SOCIALISM AND NATURAL SELECTION

What a foolish idea seems to prevail . . . on the connection between Socialism and Evolution through Natural Selection. —CHARLES DARWIN.

Evolution is the most striking feature of modern scientific thought, hence all that terms itself evolution must be scientific. Such seems to be the logic of the average reviewer, and, we regret to say it, of some men of science who ought to know better. The fact is, that the word evolution has been so terribly abused, first by biologists, then by pseudo-scientists, and lastly by the public, that it has become a cant term to cover any muddle-headed reasoning, which would utterly fail to justify itself had it condescended to apply the rule of three. A variety of ill-described and ill-appreciated factors of change have all been classed together and entitled the "theory" of evolution; they have been hailed as the expressions of great biological truths, and by taking a little of one factor and neglecting a great deal of another, any result might be deduced from the theory which pleased the taste of the user. Thus the door was opened for that loose, merely descriptive, and semi-metaphysical reasoning, which places a good deal
of the biological writing of the past ten years on the footing of the medieeval writers on physics. The progression in the downward course from hard facts to complete metaphysics is well marked in the writings of August Weismann, starting with his fairly sane essay on the _Duration of Life_, and ending in the arithmetico-metaphysical muddle of his theory of amphimixis. Unfortunately a certain section of English biologists have followed him, and "panmixia" and "germ-plasm," ill-defined even in their writings, have now reached the social platform, and are being used as absolutely unassailable arguments against the socialistic movement.

The reader may well ask what right a socialist has to express any judgment whatever on delicate biological problems. The answer is simply this, the questions to be answered are in reality _mathematical_ problems, and a slight acquaintance with the rule of three and the theory of statistics is sufficient to dispel all the metaphysics of amphimixis and much of the puzzle-headedness of panmixia. We are not speaking without evidence; a moderate acquaintance with Colenso would have prevented many of the letters from distinguished biologists on the subject of panmixia which have appeared in the pages of _Nature_ from ever being indited. The reaction has not come too soon; the movement started by Mr. Francis Galton, and ably developed by Professor Weldon and others, must end in the theory of evolution becoming a branch of quantitative science; the loose qualitative or descriptive reasoning of the older biologists must give way to an accurate mathematico-statistical logic. The trained biologist may discover and
tabulate facts, much as the physicist does to-day, but it will need the trained mathematician to reason upon them. The great biologist of the future will be like the great physicist of to-day, a mathematician trained and bred. Here, then, is the justification for a mathematician, however limited his range, interfering when he observes biological principles, first stated without any quantitative theory or statistical basis, and then adopted as valid arguments in dealing with the great social problems of our time.

While at the sources of knowledge vague descriptive reasoning is being succeeded by a more just quantitative theory of evolution, the innumerable conduit pipes represented by popular writers and the press are still providing the public with a fluid so contaminated with the germs of muddle-headedness that it is little wonder if whole classes of the community are poisoned. I venture accordingly to make the following definite statement:—That until the quantitative importance and numerical relationship of the various factors, vaguely grouped together as the theory of evolution, are accurately ascertained, no valid argument can be based on the theory of evolution with regard to the growth of civilised human societies. We must remain agnostic as to these problems until the theory of evolution has been readjusted on its new basis. Any theory of social evolution which professedly grounds itself on merely descriptive biological truths is built on a quagmire, and might be safely disregarded, did not the perversion of the popular taste by our long consumption of the above-mentioned contaminated fluids
lead us too often to declare that a most perturbed liquid is a crystal draught of truth. In particular, a recent work on social evolution,¹ which teems with paralogisms and paradoxes, has been hailed as a work likely to have “wide political as well as social effects,” and which competent judges will pronounce “to be one of the greatest books we have had since Darwin’s Origin of Species.” It is further “one of the most suggestive and inspiring books which have ever dealt with the problems of the imminent future”; it is “novel in conception,” “fertile in suggestion”; the author, challenging attention by his wide “range of illustration,” and “lucid and forcible” manner, “supports every proposition with a mass of evidence,” and his book “marks a turning-point in the social controversy which is raging all around us.”

It may be said that this is only the opinion of ephemeral newspaper reviews, and that although the newspapers, from Times to Daily Chronicle, are unanimous in praise, this is not the opinion of science with regard to Mr. Kidd’s theories. Now this is precisely the point at which real danger arises. Because Mr. Kidd uses the current jargon of evolution, he is hailed as an exponent of scientific truth, even by the doyen of evolutionary science. If Mr. Alfred Russel Wallace, in a journal which professes to be the organ of scientific thought in England, can describe Mr. Kidd’s work as “thoroughly scientific in its methods,

¹ Social Evolution. By Benjamin Kidd. Macmillan. “If you ask me to describe ‘Social Evolution’ in a word, I should say that it is an endeavour to give a biological basis to our social science.” Mr. Kidd to a Daily Chronicle interviewer, 20th June 1894.
inasmuch as it is based on the theory of evolution," what wonder is it that the literary journals describe Social Evolution as an application of "the most recent doctrines of science to modern society and life," and as "only an application of the laws of evolution enounced in the Origin of Species"? Let us be quite clear about the point. If Mr. Kidd's theory be a correct one, then the modern socialistic movement is completely futile; it is opposed to fundamental biological truths, and we had better at once confess the error of our ways and allow the biologists a predominant voice in social legislation. That socialism is opposed to the cosmic order is not, however, an original discovery of Mr. Kidd's, we shall find it proclaimed years ago by biologists and philosophers, but no one has yet put socialism and natural selection in such glaring opposition as he has done, and from this standpoint at least his work is of value. It enables us to put our finger the more easily on the fallacies which underlie the biological arguments against socialism.

In the first place, let us give Mr. Kidd all the support we can from authority. Professor Haeckel, in his well-known Freie Wissenschaft und freie Lehre, writes as follows:—

The theory of descent proclaims more clearly than any other scientific theory that that equality of individuals which socialism strives after is an impossibility, that it stands, in fact, in irreconcilable contradiction to the inevitable inequality of individuals which actually subsists.

