

Savage Minds Occasional Papers No. 1

The Superorganic

By Alfred Kroeber

Edited and with an introduction by Alex Golub

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Introduction

Alfred Kroeber's "The Superorganic" is a classic of anthropological theory. Originally published in 1917 in *American Anthropologist*, the article drew important responses from Edward Sapir and Alexander Goldenweiser. Kroeber included material from the article in his textbook *Anthropology: Race, Language, Culture, Psychology, and Prehistory*. Kroeber's interest in the superorganic continued to develop in publications like *Configurations of Cultural Growth*. "The Superorganic" is central to understanding the thought of one of the founders of anthropology and indeed, the history of anthropological theory itself. And yet it is little read today. Why?

There are many reasons: editors of textbooks and anthologies rely on disciplinary histories of anthropology, often transmitted orally, rather than consulting the findings of professional historians of anthropology. Anthropology's oral history is often forgetful of the richness and sophistication of early Boasian anthropology. But much of the blame can be laid at the feet of Kroeber himself. The essay is extremely long, and larded with multiple examples used to make the same point. It is written with very purple prose -- Matthew Bradley once opined that Kroeber "never used one word when three would do" -- and his Victorian styles seems incongruous today. This is especially true of the sexist and exoticist tone of his language, which is replete with phrases of male achievement and the mind of the 'savage'. The essay is clearly written and structured, but there is little explicit signposting. When it comes to speaking for a contemporary audience, then, Kroeber is his own worst enemy.

In this occasional paper I present an edited version of "The Superorganic". The original essay is around 19,000 words. I have cut it down to just under 8,000. The argument has been preserved in its entirety, including Kroeber's discussion of historical figures such as Gustave Le Bon, because I believe his criticism of their thought is relevant in a world where their intellectual heirs are still active. In a few cases I have altered verbs and nouns for agreement when deleting text caused them to disagree. These are indicated with brackets. The goal has been to respect Kroeber's argument and stylistic choices while presenting a slimmed-down version which can be taught in a single session in an undergraduate or graduate theory course.

I hope that this will become one of a series of papers which present early anthropological theory in a form that is accessible to everyone. There is today a tremendous amount of material which is open access. Much Boasian thought is now in the public domain, but is difficult to find and inconvenient to read. And frankly, one must already know what is in it in order to know it is worth finding in the first place. By cleaning and curating a selection of open access, I hope to make open access resources better known and to raise awareness of the actual history of anthropological theory.

Like *Savage Minds* itself, this series is a homebrew'd, DIY project that does not want to let the perfect be the enemy of the good. There may be typos or other errors in the manuscript. In future editions these may be corrected.



One of the ironies of "The Superorganic" is that Kroeber never actually uses the word anywhere in the essay except the title. What, then, is his argument? Kroeber begins the essay by asking the question: what is the nature of cultural evolution, and how does it contrast with 'organic' evolution -- that is to say, with biological evolution as described by the then-new and

ground-breaking science of genetics. It's a question typical of the Boasians: it is in dialogue with biology, but seeks to understand the autonomy of anthropology as a way of knowing.

Kroeber develops this contrast between the organic and cultural (which he also calls the social, or simply 'civilization') by way of a third term: mentality. On the one hand, Kroeber sees the mental lives of individuals as the biological substrate on which culture writes itself. On the other hand, individual psychology is ultimately 'mechanical' in the sense that chemistry and physics can be used to understand the biological constitution of the individual which results in their mentality. Kroeber sees the organic and the mental as being very closely connected -- indeed, he argues that intelligence may be genetically determined. But if the organic causes the mental, the mental does not, then, cause the cultural. Rather, culture operates on its own level of determination.

Predictably, Kroeber argues that organic racial difference cannot affect the growth of civilization. There are no superior races. But he also argues that individual organic endowment cannot affect civilization. Kroeber makes this argument through a discussion of the role of genius in shaping history. Even the greatest inventions, he argues, will only take root if a culture is prepared to accept them. And if a culture is ready for an innovation, then anyone with above average intelligence may be able to invent it. Both Darwin and Wallace imagined evolution, and neither would have been accepted if society was not ready for the idea. Here Kroeber is at his most deterministic, minimizing the role of individual agency and emphasizing what later anthropologists would call 'structural factors' in shaping human conduct.

How, then, could culture have originated if it is such a unique phenomena? Kroeber is careful to emphasize that there is no answer to this question, but suggests that human evolution led to a 'saltation' in which culture as a qualitative distinct phenomena appeared. This position anticipates current work on culture as an emergent phenomena. It is also important to emphasize that in asking this question, Kroeber clearly sees the importance of biological anthropology and human evolutionary history to cultural anthropology.

