the legal means of forcible detention in such institutions. Within the same period also three states have prohibited marriages between feeble-minded and epileptic persons. One state even makes it a felony to abet such a marriage. Measures making medical examinations prerequisite to obtaining marriage licenses have been introduced lately in many legislatures. In one instance at least the proposition met with sufficient favor to cause its passage in a state senate. Thirty-two states have prescribed minimum ages at which minors are capable of marrying. The "age of consent" is slowly rising.[1]

As to custodial care it must indeed be admitted that provision is small. The census of 1890 showed a total of 95,571 idiotic and feeble-minded persons in the United States. Of these 42,805 were classed as congenital cases.[2] It is certain that this number does not include nearly all.

[1] Data on legislation are from *New York State Library Bulletins on Legislation*, 1900-1905.

[2] Report on *Insane, Feeble-minded, Deaf and Dumb, and Blind*, p. 308.

Of the whole number but 5,254 were in special institutions for feeble-minded.[1] In 1893 the total number of such institutions was 19 and their combined capacity 6164.[2] The census of 1900 did not attempt to discover the number of feeble-minded outside of institutions. The total of those under custodial care in public and private asylums in 1903 was found to be 14,347 and the number of institutions had risen to 42.[3]

But despite this relatively slow development of institutions based distinctly on the idea of lowering the birth rate of classes having hereditary defects, there is in fact a considerable amount of actual segregation in this country. This is brought about as an incidental result of caring for helpless and irresponsible persons and protecting society from dangerous ones. Of the 100,485 insane enumerated in the United States Census of 1890[4] over 74,000 were in institutions.[5] Few of these, perhaps, have been received for purely custodial reasons. The tendency to discard the name asylum and substitute that of hospital reflects interest in the possible cure of the individual rather than in the idea of segregation. The total enumerated number of insane may be too small, as is the case with the feeble-minded, but, in any event, the proportion of those under restraint is far greater. It is true that insanity is not always of the congenital type. On the other hand many hold its appearance in every case to be evidence of an hereditary predisposition to it.

[1] *Report on Insane, Feeble-minded, Deaf and Dumb, and Blind*, p. 299.

[2] Amos Warner, *American Charities*, p. 278.

[3] John Koren, *Special Census-Bureau Report on the Insane and Feeble-minded* (1904), pp. 206-7.

[4] *Report on Insane, Feeble-minded, Deaf and Dumb, and Blind*, p. 158.

[5] *Ibid.*, p. 208.

Institutional care of the deaf and dumb has sometimes been opposed on the ground that it tends to produce a deaf variety of the human race by promoting marriages among them.[1] The total number of congenitally deaf over fifteen years of age in the United States was given as 11,913 in 1890 and but few of these were in institutions. Segregation among this class is therefore relatively small. It is significant, however, that the problem in relation to them has begun to elicit careful study.[2]

Punishment of criminals has also a segregational aspect of importance. The number of persons serving term sentences in the United States in 1890 was 63,653, of whom over 45,000 had been sentenced to from one to twenty years. Examination of the age classifications of prisoners shows that more than half begin their terms before they are thirty years of age—much the largest number, by five-year periods, being between the ages of twenty and twenty-five. By sex, of course, males greatly predominate but from the point of view of selection whatever difference this fact may have, probably enhances the effectiveness of the segregation. Doubtless the Italian criminologists have over-emphasized the possibility of recognizing the instinctive criminal by physical stigmata. On the other hand, whether or not there is such a thing as an hereditary predisposition to commit anti-social acts when the opportunity offers, few will deny that the prisons do contain a larger proportion of persons whose innate traits are abnormal than occurs in the general population. Only careful statistical work can establish this fact and give it quantitative exactness but to the extent it is found true, to that extent is imprisonment-segregation of importance.