And again:—

Darwinism is anything but socialistic. If a definite political
tendency be attributed to this English theory—which is, indeed, possible—this tendency can only be aristocratic, certainly not democratic, least of all socialistic. The theory of selection teaches us that in human life, exactly as in animal and plant life, at each place and time only a small privileged minority can continue to exist and flourish; the great mass must starve, and more or less prematurely perish in misery. Innumerable are the germs of every form of animal and plant life and the young individuals which spring from these germs. The number of fortunate individuals, on the other hand, who develop to their full age, and actually attain their goal in life, is out of all proportion small. The cruel and relentless struggle for existence which rages throughout all living Nature, and in accordance with Nature must rage, this ceaseless and pitiless competition of all living things, is an undeniable fact; only the select minority of the privileged fit is in a position to successfully survive this competition, the great majority of competitors must meanwhile of necessity perish miserably! We may deeply mourn this tragic fact, but we cannot deny or alter it. "Many are called but few are chosen!" This selection, this picking out of the chosen, is necessarily combined with the languishing and perishing of the remaining majority. Another English investigator even denotes the kernel of Darwinism as "the survival of the fittest," "the triumph of the best." Obviously the principle of selection is anything but democratic; it is aristocratic in the precise sense of the word.

Professor Haeckel here states the biological dogma even more strongly and crudely than Mr. Kidd. If his words are to mean anything, they must indicate that the pitiless competition between individuals crushes out several human beings for every one that survives. It is needless to say that he appeals to no statistics, although the mortality tables were at hand to confirm or refute his views, had he taken the trouble to examine them.

Yet another German biologist, Professor Oscar Schmidt of Strasburg, writes:
If the socialists would think clearly they would feel that they must do all they can to choke the doctrine of descent, for it declares with express distinctness that socialistic ideas are impracticable.

Coming nearer home, we may remark that the basis of Mr. Herbert Spencer's essay on *The Sins of Legislators* is the assumption that no society can progress in which the ill-endowed do not get killed off in competition with the well-endowed; the "beneficent working of the survival of the fittest" has been so impressed upon modern people that they might be expected to hesitate before neutralising its action.

A society will be unable to hold its own in the struggle with other societies if it disadvantage its superior units that it may advantage its inferior units.

Mr. Spencer is clearly referring to the struggle for existence between individuals of the same community, otherwise his remarks lose all their point. He gives no statistics, and does not explain how A, B, C, and D will be in a better condition to survive in the struggle with an adjacent group E, F, G, and H, if A and B, being the well-endowed, have first killed off C and D, or reduced them according to their lesser merits to a state of "abject misery." "Placed in competition with members of its own species, and in antagonism with members of other species, the adult dwindles and gets killed off, or thrives and propagates, according as it is ill-endowed or well-endowed. Manifestly an opposite régime, could it be maintained, would, in course of time, be fatal to the species."
This is Mr. Herbert Spencer's receipt for an efficient society—the struggle for existence between individuals, the "cosmic process" of Professor Huxley, maintained in order to clear off the ill-endowed, and the less-endowed as well, be it noted.  

Professor Huxley, in his *Evolution and Ethics*, refers, if I understand him rightly, especially to the struggle of individual with individual by his "cosmic process." He sets it against the ethical process, and indicates that the process of civilised as distinct from savage man has largely depended on the suspension of the individual struggle. Why the effect of the struggle of social group against social group, which has led to more and more organisation—suppression of anarchic competition—within the group, should be contrasted as an ethical process against the cosmic process I fail to understand. The development of social instinct and the intensification of the altruistic spirit in the higher types of gregarious animals would appear to be just as much a product of the cosmic process as the evolution of the maternal instinct in the tigress. Indeed, Professor Huxley himself seems to think so, but only in a note appended to his lecture. Yet the note is hardly consistent with such phrases as—

The history of civilisation details the steps by which men have succeeded in building up an artificial world within the cosmos. . . . Social progress means a checking of the cosmic process at every step, and the substitution for it of another, which may be called the ethical process.

1 Pushed to the extreme—and Mr. Spencer's arguments deserve it—a Newton, a Kepler, and a Copernicus should compete to the effacement of two of them, that the world might be populated by the progeny of the best of the three.
Professor Huxley, with far greater insight, indeed, than Haeckel or Spencer, does recognise that social progress has depended on an organisation of society checking very largely the individual struggle for existence within the group. He does not, like the writers to whom we have referred, suggest that the checking of this intra-group struggle must lead to social degeneration, but he does speak of it exactly in the same way as something opposed to the process of cosmic evolution, to the "natural order."

On the contrary, the natural order tends to the maintenance, in one shape or another, of the war of each against all, the result of which is not the survival of the morally or even physically highest, but of that form of humanity, the mortality of which is least under the conditions. The pressure of a constant increase of population upon the means of support must keep up the struggle for existence, whatever form of social organisation may be adopted (Essays, vol. i. p. 427).

If it were not for the use of the words "the war of each against all," there would be nothing in this passage to which a socialist could take exception; the struggle for existence might mean the struggle against physical nature, against disease, of group with group, or of superior with inferior race. No thoughtful socialist, so far as I am aware, would object to cultivate Uganda at the expense of its present occupiers if Lancashire were starving. Only he would have this done directly and consciously, and not by way of missionaries and exploiting companies. To a socialist the checking of the intra-group competition is not an ideal of the future; he believes it to be identical with the history of social growth, and that what intra-group struggle goes on
now is scarcely for existence, but for varying degrees of comfort and luxury. He no more believes the limitation of that struggle opposed to the "natural order" than the development of the earliest forms of social instinct among gregarious animals, or indeed of the maternal instinct itself.