Finally, Kroeber argues that the legitimacy of anthropology (or history, these terms are used interchangeably in a way that modern readers may find strange) is tied to the existence of culture. It is always possible to assign 'mechanical' causes to behavior because humans are organic. But in doing so, he argues, we miss the cultural dimension of conduct that makes human lives so unique. At the same time, Kroeber argues, art and literature conveys truths that are enduring, but which are aesthetic and not scientific. Thus Kroeber argues that history/anthropology represents a third way of knowing the human which avoids the organic reductionism of science, but which is more concrete than literature. Here Kroeber's argument is ambiguous, and addresses several questions that future anthropologists will grapple with: Is anthropology a unique discipline because it has a unique subject matter? Or does anthropology have a unique method? Why not prefer a biological reduction of human action? Kroeber occupies several positions here, and the loose ends in this section of his argument would be taken up by future thinkers.

Kroeber is famous for having claimed that anthropology is the "most humanistic of the sciences and the most scientific of the humanities" and yet, ironically, this *bon mot* never appears in his writings -- it was a favorite saying of his that has been passed down to us from anthropology's oral history. Hopefully the publication of an accessible version of this essay will give readers the opportunity to move beyond this wonderful, epigrammatic summary of Kroeber's thought and experience the original in all its richness.

The Superorganic

By Alfred Kroeber

A way of thought characteristic of our western civilization has been the formulation of complementary antitheses, a balancing of exclusive opposites. One of these pairs of ideas is that of the vital from the social, or in other phraseology, of the organic and the cultural. The implicit recognition of the difference between organic processes and social processes is of long standing. The formal distinction is however recent. In fact the full import of the significance of the antithesis may be said to be only dawning upon the world. For every occasion on which some human mind sharply separates organic and social forces, there are dozens of other times when the distinction between them is not thought of, or an actual confusion of the two ideas takes place.

One reason for this current confusion of the organic and the social is the predominance of the idea of evolution. This idea, one of the earliest, simplest, and also vaguest ever attained by the human mind, has received its strongest ground and fortification in the domain of the organic; in other words, through biological science. At the same time, there is an evolution, or growth of civilization. Human civilization or progress, which exists only in and through living members of the species, is so unmistakably similar to the evolution of plants and animals, that it has been inevitable that there should have been sweeping applications of the principles of organic development to the facts of cultural growth. This of course is reasoning by analogy, or arguing that because two things resemble each other in one point they will also be similar in others. In the absence of knowledge, such assumptions are justifiable as assumptions. Too often, however, their effect is to predetermine mental attitude, with the result that when the evidence begins to accumulate which could prove or disprove the assumption, this evidence is no longer viewed impartially and judiciously, but is merely disposed of in such a way as not to interfere with the established conviction into which the original tentative guess has long since turned.

This is what has happened in the field of organic and social evolution. The distinction between them, which is so obvious that to former ages it seemed too commonplace to remark upon. It even seems fair to say that this confusion has been greater and more general among those to whom study and scholarship are a daily pursuit than to the remainder of the world.

Many aspects of the difference between the organic and that in human life which is not organic, are so plain that a child can grasp them. Everyone is aware that we are born with certain powers and that we acquire others. No one has yet been found to assert that any human being is born with an inherent knowledge of the multiplication table; nor, on the other hand, to doubt that the children of a negro are born negroes through the operation of hereditary forces. Some qualities in every individual are however clearly debatable ground; and when the development of civilization as a whole and the evolution of life as a whole are compared, the distinction of the processes involved has too often been allowed to lapse.

Some millions of years ago natural selection caused birds to appear in the world. They sprang from reptiles. In this development, feathers were acquired and scales lost; the grasping faculty of the front legs was converted into an ability to sustain the body in the air. The birds had lost certain faculties which they once possessed, and presumably would still possess were it not for the acquisition of their wings. In the last few years human beings have also attained the power of

aerial locomotion. But the process by which this power was attained, and its effects on the species, are utterly different. A bird is born with a pair of wings, but we have invented the aeroplane. The bird renounced a potential pair of hands to get his wings; we keep all the organs of our forefathers but add to them the new ability. The growth of new species of animals consists of changes in their organic constitution. As regards the growth of civilization, on the other hand, change and progress can take place without any such constitutional alteration of the human species.

We may compare human and animal beings when groups of them reach a new and arctic environment. The non-human mammal species comes to have heavy hair. And this difference is racial, not individual. Now there are people who look for the same sort of inborn peculiarities in the Eskimo, the Samoyed, and the Yahgan; and find them, because they look for them. In fact, what the human inhabitant of intemperate latitudes does, is not to develop a peculiar digestive system, any more than he grows hair. He changes his environment, and thereby is able to retain his original body unaltered. He builds a closed house, which keeps out the wind and retains the heat of his body. His baby, and his baby's baby, and his hundredth descendant are born as naked, and unarmed physically, as he and his hundredth ancestor were born.

That this difference in method of resisting a difficult environment, as followed respectively by the polar bear species and the human Eskimo race, is absolute, need not be asserted. That the difference is deep, is unquestionable. That it is as important as it is often neglected, it is the object of this essay to establish.