[1] Alexander Graham Bell, *Memoir upon the Formation of a Deaf Variety of the Human Race.*

[2] *Cf.* Edward A. Fay, *Marriages of the Deaf in America.*

The general increase in conscious control of migration has already been considered with respect to its retarding effect on mixture of stocks. From the point of view of a sub-group this retardation may, of course, produce selective results. General Walker maintained that European immigration into the United States increased population not a whit but simply caused the non-existence of an equal number of native born.[1] The total exclusion of the Chinese has likewise been selective. But the chief selective effect of control over immigration is evidenced in the discrimination displayed among individual applicants for admission to this country. The statutes of the United States at present in force provide for the exclusion of the following classes other than Chinese (1) convicts, except those guilty of political offenses, (2) women imported for immoral purposes,[2] (3) lunatics, (4) idiots, (5) persons unable to care for themselves without becoming public charges,[3] (6) contract laborers,[4] (7) paupers, (8) persons suffering from loathsome or dangerous contagious diseases, (9) polygamists, (10) "assisted" immigrants (i. e. those whose passage has been paid for by others unless they show affirmatively that they are otherwise admissible),[5] (11) epileptics, (12) persons who have been insane within five years previous, (13) professional beggars, (14) anarchists, (15) persons attempting to bring in women for purposes of prostitution, (16) persons deported within a year previous as contract laborers.[6] Enforcement of exclusion in the case

[1] "Immigration and Degeneration," *Forum*, vol. ii, p. 642 *et seq.*

[2] Act of March 3, 1875, ch. 141.

[3] Act of Aug. 3, 1882, ch. 376.

[4] Act of Feb. 26, 1885, ch. 164.

[5] Act of March 3, 1891, ch. 551.

[6] Act of March 3, 1903, ch. 1012.

of classes 3, 4, 11 and 12 is certainly selective; it may well be so in the case of all others except that of contract laborers. Doubtless the inhibiting effect of these provisions is considerable and the ideal state would of course be reached if deportation under these statutes were never necessary. The number of persons debarred, however, has reached a large figure. In 1905 it was 11,480 out of 1,026,499 arrivals, or 1 in 89+.[1] But more than 9,000 of these were in classes 5 and 6 and the selective value of the greater part of the rejections is very indefinite.

It is plain, then, that social limitations on the biological process not only exist but are becoming the means of purposive control of population. How far this control may advantageously be extended in the future is a matter requiring careful inquiry. For example, what is known of the real birth rate of those pitiable creatures who resort to almshouses only long enough to recuperate after a debauch? How far are our public institutions a menace rather than a safeguard simply because they help maintain instead of segregate the abnormal? What is known of the typical descendants of different classes of immigrants in the second and third generations?

These are but elementary questions suggested by existing treatment of abnormal classes and of immigrants. Of still more importance are the indirect effects upon the quality of population produced by the interference of government in economic relations. To what extent, for instance, has the tariff, by encouraging certain industries created a demand for certain classes of labor that otherwise would not have existed? What effect has the tariff had on sweat-shop conditions in New York City or upon the "Slav invasion" of Pennsylvania? How far is expenditure for

[1] *Report of the Commissioner-General of Immigration*, 1905, p. 10.

irrigation in the West preventing the emigration of valuable citizens into the wheat region of Canada? Can added justification for tenement-house legislation be found in the fact that an enforced higher standard of living reduces the birth rate of that portion of the population which is affected? Are not higher rents produced by such legislation socially advantageous? In what respect does child labor legislation or restriction of factory work by women affect birth and death rates? What is the selective result?

A rich claim is here staked out. It awaits methodical development.

CHAPTER VII

Summary and Application

Notwithstanding the statement of the problem in general terms this essay on Social Democracy and Population has been shaped perhaps too obviously with reference to conditions in the United States. The definition of social democracy is that which is beginning to become a national ideal in this country. The instances given of social control over the biological process have reflected problems in the main as they present themselves here. It is true that disproof of the thesis that degeneration necessarily follows a cessation of the cruder forms of the selective process is of more than local interest. The modes also by which selection acts are not limited to any one group of people. Nevertheless these questions were included merely because of their necessary bearing on the practical question, is the maintenance of social democracy in the United States an ideal within a reasonable possibility of attainment? If so, under what conditions?

The argument as developed has led to the following result. Social democracy defined as "that form of society, no matter what its political classification, in which every man has a chance and knows that he has it," is becoming a social ideal for practical effort in the United States. The possibility of its attainment in reasonable measure can be judged only by an examination of the conditions under which the specific attempts to realize that ideal are made. Omitting detailed examination of the problem of economic

distribution, political organization and the effects of an educational system, attention has been concentrated on biological factors that affect social democracy. The assumption has been made that social democracy, in the sense defined, can exist only where the plane of living is relatively high. It has been argued that the plane of living is a function of two variables, rate of increase in population and rate of progress in the arts. Among some peoples the response of population-growth to progress in the arts is too rapid for attainment of a high plane of living. Among others it is not. Permanent social stability has been taken as a requisite for the working out of a social democracy. It has been held that relative stability attained in the past among various peoples has been due to their ability to defend themselves against their equals in culture either by their numbers or by advantages of geographical situation. Advancing control over nature has not merely increased population, but, by improving the means which render the progress of imitation rapid has made possible the development of social solidarity over wider and wider areas. Permanent geographic barriers between peoples are now high mountain-ranges, deserts and oceans.

