

SOCIAL  
ENVIRONMENT

G. R. DAVIES



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# SOCIAL ENVIRONMENT

BY

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Assistant Professor of History and Sociology  
The University of North Dakota



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EDITOR'S PREFACE

SO much emphasis has been placed upon the biological factor in the writings of sociologists, that Professor Davies' book brings a new element into the discussion of social problems. How far does the accumulated knowledge and experience of the world modify the individual and give him control over biological factors? The source of ability, mental power, and moral force, after all, appears as the important element in society. The contribution which this book makes is in the emphasis given to influences of social environment upon the growth and personality of the individual. War and war talk are the logical outcome of the biological contest, but in reality should be offset by an appreciation of the psychological and spiritual elements of civilization, which, when properly measured, are larger factors than the biological forces so reverently referred to by most.

F. L. M.



## AUTHOR'S PREFACE

THE aim of this book is to set forth the nature of society as primarily a spiritual rather than a biological reality. The term spiritual as used in this connection is taken to refer to the intellectual, artistic, and moral achievements of civilization—the accumulated capital of knowledge and experience. In contrast with this view, which is the traditional one in sociology, is set forth the prevalent conception that makes the biological factors the primary social elements. It is admitted that in contrasting sharply two such complex points of view sufficient allowance is not made for many diverging and reconciling theories, but in so brief a work these modifications could not be given much place. In emphasizing the creative influences of the social environment, the author pleads guilty to having pushed the argument a little beyond the conventional limit usually set by sociologists.

The statistical study which appears in the appendix and in chapter four was published in practically the same form in the *Quarterly Journal of the University of North Dakota*, April,

## *Author's Preface*

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1914. It is an abstract of a more extended study which was prepared as a doctor's thesis under the direction of Professor J. M. Gillette of the University of North Dakota, to whom grateful acknowledgment is made for advice and aid.

G. R. D.

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## SOCIAL ENVIRONMENT



# Social Environment

## CHAPTER I

### THE BIOLOGICAL POINT OF VIEW

THESE are not many persons, probably, who fully appreciate the revolutionary changes that have come over the modern conception of human nature and human society. If one goes back to the philosophers who helped to lay the foundations of the modern age — Calvin and Locke, for example — he finds that in their reasoning they often drew conclusions from the mental skies of imagination and abstraction. They were not at all particular about the exactness of their facts so long as they succeeded in constructing a theory that agreed with their preconceptions.

The modern thinker, however, distrusts any such airy foundation for his logic. With a hunger for the exact facts he turns, instead, to digging in the soil of the actual past where he finds recorded the sordid details of man's early struggles, and to a careful examination of hu-

man nature as it is today. As a consequence, he has concluded that his family tree does not run back to the gods, but to the beasts. Out of the newly accumulated facts he has built a system of thought, known in general as the evolutionary philosophy, through which he has endeavored to give a consistent account of the development of life in its ascent from the protozoa up to civilized man. If these new theories remained merely in the realm of speculation they would not, of course, have any practical interest, but the fact is that they are as profoundly influencing modern life as Calvin's and Locke's ideas influenced a former age. A consideration of them, though seeming to lead far afield, will therefore bring us face to face with the realities of today.

Because of its emphasis on concrete facts established through the evidence of the senses, modern thought is called materialistic. So far as it bears upon man and his civilization, it is mainly biological; that is, it views man from the standpoint of his animal origin in competition with the various elements of his environment, and subject to natural laws. It may be objected that the biological point of view as it interprets modern life has been overempha-

sized; not that it is materially mistaken in its facts, but that it has failed properly to appreciate the psychological or spiritual elements of civilization. As a result, it is stimulating rather than repressing such evils as commercialism and militarism, which are the products of the inadequately harnessed animal nature of man. It may also be pointed out that restraining and giving direction to the aggressively selfish biological forces, are less obvious but mighty influences arising out of social activities. But we shall first merely attempt to review the story of human evolution as it appears from the biological point of view. In so doing no attempt will be made to gloss over, as so often is done, the naked savagery of the story.

### *1. Biological Principles*

As the evolutionist looks at the matter, the life process began long millenniums ago at the point where in the warm oceans of the half-finished earth certain atoms fell into complex combinations that gave them mass and motion. In some such obscure way originated the primitive protoplasm which is the basis of all living things. This primitive protoplasm as seen, for example, in the relatively formless, microscopic

amoeba, immediately began reaching out with insatiable appetite to its environment in the endeavor to assimilate to itself as food all that it could master. The aggressive growth process thus beginning is taken as the most fundamental principle of life, from amoebas to empires. Growth early branched into the two allied activities of feeding and reproducing—the hunger and love which are said to have built the world.

The second principle to which the biologist calls our attention is that which underlies reproduction. In varying environments the first simple forms of life gradually became unlike each other, and eventually, as the methods of reproduction became more complex, life acquired a certain racial flexibility. In explanation of this flexibility it has been shown that in the growth and conjugation of the microscopic cells which form the bridge from one generation to another, nature throws together the hereditary elements derived from the ancestral lines as if she were playing a gigantic game of dice. Out of this shuffling of the factors of heredity may come fortunate combinations, giving rise to individuals better adapted to the demands of their environment; and thus

life flows, so to speak, into progressively divergent forms. In the process of time the innumerable species and varieties of the vegetable and animal world spring into being.

A third biological principle is the inevitable struggle for survival that arises from the conflicting interests of the different forms of life. Increase being at a rapid geometric rate—2, 4, 8, 16, 32, etc.—it is obviously impossible for all to find food, so there ensues a strenuous competition in which the weaker starve or become food for others. A fourth principle, the survival of the fittest, naturally follows. The strong, the swift, the cunning, the capable that arise out of the chaotic conflict stand forth as higher creations to enjoy for a brief time the fruits of their victory, until the rising tide of competition in turn overwhelms them. Nature's apparent aim is fulfilled in the survival of the fittest, in a progressive series. The losers—the unfit—are forced backward toward oblivion, perhaps to attain a degree of usefulness in becoming food for their betters.

## *2. Early Stages of Evolution*

In accordance with these principles the biologist pictures world history for us in somewhat

the following guise. The first forms of life to emerge from the inanimate were simple vegetable types. The peculiarity of the vegetable world is that it has the power to take the inorganic elements of nature and convert them into its own substance; that is, it sturdily makes its own living by elaborating its tissues from the raw material of inanimate nature. The animal world emerged from the vegetable when in the competition for a livelihood some of the primitive forms discovered a convenient short cut to success in preying upon their kin. The animal world is, therefore, secondary to the vegetable world, living as it does by the devouring of the latter; and in the ascending circles of its evolution it never returns to a grubbing in the elements for a living, but remains the higher exploitive caste of the life series.

To unmoral nature the path of least resistance in the most paying aggression is ever the highway of evolutionary progress. To replenish the earth and subdue it to its own uses was the original commission written into the living tablets of all flesh. So it proved that animal life, rising through its successful conquest of the vegetable, developed differing forms that fell upon each other in fierce competition, and



built up out of their prolonged rivalries the complex series of the animal kingdom. In response to the demands of the struggle came swifter fins and feet, more powerful jaws, and more capacious stomachs. Each weapon of attack was met by a new defense, giving rise to a formidable series of scales, shells, and other armor plate, until the possibilities seem to have been exhausted, and the future passed into the control of more enterprising types that challenged the risks of active life in the open.

### *3. Life on the Land*

Just how animal life emerged from its original watery habitat to the free air of the land we do not know, but we may imagine on the basis of remaining transition forms that, like migrants thrown by social forces from an old world to a new, the teeming sea threw out its adventurers until they established themselves in the new environment. The evolution of land life once well begun, there developed with increasing speed two tendencies previously started. One of these was the development of the brain as an instrument of survival, and the other was the pooling of interests in the forming of groups for mutual protection and attack.

The first of these tendencies aided in the reduction of mere bulk. For a time nature had specialized in giant sauropods and dinosaurs, great masses of armored flesh, but lacking in wits. Less pretentious creatures, acquiring that cunning which was the outward expression of the developing brain, or in other ways becoming better adapted to a changing environment, gradually surpassed their bulky competitors. The second tendency—that toward cooperation—was a secondary result of the improvement in brains, or perhaps some would prefer to call it the cause of that improvement. Some of the early experiments, however, failed by too complete success. The communistic societies of the bees and ants attained a practical perfection in cooperation, but, lacking a progressive force, they continued on the same plane as an example of arrested development.

Among the higher animals cooperation assumed a freer and looser form. The beasts of the field learned to take advantage of the herd as a means of protection, and the carnivorous animals discovering the advantages that lay in cooperative hunting became used to the law of the pack. For both these reasons the primitive half-man who roamed the forests

and sought the shelter of the mountain caves came to value his horde. It was within the shelter of the earliest cooperative efforts that there arose the social impulses and traditions on which the teamwork of human society depends. But we are told to be on our guard against that sentimental appreciation of mutual aid which regards it as the opposite of the struggle for survival. Whatever may be the hope for the future, yet the records of the past indicate that cooperation was merely a preliminary to a greatly intensified systematic struggle for existence and supremacy.

#### 4. *The Beginnings of Human Society*

Accustomed as we are to the conventional regulation of the biological elements of our nature, we ordinarily fail to appreciate the part they play in history. Glossing over the predatory activities of man with the glamour of romanticism, we are in danger of losing sight of their real significance. Students of social evolution have, however, brushed aside the masks under which man has hidden the wolfish aspects of his nature, and the story of human history that they have written forms one chapter with that of the biologist. As already stated, they

may be charged with having slighted the spiritual forces of history, but we will here briefly summarize their story as they have told it, reserving to a later chapter a statement of the psychological aspects.

The evolution of human society began long before the dawn of authentic history, but the general outlines of the story may be seen through the dim light of archaeology and tradition. At first, as man learned to adapt himself artificially to the hardships of varying climates, he gradually spread over the habitable parts of the globe. In this era his conflicts were mainly with the wild animals, though when strange tribes chanced to meet war would likely result. Often in such conflicts men hunted and ate the stranger as they hunted and ate wild game. The first weapons to be used were those lying nearest at hand, such as the stone and the club. With these weapons the early cave men crushed each other's skulls, as the remains found under the glacial drift testify. But natural selection was obviously more a matter of group efficiency than of mere individual superiority. The qualities of inventiveness, subordination to leadership, and conformity to custom came to have the utmost

importance. Out of the demand for a means of enforcing the interests of the group arose in part the fictions of primitive religions, which admirably served the purpose of restraining the quarrelsome and the wayward by fear of spirit agencies and by posthumous rewards and punishments.

The transition from the simple tribal society of kinship groups to the larger civil society of complex class organization is cited as a typical example of the unmoral methods of nature. Faced with the necessity for larger organization, man's feeble intellect was wholly inadequate to the demands that new conditions imposed. Consequently the more complex society was attained only through the play of the most brutal instincts. At the time of the transition the arts of living had materially developed, the soil was by some tribes successfully cultivated, and wealth was being accumulated in the form of herds and flocks. Following nature's pathway of the most successful aggression, the horsemen herding their cattle discovered the short cut to prosperity that lay in attacking their neighbors. The conditions inviting such attacks were, of course, the rapidity of movement acquired through horsemanship,

and the ease with which the booty in the shape of the stolen cattle could be removed—conditions that had hitherto been lacking. Out of such activities grew from the first a degree of organization, for in preying upon each other leadership centered in the most daring and successful robber chief who, as he increased in wisdom and cattle, advanced from patriarch of his polygamous family to ruler of a considerable kingdom. To him as the “fittest” in nature’s sense belonged the choicest of the stolen property and the fairest of the female captives, and his breed multiplied and replaced less efficient breeds. The mastery thus acquired by the warrior had a disastrous result on the social status of woman. From a position of relative equality or even of superiority that she had held under the sway of instinctive family customs, she was thrown into the status of inferiority or virtual slavery that she has occupied during most of the historic period.

The enterprising raids of the cattle thieves soon brought the rude valley farms into their spheres of influence. Here inviting spoils were to be found, for the agriculturalists had adopted a somewhat premature peace policy; not, it is to be feared, from any surplus of

idealism, but because in their situation robbery had not appeared to afford a good business opening. Their rash faith in the kindly intentions of Providence was punished by repeated raids on the part of the horsemen from the distant plains, who dashed upon the weaklings and plundered at will, murdering the men, enslaving the women, and seizing the property as a war indemnity. But the decisive step in the evolution of the larger organization of society was not reached until the conquerors became tired of the heavy work of carting off the plunder and began to settle among the conquered. In this act the foundation was laid of national organization as it is known to history. The conquerors, installed as the primitive aristocracy, lived in fortified homes with their retinue of warlike followers, where they enjoyed a rude luxury based upon the tolls collected from the serfs. In many an unsuccessful struggle the serfs attempted to regain their freedom, but eventually they became broken in to the yoke. At last they even acquiesced in the situation, for, though they were obliged to pay as tribute all the results of their labor above what was absolutely necessary to keep them alive, yet they were at least protected from other

plunderers. Whenever they were threatened by the warlike chiefs of the plains they might appeal to their overlord for protection, and the valor that secured their safety eventually awakened some measure of gratitude. So in time the relation that had begun with brutality grew into a somewhat tolerable reciprocity.

Glancing ahead to the end of the story, we may observe that such a relation between lord and serf is looked upon as essentially the modern state in embryo, being the primary form of property-owner and toiler. For, though organization becomes more complex, individuals change, and the rivalries of business supplant in some measure the competition of war, there is a kind of apostolic succession to be discerned running on the one hand through cattle chieftain, baron, landlord, and money king, and on the other hand through slave, serf, peasant, and factory hand. Kipling, with his usual insight into the ways of empire, has put the matter tersely in the following lines, where he speaks for the toilers:

We have fed you all for a thousand years,  
For that was our doom, you know,  
From the days when you chained us in your fields  
To the strike of a week ago.