It has long been the custom to say that man's superior intelligence enables him to rise superior to such lowly needs. But this is not the significant point of the difference. The greater human intelligence in itself does not cause the differences that exist. This psychic superiority is only the indispensable condition of what is peculiarly human: civilization. Directly, it is the civilization in which every Eskimo is reared. The distinction between animal and man which counts is not that of the physical and mental, which is one of relative degree, but that of the organic and social, which is one of kind. The beast has mentality, and we have bodies; but in civilization man has something that no animal has.

It is only in small measure a question of high and low as between man and animal. Many purely instinctive activities of the beasts lead to far more complex and difficult achievements than some of the analogous customs of this or that human nation. The beaver is a far better architect than many a savage tribe. But the essential point is not that after all a man can do more than a beaver, or a beaver as much as a man; it is that all that a beaver accomplishes he does by one means, and a man by another. The rudest savage can be taught to saw and nail together boards, to mortar stone on stone, to sink foundations, to rear an iron frame. And who would be so rash as to affirm that one generation or a hundred or ten thousand of example and instruction would in the least measure convert the beaver into a carpenter or a bricklayer?

The mental activity of the animals is instinctive; the content of our minds comes to us through tradition. But tradition, what is "given through," handed along, from one to another, is only a message. It must of course be carried; but the messenger after all is extrinsic to the news. So, a letter must be written; but as its significance is in the meaning of the words, as the value of a note is not in the fiber of the paper but in the characters inscribed on its surface, so tradition is something superadded to the organisms that bear it, imposed upon them, external to them. And as the same shred can bear any one of thousands of inscriptions, and can even be tolerably razed

and reinscribed, so it is with the human organism and the countless contents that civilization can pour into it. The essential difference between animal and man, in this illustration, is his structure and nature and texture are such that he is inscribable, and that the animal is not.

Exactly parallel to this is the relation of the instinctive and traditional, the organic and the social. The animal, so far as social influences are concerned, is as unsuitable as a dish of porridge is for writing material; or when like the beach sand, it is inscribable, by domestication, it can retain no permanent impression, as a species, and lends itself to no use. Hence it has no society, and therefore no history. Man, however, comprises two aspects: he is an organic substance, that can be viewed as a substance, and he is also a tablet that is written upon. One aspect is as valid and as justifiable as another; but it is a cardinal mistake to confuse the two views.

So, if the student of human achievement were to try to withdraw from the observation of the natural historian and the mechanical philosopher the human beings upon whom is inscribed the civilization which he himself investigates, he would be ridiculous. And when on the other hand, the biologist proposes to rewrite history, in whole or in part, through the medium of heredity, he reveals himself in no more favorable light.

There have been many attempts to make precise the distinction between instinct and civilization, between the organic and the social, between animal and man. But for the conception of the discrimination that is at once most complete and most compact, we must go back to Aristotle. "Man is a political animal." The word political has changed in import. We use instead the Latin term social. This, both philosopher and philologist tell us, is what the great Greek would have said were he speaking in English today. Man is a social animal, then; a social organism. He has organic constitution; but he has also civilization. To ignore one element is as short-sighted as to overlook the other; to convert one into the other, if each has its reality, is negation. The attempt today to treat the social as organic, to understand civilization as heredity, is as essentially narrow minded as the alleged mediaeval inclination to withdraw man from the realm of nature and from the ken of the scientist because he was believed to possess an immaterial soul.

But, unfortunately, the denial, and for every denial a dozen confusions, still persist[s]. They pervade the popular mind; and thence they rise, again and again, into the thoughts of avowed and recognized science. It seems, even, that in a hundred years we have retrograded. A century and two centuries ago, with a generous impulse, the leaders of thought devoted their energies, and the leaders of men their lives, to the cause that all men are equal. We have certainly gone back, in America and in Europe and in their colonies, in our application of the assumption. Hereditary racial differences of ability pass as approved doctrine, in many quarters. There are men of eminent learning who would be surprised to know that serious doubts were held in the matter. And yet not a single piece of evidence has yet been produced to support the assumption that the differences which one nation shows from another -- let alone the superiority of one people to another -- are racially inherent, that is organically founded.

Most ethnologists, at any rate, are convinced that the overwhelming mass of historical and miscalled racial facts that are now attributed to obscure organic causes, or at most are in dispute, will ultimately be viewed by everyone as social and as intelligible only in their social relations. That there may be a residuum in which hereditary influences have been operative, it would be dogmatic to deny; but even this residuum of organic agencies will perhaps be found to be operative in quite other manners than those which are customarily adduced at present.

For the historian -- him who wishes to understand any sort of social phenomena -- it is an unavoidable necessity to disregard the organic and to deal only with the social. It is perhaps too much to expect any one wedded, deliberately or unknowingly, to organic explanations, to discard these wholly. But it does seem justifiable to stand unhesitatingly on the proposition that civilization and heredity are two things that operate in entirely separate ways.