A high level of native ability in the populace has been postulated as necessary for maintenance of social democracy. It has been argued that the claims of those who emphasize the importance of selection must be examined with respect to their bearing on this point. It has been shown that the processes which tend to eliminate certain stocks and substitute others may proceed with great rapidity. In many of their modes they have been found to operate without any such struggle or such elimination by starvation as some have deemed inevitable. If this and other of the more brutal modes come under social control and cease to operate, it has been shown that biology, as a matter of fact, does not

warrant the assertion that degeneration will result. It has been maintained that great differences in native ability among races and peoples have not yet been proven but that the evidence of great hereditary differences among individuals both in ability and in temperament—itself a factor in moral differences—is amply sufficient to warrant conscious social interference in the biological process. Various existing social limitations on the biological process have been considered. It has been shown that the desirability of exercising a certain amount of social control over population has already received practical recognition and the question has been raised whether the application of this principle cannot wisely be extended for the purpose of maintaining the level of natural ability in the population.

It remains to apply these results to the United States. The question is, can the United States meet the conditions necessary for the attainment and maintenance of social democracy as defined in this essay? Can it permanently maintain its present high plane of comfort, its social stability and its high level of native ability and thus have opportunity to work out the problem of economic distribution and other minor questions involved in the final attainment of its ideal of social democracy?

The purpose of the few following pages will be to show that it can if man and not wealth becomes the real aim of the people. That, as far as continental United States is concerned, the conditions of social stability are already met, needs little more than statement. Within the nation such natural barriers as exist have been overcome by modern methods of communication and transportation. No bar exists to free interchange of thought and experience. The centralization of governmental administration and the consolidation of the railroads and other interests are but the most prominent of innumerable evidences that sectional

issues based on geographical differences are never again to produce civil war. The external conditions are likewise favorable. So far as relates to continental United States the fear of more than temporary invasion as a result of armed attack is negligible. A narrow strait protected England for centuries. Oceans protect us now. Because of this and the great area of the country it is inconceivable that natural resources here will ever be insufficient to support a population capable of maintaining the integrity of the nation. From European nations there is evidently no possible ground for fear and on the Western coast not the combined strength of Russia, China and Japan, however developed by science and growth of population, can do more than harry the coast. Canada has too many interests in common to be anything but friendly under all circumstances.

If these assertions have substantial validity it follows that rapid increase of population in the United States for the sake of mere numbers is unnecessary. The recent decline in the birth rate if unaccompanied by undesirable qualitative changes can only be favorable to the maintenance of that high plane of living which is essential for social democracy. This decline may indeed render the exploitation of resources less rapid and the gain of capital smaller, but it will also render the readjustment of socially undesirable inequalities more feasible. It is perfectly true that the development of foreign trade might prove a substitute for free land in sustaining a rate of population-growth more rapid than that now occurring, without lowering the present plane of living. The signs are not few that this country is already discovering that the exploitation of undeveloped foreign lands or peoples is the next most profitable field of effort. But if it desires social democracy this country will do well to ponder long before it enters too

deeply upon the development of certain phases of foreign trade. By mistaken development of certain lines of foreign trade, social democracy in this country gives a hostage to fortune. Witness the position of England, a threat to whose continued commercial supremacy produced hysteria not long ago and whose navy is a continual reminder that foreign commerce is a form of competition which requires the big stick. All competitors cannot succeed when all are in need of the same market. Why develop a population to any great extent dependent upon foreign trade that may eventually be taken by a competitor whose plane of living is low enough to produce more cheaply than can be done by this country at the present level of wages? Why not take into account the fact that imitation of methods of control over nature proceeds faster than change of customs affecting the birth rate? England suffered from the cotton famine. Why in a somewhat different manner repeat her experience on a gigantic scale? Why gain a market only to lose it? Is it that we may become a creditor nation? Is it to obtain wealth rapidly, make foreign investments and become a democracy like that of Greece founded upon slavery? Do we want democracy founded upon the privilege of exploiting less intelligent peoples? A white man's burden that would indeed be—but the burden would rest on another's shoulders! Nor would it last indefinitely.