And undoubtedly he would find historic reasons to support a hurry-up call for troops to quell the strike.

Though the foundations of modern civilization were principally laid by the activities of horsemen in some such way as described, yet diverse conditions produced many versions of the tale. Along the rivers and the ocean shores, for example, the invention and improvement of boats furnished a mobility corresponding to that of the horseman on land. The life of the pirate soon became profitable and therefore highly respectable. In their boats the sea kings would embark to fall suddenly upon some inoffensive settlement, where they would work their ruthless will. Such hardy qualities of initiative and enterprise we are often urged to hold in high respect, and it must be admitted that some of the proudest nations of today got their start in these activities. Certainly, it seems as if nature in accordance with her ancient policy stamped the aggressive and successful with the seal of her approval.

### *5. The Consolidation of Society*

The primary organization of lords and serfs proved to be merely the beginning of a stirring

struggle of groups out of which were to grow greater nations and empires. In fact, no sooner had the lords of the sword settled themselves upon their subjects than they began to plan attacks upon their neighbors. Having little to do with the common labor of life except to consume the fruits of it, they were left free to devote their whole attention to the pursuit of arms. So developed the knightly character, fierce, ambitious, and war-loving, yet often generous and romantic, and often the patron of the early arts and sciences.

The story of the consolidation of nations and empires through the process of conquest and reconquest is a long one, and need not be dwelt upon here. It was natural that the war game should produce its leaders of superior ability who learned to combine large areas under their sway. The stronger the war lord waxed, the more he reached out for new conquests to add to his dominions and to furnish added revenues; for, through it all, the well-known maxim seems to have been observed, that to the victor belong the spoils. Administration gradually evolved, however, through the pressure of expediency into a somewhat orderly and logical system, though it must be

confessed that the logic of the system was not nearly so plain to the dull minds of the peasantry as it was to the acute and trained minds of the lawyers versed in the traditions of the conquerors. Many were the related systems so developed—Egyptian, Babylonian, Assyrian, Greek, and Roman. To the militaristic, commercial civilization of the Romans, so expert in the centralization of power and wealth, is given the credit for bequeathing to modern Europe the fundamentals of the system of justice it now enjoys. It may be worth while to observe that as a result of the obtuseness of the peasants to the philosophies of their lords, they came to be looked down upon as a lower species, fundamentally lacking in initiative, enterprise, and wit.

### *6. Present-day Society*

Because of the greatly increased production of wealth in modern times, we are apt to conclude superficially that now at least the biological factors as seen in evolution and history have spent themselves as ruling forces. But the evolutionist again insists that we face the unpleasant facts. The modern era has seen a blossoming of feudalism into empires of busi-

ness with great changes in the material conditions of life, yet with no very revolutionary changes, after all, in motives and principles. Slavery and serfdom have disappeared, it is true, but they have disappeared partly because they were less profitable than the wage system that supplanted them. Feudal property, on which the aristocracies of former times rested, has been transformed into the specialized industrial equipment of land and machinery now covered by the general term capital; but in its new form it still continues practically the same relative distribution of wealth and power, and still supports wasteful luxury out of underpaid toil.

Equality before the law has in a measure been attained, but as a result the worker has lost the slight refuge of status that once was his, and in practice the right of the weak to compete on equal terms with his betters has not proved wholly a blessing. Political democracy has bestowed an influence in government upon the masses, but at the same time business has grown into a new feudalism, with hereditary privileged classes, that practically dictates the conditions of working life. Rapid communication has brought the nations closer

together to the great advantage of trade, but it has also aggravated rivalries and produced an intense militarism, backed by scientific invention, which renders insignificant the petty conflicts of the past. On the whole, if competition and the resulting destruction of the unwary is the law of progress, as the Darwinists would have us believe, then in view of present-day rivalries, exploitation, industrial strife, and world war the biological millennium should be not far away.

Such in brief is the unlovely story of the past that materialistic science, with its passion for demonstrable facts, has revealed. It is a story of man's animal origin, of his brute nature, of his cupidity, lust, cunning, and hypocrisy. But, as was suggested at the outset, it is a story that has another side. From that human nature which is of the earth, earthy, where the natural impulse of blind aggression rules, there has blossomed a higher nature capable of appreciating universal aesthetic and moral ideas. This spiritual nature challenges the supremacy of the animal nature, and strives to impose limit and form on the tide of primitive passions that express themselves in social life. Indeed, a more intimate study of history

will show that in spite of the storms of animal passion it is in reality the quiet, creative influences of the spiritual virtues, such as love, loyalty, and truth, that have made possible the wonderful but restless civilization of today.

## CHAPTER II

### THE EVOLUTION OF THE THEORY OF EVOLUTION

THE theory of evolution has served the purpose of interpreting for us the materialistic side of modern society, but we may gain further light if we reverse the usual order of inquiry and look for the social influences which prompted the development of the theory itself. Perhaps we may be able to discover why it is that modern science has stressed so strongly the biological aspects of human nature and so neglected the psychological, or spiritual.

#### *1. Background in English History*

Our inquiry introduces us first to England of the dawning modern age, the social conditions of which we shall attempt to sketch briefly. At the time in question we see feudalism retreating in the background, like shadows before a light. The feudal system was in essence comparatively simple, being the expanded organization of war chief and despoiled serf after the friction of experience had worn the harsh exploitation of the original conquest

into something of a conventional routine. The system rested ultimately on the divine right of the battle axe, but was materially bulwarked by the political activities of religion, with its powerful appeal to the rewards and punishments of a future world.

The feudal game had somewhat lost its zest and was not absorbing the whole of the growing energies of the people, so beneath the questionable shelter of a monarch and a nobility, business began to germinate and put forth shoots. Meanwhile the barons were eliminating themselves by their fierce rivalries, and business further expanded until it began to press against the property interests of the church, which had come into possession of a large share of the best farming lands. Business now showed evidence of a conscience which was peculiarly sensitive to all moral lapses occurring among the churchmen administering the ecclesiastical estates, the upshot of which was that the estates changed hands. Decorating themselves with the titles of the fallen or deposed nobles, the merchants came into possession of the monastic property, and assumed that position of importance to which Providence seemed to be calling them. Their



disapproval of the authoritative religion they had disciplined was further expressed in the adoption of creeds wherein each soul made his own contract with heaven, and in which the individualistic point of view was consistently held.

It should, perhaps, be observed that the phase of business which formed the cutting edge of the forces breaking up the old order was the commercial rather than the productive, and it is consequently the commercial point of view which gives shape to the newly developing social relations. Now, in commerce the contracting parties met in the theoretical equality of the market place and haggled competitively for the best bargain they could severally secure. Trade thus assumed as fundamental principles the whole-hearted pursuit of individualistic interests, the right to the possession of all the property that one could produce or acquire through contract, and the equality of all men as free agents in bargaining. Practically, this equality worked out much like pitting against each other in a tournament contestants who actually were very unequal; when forced upon those who were not assertive in bargaining it resulted little to their advantage.

Particularly to the serf, who must fight without the weapon of property, did it prove a questionable blessing. Under feudalism he had, of course, been exploited, but he had at least been somewhat secure in his humble position; now, as the commercial point of view came to prevail among the upper classes he was urged from his attachment to the soil into the precarious, if bracing, atmosphere of freedom. When wage conditions were unusually good he required only the urging of his own interests; at other times he was driven forcibly from his humble cottage on the manorial estate into vagabondage by the superior competition of the sheep-raising industry, which did not require so many laborers as did agriculture. Thus developed that individual freedom in commercial competition which later times have so excessively glorified as the foundation principle of justice—a principle which in the concrete spelled unrestricted wealth to noble and merchant, but starvation or crime to multitudes of the dispossessed peasants.

## *2. The Industrial Revolution*

The evolution of business was a slow matter involving many revolutionary political

changes and much foreign conflict. The merchant class, strengthening their hold on government, made of the Tudors efficient tools, but had to fight the reactionary and despotic Stuarts. At length a new dynasty was imported on the basis of a written contract, and under the nominal rule of the new monarchs business found freedom to expand its foreign trade into all parts of the world. But the greatest step in the rise of business, and the business point of view of individual competition, came with the phenomenal development of machinery a century and a half ago. The increasing demand for goods to supply foreign markets suggested to some unimportant mechanics certain improvements in their tools. In rapid succession came the series of inventions that are comprised under the name of the factory system. Then suddenly there arose before the dazzled eyes of business leaders alluring visions of wealth, and with the spirit of their freebooter ancestors they clutched eagerly after it.

Meanwhile the serfs — such, at least, as had survived the blessings of their new freedom — had succeeded to a considerable extent in establishing themselves with the village and town

populations in the textile industries, working in their own homes at their handicraft occupations. A measure of prosperity, or at least of stability, had come to them when, crashing through their humble markets, came the tornado of the factory. Competition with the machine was useless, so after a few outbursts of irrational temper they begged employment from their new lords. As to what followed, we may well pass over the details in silence—the poverty, the degradation, the women toiling under the lash, the children consumed in the process of cotton manufacture. We can at any rate comfort ourselves with the assurance that the victims were free to enter into such contracts as they thought best.

As the anticipated profits came in, the manufacturers and related commercial classes became rich beyond all previously known limits. Naturally, with such boundless prosperity they acquired a due sense of importance that resented any interference with their business freedom. What warrant, they asked, had a mere government to interfere with their sacred liberties? for the nation under the control of its older aristocracy was attempting from the force of habit to keep up a semblance of sys-

tem. Their discontent with governmental regulation came to a head in the campaign against the established poor-laws. It appears that England was, in a measure, relieving the wants of her innumerable beggars, but the unwisely administered charity had the effect of interfering with dividends, since it eased the harsh conditions that served as a spur to labor in the hated factories. As a result of the campaign of the factory lords, charity was eventually curtailed, though some concessions had to be made to the combined forces of custom and sentiment. From the first of the controversy, however, the apologists of the business leaders felt the need of a philosophy that should forcibly represent charity as an evil—a need that presently was supplied, as we shall see.

In America, the same point of view as to business liberty and the breaking of the restrictions of government came to prevail. With the active sympathy of the new business classes of England, a revolution was fought to escape the regulations that the imperial government imposed. The American farmers, who had little stake in the quarrel, bore the brunt of the conflict, and through their sacrifices the new gospel of free competition was set up in un-

mistakable terms. The declaration of human equality and the rights to life, liberty, and the pursuit of happiness—more explicitly rendered in later versions as the pursuit of property—was the epitome of the newer commercialism. It, of course, contemplated no real check upon existing aristocracy so far as it was based upon property, though in a new country with plenty of cheap land it did offer the poor a chance to climb into that aristocracy during the process of the country's growth to maturity—an opportunity that has been enthusiastically embraced.

### 3. *Laissez Faire*

The social philosophy thus developing in England and America, and, in fact, wherever the influence of the industrial revolution was spreading, is generally referred to as the doctrine of *laissez faire*. According to this doctrine the function of government was to be little more than the keeping of the peace, while in the industrial processes people freely competed for power in the form of property. Thus civil government, though theoretically retaining sovereignty, was to be pushed aside in favor of capital as the social directive agency.

More concretely, power was to pass from the hands of established aristocracies, then controlling government, into the hands of the new business classes rising to positions of influence in the industrial world on the basis of the capitalistic manufacturing system, and it was naturally these classes that inspired the theory. Of course, as it turned out, the *laissez-faire* theory in its extreme form proved so unjust to the masses that its harshness was tempered by the enactment of factory acts and other regulative legislation; yet, in spite of its announced abandonment, its deadening influence still lies heavy upon western civilization, bulwarking the irresponsibility of wealth, fostering the intense absorption in money-getting, and preventing the proper consideration of wise measures designed to foster public interests through a closer-knit social organization.

The discovery of evolution, with its emphasis on competition and the survival of the fittest, came directly out of the *laissez-faire* conditions just sketched, and was related to the endeavor to justify the prevailing struggle for property. It would, of course, be ridiculous to say that the scientists who worked out the evolutionary hypothesis were consciously ani-

mated by an endeavor to justify the newly established social system of which they were a part. But it can be shown that the impetus to some of their best work came originally from such an endeavor, and in addition it was unavoidable that the spirit of their age should somewhat enter into their interpretation of newly discovered data. The rise of capitalism with the industrial revolution created tidal waves in the world of philosophic thought—a world which, though bounded on the one side by fundamental ideals, is yet on the other side intimately in touch with social reality. The new forces, tearing apart the social fabric and building on the basis of existing world trade an empire of capital, appealed to the imagination and demanded justification. In particular, there was honor and preferment for the thinker who could interpret the trend of the times to the satisfaction of the powerful rising classes. In response to the demand arose new schools of thought.

In the sphere of economic interpretation the names of Adam Smith and Ricardo stand out most prominently. Though the former, because of the priority of his work and the humanitarian spirit which it embodies, has



gained a wider fame, yet it is in reality Ricardo who stated the economics of capitalism with the clearest vision. He, too, affected a humanitarian outlook, yet he did not allow this outlook to interfere with the machinelike logic with which he depicted the struggle of the market as the soul of the new social organization. Whether or not he believed there was any higher ideal vouchsafed to the soul of man than the pursuit of power in the form of property, the result of his analysis of capitalism was to set it up as an embodiment of justice demanding the homage of all men. Though his economics have been amended somewhat in their descriptive aspect, and amended markedly in their social implications, yet they still stand as the classic exposition of capitalism.