One of the minds endowed with as eminent power of perception and formulation as any of our generation, Gustave Le Bon, has carried the interpretation of the social as organic to its consistent consequence. His *Psychology of Peoples* is an attempt to explain civilization on the basis of race. But his professed attempt to resolve the civilizational materials with which he deals directly into organic factors leads him to rest his solutions ultimately on such mystic essences as the "soul of a race." As a scientific concept, a race soul is as intangible and useless as any phrase of mediaeval philosophy. If instead of soul of the race, the distinguished Frenchman had said spirit of civilization, or tendency or character of culture, his pronouncements would have commanded less appeal, because seeming vaguer; but he would not have had to rest his entire thought upon a supernatural idea antagonistic to the body of science to which he was trying to attach his work; and if non-mechanistic, his efforts at explanation would at least have earned the respect of historians. As a matter of fact, Le Bon clearly operates with social phenomena, however insistently he gives them organic names and proclaims that he has resolved them organically.

From a less aggressive temperament springs the wail that Lester Ward has voiced for a wide and aspiringly earnest element. Heredity by acquirement must take place, he argues, or there would be no hope of permanent progress for humanity. To believe that what we have gained will not be at least in part implanted in our children removes the incentive to effort. All the labor bestowed upon the youth of the world would be in vain. Mental qualities are not subject to natural selection; hence they must be accumulated in man by acquirement and fixed by heredity. This view reveals the tenacity with which many conscientious intellects of the day can not see the social except through the glass of the organic. That this habit of mind can itself be depressing, that it forever prelimits development and eternally chains the future to the poverties and paucities of the present, does not dawn upon its devotees; it is in fact probably the fixity which gives it its emotional hold.

Of all the comminglings of the cultural with the vital, the eugenics movement is the most widely known and of directest appeal. As a constructive program for national progress, eugenics is a confusion of the purposes to breed better men and to give men better ideals; an organic device to attain the social; a biological short cut to a moral end. Eugenics, so far as it is more than an endeavor at social hygiene in a new field, is a fallacy. It is a mirage like the philosopher's stone, and to those who are led by its learned modernity to receive it earnestly, it is a destructive snare. There is little to argue about it. If social phenomena are only organic, eugenics is right, and there is nothing more to be said. If the social is something more than the organic, eugenics is only an error and unclear thought at whose childlikeness the future will smile, and then pass on.

Galton, the founder of the eugenics propaganda, was one of the most truly imaginative intellects produced by his country. Pearson, its distinguished living protagonist, possesses one of the keenest minds of the generation. Hundreds of men of ability and eminence have professed themselves converts. It is plain that a simple fallacy must have presented itself in an envelope of

enticing complications to be acceptable to them. What then is the reason of the confusion into which they have precipitated themselves?

The cause seems to be a failure to distinguish between the social and the mental. All civilization in a sense exists only in the mind. Gunpowder, textile arts, machinery, laws, telephones are not themselves transmitted from man to man nor from generation to generation, at least not permanently. It is the perception, the knowledge and understanding of them, their ideas in the Platonic sense, that are passed along. Everything social can have existence only through mentality. Of course, civilization is not mental action itself; it is carried by men, without being in them. But its relation to mind, its absolute rooting in human faculty, is more than plain. What has occurred is that biology, which correlates and often identifies the physical and the mental, has gone one natural but as yet unjustified step further, and assumed the social as mental; whence the explanation of civilization in physiological and mechanical terms was an unavoidable consequence.

Now, the identification by modern science of the physical and mental is certainly justifiable as a method which can be employed toward a coherent explanation of phenomena, and which leads to practically useful results. This correlation is an unchallenged axiom of those who concern themselves with science: all mental equipment and all mental activity have an organic basis. This inseparability of physical and mental must be true also in the field of heredity. It is a matter of common experience that our own mental traits vary as much and as frequently tally with those of ancestors, as physical features. There is no logical reason, and nothing in the observation of daily life, that operates against the belief that an irascible temper is as heritable as the red hair with which it is traditionally associated. Of course there is much false inference in these matters. But it would be as unreasonable to exaggerate this caution into an outright denial of mental heredity, as to disregard it entirely. In spite of a wide acceptance of these demonstrations they have also met with some opposition, and with more ignoring than their bearing on a question of general interest warranted. In part this negative attitude may be due to a persistence of religious beliefs which see in every linkage of mind and body an effacement of the cherished distinction of body and soul. But this belated conservatism will not account for all the failure of the Galton-Pearson demonstrations.

The remainder of the opposition has been caused by Galton, Pearson, and their adherents themselves, who have not confined themselves to their well-supported conclusions, but have pressed on to further inferences that rest only on assertion. That heredity operates in the domain of mind as well as that of the body, is one thing; that therefore heredity is the mainspring of civilization is an entirely different proposition, without any necessary connection, and certainly without any established connection, with the former conclusion. To maintain both doctrines, the second as a necessary corollary of the first, has been the habit of the biological school; and the consequence has been that those whose intellectual inclinations were otherwise, or who followed another method of research, have avowedly or tacitly rejected both propositions.