But Professor Huxley, if re-recognising what Haeckel and Spencer have not, namely, that social progress was in the past, quite as much as it is in the present, inconsistent with the struggle between individuals in the group, still supposes that the socialists of to-day have set themselves an impossible task:—

The only true contradictory of Individualism is that more common kind of Socialism which proposes to use the power of the State in order, as the phrase goes, to "organise" society or some part of it. That is to say, this "regimental" Socialism proposes to interfere with the freedom of the individual to whatever extent the sovereign may dictate, for the purpose of more or less completely neutralising the effects of the innate inequalities of men. It is militarism in a new shape, requiring the implicit obedience of the individual to a governmental commander-in-chief, whose business it is to wage war against natural inequality, and to set artificial equality in its place (Essays, vol. i. p. 393).

To "wage war against natural inequality" is clearly a reductio ad absurdum of the socialist doctrine. So far as I understand the views of the more active socialists of to-day, they fully re-recognise that the better posts, the more lucrative and comfortable berths, must always go to the more efficient and more productive workers, and that it is for the welfare of society that it should be so. Socialists, however, propose to limit within healthy bounds the rewards of natural superiority
and the advantages of artificial inequality. The victory of the more capable, or the more fortunate, must not involve such a defeat of the less capable, or the less fortunate, that social stability is endangered by the misery produced. At the present time a failure of the harvest in Russia and America simultaneously, or a war with a first-class European power, would probably break up our social system altogether. We should be crushed in the extra-group struggle for existence, because we have given too much play to intra-group competition, because we have proceeded on the assumption that it is better to have a few prize cattle among innumerable lean kine than a decently-bred and properly-fed herd with no expectations at Smithfield.

All the above authorities—and very weighty authorities they are—seem to me to look upon socialism as either opposed to the law of natural selection, or as at best setting up an artificial equality in place of a "natural order." Their parable has been taken up and completed by Mr. Kidd with a definiteness and vigour which leaves nothing to be desired from the standpoint of controversy.

Even at the cost of reiteration, let us endeavour to see the magnitude of the problem we are discussing. We have an apparent contradiction between the conclusions of science and the present socialistic trend of both legislation and ethical teaching. The contradiction can be removed only by asserting that there is no socialistic trend, as Mr. Kidd does; or by admitting that our society is decadent and the British race degenerating, which seems to be the opinion of Mr. Spencer; or,
finally, by proving that the "biological truths" on which the contradiction is founded are no truths at all, merely misapplications of ill-defined terms; this is the firm conviction of the present writer. The two sides of the contradiction may be summed up as follows:—

On the one hand, socialist writers have time after time insisted that one of the main objects of socialism — by which we are to understand the State ownership of land and capital, and the State control of labour — is to lessen the intensity of intra-group competition; they propose in this manner to reduce the waste of competitive production, and so render the productive basis of society more efficient. In addition, the further lessening of intra-group competition will, in the opinion of socialists, tend to strengthen society against extra-group stress by knitting society more firmly together and spreading the staying powers of the community, as measured by its capital and intellectual traditions, more uniformly over the whole body.

On the other hand, biologists of more or less authority assert that the progress of any group depends on the highest state of rivalry between individuals of the group. This struggle of individual with individual has been spoken of as a natural law ruling all life, and by aid of a mysterious and novel principle termed *panmixia*, added by Weismann to the Darwinian theory, it is said to follow, not only that progress is impossible without natural selection, but that without natural selection degeneration must set in as certainly as death follows life. Either, then, recent social evolution has been misinterpreted, it does not tend to that limitation
of the effects of individual competition, which for Karl Marx and for most socialists is the essence of socialism, or else we are rapidly degenerating, and the worst fears of the old school of economists and of the laissez faire politicians will inevitably be realised.

It is the first alternative which Mr. Kidd propounds in his *Social Evolution*. His book, by its frank acceptance of apparently proven scientific conclusions, by its clever disguise of paralogisms, by its general tone of indisputable certainty, and last, but not least, by the weapons it puts into the hands of controversial theology, is likely to have an influence far wider than it really merits. It is above all important that it should be met and refuted from the socialistic standpoint.

Mr. Kidd’s position, briefly stated, appears to be the following:—He frankly accepts, without the least qualification or the least criticism, as an acknowledged biological truth, that the intra-group struggle for existence is the *sine quâ non* of social progress. All progress from the beginning of life has been the result of the most strenuous and imperative conditions of rivalry and selection (p. 193); without this struggle positive degeneration must set in by the principle of panmixia. The inherent tendency of modern social evolution is not towards socialism, but towards an equality of social opportunity, which, following on an equality of political rights—the product of the older Liberalism,—will bring all the people into the rivalry of life on a footing of equality (p. 314). This is the last and greatest phase of social development; the rivalry and competition of life are not to be suspended, but are to be raised to the
highest degree of efficiency they have ever reached; their scope is to be extended, they are to be made still more strenuous, the stress severer, the pace quicker (pp. 53-55). The higher the form of civilisation, the sterner will be the conflict.

Now, as Mr. Kidd fully accepts as an inevitable natural law the struggle for existence between individuals, it follows that this increased rivalry and competition which is to follow from increased equality of opportunity, must result either in the absolute destruction of the defeated or in the greater power of the victorious to reproduce themselves. So far as statistics go there appears to be no marked correlation between reproductivity and success in life. Hence assuming "equality of social opportunity" to connote equal freedom\(^1\) for all men to marry and reproduce themselves, it would seem that Mr. Kidd trusts to starvation to weaken, defeat to maim, or death to absolutely remove the unsuccessful in the still severer individualistic competition which, according to him, is to be the chief factor of the more efficient society of the future. If progress arises from promulgation by inheritance combined with selection and rejection due to the ceaseless struggle between individuals (p. 38), it must connote the extinction of less efficient forms. Now you cannot drive a man out of existence nor check his keen instinct of reproduction without inflicting in the process great pain and misery. This price we suppose Mr. Kidd, like Mr. Spencer, is quite prepared to pay for the great social

\(^1\) i.e. no State-regulation of marriage of a socialistic kind, no legislation against the parentage of the unfit.
boon of progress, the "beneficent working of the struggle for existence." Mr. Kidd asserts, however, that if all men were rationalists they would not pay this price. Regardless of the increasing fitness of the innumerable generations to come, they would sacrifice the future to the present. Hence for Mr. Kidd, reason is an extremely anti-social and anti-evolutionary force. To check the anti-progressive character of the reason, the anti-social tendency of the intellect, Mr. Kidd believes that religion, which essentially involves an ultra-rational sanction for moral conduct, has been evolved. Thus religion has appeared to prevent man stopping the pain and misery which is assumed to be a necessary accompaniment of the "beneficent working of the struggle for existence"!