Here we see pictured society as an aggregate of warring economic units, each free and equal unit engaged in the complexity of pursuits that make up the modern industrial process, and each intent on getting the most for himself. In the market the opposing forces of individual economic aggression are measured, and each unit gets all the returns he can for his land, capital, or labor. In the conflict of bargaining, the contestant armed with prop-

erty might ride down the propertyless like a giant fighting among pygmies; no matter, there had been discovered in the balance of forces the operation of a universal natural law, the law of supply and demand. This law, it was assumed, presided like a divinity over the struggle and insured impartial justice to all.

It was the discovery of the universal operation of the law of supply and demand under unchecked capitalism that so fascinated the men of the *laissez-faire* epoch. Recently liberated from the rule of personal authority in church and state, they felt the inspiration of what appeared to be a new justice and a new freedom, founded on immutable principles instead of on the whims of personal rulers. Henceforth there was to be a reign of law, not a reign of persons or classes. So fascinated with their beautiful theory were they that they refused to see the concrete facts of the tyrannical rule of the moneyed classes in the factory.

The illusion of impartial law in the market was, under the circumstances, a natural and unavoidable one. Seen in perspective after a fuller experience with *laissez-faire* ideas, we can today easily point out its fallacies. On

the basis of the accepted natural rights that the commercial point of view had developed—of personal liberty, of dependence on contract, of the pursuit of wealth, of unrestricted property rights—there must necessarily come about a balance of the conflicting economic forces, with a resulting setting of prices and distribution of wealth. As a mere physical principle, if several forces acting in opposite directions are brought into play in the same field, they must necessarily unify into one definite tendency. So in the market the bargaining aggression of each individual merges into other similar forces by what may be called a natural law; though, as a matter of fact, the natural law is nothing more than the statement in general terms of the result. There is evoked no transcendent principle to safeguard justice except the questionable one that economic might makes right. The factory lord, on the basis of commercial contract, exploited the masses of a century ago more mercilessly than had his predecessor of feudalism, yet he was absolved from guilt because he was following a natural law—the law, forsooth, that a man takes all the gain he can get. And to question the validity of the natural law was

held to be as foolish as questioning the law of gravitation. Feudal conquest may be defended on the same grounds, but let that pass.

Today, the very fact that the market is held to be controlled by natural law places it under suspicion, for it is now seen that society itself is essentially a thwarting and molding of natural laws into harmony with social ideals. Society involves the supremacy of intelligence over matter, and of social ideals over instincts. Hence, the modern world is gradually moving to hedge the market about with various restrictions which serve to protect the economic weak against the economic strong. Further, it can readily be seen in history that the ideal of justice thought to have been discovered in the *laissez-faire* philosophy was nothing more than a revision of the ancient commercialism that like a cancer has time and again cut into the living tissue of social organization to build its false aristocracies. It was the commercialism symbolized by Baal worship that awoke the inspiring protests of the Hebrew prophets; it was free contract under a landed aristocracy that was destroying the early Greeks, until wise legislation diverted the social energies into the channels of the Periclean age. The evils grow-

ing out of the gross commercialism of later Rome are too familiar to need description. It was the spirit of private greed more than the social spirit that urged the *laissez-faire* philosophy, lulling men into the belief that if each served Mammon whole-heartedly there would emerge a natural law to insure justice. The wish of the economic strong was the father of the thought.

#### 4. *The Theory of Malthus*

Though the economic philosophy exemplified in Ricardo served as a satisfactory defense of commercialism, the spirit of inquiry born of the stirring life of a new era sought for deeper foundations and a more comprehensive knowledge of life. As a definite incentive to thought there existed a steady market for ideas tending to provide a further sanction for the new order of things. So thought reached beyond a mere descriptive economics into historical and biological foundations. In so doing the motive of defending commercialism still held, though in a lessening degree. It is certain that Malthus, the thinker who gave to economic apologetics the trend toward biology, was consciously seeking to combat the critics of com-

mercialism. And it is his book, *The Principles of Population*, antedating by a few years the work of Ricardo, that serves as the connecting link between the economics of commercialism and the more speculative philosophy culminating in the evolutionary theory. Ricardo, looking back to Malthus, pictured the natural law of the market; a generation later, Darwin, also taking his cue from Malthus, discovered a like natural law in the competitions of the lower orders of life.

The central idea elaborated by Malthus can be briefly stated. His objective is the cause of the poverty then existing in England. Labor, he assumed, is a commodity that finds its true valuation in the market. Therefore, if labor brings less than a living wage, the remedy lies in diminishing the supply by restricting the birth rate. The workers were rearing too large families, and should apply prudential restraints. Going farther afield, Malthus pointed out the geometrical rate of increase of population in the face of limited food supply, with the resulting keen competition and elimination of surplus numbers, and in so doing gave to Darwin the suggestion of the broader idea of the survival of the fittest. The reception that

was given to Malthus' work by the defenders of the capitalistic order may readily be understood. The factory lords who had so ruthlessly subjected the working population to their will could now shift to the Principle of Population all the responsibility for the social tragedy they had made out of the coming of the machine age. The rate of reproduction of the poor was the sole cause of their poverty. The remarkable continence of the rich, in addition to their conspicuous abstinence from consumption, was the cause of their riches.

It will be observed that Malthus, like many another philosopher, began his argument by practically assuming that which he wished to prove. A professed champion of commercialism, he begins by assuming the unquestioned validity of the market as a standard for measuring even the family life. He has, of course, pointed out much that is true; the connection between a natural birth rate and low standards of living is obvious. But why the birth rate should be so singled out from the many characteristics of the low-standard classes is not so obvious. And that any degree of permanent social betterment could be attained through the preaching of a low birth rate while the

competition of the market remained unchecked, is still more questionable. It is true that the propaganda of neo-Malthusianism has enabled families to rise in the social scale, though, unfortunately, not without the accompanying danger of a degenerative race suicide. But the raising of any considerable mass of population has proved to be far more practicable through legislation checking commercialism and establishing standards. Given improved standards of living as set, for example, by factory laws and compulsory education, and the desired restriction of population readily follows, just as other marks of rational living follow. The world is indebted to Malthus for pointing out one aspect of natural law that needs wise regulation for the good of society, yet he failed to see that the unrestricted play of individualistic forces in the market is equally as dangerous to social progress as the unrestricted play of reproductive forces.

The doctrines of Malthus and the other *laissez-faire* economists proved to be convincing and logical to contemporaneous England, particularly to the rising classes. Indeed, even the poor began to be reconciled to the situation, and gradually learned to accept with grati-



tude all that Heaven and their betters sent. Thus the market came to take its place as the unquestioned arbiter of society—a place that, in spite of many beginnings in social legislation, it still retains.

### 5. *The Doctrine of Evolution*

As has already been said, the transition from Malthus to Darwin took place in the realm of speculative science rather than in the more practical field of political economy, and is a product of the intellectual activity awakened by the machine age. Yet the evolutionary philosophy, though apparently remote from practical considerations, swings back eventually to reinforce commercialism, as will be pointed out. In the development of the theory a considerable group of advanced thinkers, both English and continental, were engaged. The main approaches were made through geology, and many thinkers early grasped in a general way the idea of a progressive evolution of life forms on the earth; one pioneer, Lamarck, even worked out an ingenious though fanciful hypothesis explaining nature's method. The evolutionary point of view was also anticipated in literature before it found adequate scientific

expression, as may be seen by reference to the works of both Emerson and Goethe. It was not, therefore, the concept of evolution, but rather a scientific demonstration of a particular method of evolution, that gave such a prestige to the works of Darwin. The idea of the survival of the fittest—an idea that seems so much at home in nineteenth-century England—is Darwin's essential contribution. And that there existed an affinity between the Darwinian point of view and the dominant spirit of commercialism is indicated both by the fact that Darwin found his idea already half stated in the social studies of Malthus, and also by the application of the evolutionary hypothesis which was quickly made to the social questions of the day.

Darwin's scientific work was in the field of biology; it is to Spencer that the honor belongs of rounding the theory out into the full proportions of a world philosophy. Spencer found in all the departments of concrete knowledge, from astronomy to human society, a "process of development toward equilibration." And in accordance with the spirit of his age he arrived at *laissez faire* as the scientific principle that should determine govern-

ment. Obsessed with the fixity of natural law, he held any serious endeavor to control competition in the market to be childish, and he found the highest wisdom in allowing nature to run its course.

The phase of Darwinian evolution that most demands attention from the social point of view is the central idea of competition and the resulting destruction of the weak as the cause of progress—practically the exaltation of natural selection to the place of the creative principle itself. It may be said in passing that this emphasis is much lessened in present-day opinion, according to which the creative power in nature is an unexplainable life energy to which the survival of the fittest is secondary. With Darwin and his followers, however, surplus population, competition, elimination of the weak, and the survival of the fittest in an entirely unmoral sense, was nature's law of progress.

#### 6. *The Application of Darwinism*

The possibility of applying the Darwinian hypotheses in support of *laissez-faire* society was quickly seen, and the details of that application have been worked out in large part by

the modern eugenists, though it should be said that not all of them go to the extreme of the biological argument. According to the evolutionary philosophy as thus worked out, society is considered to be a continuation of the natural struggle seen in the world of the lower animals and plants. Overpopulation, the basic factor of progress, precipitates struggle, whether of the battlefield or of the market. Dominating the struggle rise the world's aristocracies, both feudal and commercial, which represent favorable biological variations, the higher types of the human species. Progress is to be measured by the degree to which these superior breeds succeed through the competition of life in crowding out the inferior breeds, for social organization is thought of as a mere function of the biological qualities of a population at any given time. The eugenic philosophy, then, amply met the demand felt by the *laissez-faire* thinkers at the time of the conflict over the poor-laws. Not only was poverty natural, as Malthus had shown; it was now also seen to be the agency of all enduring progress. In the shambles of the slum, where drifted the broken and the beaten, nature was eliminating the so-called inferior stock; hence,

charity, social legislation, or, in fact, any attempt to interfere with the severe competition which wore out and flung aside the workers, was regarded as unscientific. The law of natural selection in society should not be thwarted. Let the commercial struggle go on; let the able and the shrewd build their leisure classes on the basis of ownership of land and other property; let them increase in numbers while the severity of conflict causes the weaklings to be exploited and to perish, and progress was considered certain. By some extremists it was even thought to be advisable to promote vices such as drunkenness and sensuality, since by such means the unwary might be entrapped and destroyed. As one scientist phrased it, keep "a wide open door to hell," and so let the unfit perish and the fit survive. Man's kinship with the animals having been definitely established, society was to find its pattern in the jungle. Such was the practical, though unwarranted, outcome of Darwinism.

With Darwin and Spencer that burst of intellectual life which had come with the advent of the machine age reached its height. Even during their time it had begun to lessen. British thought became timid, and the intel-

lectual capital of the world moved elsewhere. Except for the eugenics movement, which, as we have just seen, was merely an attempt to apply evolution to social problems, England produced no further noteworthy developments of philosophical thought. A feeling of uncertainty prevailed. The very emphasis with which the logic of evolution was repeated revealed a chilling doubt as to the foundations of economic life.

### *7. The Reaction in Literature*

The feeling of uncertainty found expression in literature during the whole period of the industrial revolution and the establishment of capitalism. Carlyle obtained a respectful hearing for that stormy protest which came from the lonely anguish of sight in the midst of blindness. How well these words of his caricature the prevailing spirit:

Ours is a world requiring only to be well let alone. Scramble along, thou insane scramble of a world; thou art all right and shalt scramble even so. And whoever in the press is trodden down has only to lie there and be trampled broad.

In milder spirit the poets also reflect somewhat the same attitude. Wordsworth, after

an outburst of youthful enthusiasm for the rights of man, suddenly awakened to the sinister aspects of commercial freedom, and henceforth devoted himself to the pathos of humble life. Matthew Arnold voiced his pessimism over

. . . . this strange disease of modern life,  
With its sick hurry, its divided aims,  
Its heads o'ertaxed, its palsied hearts.

But it was Tennyson who best reflected the spirit of nineteenth-century England. Throughout his chastened verses runs a minor tone of gloom whenever he deals with human society, as is seen, for example, when he makes one of his characters thus refer to the Deity:

I found Him in the shining of the stars,  
I marked Him in the flowering of His fields,  
But in His ways with men I find Him not.

Yet the poet does not altogether despair. He looks forward in words that now appear almost prophetic to a great debauch of war with "the nations' airy navies grappling in the central blue," but after that, as he thinks, "the kindly earth shall slumber." Whether the latter phrase of the prophecy is likely to be fulfilled or not, it is at least expressive of the respectable

conservatism of Tennyson's England. Luxuriously clothed and housed, with wealth that expanded while they slept, the English moneyed aristocracy asked only to be let alone. To bother over social evils that the evolutionist had shown to be really necessary was bad form. With serene faith they echoed Tennyson's words,

Oh, yet we trust that somehow good  
Will be the final goal of ill,

while the poet, having cast this radiant blossom of hope to the slum dwellers, soothed his own sorrows with a coronet.

### *8. The Dilemma of English Thought*

In his greatest poem Tennyson has, however, gone further and suggested the logical difficulties in which English philosophical thought was halted. He speaks of man, Nature's latest work,

Who trusted God was love indeed,  
And love creation's final law —  
Tho' Nature, red in tooth and claw  
With ravine, shrieked against his creed.