The reason why mental heredity has nothing to do with civilization, is that civilization is not mental action but a body or stream of products of mental exercise. Any demonstration concerning [mental activity] consequently proves nothing whatever as to social events. Mentality relates to the individual. The social or cultural, on the other hand, is in its very essence non-individual. Civilization, as such, begins only where the individual ends. But a thousand

individuals do not make a society. They are the potential basis of a society; but they do not themselves cause it; and they are also the basis of a thousand other potential societies.

The findings of biology as to heredity, mental and physical alike, may then be accepted without reservation. But that therefore civilization can be understood by psychological analysis or heredity, or that the destiny of nations can be predicted from an analysis of the organic constitution of their members, assumes that the social can be wholly resolved into the mental as it is thought this resolves into the physical. It is in the tempting leap from the individually mental to the culturally social that the source of the distracting transferences of the organic into the social is to be sought. A more exact examination of the relation of the two is therefore desirable.

In a brilliant essay on heredity in twins, Thorndike arrives at the conclusion that so far as the individual is concerned heredity is everything and environment nothing. This finding is not only thoroughly elucidated by the author, but has the support of our common experience in life. Every one numbers among his acquaintance individuals of energy, of address and skill, of what seems an uncanny prescience, or of a strength of character, that leave no doubts in our judgment that whatever their lot of birth, they would have risen above their fellows and been marked men and women. And on the other hand, we also admit regretfully the maladroit and sluggish, the incompetent and commonplace, who, born in any station, would have been of the mediocrities or unfortunates of their time and class. That Napoleon, set in another land and era, would not have conquered a continent, is sufficiently certain. It is important to realize that congenital differences can have no effect on the course of civilization. But it is equally important to realize that we may and must concede the existence of such differences and their inextinguishability.

The modern schoolboy knows more than Aristotle; but this fact does not in the least endow him with a fraction of the intellect of the great Greek. Socially -- because knowledge must be a social circumstance -- it is knowledge, and not the greater development of one individual or another, that counts. A hundred Aristotles among our cave-dwelling ancestors would have been Aristotles in their birthright no less; but they would have contributed far less to the advance of science than a dozen plodding mediocrities in the twentieth century.

Genius and ability occur with regular frequency, and all races or large-enough groups of men average alike and the same in qualities. It follows that all so-called inventors or discoverers were unusually able men, endowed from before birth with superior faculties. On the other hand, the content of the invention or discovery springs in no way from the make-up of the great man, or that of his ancestors, but is a product purely of the civilization into which he with millions of others is born as a meaningless and regularly recurring event. Whether his invention is that of the cannon or the bow, is not explainable by biological science but finds its meaning only in such operations with the material of civilization as history is occupied with.

Darwin provides a beautiful exemplification of these principles. To deny this great man genius would be fatuous. On the other side, no one can sanely believe that the formulation of the doctrine of evolution by natural selection would now stand to his credit had he been born fifty years sooner or later. If later, he would have been infallibly anticipated by Wallace. Put on earth a half century earlier, his central idea would not have come to him as it failed to come to his brilliant predecessor, the evolutionist Lamarck. Or, it would have risen in his own mind only to be at once discarded as logically possible indeed, but as unworthy of actual consideration. Or, finally, the thought might indeed grow in him, but been ignored and forgotten by the world, a mere unfruitful accident, until European civilization was prepared to use it. That this last

possibility is no mere idle conjecture is evidenced by its actually taking place in the case of Gregor Mendel.

It is inconceivable that the independent occurrence of the idea of selection as the motive force of organic evolution, synchronously in the minds of Darwin and Wallace, should have been an affair of pure chance. The immediate acceptance of the idea by the world, proves nothing as to the intrinsic truth of the concept; but it does establish the readiness of the world for the doctrine. The enunciation seems to have been destined to come almost precisely when it did come. Darwin carried with himself the germ of the idea of natural selection for twenty long years before he dared put forward the hypothesis which previously he had felt would be received with hostility. It was only the briefer expression of the same insight by Wallace that led Darwin to publicity. Can it be imagined, if Wallace had met death at sea among the Malay islands, and Darwin, unspurred by his competitor colleague's activity, had carried his theory in hesitant privacy a few years longer and then suddenly succumbed to mortal illness, that we of the civilized world of today should have lived all our intellectual lives without a definite mechanism for evolution? That our biologists would be still standing where Linnaeus, Cuvier, or at most Lamarck stood? If so, the great currents of history would be absolutely conditioned by the lodgement or dislodgement of a bacillus in a particular human frame on a certain day. No. Wallace's crowding on Darwin's heels evidences that behind him trod still others, and that had the leader or his second fallen, the followers, one or several or many, would have been pressed forward and done their work-immediately, as history reckons time.