Self-assertiveness of the individual must be absolutely subordinated to the maintenance of a process in which the individual himself has not the slightest interest, but to the furtherance of which his personal welfare must be often sacrificed. Hence the central feature of human history, namely, the dominance of that progressively developing class of phenomena included under the head of religions, whereby this subordination has been effected (p. 194).

Now so much of this view of religions as is contained in the statement that they have been developed,

1 It is needless to say that we should be prepared to pay it also, if social progress did not seem to us identical with the reduction and not the increase of intra-group struggle.

2 It does not seem to have struck Mr. Kidd that under extra-group competition the social instinct may ultimately have become so developed that the discomfort produced by disregarding it is rational ground for obeying it. A tigress of a thoughtful turn of mind would hardly need an ultra-rational sanction for her maternal instincts; she might be capable of balancing physiological discomfort, maternal gratification, and the pangs of conscience against the pleasures of one hearty meal.

3 The "cosmic process" and intensification of the rivalry of life.
like other tribal superstitions and folk-beliefs, as a means of strengthening the social feeling at the expense of the individualistic, is undoubtedly sound, and has been long held by many scientific investigators of comparative religion. The tribe that believed in a Walhalla for the heroes killed in battle was clearly likely to be stronger in the fight than one which had not evolved a belief in the hereafter; the inspiring idea of the god fighting for his tribe and the conviction that certain forms of animal life are sacred: that the killing of a cow, for example, was not to be undertaken without tribal sanction of the most solemn kind, can be easily recognised as of social utility.\(^1\) Accordingly, that religion has been evolved, not on account of its reasonableness, but as a sanction for social conduct on the part of the unreasoning, upon whom the fear of future punishments and the hope of future rewards could have an effect, is an opinion in which historical science can for once agree with Mr. Kidd. Whether the theologian will be equally willing to see things from this standpoint is another question.

Now admitting that religions have been evolved on account of their social utility, we may follow our author a stage further and recognise that

all classes of society have become sensitive in a high degree to the sight of suffering or wrong of any kind (p. 300).

Indeed, so sensitive are they, that whole classes of

\(^1\) Had Mr. Kidd studied such a work as Robertson Smith's *Religion of the Semites*, or Mannhardt's *Wald- und Feldkulte*, he would hardly have made the statements he has done with regard to the superficial treatment of religion by scientific investigators.
the community become occasionally hysterical on reading the account of sufferings of which they have not taken the trouble, in the first place, to investigate the truth, nor in the second, if they be true, the possible justice. But if we admit the existence of this fund of altruistic feeling in society at the present, surely it must be tending to lessen that stress of individual competition and that presumed extermination of the unsuccessful upon the existence of which Mr. Kidd's theory of social progress is based? By no means, according to our author. This great fund of altruistic feeling which, gradually saturating our entire social life, has slowly undermined the position of the power-holding classes, and so rendered possible the movement which is tending to ultimately bring all the people into the rivalry of life on conditions of equality (p. 239)
can only, on Mr. Kidd's hypothesis, intensify the suffering by making the struggle more widespread, more strenuous, and more deadly.

If rivalry of life does not bring with it the extinction of the less fit, or check their reproduction, then it is perfectly idle to associate it with the biologists' struggle for existence. If Mr. Kidd uses the term "rivalry of life," and he apparently does, to denote the biological conception of the struggle for existence, then clearly altruistic feeling as developed by religion is supposed by him to have relation only to the struggle of class against class, and not of individual against individual. How far this is in keeping with

1 By justice we understand solely the social utility of a corrective and exemplary punishment for directly or indirectly anti-social conduct.
the wonderfully moving and impressive altruistic ideals which we have in the simple story of the life and acts of the Founder of Christianity (p. 298)

is a question which does not appear to have troubled Mr. Kidd. With him religion seems to be a means of checkmating the reason and altruism to be a dodge for weakening the resistance of the power-holding classes.

Now it hardly needs much width of observation to see that the "great fund of altruistic feeling which is gradually saturating our entire social life" is quite as much opposed to the unlimited triumph of the individually strong in body or mind over the individually weaker, as to the unlimited triumph of one class at the expense of another. While such characteristic features of our age as the trade-union movement, the eight hours' movement, and the movement for the emancipation of women, appear directly to limit the anti-social effects of the triumph of class over class, as well as to lessen the intensity of the struggle of individual with individual, yet the bullying of the weaker by the stronger man, whether it takes a physical or intellectual form, draws just as much on the "fund of altruistic feeling," and calls forth just as stern a public censure nowadays as any oppression of "the power-owning classes."

We are no doubt growing more fully conscious of the social value of power and ability, from whatever class it comes; we are endeavouring to throw the net which shall draw talent into useful social activity over the widest possible area; but, at the same time, we are restricting the power of special ability to crush out the
less competent. We recognise that the advantage of rightly-placed ability may be obtained at a less expense than the abject misery of the less capable, and the consequent instability of the social organisation. No dispassionate observer, we are convinced, can study modern legislation and modern social feeling without seeing, like Mr. Spencer, that they are actually tending to lessen the extreme results of intra-group competition; that is, they are tending in the direction indicated by the socialistic thinkers. The future will be socialistic, the intra-group struggle will be weakened rather than intensified. Mr. Kidd's reading of modern social evolution is utterly wide of the mark. But does it follow that the "biological truths" on which he bases his theory are erroneous? May we not be proceeding towards stages of less social efficiency?—shortly, are we not a decadent race?