Now the spirit of English commercial competition as justified by the evolutionist, and



as it actually expressed itself in irresponsible luxury based on revolting poverty, was obviously akin to "Nature red in tooth and claw." Opposed to this was the weak social instinct and tradition which asserted the unity of the race and the mutuality of society in the ethical ideal of a God of love. Here, then, was "Nature and God at strife" in English social tendencies. Such a dualism was, however, a fairly accurate representation in poetic terms of the nature of society from its beginning, for society consists of a harmonizing moral force imposing itself upon an unmoral realm of natural law—a divine principle subordinating the world of the flesh, to borrow theological terms. The dilemma of English thought lay not in that it had felt this dualism, but in that it had linked itself with Nature instead of with God in the strife of which Tennyson speaks. In fact, its whole development from the earliest modern awakening on through Malthus and Darwin to Benjamin Kidd and Karl Pearson was an exaltation of natural law with its unmoral operation, and a consequent implicit repudiation of the demands of the higher social nature of man. Basing its reasoning on the natural and the animal, intellec-

tual England, in sympathy with the unsocial attitude of the factory lords, had developed a philosophy which found no vital place for that fundamental idealism and religion which expresses the essence of society. In fact, England's most popular sociologist after Spencer calmly assigned to religion the function of soothing the unfit into accepting their destruction.

And yet, having gone so far, English evolutionary thought was afraid to go to the logical conclusion that its premises demanded. For the logic of an evolution that has missed the meaning of society leads from commercial competition to militarism. Nietzsche, with his faith in unfettered, unmoral competition, stands at the logical conclusion of the argument. But militarism was inconsistent with the instincts of the British commercial classes, who were perfectly satisfied with the results of business exploitation. Having entered the field first and extended their operations until they had obtained a firm hold on the most promising markets and investment opportunities, they desired all the ambitious of the world to play the game for power in their way. They had to fight Napoleon to prevent his establish-

ing a world empire, but in general they deplored war and avoided it. This, then, was the dilemma of *laissez-faire* evolution, a logic that approved of exploitation through the might of money, but that became silent or resorted to sentimental cant when exploitation by the sword was mentioned. Logic, however, is merely one aspect of life processes, and life usually refuses to stop halfway. So eventually aggressive commercialism became militarism in spite of all efforts to stop it.

When the vigor of English intellectual life ebbed, leadership in the world of thought passed definitely to Germany. It is consequently to Germany that we must turn if we would trace the later phases of evolutionary, materialistic philosophy. The social conditions which form the background of German thought first demand our attention.

### *9. German Social Development*

The chief contrast between English and German social development lies in the differing ratios of strength between feudal and commercial aristocracies. In England the impetus of commercialism, arising from a favor-

able geographical position and from the coming of machinery, thrust aside feudalism, with all its disciplining qualities. In Germany, however, the feudal classes continued in power, modified by and yet subordinating commercialism as it came in with the industrial revolution, and furnishing that strong core of national organization which England so decidedly lacked. Hence the emphasis on freedom which the English merchant and factory lord inspired is paralleled in Germany by the emphasis on duty to the state which the feudal lord directs. Such in very general terms is the contrast between the two countries.

The tendency in German life which makes it so uncongenial a home for the *laissez-faire* philosophy goes back to medieval roots. In the later Middle Ages, when the struggle for survival still took the form of open aggression with the sword, some of the titled leaders of that aggression condescended to call into council certain men of the schools, the so-called Cameralists. With their aid was worked out a policy founded on the idea that the best way to mold serfs into worthy supporters of the glory and power of a prince was to make them prosperous and happy. Thus began in a most

natural way that paternalism and systematic social organization which has borne such notable fruits in modern Germany. Perhaps the greatest single step in the recent extension of that policy was taken when Bismarck, acting for the throne, started the social insurance movement. It is noteworthy that in so doing he officially announced the government's opposition to the *laissez-faire*, survival-of-the-fittest policy, and set forth in opposition to it the policy of protecting the poor against the greed of capital in accordance with Christian ethics. In this pronouncement he set clearly in opposition the system of competitive gain through bargaining, which the evolutionary philosophy had championed, and the social policy of checking individualistic commercial aggression in favor of the good of the organized group. It is, of course, easy to attack his position as determined by the self-interest of a militaristic dynasty, yet the wisdom and essential justice of the policy is attested not only by its contribution to the well-being and efficiency of the German masses, but by the fact that the policy has been adopted in most of its essential features by other industrial nations, including England. Even the United States, where

capitalism has enjoyed the greatest freedom, is beginning to swing toward social legislation.

### *10. German Interpretations of Evolution*

The evolutionary point of view began its development in Germany as early as in England, but it lacked the incentive of an immediate practical application. In its earlier phases it appeared more conspicuously in theories of pedagogy than in social theories. Kant, to whom modern Germany looks as practically the founder of its working philosophy, shows little resemblance to the evolutionists, yet he has laid down a principle as to the place of materialistic science which is fundamental in evaluating the evolutionary theory. He insisted that the world in which scientific thought moves—the world of cause and effect, and hence of evolutionary processes—is a lower world that must be dominated by, instead of dominating, man's inner moral nature. Though he spoke subjectively and not in a way that fits into our present wider knowledge, yet the principle is a basic one, and the failure to perceive it is the prime reason for the unsocial tendencies of English thought. Kant, with his international outlook and his insistence on the

supremacy of moral idealism over the physical, is a master mind of the modern world whose significance will be better appreciated when mankind has broken through the cloud of error into which materialistic science has plunged ethical thought.

It was Hegel's philosophy of history that founded the interpretation of evolution which later took hold of the German mind. Hegel achieved a distinctly evolutionary point of view in history on the basis of national struggles for survival and supremacy. The state was considered an organic growth engaged in an inevitable struggle with other states. So basic was this law of conflict that there could be no binding force in international law, since the first and foremost duty of the state was to succeed in the competition. Practically, Hegel's philosophy was a reflection of the situation in which Germany found herself during the stormy years of Napoleon's career. During that time the need of national unity was strongly felt, and the fact of international struggle was painfully evident.

The feeling of national organic unity and the emphasis on international competition became fixed in German thought by the events

of a later period. In the first place, political unity was achieved about the aggressive military organization of Prussia, and, in the second place, the remarkable industrial expansion of Germany brought inevitable clashing with the interests of other nations. So the internationalism of Kant became an empty figure, while his concept of duty to a moral ideal became localized in the form of obedience to the Hohenzollerns. This popularization of the divine-rights idea was a symptom of extreme nationalism—a stage in social evolution that had been lived through in England and France, where it had been succeeded in the popular imagination by the sway of majorities. Thus it came about that the evolutionary philosophy in Germany received an interpretation in which the state figured more strikingly as the unit than did the individual. The completed philosophy of history as an evolutionary struggle between races and nations was elaborated into a sociology by Ratzenhofer and Gumpowicz, and was reflected and popularized by such men as Treitzschke and Bernhardi. This philosophy saw in war what English thought had seen in business competition for property; namely, the necessary, predestined means of



achieving a more advanced civilization. Where English thought had centered upon the individualistic struggle for power in the market as the method of evolution, German thought had come to center about the nation as the unit in a struggle which glorified war as the final arbiter.

### *II. Evolution and Modern Conditions*

It must be admitted that there is a degree of exaggeration about attributing the idea of individualistic commercial aggression to English thought, and national militaristic aggression to German. In reality, national systems of the present day differ only in emphasis and not in principle. English capital seeking the exploitation of foreign lands has forced an imperial naval policy to protect its profits. German commercialism under the fostering care of a militaristic government has similarly reached out for the gains of world trade and investment. So-called democratic countries like France and the United States have evolved or are evolving practically the same organization; effective social control is consolidated in massed capital, which reaches its tentacles out to remote parts of the earth and compels the flag

to follow and support business. Everywhere capitalism grows into vital organizations like great super-beasts which have almost passed beyond the control of the people concerned. Back of industry stand the money-lending classes who urge business enterprise to pile up the social debt of capitalization; and the pressure of the demand for dividends, blindly following the line of least resistance, forces society toward anarchy or war. But, after all, the real foundation of the system is in the thinking of the masses, in the outlook on life which finds its excuse in the Darwinian philosophy.

With such a social parentage was evolved the cosmic evolutionary philosophy in all its varied applications. The key word of the philosophy is struggle—the struggle of the individual toward a secure leisure-class position, and the struggle of the nation toward military supremacy in the interests of its foreign trade and investments. How old a religion is this which materialistic science has evolved—the worship of Mammon and Mars! Yet, though the evolutionary philosophy is morally bankrupt, it has performed a great service in compelling man to face the realities of his exist-

ence. As a matter of fact, the modern world in its unsocial aspects is best understood when viewed in the light of the evolutionary struggle. And it is essential that the world be understood in all its brutality in order that the highest manifestation of life—man's moral idealism—may subject the natural order and at length guide it out of the path of bestial conflict it is now treading.

## CHAPTER III

### THE NATURE OF SOCIETY

SCIENCE at all accurate and reliable is of very recent origin. And even yet the solid land of demonstrated law is but a tiny island in a universe of uncharted depths. The superficial facts about the earth, the physical and chemical properties of the commoner substances, and the principles of mechanics are fairly well known. The phenomena of plant and animal life are much less clearly understood. Psychology, particularly in its applied aspect as the art of education, is so uncertain as scarcely to warrant classification as a science. And when we come to the generalizations of the social sciences we find ourselves beside the deep seas of fable and opinion, while scientifically planned social organization has scarcely passed the initial stage. The most we can hope to do, then, in pointing out the nature of society, is to indicate a few of the outstanding historical features of its evolution. The emphasis will be placed upon the spiritual

forces creating social unity rather than upon the biological forces that engender conflict.

### *1. Darwinism and Sociology*

Not only is our sociology inadequate, it is so warped by inharmonious development as to be sometimes misleading or even practically false. Social thinking, so far at least as it claims scientific standing, has arisen as a side issue from biology. The evolution of plant and animal life, viewed in the light of the Darwinian theory—with the emphasis placed on the natural struggle and the survival of the fittest in that struggle—has been made the basis of recent attempts to understand social evolution. It has therefore come about, as we have seen, that society has been viewed as a struggle of individuals in the market for supremacy and survival through the ownership of property; and this view, abstracted from a passing phase of economic history, has been considered an inherently just system resting on unchangeable biologic law. Or, again, social evolution has been viewed as a struggle of groups, states, or races for supremacy, and the principle of the survival of the fittest has been called upon to pronounce its benediction

upon militarism. Yet in spite of established customs of exploitation through business and destruction by war, it is evident at even a glance that society normally is a principle checking and controlling the selfish impulses of the individual in the interests of a larger unity. It is true that the biologic principles of struggle, exploitation, and the elimination of the weak persist. Society, the highest product of the evolutionary scale, sums up in itself what has gone before, but its essence is that which controls and uses these elements for more far-reaching purposes. Just as the well-poised character is something more than the sum of certain animal appetites, so is society something more than a conflict of individuals and groups contending for mastery.

## *2. Creative Evolution*

Not only does the Darwinian conception of life fail to explain society, but it even gives a one-sided view of the lower orders of creation; and since this view has been carried over into sociology, it will be worth noting here. The Darwinian theory is inadequate in that it has elevated the principle of struggle and selection into the place of the creative principle.

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That this assumption results from a narrow perspective has, however, become more and more evident. The publication of Bergson's *Creative Evolution* marks the complete reaction of modern thought from the older position, though Bergson was by no means the first one to state the new doctrine. The basic fact of evolution is not competition, but creation. At the source of every advance, life taps the creative energies of the universe, and new forms bud into being. Beneath all life, beneath the external fact of the natural struggle, is the primal urge of creation to push out into greater complexity of form. Because this evident fact could not be explained on mechanical grounds, because it implied an element that could not be subjected to intellectual analysis, it was avoided by the science that came with the machine age. While appreciating today the growing importance of the intellect as the means life uses for shaping its higher expression, we realize now what a mere tool it is in the grip of the elemental forces that lie beyond its vision, and we no longer are ashamed to confess our ignorance of how chemical and physical properties can correlate and become one with self-conscious mind.

From the standpoint of its evolution life begins with the crystal. Here, from the hidden sources of energy, formless matter takes form in straight lines which, broken or re-directed, produce a complexity of geometrical forms. These forms in their completest development predict in miniature the outward shapes of higher types of life. As if broken down by endless clashing, the life energy next appears as protoplasm, which flows into the curving exterior of the cell, and from that into worm and fish, reptile and beast, bird and man, as the compressing forces of the environment allow. The varied lines of growth, striking out in their effort to use and master the environment, clash in strife. Some disappear, others survive only as a food supply for superior types, while still others become the source of new energy that makes of their descendants higher creations. In spite of the anarchy of conflict, Nature reveals her inner spirit in beauty of form, rhythm of motion, and harmony of flower and song. Even in its pre-human stages, life is not comprehended when it is seen as a mechanical process of conflict with survival of chance-adapted individuals. We are nearer to the heart of things when



with the poetic mind we hear Nature's varied language, and grasp life's urgent progress toward complete self-expression in universal harmony and law—a movement that begins in conflicting eddies, merging into larger streams that seem to prophesy a greater ocean.

### 3. *The Essentials of Society*

As a description of the outward clashing of the myriad forms of life, the factors involved in the conflict, and the conditions determining the results, Darwinism is admittedly true. But with the beginnings of human society the course of evolution changes so decidedly in character that it can be no longer adequately interpreted by the same philosophy. To begin with, society arises as a reaction from the individualism of biologic selection. It evolves as a place of refuge from the storms of competition. Its essence, then, is an antagonism to the individualistic, selective struggle, and to the egoism which that struggle engenders. It demands from the individual devotion and self-sacrifice to outweigh his selfishness. The group may be in competition with other groups, and the individual in the group may still be subject to selective influences, yet society in

its origin is a principle transcending and promising eventually to harmonize the anarchy of the natural struggle.

But human society is not merely a system of mutual aid. In fact, simply from the co-operative standpoint, it does not represent the climax of nature's work. The societies of insects, such as the ants and bees, ages ago attained perfection so far as the complete subjection of the individual to the group is concerned, yet that which is the distinctive feature of human society they entirely lack. Their cooperation is rooted in instinct, which is a matter of inherited physical structure. Human society, however, is primarily spiritual and only secondarily biologic; that is, conduct is guided by the accumulation of custom, tradition, religion, law, science, literature, and all the intangible elements that are transmitted from generation to generation by imitation and formal education.