The total failure of Mendel's revolutionizing experiments in heredity to achieve recognition during their author's life has already been alluded to as an instance of the inexorable fate in store for the discoverer who anticipates his time. It has been said that Mendel's essay was published in a little known source, and therefore failed to come to the notice of biologists. It is far more likely that biologist after biologist saw the essay, that some even read it, but that it remained meaningless to them because they lacked the transcendent superiority of the occasional individual to see issues that lie ahead of those with which the world of their day is wrestling. Slowly, however, time rolled on and unconsciously a change of content of thought was preparing. The investigations of De Vries and Bateson were accumulating knowledge as to the actual operation of heredity. And then suddenly in 1900, with dramatic eclat, three students, independently and "within a few weeks of each other," discovered the discovery of Mendel, and a new science was launched on a career of splendid fulfillment.

There may be those who see in these pulsing events only a meaningless play of capricious fortuitousness; but there will be others to whom they reveal a glimpse of a great and inspiring inevitability which rises as far above the accidents of personality as the march of the heavens transcends the wavering contacts of random footprints on clods of earth. Wipe out the perception of De Vries, Correns, and Tschermak, and it is yet certain that before another year had rolled around, the principles of Mendelian heredity would have been proclaimed by six rather than three discerning minds. Mendelian heredity does not date from 1865 [when Mendel published]. It was discovered in 1900 because it could have been discovered only then, and because it infallibly must have been discovered then.

The whole history of inventions is one endless chain of parallel instances. The right to the monopoly of the manufacture of the telephone was long in litigation; the ultimate decision rested on an interval of hours between the recording of concurrent descriptions by Alexander Bell and

Elisha Gray. The discovery of oxygen is credited to both Priestley and Scheele; its liquefaction to Cailletet as well as to Pictet, whose results were attained in the same month of 1877 and announced in one session. Kant as well as La Place can lay claim to the promulgation of the nebular hypothesis. Neptune was predicted by Adams and by Leverrier; the computation of the one, and the publication of that of the other, had precedence by a few months. For the invention of the steamboat, glory is claimed by their countrymen or partisans for Fulton, Jouffroy, Rumsey, Stevens, Symmington, and others; of the telegraph, for Steinheil and Morse; in photography Talbot was the rival of Daguerre and Niepce. The doubly flanged rail devised by Stevens was reinvented by Vignolet. Aluminum was first practically reduced by the processes of Hall, Héroult, and Cowles. Leibnitz in 1684 as well as Newton in 1687 formulated calculus. Anaesthetics, both ether and nitrous oxide, were discovered in 1845 and 1846, by no less than four men of one nationality. So independent were their achievements, so similar even in details and so closely contemporaneous, that polemics, lawsuits, and political agitation ensued for years. Even the south pole, never before trodden by the foot of human beings, was at last reached twice in one summer. A volume could be written filled with endlessly repeating but ever new accumulation of such instances.

When interest shifts from individually biographic elements and attaches whole heartedly to the social, evidence on this point will be infinite in quantity, and the presence of a majestic order pervading civilization will be irresistibly evident. Knowing the civilization of an age and a land, we substantially affirm that its distinctive discoveries were not directly contingent upon the personality of the actual inventors that graced the period, but would have been made without them; and that, conversely, had the great illuminating minds of other centuries and climates been born in the civilization referred to, instead of their own, its first achievements would have fallen to their lot.

Some reservations must be admitted to this principle. It is far from established that extraordinary ability is identical in direction. It is highly unlikely that Beethoven put in Newton's cradle would have worked out calculus, or the latter have given the symphony its final form. It is a debatable point, though one of the greatest psychological interest, how far human faculty is divisible and subdivisible into distinct kinds. But the matter is not vital in the present connection.

Here, then, we have an interpretation which allows to the individual, and through him to heredity, all that the science of the organic can legitimately claim on the strength of its actual accomplishments; and which also yields the fullest scope to the social in its own distinctive field. The accomplishment of the individual measured against other individuals depends on his organic constitution as compounded by his heredity. The accomplishments of a group are uninfluenced by heredity because sufficiently large groups average alike in organic make-up.

This identity of average is incontestable for some instances of the same nations in closely successive ages -- as Athens in 550 and 450 -- during which brief periods their hereditary composition could not possibly have altered to even a small fraction of the degree in which cultural achievement varied; it is certain probably even for people of the same blood separated by long intervals of time and wide divergences of civilization; and it is likely to be substantially true, as suggested before, for the most distant races. The difference between the accomplishments of one group and those of another is therefore of another order from the difference between the faculties of one person and another. It is through this distinction that one of the essential qualities of the nature of the social is to be found.