The exactly opposite proposition appears to me true, namely, that a limitation of competition within the group is likely to lead to increased social efficiency. Further, it is quite unproven in the case of gregarious animals of any kind, including civilised man, that the rivalry to death of individuals of the same group plays any important part in natural selection.

In the first place, it is open to question whether Mr. Kidd has ever studied his Darwin; in the second place, he can hardly have analysed the mortality tables of any civilised human community; and, in the third place, he has made absolutely no attempt to measure the relative importance of the various factors of natural selection in the evolution of civilised man. Now it must be remem-
bereft that Mr. Spencer and Mr. Kidd are referring to one special factor of natural selection—the competition between individuals of the same group, which leads to the weaker being destroyed or prevented from breeding. It is this intra-group struggle for existence which is the sole basis of their arguments against Socialism. There is no special power in Socialism which can prevent the action of "physical" selection—the struggle of the group against its physical environment, against disease and climate and physical wear and tear. Nor is the struggle of superior with inferior races, especially of civilised with uncivilised man, likely to cease with the socialistic advent; at least, if past history be any guide to the future, we may safely assert that extra-group struggle for the means of subsistence will invariably precede any severe form of the intra-group struggle for life. A nation, whether socialistic or individualistic, if its population reaches the limits of its food supply, will sooner break its bounds and consume its neighbour's, especially if an obviously inferior neighbour is to be found, than gnaw its own vitals. Here, then, are three factors of natural selection—intra-group struggle, physical selection, and extra-group struggle—of which one alone is likely to be effected by socialistic changes. When, therefore, we are told that socialism is impossible because it checks the "cosmic process"—the fundamental condition for progressive evolution—surely it is necessary for the upholders of such a statement to give us some numerical measure of natural selection in civilised man, and, above all, some numerical statement as to the relative importance of the above three factors?
Almost the whole strength of Darwin’s arguments as to the struggle for existence in plant and animal life, is drawn from the conception that we are dealing with a *practically stationary population*. The population has reached the limits of its food supply—“more individuals are born than can possibly survive”; “a grain in the balance will determine which individual shall live and which shall die.” And again: “As the individuals of the same species come in all respects into the closest competition with each other, the struggle will generally be most severe between them.” “Of the many individuals of any species which are periodically born, but a small number can survive. I have called this principle by which each slight variation, if useful, is preserved, by the term Natural Selection.” “A struggle for existence inevitably follows from the high rate at which all organic beings tend to increase,” *i.e.* the increase in geometrical ratio. “Hence, as more individuals are produced than can possibly survive, there must in every case be a struggle for existence, either one individual with another of the same species, or with individuals of distinct species, or with the physical conditions of life.”¹ It is statements such as these which have been applied without the least reservation to the very different problem of the social evolution of civilised man. Professor Haeckel speaks of the “great mass” of mankind “starving and prematurely perishing in misery,” as an inevitable cosmic process reducing all socialistic schemes to absurdity. This is obviously Darwin’s “small number” of the many indi-

¹ *Origin of Species*, pp. 71-78, 552-577, etc.
individuals born who can survive. It is clearly on the basis of such teaching that Mr. Kidd, without any statistics and without any demonstration, asserts, as a great biological truth, that only where rivalry goes on will selection and progress remain unchecked. But have these statements of Darwin any relation to civilised man? Did he himself intend that they should have?

Do the great majority of civilised men starve or perish miserably before they have reproduced their kind? To answer this question we have only to turn to vital statistics. Let us take the mortality table for English males, where, if anywhere, the intra-group struggle should exhibit itself. If we form a curve in which we represent the deaths in each successive year of age of 1000 males born in the same year, this curve may be analysed by mathematical processes (which cannot be discussed here) into five “chance” distributions of death. They are the following:

- Mortality of old age centring about 67, 484 deaths.
- Mortality of middle life . . 41, 173 ”
- Mortality of youth . . 22, 51 ”
- Mortality of childhood . . 6, 46 ”
- Mortality of infancy . . —3 246 ”

Within fairly narrow limits such a distribution of mortality is not peculiar to our own country, nor is it peculiar to the last decade. It is typical of civilised man.

1 The French mortality statistics for both sexes give nearly identical results.
2 See the first paper on The Chances of Death.
3 Almost entirely in the first two years of life; but carrying the curve backward I find an additional “antenatal mortality” of 200 (per 1000 born) in the last three months of pregnancy.
Now this result teaches us many things. If more than 480 male deaths in the 1000 fall into the old age chance distribution, it is idle to speak of the very small number out of those born who are able to survive. Further, it may safely be assumed that a very large proportion of those who fall under the mortality of middle life, centring about 41, have already reproduced themselves. There is no large majority which "dies prematurely" unable to reproduce itself, at most a minority, perhaps 40 in the 100 males, die before reaching an age at which they could many times have reproduced themselves. But how many of these deaths are due to natural selection? In the first place, we can cut off for our present purposes old age mortality, nearly 50 per cent, and at least half the mortality of middle life—which must be selected, if at all, too late to largely affect reproduction. How many of the remainder die from non-selective forms of death? Such, for example, as accident, or fevers, which chance to strike the strong man and miss the weak, or kill both, if not both in the same proportions.¹ Let us say 40 per cent die before practically being able to complete their reproductive activity. We are erring greatly in the opponent's favour if we give 30 per cent of this to a selective death-rate. And of that 30 per cent what proportions shall we attribute to intra-group competition? Clearly but a vanishingly small proportion. The great bulk of deaths which are due to natural selection occur in infancy and childhood. Here it is that physical selec-

¹ Typhoid may kill more weak than strong individuals, but it is only the difference in the number of weak and strong killed which is a differential or selective death-rate.
tion is chiefly at work. About 300 in the 1000, or 30 per cent, are killed off before reaching the age at which the intra-group struggle between individuals may be supposed to commence. The weaklings of all types, and, with some exceptions, of all classes, are thus weeded out by physical selection long before intra-group competition—"the bitter rivalry of individuals"—has commenced, or has had any chance of producing substantial effects.