With the beginning of human society, progress becomes a matter of the struggle for survival of custom over custom and idea over idea, and only secondarily of individual over individual. The spiritual element, rooted though of course it is in the biologic, becomes

the predominant factor of evolution. And because of this, human society becomes a progressive instead of a static cooperation, relatively independent of biologic selection. Through society, man without essential biologic change extends his senses and his powers into mechanical forms that far surpass the creations of the lower species, and enters through trade into cooperations that are world-wide in their scope. Thus the vital harmony which seems struggling for expression in the prehuman stages reaches its birth, and man becomes a center of organization drawing into the sweep of his system the physical elements of the planet, much of the animal and vegetable kingdoms, and the lives of his fellows. To be sure, mankind is as yet close to the brute, his earthy chrysalis still clings to him, his systems are limited and imperfect; but the spirit within him and the creative ideals which are urging him on point to an eventual world-society progressively interpenetrating nature by a knowledge of its laws.

#### *4. Human Nature and the Social Heritage*

The biological basis of human society is, then, not a matter of fixed instincts, but of

extreme plasticity, of power of imitation and suggestion, and of capacity for developing and transmitting ideas. As the prehuman came to the human stage it was as if the mind which at first appeared as form and instinct rather than as rational consciousness rose into shapes that could disembody themselves at will. Ideas which had been things of flesh became free spirit, to live and grow from age to age in the souls of successive generations of men, and to leap the barriers of time, continent, and race. Primitive man poetically grasped the truth of the human soul when he thought of it as something passing like a dream shape from the body and finding lodgment in other bodies, or when he felt the living presence of departed ancestors with him in his struggles. For ideas, whether crudely embodied in custom or scientifically stated in textbooks, are living things that pass from soul to soul and from generation to generation, to mold the character and determine the actions of the recipients. So the experiences and experiments of the past go with the living generation, wrought into their lives as they grow into the customs and spirit of their times.

Human nature is educability. It is the

power of forming habits in a social environment through the various influences of conscious and unconscious education. It is based upon a nervous system having dynamic tendencies rather than fixed instincts, and depending for its development on the influences surrounding it as the vine depends upon the trellis to which its tendrils cling. Without a social organization into which to climb, man would not grow above the brute. That which is human in him is the response his plastic nature makes to the lives and influences of others. This is not to deny the force of innate tendencies; people vary greatly in their susceptibility to different influences. But in whatever direction development may occur, it is guided by influences flowing into the present from the uncounted generations of the past.

Thus at the beginning of society there arose the distinction between physical and spiritual elements, between flesh and spirit. That which was born of the flesh passed through innumerable blendings of the germ plasm into successive generations of varying physical forms, and that which was born of the spirit of the occasional genius passed from mind to mind as an accumulating social heritage.

The difference between the biologic evolution of the prehuman species and the social evolution of man may be seen in the development of flying. Nature produced the bird apparently from reptilian ancestors through many poorly adapted and only partially successful types up to the efficient species now existing. In this process of evolution the poorly adapted necessarily were crowded out and destroyed by the better adapted. Step by step, through variation, competition, and selection, through experiment and waste, life at last sprang into the air upon the fully developed wing. The same ambition taking conscious form in man reaches its fruition in a rapid burst of invention, through forms of monoplane, biplane, and airship, arising first in the medium of the creative imagination, and taking rapidly changing shapes in wood and metal through acquired mechanical technique. The process is carried on without the change of man's physical inheritance, while the results of the experimentation preserved in printed symbols become the common property of all peoples for all time. The evolution of the bird required, through natural selection, a wholesale waste of life, for the individual bird

was itself the embodied idea, whereas through man the idea finds inanimate expression beyond the physical body and escapes the hard necessities of organic evolution. Thus does thought, transcending the flesh, become the highest product of creation, and the world of the mind is built up.

The beginnings of the social heritage must have arisen from the instinctive stages with the earliest habits of conscious association. Groups were held together by the blood bond, and their conduct necessarily became regulated; perhaps some recognized form of the family may have been the first advance over purely instinctive conduct, since sex regulation was fundamental to permanent association. Inventions of use in industry and warfare gradually accumulated, and often spread from one group to another. The process depended upon the evolution of the intellect and its accompanying expression in language. There must, of course, have been a concurrent biological selection of individuals better adapted to use the social heritage, but this selection, being itself determined by the prevailing culture, gradually falls into a secondary place. Eventually, it seems, biological selection must

become almost wholly artificial through a rational system of eugenics.

With the historic period, the social inheritance became immensely greater in volume and importance. Custom and tradition grew more flexible, conduct was systematized by law, political and industrial organization crystalized into institutions, knowledge of nature grew into sciences, while the core of civilization expressed itself in literatures and religions which exercised sway over the emotional basis of human action.

### *5. The Dynamic Element in Society*

In accordance with the materialistic point of view of modern times, it has become customary to regard the industrial elements of the social heritage as largely determining the more idealistic elements. It is assumed that religion, for example, grows out of the struggle for a livelihood. That there is a close correlation between the economic and the idealistic is evident, but that the former determines the latter is not so evident. According to the usual view, the social standards expressed in religion and literature must always lag behind economic progress, since they cannot be begun



or changed until an economic advance is sufficiently developed to make its influence felt. Yet this is certainly not the case with the central ideals to which civilization formally subscribes. Humanitarian conceptions of love, truth, and freedom are anticipations running far in advance of actual accomplishment, and in view of their power over the human spirit they may reasonably be held to constitute the organizing and creative element in social progress.

A consideration of the development of even the physical sciences indicates that idealistic rather than economic forces should be regarded as primary. Primitive man early developed a mystic sense of undefined forces dwelling in nature—forces potent to bless or to curse the race. His motive for reaching out after these forces was, perhaps, related to hunger, but the intuition of their presence and the form that his strivings took were original, idealistic realities like prayer or poetry. The various methods of magic were prophetic gropings rather than practical conclusions from experience. Through them man was reaching out to the handling of the forces of nature, as the tendrils of a plant search blindly

for solid support. The importance attached to each detail of magic, the infinite value attributed to every motion of rite and ceremonial, were premonitions of the demands nature makes in the technique of science. The expectations aroused by partial successes, as when whirling sticks produced fire, have been preserved in legends of enslaved genii. Primitive man lived in an atmosphere of mystery and awe, which is necessarily the first stage in progress beyond the known, for it is the belief that there is a transcendental unknown. And the budding ambitions, later to take concrete form, expressed themselves in fable and myth. The ten-league boots, the wings of Hermes, the hammer of Thor, the thunderbolt of Jove, Aladdin's lamp, were the day dreams of the dawning human intelligence which have now been fulfilled in aeroplane, locomotive, artillery, and the uses of electricity. The sciences have passed through the stages of wonder, dreaming, superstition, and experimentation before reaching relative exactness and commonplace usefulness. Astronomy was once astrology, chemistry was alchemy, physics was magic and miracle, and psychology was divination.

Not only the physical sciences, but the social

sciences to a yet greater degree, experience a fanciful and idealistic infancy. To secure cooperative action the evil spirits, or ideas, of hatred and murder had to be driven out, or at least pacified to a serviceable rivalry. This end was attained in the primitive clan by various rites of exorcism and invocation of spirit aid. The common fear of unchained passion and of nature, made vivid by incantation, rite, and legend, created a pressure that held men to the ways experience had proved, while prophet and seer inspired to cooperative effort through their imaginative interpretations of life. Prophetic vision accumulates as literature, and struggles for existence in custom and law. But though vision has attained the sublime heights of the gospels, yet the practical application in social control can hardly be said as yet to have reached a logical stage, politics and law being complex conventionalities rather than sciences. While there are indications in expert industrial management and in social legislation that a scientific stage is coming, yet the world contains in its international community of trade and thought only the crude beginnings of that universal reign of righteousness which has been the

wellspring of hope through centuries of struggle.

The world's idealism, then, is the creative energy at its highest apex pushing into the future. That vital urge which throughout evolutionary history expressed itself in higher mutations, now speaks preeminently in the inspiration of the noblest thought. Not from physical appetite, but from a spiritual faculty for righteousness, does this idealism arise. The spur of hunger does not produce a dream of a just order in the brute, nor does the exploitation of the brutish man awake within him a vision of the New Jerusalem descending from heaven. There may be a certain figurative sense in which the higher faculties may be said to result from the checking and sublimation of the animal appetites, yet the form that the sublimation takes is none the less a new creation. Dirt does not unfold the flower until the seed of a new life is implanted, and in the same way the grossness of man's carnal nature does not grow into the idealism of religion, poetry, and social striving except as it is imbued with the creative forces of the universe. This is, of course, not an explanation of the phenomena. It is simply an acknowledgment that

they are unexplainable, as are all the steps in the evolutionary process where the less produces the greater. We can only say that here is creation.

The creative soul of society manifests itself through the mutuality, the friendliness, the cooperation of the group. It is in the atmosphere of love and faith that the delicate growths of the mind searching out the intricacies of science and art come to maturity. The social order that best approximates the spirit of the highest ethics as stated, let us say, in the concept of the gospels, is the one that provides the best environment for the development of the highest things in civilization—a development that in the long run means both physical and spiritual strength. Back of the literary, artistic, political, and industrial development of peoples like the Hebrews, the Greeks, and the Romans stand national ideals creating group aspiration, confidence, cooperation, and sacrifice, and staying the storm of competitive greed sufficiently to allow some of the finer fruits of the soul to mature. And it is under such conditions that the real talent of the individual becomes apparent. As socialization attains its strength, the proud, the

mighty, and the rich are often passed by, while the creative impulse manifests itself in the heart of the poor and despised, who, like garden flowers in the rude competition of the roadside, have hitherto lain crushed and dwarfed. The advancement of science and art and the invention of machinery that have been such marked features of modern life have been possible because in some measure the world has first worked out social ideals, achieving a sufficiently stable organization so that the fineness of thought which expressed itself as machinery could grow. Back of the material changes, then, that modern invention is bringing stand the social ideals that have guided man's crude nature into the path of achievement where he now stands. Not in the stimulating of competition and war, but in the further realization of social idealism, in the making actual of ideals of brotherhood, and in the aesthetic achievements of the social arts, is the path of further progress.

### *6. The Social Environment*

So it is that society, though existent at any given moment in the physical bodies and brains of men, is in its essence a body of

sifted ideas, radiating out of creative social ideals, and passed as an accumulating heritage from generation to generation. It is life risen from the physical and become immortal in the things of the spirit; it is the dream of mankind finding expression through genius and achieving the control of nature. On the biological side it is the individual, the product of the egoistic struggle for survival, driving with the full force of his animal inheritance to bend the world to his service, yet held eventually by the net that humanity, through its long experience, has woven and is weaving. This net of the social environment binds the natural egoism to the service of the family, the community, the nation, and the world, setting at last to the strongest a limit to his selfishness, so that a Saul becomes a Paul, a robber baron becomes a people's king, and a financial adventurer becomes the founder of a new economic order. And as yet the titanic forces of world socialization, clashing in their conflicting currents, have only begun their work.

Our knowledge of physical heredity, valuable though it may be, is not sufficient to explain the course of development of the individual soul. The oppositions and correlations

of the inborn physical tendencies and the acquired social influences are intricate, and usually beyond our unraveling. Man, born of the flesh, combines from his physical ancestry certain potentialities that the fates have selected for him; born of the spirit, he acquires certain tendencies and modes of thinking and acting that come to him in part by chance and in part by choice. The results in the development of character are diverse and incalculable. The social heritage, particularly in its creative ideals, contains dynamic spiritual forces which when brought home to a soul vitalize it and inspire it to the achievement of almost miraculous results. Poetry and art and religion, touching the emotional springs of conduct, accomplish such results at all times to a certain degree, but in epochs when new life is germinating the process is seen in its highest measure. The great man is the embodiment of the budding spirit of his age, created by the power of the ideals to which he has submitted himself. Thus Lincoln was the embodiment of American democracy, Shakespeare of the Renaissance, and Jesus of tribal brotherhood as it blossomed into universal brotherhood. The Word is made flesh first in some pioneer-



ing brain, from whence its influence spreads until it leavens an age.

In spite of the prevalent mechanistic views of heredity, it is even probable that the creative forces of the social environment not only energize the individual, but exert a eugenic influence as well. The power of the mind over the body is a scientific fact, as is evidenced in hypnotic suggestion and in the emotional control over the chemistry of health through the agency of the internal secretions. If, then, the faculties of the soul have their chemical analogues, the impulse of vital faith and love will favorably modify the composition of the blood, reach the germ plasm, and affect the reproductive process, which is very susceptible to chemical influences. Thus the spiritual forces of the environment may in some degree carry through to the innate impulse transmitted to the offspring. Such a hypothesis is far more closely in harmony with the historic rise of classes and races under the refining influence of a high culture than is the hypothesis of racial improvement by Darwinian natural selection.

The recognition of the spiritual nature of society need not blind us to the ugly realities

of history that materialistic science has set forth. It is true that tribal society grew into national organization through the clash of conquest and the unutterable brutality of caste, but this should be recorded as a failure of mankind to foresee and plan rather than as the cause of progress. And greater than the fact of conquest is the spiritual influence which through European history brought hope to the serf and pity to the oppressor, and thus softened class lines so that the modern world became possible. History misleads us by describing the storms but forgetting the days of quiet sunshine and shower that matured the harvest. We see the pageantry and pride of the past, but we overlook the gentle power that brought to more than one mail-clad knight a vision of the lowly Christ and caused him to seek the Holy Grail among his despised serfs. And, paralleling the experience of the early world, the modern age has been thrust by the Industrial Revolution into a bewildering, rich heritage for which it is only half prepared, and again headlong greed has slipped from control to trample the masses underfoot. But let us not doubt that the harmony of world socialization will yet be achieved! We cannot balk the

forces of evolution; we can only determine whether wisdom shall bring the consummation relatively quickly, or whether it shall be reached through the reaction from further world war.