The physiological and the mental are bonded as aspects of the same thing, one resolvable into the other; the social is, directly considered, irresolvable into the mental. That it exists only after mentality of a certain kind is in action has led to confusion of the two, and even to their identification. The error of this identification is a fault that tends to pervade modern thinking about civilization, and which must be overcome by self-discipline before our understanding of this order of phenomena that fill and color our lives can become either clear or serviceable.

If the relation of the individual to culture here outlined is a true one, a conflicting view sometimes held and already alluded to, is unentertainable. This view is the opinion that all personalities are potentially equal in capacity, their varying degrees of accomplishment due solely to different measures of accord with the social environment with which they are in touch. This view seems to underlie many tendencies toward social and educational reform. This assumption, which would be of extensive practical application if verified, seems to rest ultimately upon a dim but profound perception of the influence of civilization. More complete than this influence of civilization is upon national fortunes than upon individual careers, it nevertheless must influence these latter also. Mohammedanism - a social phenomenon - in stifling the imitative possibilities of the pictorial and plastic arts, has obviously affected the civilization of many peoples; but it must also have altered the careers of many persons born in three continents during a thousand years. Special talents which these men and women possessed may have been suppressed. Of such individuals it is true that the social forces to which they were subject depressed each of them from successful attainment to more mediocre. And the same environment elevated many an individual above his fellows. The personality born with those qualities that lead to highly successful leadership of religious brigands, for instance, is undoubtedly assured of a more prosperous and contented career in Morocco than in Holland of today.

But, that a social environment may somewhat affect the fortunes and career of the individual does not prove that the individual is wholly the product of circumstances, any more than it means that the opposite is true and a civilization is only the sum total of the products of a group of organically shaped minds. The concrete effect of each individual upon civilization is determined by civilization itself. Civilization appears even in some cases and in some measure to influence the effect of the individual's native activities upon himself. But to proceed from these realizations to the inference that all the degree and quality of accomplishment by the individual is the result of his moulding by the society that encompasses him, is pure assumption and directly at variance with all observation. Therefore it is possible to hold to the historical or civilizational interpretation of social phenomena without proceeding to occupy the position [that] human beings [are] only and wholly the products of its stream. Because culture rests on specific human faculty, it does not follow that this faculty is of social determination.

The line between the social and the organic may not be randomly or hastily drawn. The threshold between the endowment that renders the flow and continuance of civilization possible and that which prohibits even its inception is in all probability, but gaping for a longer period than our knowledge covers. The separation between the social itself, and the non-social, the pre-social or organic, is the diversity of quality or nature which exists between animal and man on the one hand, and the products of the interactions of human beings on the other. It is necessary to eliminate the factor of individual capacity from the consideration of civilization. But this elimination means its transfer to the group of organically conceivable phenomena, not its denial.

In short, social science, if we may take that word as equivalent to history, does not deny individuality any more than it denies the individual. It does refuse to deal with either individuality or individuals. And it bases this refusal solely on its denial of the validity of either factor for the achievement of its proper aims.

It is true that historical events can be viewed mechanically, and expressed ultimately in terms of physics and chemistry. Genius may prove definable in the constitution of chromosomes. The day may come when what took place in the tissue of Darwin's brain when he first thought the concept of natural selection, can be profitably studied by the physiologist and chemist. Such an achievement, shockingly destructive as it may seem to those whom revelation appals, would be not only defensible, but worth while. Only, it would not be history; nor a step toward history or social science. To know the precise reactions in Darwin's nervous system at the moment when the thought of natural selection flashed upon him in 1838, would involve a very genuine triumph of science. But it would mean nothing historically, since history is concerned with the relation of doctrines such as that of natural selection to other concepts and social phenomena, and not at all with the relation of Darwin himself to social phenomena or other phenomena.

There are those, of mechanistic proclivities and interests, who hold that it is only when historical events are explained on a basis like that assumed in our example, that history will have any significance. They have pressed their view until it has come to be widely accepted. But it is true only if a single method of thought is the sole one to be accorded validity and justifiability. If the ability to weigh the moon renders Shelley's poetry a useless superfluity, well and good: there is nothing more to be said. There actually are people fanatic enough to take such a stand. But if scientific methods give science, and artistic exercise yields literature, and the two do not exclude each other because they do not come into conflict and are not even comparable; if the justification of each is in its results and not in any toleration extended by the other; and if the truly unforgivable sin is not to practise one without regard to the other but to practise one by means of the other -- then, too, it is conceivable that there may be a third activity, neither science nor art, but history, the understanding of the social, which has an aim that cannot be denied and whose justification must be sought in its own results and not by the standard of any other activity. That is all that history as an intellectual manifestation can ask; but that it must ask.

History, then, justifies itself in proportion that it is mechanistically "unscientific"; that it has its own method, its own equivalent to the causality of science; and, in one sense, its own material. Not that there is a range of subjects that can be delimited and assigned respectively to science and to history. But the same phenomenon can after all be viewed with different ends. The social is scientifically resolvable; but it is resolvable through the individual -- the organic and psychic individual. History deals with the social by resolving it into the social without the medium of the individual.