If it be argued that this rivalry of individuals—the cosmic process which socialism seeks to upset—acts indirectly, not by destroying individuals, nor hindering them from reproducing their kind, but by killing the offspring of the defeated in much larger proportions, then again statistics can be appealed to to settle the matter. The birth-rate of the well-to-do, professional, mercantile, and superior artisan classes, has been for a long time considerably less than the average birth-rate of the community at large. The causes which produce this—late marriages, limitation of the family, or the frequency of promiscuity unaccompanied by parentage—are largely typical of individualistic stages of society. There appears to be no direct relation between success in the rivalry of life and the extent of reproductivity in civilised man. The lower we go in the social scale the greater is the reproductivity. The infant death-rate is indeed much higher, but does not compensate for the great superiority of the birth-rate and of the marriage-rate.¹ The well-to-do classes, those who are presumably successful in the rivalry of life, are perpetually recruited

¹ See the third essay on Reproductive Selection.
from the lower ranks, and if we started a rigid caste system in this country from the present date, the proportion of the "classes" to the "masses" would dwindle more and more with each decade.

Success in the rivalry for life in an *individualistic* community means largely the artificial protection against physical selection of weakly offspring. It is difficult to grasp how socialism will, in this respect, decrease the selective death-rate, be it what it may. It is for those, indeed, who assert that the intra-group struggle is essential for human progress, to point out what percentage of the differential mortality of youth and of early middle life is due to intra-group struggle, and *not to physical selection*, i.e. is due to the struggle for food, where only a "small number" out of the many born can survive. Where in any civilised community is the "great mass of mankind starving and prematurely perishing in misery"? Such expressions can only apply to a stationary population, and Darwin's phrases as to a "grain in the balance will determine which individual shall live," and as to a severe struggle between individuals, have no application to a population increasing by several millions at each decade. Nor did Darwin ever intend that they should be applied; it is only the thoughtless who have caught up these phrases and, in order to push some idle theory of social evolution, use them as bogies for the socialists. Here is what Darwin himself says:—

> With highly civilised nations, continued progress depends in a subordinate degree on natural selection; for such nations do not surplant and exterminate each other as do savage tribes.
And again—

Important as the struggle for existence has been, and still is, yet, as far as the highest part of man's nature is concerned, there are other agencies more important. For the moral qualities are advanced, either directly or indirectly, much more through the effects of habit, the reasoning powers, instruction, religion, etc., than through natural selection; though to this latter agency may be safely attributed the social instincts which afforded the base for the development of the moral sense.¹

It is true that in a few other passages Darwin speaks more doubtfully, but in nearly every case he is speaking generally, without any reference to particular statistics, and his remarks apply with greater force to physical or extra-group selection than to intra-group selection. Thus he emphasises the rate at which man tends to increase (Origin of Species, p. 74, Descent of Man, p. 142), and asserts that natural selection must follow from the resulting struggle, but he does not assert that it is an intra-group struggle. In one passage he does write:

Nevertheless, the more intelligent members within the same community will succeed better in the long run than the inferior, and leave a more numerous progeny, and this is a form of natural selection (Descent of Man, p. 143).

This conclusion seems to me directly opposed to the birth statistics of any individualistic state. But how little weight Darwin himself really put on any automatic action of this kind in a civilised community—for which action he nowhere cites any evidence—is shown by the following paragraph, where he has passed at once from the automatic to the utilitarian conception,

¹ Descent of Man, pp. 143, 618. The definitions of "highest part" and "moral quality" fail.
from a law of nature to a desirable principle of social custom and legislation:—

The advancement of the welfare of mankind is a most intricate problem; all ought to refrain from marriage who cannot avoid abject poverty for their children; for poverty is not only a great evil, but tends to its own increase by recklessness in marriage. On the other hand, as Mr. Galton has remarked, if the prudent avoid marriage, whilst the reckless marry, the inferior members tend to surplant the better members of society.

There should be open competition for all men; and the most able should not be prevented by laws or customs from succeeding best and rearing the largest number of offspring (Descent of Man, p. 618).

It is, however, one thing to insist on the desirability of breeding from the better members of the community, and another to assert that there is actually an automatic principle at work, which causes social progress to depend principally on an intra-group struggle for existence.

Are we then to conclude that natural selection and the population question have no meaning for the socialist? The very contrary is the truth. He asserts that among gregarious animals, in particular civilised man, there is little, if any, evidence of the intra-group struggle for existence playing an important part. He believes that the progress of man has depended in the main on the minimising of this particular factor of natural selection, in order to emphasise the action of another factor—extra-group selection. He admits to the full the continuous action of physical selection at the present day, and does not see how the influence of this factor will be diminished by increased socialisation of the State; in fact, he conceives that its effects will be
more uniform and widespread than ever before. Less artificial protection for the weaklings will be possible, less chance of their surviving and reproducing their kind if they are called upon to take part in the work of life, and earn by their own, rather than by their ancestors' hands, provision for their offspring and themselves. While the socialist denies that intra-group struggle in civilised communities is ever to the death, he is quite ready to admit that intra-group competition may be of great social value, as putting the right man into the right place, and as a means of obtaining a maximum of efficient social work. On the other hand, he holds that this competition can be carried on at too great a price; it may render the group unstable by the overwhelming advantages it gives to individuals; it becomes disastrous the moment it approaches a struggle, not for comparative degrees of comfort within a limited range, but for absolute existence. The socialist feels that in proposing to regulate this competition, he is not flying in the face of biological laws and cosmic processes, but taking part in the further stages of that evolution by which civilised man has been hitherto developed; this is just as much "biological" and "cosmic" as the evolutionary history of ants or bees.

The limitation of intra-group competition is not, therefore, a question for biological specialists, but for practical politicians; it is a utilitarian problem: How far by still further lessening intra-group competition can a community be made more stable, better able to resist extra-group selection?