With the spiritual character of society in view, we are in a position to see the inadequacy of making the individualistic struggle for survival as conceived by Darwin the basis of a social philosophy. In attempting to do so, modern thought has stimulated the selfish competition for domination to the point of endangering the very fabric of civilization. Under the new conditions of the machine age, the thrust of the forces of individual and group greed in the pursuit of property has produced widespread misery, class strife, and world war. Thus by the anguish of the war-torn nations does Nature drive man back to the service of the ends she has revealed.

## CHAPTER IV

### SOCIAL ENVIRONMENT AND EUGENICS

WE have now considered two opposing world views of society as represented in biological and sociological theories respectively. Of the two it is apparent that the sociological is the more comprehensive, including as it does a consideration of the biological elements. The biological theory, on the other hand, is the result of hasty conclusions drawn from narrow, though admittedly valuable, genetic studies. As a working theory it is ably advocated by the eugenists of the old school; fortunately many recent eugenic writers seem inclined to give sociological data due consideration.

#### *1. Biological Extremes in Eugenics*

The purpose of this chapter is to take up some of the statistical evidence for the opposing viewpoints, but it would perhaps be well first to review briefly the position of the biological eugenists—if we may be allowed to use the apparently redundant phrase. Their

position is based upon a profound faith in extreme competition, with a resulting natural selection of nature's fittest. In that struggle, it is thought, real ability must win, since the surest test of ability is success against natural obstacles. The rigid eugenicist has, then, no place in his philosophy for "mute inglorious Miltons," and he inclines strongly to the opinion, so pleasing to the aristocrat, that the upper classes of society are formed by the sifting out and elevation of the biologically valuable stocks.<sup>1</sup> These stocks are thought to breed true, with some Mendelian variation, to their specific abilities, as do the inferior stocks to their disabilities. The practical outcome is a consistent attack in the name of science upon anything in the nature of social legislation, charity, or in fact any measures designed to protect the apparently weaker members of society, and a laudation of competition and aristocracy.

As a single example to illustrate the biological eugenicist's absorption in physiological

<sup>1</sup> Galton, F., *Hereditary Genius*. Macmillan & Co., London, 1892. Jordan, D. S., *The Human Harvest*. American Unitarian Association, Boston, 1912. Bateson, W., *Biologic Fact and the Structure of Society*. Clarendon Press, Oxford, 1912.

facts to the exclusion of all other influences, the following item may be noted. A recent writer<sup>1</sup> states that not only the impulse to suicide, but even the preference for a particular means, is transmitted by heredity. He gives as proof the case of a certain family in which three members in successive generations attempted suicide by cutting the left arm. The author could scarcely have been familiar with the psychology of suggestion, or he would at least have considered the part it must have played in the tragedy. Such a shortsighted view is the natural result of the fact that the science of eugenics has been developed mainly from the biologic point of view by persons unappreciative of or unfamiliar with psychological and sociological interpretations. Naturally, persons with such an outlook can see no cause for poverty and other social maladjustment except defective germ plasm. Bad sanitation, defective education, speeded industries, and unearned dividends receive scant attention.

### *2. Recent Data on Heredity*

But the biological eugenicist answers his critics with a challenge. He brings forward a

<sup>1</sup> Whetham and Whetham, *An Introduction to Eugenics*, p. 24. Bowes & Bowes, Cambridge, 1912.

mass of statistical evidence that has been worked out with scientific precision in support of the influence of heredity. This, he claims, establishes his case. And on inspection it proves that the evidence is such as to demand attention. It includes some of the most valuable biological work of recent years, beginning about 1900 with the rediscovery of the Mendelian law of heredity and proceeding into a veritable maze of data covering many phases of the problem. Perhaps the most important part of the evidence as bearing upon the question before us is that connected with the biometrical study of heredity, the beginnings of which go as far back as Galton, who may be regarded as the founder of the method.<sup>1</sup> The biometricians have adapted the theory of statistics to their field of work with great success. The most important of the mathematical operations that they have developed and used is the computing of the so-called coefficient of correlation—a means of finding precisely the extent of agreement existing between two sets of related data. With the aid of this mathematical tool it has been found possible to measure, far

<sup>1</sup> Doncaster, L., *Heredity in the Light of Recent Research*, Ch. iv. G. P. Putnam's Sons, New York, 1911.

more precisely than it could be done before, the strength of ancestral influences. It was found, for example, that such physical characters as height and weight, though transmitting with great variability, showed a dependable regularity when a large number of cases were concerned. Just as the insurance actuary found that the duration of life, so uncertain for the individual, became a predictable matter when dealt with in the mass, so the biometrician discovered laws of heredity through the handling of extensive data.

As a result of the successful study of the transmission of physical characters, attention naturally turned to the investigation of mental and moral traits in human heredity. Professor Pearson and his coworkers<sup>1</sup> easily showed that intellectual ability exhibits a measurable intensity of inheritance, much as physical characters do. Their proof, to be sure, sometimes fails to convince, owing to the difficulty of discriminating between biological and social heredity, yet on the whole they have established their case. Dr. F. A. Woods, in his

<sup>1</sup> *Eugenics Laboratory Memoirs*, particularly No. 1, by Schuster, London. Also *An Introduction to Eugenics*, p. 10.



elaborate study of royal families,<sup>1</sup> has given very conclusive evidence of the same fact, and has further extended his proof to include moral qualities. By computing correlations he has shown that both mental and moral traits are transmitted, with a lessening degree of intensity in successive generations. He does not claim, of course, that results could be predicted in any individual case, but rather that in the groupings of large numbers of cases results regularly appear that can be interpreted only as indications of ancestral influences. Other studies in the same direction might be cited, notably the investigation into the transmission of feeble-mindedness,<sup>2</sup> but probably enough has been said to suggest the nature of the work that has been done.

The biologists have, therefore, made it perfectly clear that the force of heredity in determining mental and moral traits is considerable. And in the absence of similar proof of the force of the social environment, it is perhaps natural that they should regard social influences as negligible, and should actually suggest

<sup>1</sup> Woods, F. A., *Mental and Moral Heredity in Royalty*. Henry Holt & Co., New York, 1906.

<sup>2</sup> Goddard, H. H., *The Kallikak Family*. The Macmillan Co., New York, 1912.

that while environmental influences may be of importance in the lower reaches of the biological scale, yet with man heredity may be regarded as the sole important factor.<sup>1</sup> The question is therefore raised as to whether the biologist can be met on his own ground with a statistical demonstration of the influence of the social environment. The method that he has developed should be susceptible of use in determining social as well as hereditary influences.

### 3. *Statistical Proof of the Social Environment*

As the matter stands today, scarcely enough work has been done on the influence of the social environment to demonstrate that the new method of approach is applicable to the subject. The monumental statistical work of Dr. L. F. Ward that appears in his *Applied Sociology*<sup>2</sup> stands almost alone, and even in this case little use is made of new mathematical methods. Perhaps a summary of Dr. Ward's work may here be in order, particularly since the brief study that follows is in some respects modeled upon it.

<sup>1</sup> Warner, A. G., *American Charities*, p. 114. T. Y. Crowell Co., New York, 1908.

<sup>2</sup> Ginn & Co., Boston, 1906.

Dr. Ward takes the position that while individuals vary greatly in their capacities, and while genius is somewhat rare, yet the maturing of genius and talent into actual achievement is a matter that depends very strictly upon such environmental factors as home influences, education, and social class. As proof, he presents many individual cases, but relies mainly upon a large body of statistical evidence that he has borrowed from certain French sources, and that relates to French men of science and letters. To put the matter briefly, these figures show that there is a decided correlation between density of population in any given district and the production of great men.<sup>1</sup> That is, a densely populated region produces a far larger percentage of great men than does a sparsely settled region. It is shown in detail that the decisive factors are the leisure resulting from wealth, the opportunity afforded by social standing, and the nearness to educational influences; and that such race differences as exist in France do not affect the problem. Dr. Ward thinks that social classes, being the modified continuation of castes

<sup>1</sup> Dr. Ward has not computed the correlation, but the coefficient may be shown to be  $0.53 \pm 0.05$ .

formed by conquest, are in the main artificial contrivances not harmonizing with the innate variations in individual capacities. He concludes by suggesting the obvious advantage that society would gain by developing the potential genius in the classes now so largely cut off from opportunity.

In only one particular does Ward's study fail to be entirely convincing. Biologists make the criticism that he has failed to take into account the selective action of favorable environments. They say that the higher proportion of genius in densely populated regions may plausibly be accounted for by the fact that cities have for generations attracted men of ability, so that at length urban population has come to be of a superior quality. In this way, they say, the statistics from France may be interpreted on entirely biological grounds. Apparently this possibility had not occurred to Ward; at least he seems nowhere to have met the objection. And it is probable that the data at his command did not allow of any convincing answer.

It has occurred to the writer that a somewhat similar investigation might be made for the United States as Ward has developed for

France, and that possibly the methods used by biometricians might be employed, at least in part, to make the results more definite and conclusive. Accordingly a study has been made, the statistical summary of which appears in the Appendix.

The purpose of this study is to discover whether in the United States the production of noted men is correlated in any marked degree with density of population, and with one or two other associated environmental factors. The question is somewhat the same as the one commonly asked: Does the great man come from the country or the city? But in view of the available data the question is broadened to read: Are noted men more likely to come from the crowded urban states, with their superior wealth and opportunities, than from sparsely settled states, and if so, may the correlation be considered a measure of the influence of environment?

The first difficulty to be encountered is the question of just who are the great men. It will not do to take merely the few whom all might agree upon, since the crux of the correlation method is the use of numbers sufficiently large to cancel the numerous chance forces

that weigh so heavily in individual cases. But after all, the question is not one requiring a precise answer. With proper safeguarding any large list of prominent persons will do, even though exceptions might be taken to a considerable percentage of the names included. For there must be borne in mind in this connection, as well as in the discussion to follow, a principle applicable to correlation work. The principle is that the erroneous inclusion or exclusion of material from the data, arising from chance and not from any selective guidance, must always operate in the long run to lower a correlation.<sup>1</sup> As an illustration of the principle, suppose that one has picked out the large and small grains from a given sample of wheat. The large and small being kept separate, stand out as two distinct types. Let a few handfuls of wheat like the original sample be thrown into the selected lots, and the contrast begins to be blurred. Let a larger quantity be thrown into each, and the contrast practically disappears. Just so in the handling of data to discover correlations. Some miscellaneous errors may be included in the data, but any correlation

<sup>1</sup> Whipple, G. M., *Manual of Mental and Physical Tests*, pp. 41-42. Warwick & York, Baltimore, 1910.

that appears will become evident in spite of chance errors of inclusion or exclusion and never because of them; just as any marked contrast between the two lots of selected grain will never be the result of random handfuls that may have been thrown in. The principle is of the greatest importance in estimating the value of such work as that of correlation, which in fact rests on the mathematical regularity of the operation of chance.

It has therefore been concluded that for the purpose at hand the well-known *Who's Who in America*<sup>1</sup> furnishes suitable material. At the outset some investigation of the method employed in compiling this work was made, but a discussion of the subject is rendered unnecessary by the use of collateral sources which, though less comprehensive, are more authoritative. After the problem was worked out on the basis of the volume just mentioned, recourse was next had to *Who's Who in Science*,<sup>2</sup> a standard work likely to meet acceptance, since the task of picking out leaders from a specific field is easier than from a general field. Lastly,

<sup>1</sup> *Who's Who in America*, Vol. VII, 1912-1913. A. N. Marquis & Co., Chicago, 1912.

<sup>2</sup> *Who's Who in Science*. The Macmillan Co., New York, 1912.

to make assurance double sure, the problem was reworked from the data compiled in Cattell's *American Men of Science*.<sup>1</sup> In this volume Dr. Cattell has listed, after a most careful process of selection, the thousand foremost American leaders in science, and has succeeded in compiling a work of recognized authority. Only one objection can be made to the use of the last two books; namely, that the number of names included is relatively small, making a correlation more difficult to discover. But certainly any principle that might be established on the concurrent authority of the three works could not be discredited on the ground of inadequate or invalid data.

It will be impossible here to give any complete exposition of the methods of handling the data. The statistical tables, with the accompanying brief explanations, must be allowed to speak for themselves. Discussion will be confined in the main to the significance of the findings.

Before taking up the correlations in detail, attention must be directed to one or two points regarding the environment that is being meas-

<sup>1</sup> Cattell, J. McK., *American Men of Science*. Science Press, New York, 1910.



ured. A glance at the tables will show that density of population and other environmental factors are measured at approximately the average date of birth of the noted men, and that the measurement so taken is regarded as indicative of the formative environment through the years of immaturity. It might be questioned whether this procedure is allowable in view of the shifting population of the United States, and the rapidly changing conditions. It is therefore necessary to ascertain the relevant facts.