No! Let foreign commerce develop only along such lines as naturally result from advantages in situation or other permanent physical differentials. Let it not grow along lines that will eventually be controlled by peoples where "labor is cheap"—where men are slaves in fact if not in name. We are great enough to be self-sufficient economically. Why develop mere numbers?

If we do, what will result? Is it absurd to picture low-standard countries forcing an entrance for their surplus

population into this country by means of their grip on a foreign trade which they control and upon which to a large extent we shall have become dependent? Is it absurd in view of the group struggle considered in a previous chapter, to picture the China of the future, developed into an important and established market of this country, attempting to force entrance for her surplus population into the United States by means of a far more effective boycott than that recently invoked? The experience of California prior to 1885 showed that the Chinaman is capable of undercutting the American and forcing him out. There is no reason for supposing that a reorganized China would not avail herself of this advantage to gain a foothold for her own people in this continent were she seized with the occidental desire for expansion. There are no means of knowing that under such circumstances the loss inflicted on China herself would not be cheerfully borne for the sake of future gain nor that interests affected by threatened industries in this country would not compel opening the door to the Coolie.

Whether such speculation contains truth or not, however, the opportunity geographical relations have conferred on this country cannot be gainsaid. It is under no necessity of developing commerce for self-preservation. Certainly to develop it by cheap production at the cost of a lowered standard of living would be unwise. In any event a lessened rate of population increase in this country so far as it may aid in the struggle for social democracy is evidently safe.

In the early part of the last century this was not true. European nations were eager to extend their colonial empire in America. Power was the requisite. For support of the Monroe doctrine the essential was power. For control of the West and the expansion of the country to its natural defense boundaries the essential was power.

Not strange is it, then, that "the brotherhood of man," a dogma derived from religion and political theory, determined the choice of the nation's blood. Quantity was the necessity. This desire for quantity still persists among our business men. In 1864 so eminent a body as the special committee of investigation of the Union League Club of New York City incidentally referred to "the idea that has occasionally prevailed among our skilled laborers, that either special or general emigration (sic) is likely to interfere with the wages or interests of those already here," but dismissed the subject with the remark that this idea "is one which, however natural it may seem, is contradicted by the vastness of our country and the magnitude of its needs." [1] Last year the attitude of the business men assembled at the Immigration Conference of the Civic Federation seemed an echo of this refrain. Cheap labor is the capitalist's demand. But cheap labor means cheap men. Will the country forego an increased gross wealth and accept increased per capita wealth for a smaller number of better men? Will it protect its laborers from the competition of foreign labor not by tariff on their products but by preventing the entrance of those who will depress the plane of living? Will it extend the principle on the basis of which it has already excluded the Coolie? Will it make the sacrifice of substituting labor-saving machinery even when it could produce more cheaply by obtaining cheap labor? Will it consciously deal with the question of population by means of the social limitations within its control? Will it for the sake of geographical unity and the avoidance of international complications give up the Philippines? To gain time for the gradual

[1] Union League Club of New York, *Report of Special Committee on Emigration* [sic], May 12, 1864, p. 17.

reduction of the rate of population increase will it maintain the Monroe doctrine with a view to sending whatever future surplus population may arise in this country into South America, there in turn to develop American ideals of social democracy in the safety of a second geographical area? Above all, will it do these things before the increase in its own population makes necessary *nolens volens* an entrance into the world struggle for foreign markets in competition with peoples of a lower plane of living? Finally will it discover and utilize all possible means to control the biological process for the purpose of maintaining the quality of the population?

Upon the answer may depend the possibility of approximately realizing the ideals of social democracy in this country.

ADDENDUM.

P. 50, line 29. After "B's" insert reference "2."

P. 68, table. The figures of this table are taken directly from Closson. The totals, 101.1 per cent., 100.6 per cent., and 100.9 per cent., are evidently due to cumulative error in abbreviating decimals. Reference 3 should read *Gesellschaftsordnung*, pp. 83 and 86.

P. 69, lines 22–3. Reference should here be made to pp. 42 and 43 of the text, where responsibility for the assertion that "unless man multiplies beyond the limits for which the average conditions of life comfortably provide, a process of steady degeneration will result," is specifically attributed to Mr. Kidd. As should be clear from previous argument in the text on this point, the first statement in the summary does not imply that biologists in general hold this to be true.