Science will attack historical material -- social material -- by converting it into organic terms -- whether psychical or physical does not matter, so long as the ever present individual physiological aspect or basis of the social phenomena is dealt with. These organic results will then be ready for interpretation by the methods of physics and chemistry. Thus the material will be made part of the system that is pervaded by the principle of mechanical causality as its essence. But history, without denying this principle, keeps its intent fixed upon the facts of the social plane, upon historical data.

As, then, there are two lines of intellectual endeavor in history and in science, each with its separate aim and set of methods so also two wholly disparate evolutions must be recognized: that of the substance which we call organic and that of the other substance called social. Social evolution is without antecedents in the beginnings of organic evolution. It commences late in the development of life - long after vertebrates, after mammals, after the primates even, are established. Its exact point of origin we do not know, but we can limit the range within which it falls. This origin occurred in a series of organic forms more advanced, in general mental faculty, than the gorilla, and much less developed than the man of Neandertal and Le Moustier. In point of time, these first carriers of the rudiments of civilization must antedate the Neandertal race by far, but must be much posterior to other extinct human ancestors of the approximate intellectual level of the modern gorilla and chimpanzee.

The beginning of social evolution, of the civilization which is the subject of history, thus coincides with that mystery of the popular mind: the missing link. But the term "link" is misleading. It implies a continuous chain, a strand that is the same in texture before and beyond the break in knowledge. But with the unknown bearers of the primeval and gradually manifesting beginnings of civilization, there took place a profound alteration rather than an improved passing on of the existing. A new factor had arisen which was to work out its own independent consequences, a factor that had passed beyond natural selection, that was no longer wholly dependent on any agency of organic evolution, and that, however swayed by the oscillations of the heredity that underlay it, nevertheless floated unimmersibly upon it.

The dawn of the social thus is not a link in any chain, but a leap to another plane. It may be likened to the first occurrence of life in the hitherto lifeless universe. Atomic qualities and movements were not interfered with when that seemingly slight event took place; the majesty of the mechanical laws of the cosmos was not diminished; but something new was inextinguishably added to the history of this planet. Or, one might compare the inception of civilization to the end of the process of slowly heating water. The expansion of the liquid goes on a long time. Its alteration can be observed by the thermometer as well as in bulk, in its solvent power as well as in its internal agitation. But it remains water. Finally, however, the boiling point is attained. Steam is produced: and in place of a glistening percolating fluid, a volatile gas diffuses invisibly. Neither the laws of physics nor those of chemistry are violated; nature is not set aside; but yet a saltation has taken place: the slow transitions that accumulated from zero to one hundred have been transcended in an instant, and a condition of substance with new properties and new possibilities of effect is in existence. Such, in some manner, must have been the result of the appearance of this new thing, civilization.

To assert, because [civilization] has risen rapidly, [the organic] must also have ascended proportionally is obviously unconvincing. That our institutions have advanced dizzyingly in twenty thousand years is no reason that our mental equipment and its physiological basis, have advanced in any corresponding measure. If anything, it might rather be an evidence that the lower, organic line has fallen off in its rate of ascent. The bodies and minds in this line have continued to carry civilization; but this civilization has met the struggle of the world in such a way that much of the stress has been directed from these bodies and minds. We do not argue that the progress of organic evolution is prima facie indication that inorganic matter is more complex or in any sense "higher," than it was fifty million years ago; much less that organic evolution has taken place through an inorganic evolution as cause. But all the evidence directs us to the conviction that in recent periods civilization has raced at a speed so far outstripping the pace of

hereditary evolution, that the latter has, if not actually standing still, afforded all the seeming of making no progress. There are a hundred elements of civilization where there was one in the time when the Neandertal skull enclosed a living brain; and not only the content of civilization but the complexity of its organization has increased a hundredfold. But the body and the associated mind of that early man have not attained a point a hundred times, nor even twice, as fine, as efficient, as delicate, or as strong, as they were then.

Here, then, we have to come to our conclusion. The mind and the body are but facets of the same organic material or activity; the social substance, the existence that we call civilization, transcends them utterly for all its being forever rooted in life. The processes of civilizational activity are almost unknown to us. The self-sufficient factors that govern their workings are unresolved. The forces and principles of mechanistic science can indeed analyze our civilization; but in so doing they destroy its essence, and leave us without understanding of the very thing which we seek. The historian as yet can do little but picture. He traces and he connects what seems far removed; he balances; he integrates; but he does not really explain, nor does he transmute phenomena into something else. His method is not science; but neither can the scientist deal with historical material and leave it civilization, nor anything resembling civilization, nor convert it wholly into concepts of life and leave nothing else to be done. What we all are able to do is to realize this gap, to be impressed by its abyss with reverence and humility, and to go our paths on its respective sides without self-deluding attempts to bridge the eternal chasm, or empty boasts that its span is achieved.