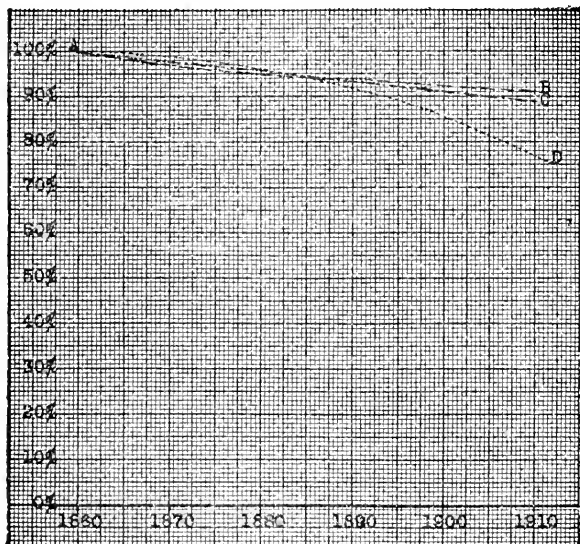
The number of persons who grow up in the locality in which they are born is much larger than is popularly supposed. Recent censuses (1870-1910) find only from twenty to twenty-four per cent of the native population outside of the state of birth. Of course a part of those remaining are children, some of whom will move before maturity; yet not a large proportion, since migrants are more likely to be adults than children.<sup>1</sup> It is therefore safe to assume that from one-half to three-quarters of the population grow up in the same state in which they are born. Of those who move, a good part do

<sup>1</sup> For the case as to foreign immigrants see *Abstract of Thirteenth Census of the United States*, pp. 124-125.

not go farther than adjoining states, where, as may be seen from the tables, the conditions studied do not, on the average, vary so very much. In 1910, 85.5% of the population were found living in the same group of states in which they were born. Most migration, even that which travels great distances, follows occupational lines; hence the environment is not likely to be essentially changed. It seems therefore to be justifiable to take the conditions of the state of birth as indicating the general features of the formative environment. And here the principle concerning errors creeping into the data of correlations finds an application. The cases in which migration has operated to materially change environment can only reduce correlations, not produce them; and it may be taken for granted that any correlation that may be found in the accompanying data is indicative of a really stronger causal relation that in fact exists.

The next preliminary question concerns the stability of the environment. It is evident that if there is a great rearrangement of the states within a period of two or three censuses when ranked for any given condition, then the measurement of the environment at the time of the

birth of the great man will not apply through the period of his development. Of course it is



One hundred per cent is arbitrarily taken to represent the ranking of the states in 1860 in respect to environment. Then the line AB represents the tendency to fall away from this ranking in respect to density of population through successive years as indicated; similarly the line AC shows the change in per cent of illiteracy, and AD in elementary education. Based on Table 1, correlations 21, 22, 23, 27, 28, and 30, Appendix.

taken for granted that in any locality there will be great environmental changes due to the

general progress of the country; but since states are here measured merely by the rank they occupy, the only pertinent question is as to the relative changes. The answer to the question is summarized in the accompanying graph which shows that even in the entire period from 1860 to 1910 no very great change has occurred. Even the mild degree of change that appears to have taken place in the ranking of the states in elementary education is probably exaggerated, due to the impossibility of getting a uniform standard of measurement. The results are decisive enough to put aside all doubt of the relative stability of the measured factors of the environment during the period of the development of any individual.

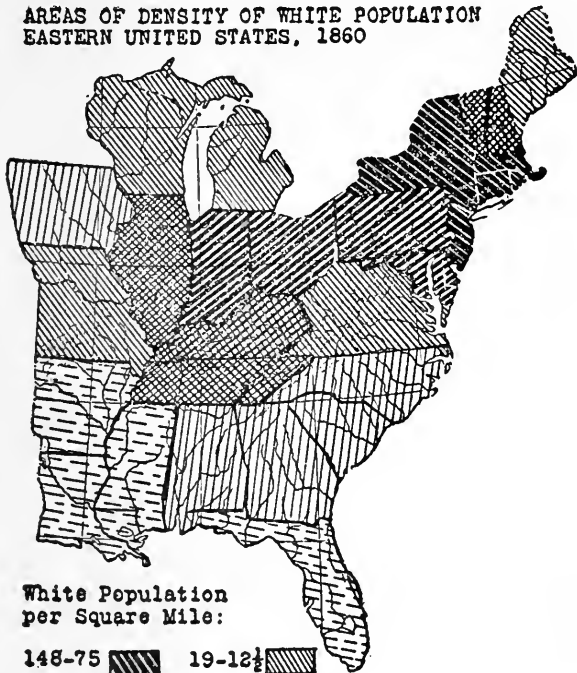
A further question may be raised concerning the census to be selected as the basis of the work. On the evidence of 756 names taken at random, *Who's Who in America* shows that the "modal" age of the persons included in the list of notables is nearly fifty; hence that the census of 1870, and particularly that of 1860, would come close to the average date of birth. A difficulty arises, however, out of applying to all states generally any specified census figures on population as the base in com-

puting the percentage of great men produced. A state at the time of the census selected may be in the first stage of a very rapid growth, and its population may then be so relatively small that the percentage of noted men computed on it as a base will be disproportionately large. It may be suggested that the noted men should be sorted out according to the date of birth, and handled statistically in several groups, but this would be an almost impossible task in such a mass of data. It has, however, been attempted in part in connection with the names from *Who's Who in Science*, where a restriction to two decades has been made. In the preparation of the data the question was carefully worked out as to just what effect the taking of a state at an earlier or a later stage of its history would have upon the standing of the state, but the conclusion was reached that by two simple precautions all possible danger of serious error might be avoided. In the first place, several different censuses might be used, since an early census was found to favor new states and a late one older states. In the second place the study might be limited in the main to states that have passed the first stages of their growth, as, for example, those that are

included in as early a census as that of 1840. These precautions have been taken; and in view of the decisive results obtained, any further precautions seem unnecessary.

For the benefit of those who are not familiar with coefficients of correlation, a brief statement of their meaning may be in place. It has already been stated that the computing of a correlation means the measurement of the extent of agreement existing between any two related sets of data. The relationship as found is expressed by a coefficient that may range in value from one to minus one. The former means complete agreement, zero means such a lack of agreement as would usually result from mere chance, and minus one means that the data compared are negatively related. For example, if the states were found to rank in exactly the same order for density of population as for fertility in noted men, the correlation would be said to be one; if they ranked in the reverse order the correlation would be said to be minus one. Zero would indicate a promiscuous order showing no distinct agreement or opposition. The general meaning of intermediate values is, of course, apparent. More precisely, it is assumed from experience

**AREAS OF DENSITY OF WHITE POPULATION  
EASTERN UNITED STATES, 1860**



**White Population  
per Square Mile:**

148-75		19-12½	
75-35		12½-8	
35-19		8-1	

that a coefficient falling below 0.30 cannot be interpreted as meaning any decisive causal relationship, while anything above 0.50 is certainly decisive, particularly if the so-called

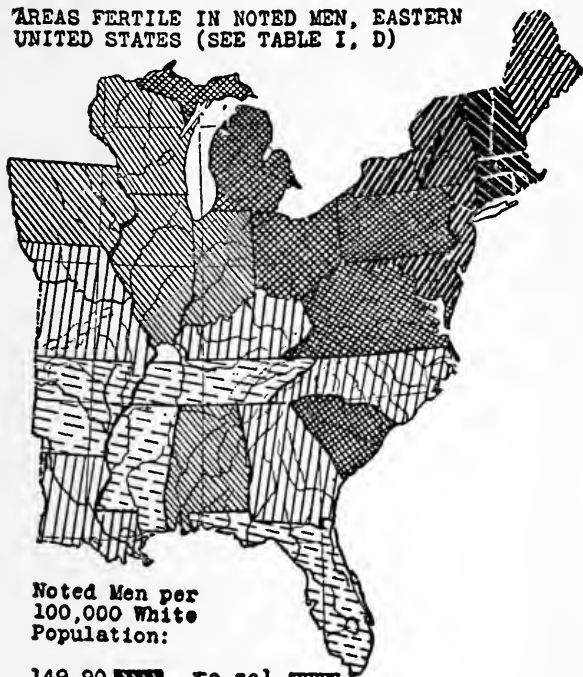
probable error (the probable limit of variation from the given result by the use of more cases) is not more than one-sixth of the coefficient.<sup>1</sup>

On the face of the results, the correlation between density of population and fertility in men of letters is very decisive. It will be seen from the tables that for 1850 the coefficient is  $0.60 \pm 0.08$ ; for 1860 it is  $0.72 \pm 0.06$ ; while for 1870 it is  $0.76 \pm 0.05$ ; or, if 46 states are included,  $0.70 \pm 0.05$ . There are, however, two objections that may be immediately anticipated. It may be claimed that the results are in the main due to conditions in the southern states, where the Negro, though incapable of contributing to the noted men, has yet been included in the total population. In another computation, therefore, the Negro has been left out of account with the result that the coefficient based on the census of 1860 is found to be  $0.74 \pm 0.06$ , two points higher than it was previously. It is clear, then, that the inclusion or exclusion of the Negroes is not a significant factor. Still, it may be claimed that the correlation is due to other sectional contrasts between the North and the South; or, on the other

<sup>1</sup> King, W. I., *Elements of Statistical Method*, p. 215. The Macmillan Co., New York, 1912.



**AREAS FERTILE IN NOTED MEN, EASTERN UNITED STATES (SEE TABLE I, D)**



**Noted Men per  
100,000 White  
Population:**

149-90		50-36½	
90-65		36½-32¼	
65-50		32¼-13	

hand, that it is due to contrasts between new and old states exclusively. Consequently a grouping has been so arranged as to compare first Northeast and Southeast, then Northeast

and Northwest, so far as the states in the census of 1840 extended. On the basis of the census of 1860 it was found that in both cases a decided correlation existed (see Appendix, Table 1, Cor. 32 and 33). The coefficients previously mentioned were therefore not a measure of a peculiarity limited to one area alone.

When the computation is based on *Who's Who in Science*, and on Dr. Cattell's list of great scientists, the results are changed but little. In the former case the coefficient based on the census of 1860 is  $0.66 \pm 0.07$ , and in the latter it is  $0.59 \pm 0.10$ . Though these figures are a little lower than the preceding, they are still very decisive.

It is therefore evident that a marked relationship exists between density of population and fertility in men of note—that for some reason a densely populated state is more favorable to the production of prominent men than is a sparsely settled state. A further study of the data is now called for to determine, if possible, the factors giving significance to density of population. Economic and cultural influences in the environment will be given some attention, then the possibility of a biological cause will be considered.

It is, of course, clear that density of population in itself is not the true cause sought; but rather, if the cause is environmental, it must consist of certain influences associated therewith. Density undoubtedly means the presence of cities, and cities mean, in turn, many economic and cultural influences. It is worth while, then, to compare rank in urban population and in noted men. It was not found convenient to rank the states for the percentage of urban population in 1860, as the figures were not available; but those for 1890 were obtained and were correlated with fertility in noted men as measured on the basis of the census of 1880. The coefficient was found to be  $0.82 \pm 0.04$ . The height of the measure in spite of the handicap of later censuses indicates the importance of the city environment, inasmuch as density of population taken alone may in some instances mean thickly settled rural districts. Another proof of the importance of cities may be set forth. The states have been ranked in accordance with the amount of manufacturing to the square mile, and this ranking has been correlated with fertility in noted men—both on the basis of the census of 1860. The result is a coefficient of  $0.89 \pm 0.03$  for

*Who's Who in America*,  $0.76 \pm 0.05$  for *Who's Who in Science*, and  $0.80 \pm 0.05$  for Cattell's. Manufacturing states are of course the ones in which great cities have grown up, and in which wealth and cultural advantages have developed.<sup>1</sup> It is evident that the opportunities an urban environment affords are very closely associated with the production of men of note.

Before leaving the question of the value of a city environment, it may be observed that there is evidence to show that the natives of large cities do not achieve fame any more readily than do the natives of the neighboring smaller places and rural districts. Dr. Cattell gives statistics<sup>2</sup> that show that one-seventh of the population, comprising the inhabitants of the largest cities, produces 26% of the great scientists, or 1.83 times its pro rata share. Now his data show that a similar percentage of the nation, comprising the total population of the most thickly settled states, can be credited with from two and one-fourth to three times its pro rata share of great scientists. That is, the inclusion of the contiguous smaller places and

<sup>1</sup> Clearly shown by Correlation 31, which gives a coefficient of  $0.86 \pm 0.03$ , in spite of the divergence that must result from taking censuses thirty years apart.

<sup>2</sup> *American Men of Science*, p. 559.

rural districts with the large cities results in a better showing. It seems, then, that under American conditions the great scientist is most likely to be born on the farm or in the town that lies within reach of the great city; the next most probable birthplace is the great city itself; while the least probable is the town or district remote from the large cities.

Attention may now be directed to the educational factors in the environment. While it is not possible to gauge accurately the efficiency of the common schools of a generation ago, material may be gathered from the census of 1860 upon which an estimate may be based. The total number of children attending school is given for each state, and this number divided by the number of children of school age<sup>1</sup> serves as a measure of the relative amount of elementary education. A second indication of educational efficiency is found in the extent of illiteracy among the native inhabitants, which, though not directly stated, is readily estimated from the census data. In both cases, in deference to the southern states, white population only has been included. Finally, the two meas-

<sup>1</sup> The age groups five to fifteen, both sexes, were added to form this divisor.

ures have been combined into one index giving each equal weight, and the states ranked in accordance with this index. It is found that common-school efficiency as thus determined correlates markedly with fertility in noted men, the coefficient being  $0.77 \pm 0.05$ . In the case of the scientists the correlation is still more marked. The computation on the basis of *Who's Who in Science* gives a coefficient of  $0.86 \pm 0.03$ , while on the basis of Dr. Cattell's list it reaches the remarkably high figure of  $0.93 \pm 0.02$ . Such a very decisive correlation is a significant proof of the value of public education as a means of discovering genius.

It is college education, however, that is presumably most directly related to the preparation of leaders. Data showing this relation were sought, but the census of 1860 was found to be disappointing, as it confessedly has been unable to draw the line between academies and colleges. As a result the statistics of higher education for 1860 are misleading. While it ought not to be difficult to establish from other sources the association of the greater centers of learning with the areas of dense population, and hence with the production of noted men, it has been found more profitable to approach the

matter from another direction. An attempt has been made to answer the question of the relative success of college and non-college men in the attainment of fame.