This extra-group selection is nowadays much dis-
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guised, and to some extent spasmodic. Societies prepare for years, perhaps for centuries, for the extra-group struggle, which eventually changes the predominant races of continents. In a lesser form the struggle is ever going on. One after another inferior races are subjected to the white man; it is an extra-group struggle for markets and trade routes and spheres of influence, and only indirectly, but none the less really, for food-supply for the teeming multitudes at home. Meanwhile the stability and power of any group depends on the preservation and increase of its traditions, on its technical education, on its stores of knowledge, on its material resources, and on its limit of endurance, far more than on the perpetuation of any struggle for existence within the group itself. When the extra-group struggle with inferior races abroad has run to its end, then, if not sooner, the population question will force on a severer struggle for existence between civilised communities at home. Whether this struggle takes the form of actual warfare, or of still keener competition for trade and food-supply, that group in which unchecked internal competition has produced a vast proletariat with no limit of endurance, or with—to use a cant phrase—no "stake in the State," will be the first to collapse. It is extra-group competition which will more and more force the nations of Europe in the direction of socialism, just as on a much smaller scale the semi-socialistic organisations of the German mediæval towns were largely the product of the almost perpetual state of warfare of the time.

If we accept the standpoint of the socialist, that the
evolution of civilised man depends on other factors of natural selection than intra-group struggle for existence, Mr. Kidd's theory of social evolution falls to the ground like a pack of cards; it finds no bottom on great "biological truths," and the supposed incompatibility of socialism with the laws of natural selection is only a bogie set up by individualist thinkers to scare the socialist, and if possible to check social changes for which they personally have no liking.

We have endeavoured to show that the particular factor of natural selection—intra-group struggle—plays little, if any, part among civilised man. At any rate, the onus of proof lies on those who assert that it does. The proof to be of any value must be a statistical-mathematical one, not a mere descriptive account of what effects supposed causes might bring about without a real numerical demonstration of their actual relative importance. Here we might leave Mr. Kidd and the biologists, but we cannot refrain from one further example of the manner in which bogies are manu-

1 A characteristic example of the manner in which changes are attributed by descriptive biologists to intra-group struggle occurs in a recently published work by O. Ammon on Die natürliche Auslese beim Menschen. It is therein asserted that the inhabitants of Southern Germany were dolichocephalic—long-headed—in the fourth and sixth centuries, and that by intra-group selection they have now become brachycephalic—round-headed. The inference being that the latter are more intellectual, and have survived in the struggle within the group. Herr Ammon compares the mean index of 675 Row-Grave skulls with that of 6748 Baden recruits. Allowing for the difference between head and skull indices, I find on mathematical investigation of the frequency curve for Row-Grave skulls that it breaks up into normal components, one of which is identical with the Baden recruits both as to mean and distribution about the mean, while the other closely fits in mean and distribution about the mean the modern Low German skull curves. In other words, we have in the Row-Graves a mixture of races, and it would appear that extra-group and not intra-group struggle has led to the replacement of a dolichocephalic by a brachycephalic population. I believe most cases of supposed intra-group selection in man would disappear if they were examined by an adequate statistical theory.
factured to enforce the good behaviour of socialists. The last and biggest bogie is panmixia.

The paralogistic stages in the manufacture of this bogie are peculiarly instructive. In the first place, intra-group selection is widened out into natural selection, which embraces several other factors. Socialism is then asserted to contemplate the checking of the whole action of natural selection. But it is not enough to saddle the socialists with a desire to check the "cosmic process," and so stop progress. It is demonstrable that their action would lead to the steady degeneration of the human race. This depends upon panmixia, which is introduced by Mr. Kidd as a recent development of biology, "the almost illimitable significance of which science is beginning to appreciate." He speaks of panmixia as "a necessarily inherent part of the doctrine of evolution," and asserts that the selection of the fittest acquires an immensely widened significance, if we realise it to be an inherent principle of life, that, by the simple process of the individuals of each generation propagating their kind without selection, the higher forms of life would tend to gradually sink back again by a degenerative process through all those stages of development by which they reached their present position.

Push this to its logical result and the effect of socialism would not be to leave man where he is, physically and mentally, but to reduce him again to

1 "Marx contemplated our Western civilisation culminating in a condition of society which it was difficult, if not impossible, for any one who had realised the essential unity and continuity under all outward forms of the developmental forces at work in human society to imagine; a state in which the laws that had operated continuously from the beginning of life were to be suddenly interrupted and finally suspended" (Kidd, Social Evolution, p. 228).

2 Social Evolution, pp. 36, 37.
the simian condition. Now a great "biological truth" of this kind, if it be not self-obvious, and panmixia is certainly not that, should at least be supported by appeal to an ample range of accepted biological authority. Mr. Kidd gives us nothing of the kind, only a vague reference to "the investigations and conclusions of Professor Weismann." Now panmixia is like the majority of Weismann's theories—suggestive, nebulous, and utterly unproven. If any organ of a species be measured, say in one thousand specimens, and the number of organs between certain small ranges grouped together, the statistician can construct from these numbers a curve, which the researches of Professor Weldon on crustacea, and Mr. Galton and others on man, show to be practically continuous.¹ This curve is fully defined, and fully describes the variation of an organ, when we know the mean, the mean deviation from the mean, the total range and the skewness, or preponderance of variation on one or other side of the mean, the two latter qualities having hitherto been somewhat overlooked by the statistical biologist. Now the whole question of Panmixia turns upon a comparison of this frequency curve of variation for an adult population which has been subjected to natural selection since birth, and one for an adult population in which natural selection has played no part. To obtain a population in which natural selection has played no part since birth, would be a difficult if, perhaps, not impossible task. It is a feat which Mr. Spencer and

¹ The curves which I have constructed for several hundred skull measurements for different races and different ages are also sensibly continuous. See the diagrams in Essays I. and X.
Mr. Kidd imagine the socialists wish to attempt. But a fair appreciation of the variation of population with and without natural selection might clearly be obtained by studying the growth of individuals, and then comparing the birth and adult curves of variation. We should then have some definite ground to go upon in judging of panmixia. Will it be believed that although no biologist has yet published any statistics worth a moment's consideration bearing on panmixia—least of all Weismann—Mr. Kidd glibly talks of panmixia as a "necessarily inherent part of the doctrine of evolution"! He tells us, as if there were not a vestige of doubt about it, that if all individuals of every generation in any species were allowed to equally propagate their kind, the average of each generation would continually tend to fall below the average of the generation which preceded it, and a process of slow but steady degeneration would ensue (p. 37).

The average of what of each generation we ask in amazement—the average variation, the mean or the range, or the skewness, of one or all, or of how many organs? There is not a grain of statistical evidence at present extant to say what effect the suspension of natural selection would have on average anything, and the only straightforward course is to suspend judgment till the statistical evidence is forthcoming. At present panmixia is only a name for what would happen if natural selection were suspended, but what would happen, nobody at present is in a position to say.¹ To

¹ The whole argument as to panmixia may be represented symbolically, and in a manner possibly suggestive for other branches of biological inquiry, as
speak of degeneration ensuing from panmixia as an "inevitable law of life among the highest forms" is follows:—Let $B$ be the frequency curve of the variation of an organ at birth; $A$ the corresponding curve actually found for adults when natural selection is at work. Let $A_1, A_2, A_3...A_n$ be the adult curves after 1, 2, 3... $n$ generations in which natural selection is suspended, and $B_1, B_2, B_3...B_n$ the corresponding birth curves of each corresponding generation of adults. Then $P_n$, the effect of panmixia after $n$ generations of suspended selection, will be represented by

$$P_n = A - A_n.$$  

Now if $f$ be the symbol of operation by which a birth curve gives rise to an adult curve without natural selection, $S$ the operation of selection, and $d$ the operation for converting an adult curve into the next generation birth curve, we have $f/B = A_1, Sf/B = A, dSf/B = dA =$ birth curve for generation following $A$, and this is sensibly $B$ again, if the population has reached an equilibrium with its environment.

Thus—

$$dSf/B = B;$$

or

$$dSf = 1.$$  

Further,

$$df/B = dA_1 = B_1$$

or

$$B = SB_1.$$  

Similarly, $B = S^2B_2 = S^3B_3 = \ldots = S^nB_n$, whence we easily deduce $A = S^nA_n$.

Thus—

$$P_n = (1 - S^{-n})A,$$

that is, the effect of panmixia is quite unknown until we have ascertained what $S$, i.e. the difference of the curves of adult variation for one generation with and without natural selection may be. There seems no reason whatever for supposing that the operation $S^{-n}$ can possibly be identical with either $S^{-1}$ or $d$, i.e. that panmixia reduces the adult curve merely to the birth curve, or to the adult curve flowing from that birth curve without selection, as some have suggested. Still less likely is it—if $S_r$ be the selective operator in the $r^{th}$ generation backwards of those earlier generations preceding $A$, when selection was actually modifying $A$—that

$$S^{-n} = S_{1^{-1}}, S_{2^{-1}}, S_{3^{-1}} \ldots S_{n^{-1}},$$

for each $S_r$ differs from the others and from $S$ in that it is a function of the special biological and physical environment of the species in the $r^{th}$ generation. Thus, while the suspension of natural selection would doubtless modify species which have reached a stable condition, it is not only utterly unproven, but most highly improbable, that such species "would sink back again by a degenerative process through those stages of development by which they reached their present position."

The writer has dealt with this subject more fully in a memoir entitled, Regression, Heredity, and Panmixia, published in the Philosophical Transactions, vol. clxxxvii. A, as Contributions to the Mathematical Theory of Evolution, No. III.
not science; it is pseudo-science rushing to conclusions and manufacturing bogies for its own special ends. When Professor Weismann or Mr. Kidd have measured the influence of panmixia by a study of the birth and adult frequency curves of variation, then it will be time to question whether the limitation of intra-group selection in gregarious animals indicates that the gregarious animal, in particular man, is destined to disappear in the ultimate struggle of species, before the pressure of some thoroughly individualistic and presumably cannibal carnivora.

If such "biological truths" as panmixia, and the necessity of intra-group selection for progress, are idle as far as socialism is concerned, it is not to be inferred that socialists are prepared to disregard such important social problems as those of variation and heredity. While recognising that in the past social evolution in man has been almost entirely the product of extra-group selection and of physical selection acting automatically, they are inclined to believe that increasing sense of social responsibility with regard to parentage, followed, as it is sure to be, at a due distance by regulative legislation, is likely in the future to supplement the automatic action of natural selection by a more rapid process of human selection. They do not understand how the success of theories which inculcate greater social regulation in this respect, places socialism from the biological standpoint at a disadvantage as compared with that individualism which to-day seems directly to encourage the unlimited breeding of the physically and mentally most degenerate classes in the community, and
refuses to impose any test as to physique or intellect on the pauper aliens it allows to enter the social group. The pious wish of Darwin that the superior and not the inferior members of the group should be the parents of the future, is far more likely to be realised in a socialistic than in an individualistic state.

In conclusion, then, if biology is very far from being in a position to lay down the dogma that socialism spells degeneration, it is still quite possible that the socialistic movement will react on biological science as it has already done on economic science. No portion of the material for the study of evolution is nearly as plentiful as that dealing with mankind. We have most wide-reaching statistics as to growth and as to mortality; we have most elaborate measurements of a very great variety of organs in many races of men, and even of men separated by considerable intervals of time. The record is, of course, fragmentary in the extreme, but it is probably far better than can ever be attained for any other form of life. Here, then, we may look for some approximate measurement, if it be but a rough one, of the relative numerical importance of the several factors of natural selection. When these investigations have been carried out, it will be time enough to talk about the antagonism of socialistic theory to biological laws. All the evidence, however, that I individually have been able to gather from a naturally limited examination of anthropometric statistics and anthropological facts, distinctly points to the very small part played by intra-group selection in the case of civilised man. If this be so, then the manufacture of
biological bogies for socialists is as idle an occupation as that process of planting economic scarecrows round the field of social reform, by which the Manchester School strove for a time to delay their political bankruptcy.