The statistical table in *Who's Who in America*,<sup>1</sup> revised slightly to allow for those who have not sent in educational statistics, shows that 8,985 persons out of the total of 17,546 listed have graduated from colleges giving baccalaureate degrees.<sup>2</sup> This means that 51% of the noted persons are college graduates, while many more have attended college. It is not stated whether the term college graduate implies a baccalaureate degree, or whether graduates of other courses not leading to such a degree are included. Random sampling of a considerable number of cases shows, however, that college graduate substantially always means the holding of the A.B. or equivalent degree, with very often a higher degree also. It might be thought that the liberal college course was mainly confined to the traditional learned professions, but this is not entirely the case, as the following table shows:

<sup>1</sup> Pages xix-xxii of the introduction (1912).

<sup>2</sup> Includes a relatively small number of graduates of the United States military and naval academies.

PROFESSIONS REPRESENTED IN WHO'S WHO  
IN AMERICA, SHOWING PERCENTAGE OF  
COLLEGE GRADUATES<sup>1</sup>

Profession	Per Cent of Total	Per Cent College Graduates
Lawyers .....	17.6	52
Doctors .....	7.7	49
Ministers .....	11.6	81
Technical:		
agriculturists, engineers, etc..	6.4	46
Artists and musicians.....	5.2	10
Educators .....	22.*	100*
Authors .....	20.*	46*
Business men .....	7.5*	29*
Miscellaneous .....	2.*	..

The correlation of a liberal college education with the attainment of distinction cannot be brought to light, however, without using the success of non-college men as a basis for comparison. In order to discover the latter, it will be necessary to follow through the statistics of a single year age group. For this purpose the group of persons now at the "modal" age have been chosen, as at that age the maximum of attainment with the minimum of elimination

<sup>1</sup> Data from *Who's Who in America* (1912), except starred items, which are estimates based on random samplings in the same work.



by death occurs. Without attempting to give in detail the method by which the results have been reached,<sup>1</sup> it may be stated that of persons born in 1861 in the United States there were living at about the age of college entrance a little over one million, of whom 5,734 graduated from college. Of this number 5½% found their way into *Who's Who in America*. Of the non-college group only 0.028%, or about 1 in 3,600, found their way into *Who's Who in America*. Comparing these ratios, we find that the chances of attaining distinction are 196 times greater for the college man than for the non-college man. Or, put in terms of a correlation, college education and the attainment of distinction give a coefficient of  $0.98 \pm 0.001$ . It is evident that while college education will not insure distinction, it is very nearly a necessity for the attainment of it.

It is sometimes questioned whether college education stands in a causal relation to the attainment of distinction; or whether, on the

<sup>1</sup> Data from age distribution (smoothed) in census of 1880; Statistical Abstract of U. S.—Bureau of Statistics—1911, p. 752; Bulletin 451, U. S. Bureau of Education—Age and Grade Census of Schools and Colleges, pp. 138 ff.; and *Who's Who in America*—introduction. The computation is subject to minor criticisms on account of lack of definite data, but it cannot be materially in error.

other hand, it may not be merely a tradition on the part of the capable and ambitious. In view of the overwhelming correlation of college training and success, it seems very probable that the relation is causal. Of course if we had a hereditary aristocracy that held a monopoly on prominent positions, the theory that college-going is merely a conventionality might have some grounds; but such is not the case. Competition for high places is keen; the sons of the middle and lower classes enter the race and often win. In unconventional America, if there were a shorter and easier way to fame than the way of higher education, energetic young men would have found it and beaten it into a highway. Further, certain items of direct evidence may be adduced. Slosson<sup>1</sup> says that fraternity men in a university which he regards as typical show 28% of failures in scholarship as compared with 12% for non-fraternity men. Since the fraternities of the larger universities tend to be made up of the wealthier class of students, this is evidence that wealth and scholarship are more likely to be related negatively than positively. Now, it

<sup>1</sup> Slosson, E. E., *Great American Universities*, p. 127. The Macmillan Co., New York, 1910.

has been clearly shown that success in college goes with success in later life. Van Dyke, writing in *Scribner's Magazine* (September, 1912), shows that 50% of the first honor men from the leading colleges gain a place in *Who's Who in America*, while of the second honor men 33% attain a like place. As has been shown above, 5½% of college men in general attain this distinction.<sup>1</sup> Such evidence indicates that the men who are winning the prizes both in college and in after life are in large part from the rising classes who would be the least likely of all to follow blindly an expensive tradition. Considering again that the chances in favor of the college man reach the overwhelmingly high ratio of 196 to 1, we cannot avoid the conclusion that the colleges, in spite of their admitted imperfections, are a very important environmental factor in the attainment of eminence.

A final question that demands consideration is whether the correlations that already have been set forth, may not be explained—as biologists claim Ward's figures may be explained—by the selective action of favorable environments. That is, may not the city have

<sup>1</sup> A recent more complete study appears in an article entitled "Should Students Study?" by W. T. Foster, in *Harper's Magazine*, Sept., 1916.

acted as a magnet drawing to itself the most capable strains of the surrounding population, from whose superior capacity has developed in later generations the relatively high percentage of noted men?

There is considerable evidence that such is not the case. To begin with, the great cities of the United States are of very recent growth;<sup>1</sup> the frontier of one generation becomes the teeming urban region of one or two generations later, peopled by the descendants of the pioneers, and by later immigrants. But the selection hypothesis requires a considerable period through which selection may do its work effectively; for in the first place it must be remembered that the able young man going to the city and there winning fame is credited not to the city but to the environment of his birth; and in the second place biological principles show that the changing of the innate characteristics through selection is only accomplished laboriously and slowly.<sup>2</sup> Further, the selection hypothesis is greatly weakened by the fact previously shown that it is not so much the stock of the great city that is fertile in

<sup>1</sup> *Abstract of Thirteenth Census*, p. 93.

<sup>2</sup> Castle, W. E., et al., *Heredity and Eugenics*. The University of Chicago Press, Chicago, 1912.

genius as the stock of the adjoining smaller places and rural districts. There is no reason to suppose that the latter localities have profited by a selection process; rather, it is very likely that they have lost by continued migration to the city. And still more conclusive, as affecting the present study, is the fact that most of the migration from country to city takes place within the limits of the same state, or neighboring states.<sup>1</sup> Since the unit here taken is the state, and since, in general, adjoining states do not differ widely in density, such selective movements of population could scarcely at all affect our correlations. That is, the selective process which, according to the biological theory, accounts for the superiority of densely populated regions occurs mainly within the limits of the units here adopted, causing for each unit about as much loss as gain, and therefore not affecting materially its genetic standing.

The data at hand can be made to show whether or not the city draws from other states the men of ability who attain fame. It is evident that if men who attain distinction have been merely keeping pace with the general

<sup>1</sup> *Abstract of Thirteenth Census*, p. 169.

movement of the population westward, a correlation between density of population and percentage of noted men now resident in various states should give about the same coefficient as the corresponding one based on the place of birth. If the correlation based on residence shows an increase over that based on birthplace, a tendency of noted men to gather in densely populated states is indicated; a decrease would indicate the reverse tendency. Now, the correlation for residence and density when forty-six states are taken is  $0.18 \pm 0.10$ ; with the twenty-nine older states it is  $0.64 \pm 0.07$ . These results are on the basis of *Who's Who in America*. Dr. Cattell's list gives a coefficient of  $0.71 \pm 0.06$ . Compared with corresponding correlations on the basis of birthplace, these coefficients show a decrease of 74% and 11%, and an increase of 20% respectively. A decrease, as shown above, indicates movement of able men toward sparsely settled states in excess of the movement of the general population, while the increase indicates the reverse. It may be the case, however, that the decided figure given in the first instance, where forty-six states are dealt with, is due to the fact that in the very new states immigrants rise without

much competition into official positions that give them merely an *ex officio* place in *Who's Who in America*. However, the percentage of such persons who are admitted merely because of official position must be very small indeed and could not very materially affect the results<sup>1</sup> On the other hand, the increase in the case of Dr. Cattell's list of scientists is probably due to the fact that the number of residents is augmented 15% by the inclusion of the foreign-born great scientists, who are far more likely to be found in the centers of population than elsewhere. Besides, the scientist is dependent upon the laboratories and other costly equipment met with in cities, and that cannot easily be taken into the wilderness as can, for example, the implements of the author. Hence it is to be expected that the scientist will seek the centers of population more than will other men of note. On the whole, therefore, it is clear that if there is any movement of noted men in contrast with the usual drift of population it is away from rather than toward the more densely populated states. Certainly there can have been no such selection toward populous states as would explain the greater pro-

<sup>1</sup> *Who's Who in America*, p. ix of introduction.

duction of noted men in the latter. We are forced to the conclusion, then, that the decided correlations that have been discussed are real measurements of environmental influences.

Limited as the foregoing study is, it nevertheless indicates that the new statistical methods of the biometrician and the eugenicist may be also useful to the sociologist, and that the whole story is not told when the influence of heredity is traced. Society evidently involves an interaction of physical and social forces, intertwining in bewildering complexity. And we find no reason for giving up the sociological view of society as predominantly a psychological fact; rather do we find it the more securely established. Yet, on the other hand, there appears no reason to question the ultimate value of the data that biologists are advancing as to the nature of heredity. It should be clearly recognized that a science of eugenics controlled by social aims and in harmony with the broadest ethics is of the most fundamental importance. Most present-day evils ultimately hark back to the workings of natural selection, being but various phases of the cruel and wasteful struggle that nature imposes on her offspring. Artificial selection must eventually replace



natural selection as the natural social forces are brought under control. The peace, order, and improvement that come to domesticated animal and plant life on a well-ordered farm will yet be gained by humanity as gradually, with a widening intelligence, a social consciousness achieves rational freedom.

#### *4. Social Standards for Eugenics*

Sociology, then, does not attack eugenics, but only insists on the erection of social standards in connection with the definition of the fittest. And in so doing it merely continues the demand that the social spirit has asserted from the first; namely, that a person shall be regarded as good not in accordance with his ability to further his own interests, but in accordance with his willingness and ability to cooperate in group life. Measured by social standards many of the world's successful must give place to the humble, and the last may again be first. In the rush of militarism and commercialism social standards have been submerged, and the worldly-minded revert to the natural standards of success. This tendency is often reflected among the eugenicists, as, for example, when a recent writer in a popular

magazine calmly classified the unsuccessful as feeble-minded on the ground that life is the most comprehensive test of mentality.<sup>1</sup> Such an attitude shows an utter blindness to the unsocial spirit of commercialized society, where success so often means simply the monopolization of property by which revenues may be wrung from the unsuccessful. Capitalistic property is not essentially different from feudal property, and its ownership by no means guarantees service. The eugenist who regards commercial success as the standard toward which society should breed apparently has in mind as an ideal a nation composed only of cultured bondholders. What an admirable solution of the labor problem!

One cannot but commend the efforts of the eugenists to discourage the propagation of the seriously defective classes. Such a policy is both humane and enlightened. But in the opposition they so commonly evince toward social legislation they pervert their reasoning and prostitute their science to exploiting interests. Laws to protect the toiler against destructive competition are merely the modern correlative

<sup>1</sup> Gesell, "The Village of a Thousand Souls," the *American Magazine*, Vol. 76, p. 12.

of primitive customs expressive of the blood bond, by which the individually weak were welded into the socially strong group. And such measures are in reality the most practicable eugenic measures. If society is to continue it must devise means to perpetuate the lives and homes of the productive and the socially minded against those who are examples of the natural standard of success in their ability to take. The natural standard readily asserts itself in the *laissez faire* of the market and the battlefield; social standards can be maintained only by the persistent effort of the social mind.

Evolution has always been sympodial; each succeeding age has been a judgment day that pulled down the mighty and exalted them of low degree. The giant ferns, the dinosaurs, and the mastodons have their day at the pinnacle of creation, then disappear in favor of some insignificant competitor. So when the present-day lust of greed and blood shall have spent itself, it may be found that the kingdom of the future belongs to some of the despised and the rejected. Who are the fittest? Is the standard of the jungle or the standard of the gospels to be applied?

## CHAPTER V

### THE OUTLOOK FOR SOCIAL ORGANIZATION

COMPARED with the remarkable material achievements of modern times, the social conditions of mankind are a cause for profound pessimism. Though wealth and the possibility of producing wealth have marvelously increased, yet misery and the fear of poverty abound, and greed, fraud, and brute force are still unchained. There is a widespread cult of optimism, it is true, which bids us always look on the bright side, and asserts that prosperity will stay with us permanently so long as we think prosperity. But second thought suffices to show that the inspiration of this commercialized optimism is the greed of speculators who wish to still further inflate exploitive property values. It is also evident that prosperity requires appropriate social organization, just as the utilization of steam and electricity requires pistons, rods, and wire in suitable adjustment. There is no more reason to think that ideals of social well-being could be made to work by

mere announcement, than that the lighting can be utilized by verbally calling upon it. Yet the disposition of society to move seriously under scientific leadership toward the goal of social organization is a feeble thing as compared to the pressure of individual and class greed in the free pursuit of commercial profits. Materially, we may boast a degree of attainment; socially, we still linger close to the stone age. And so long as the present ignorance and indifference persist must we expect poverty, class conflict, and world war.

### *1. The Perspective of History*

In the face of modern indifference to social truth, the philosophic mind seeks refuge in the large view of progress as seen in historical perspective. Across the screen of history the unfolding drama of life assumes a continuity and consistency that we fail to find when immersed in the problems of our own age. Like great waves empire has succeeded empire and nation has struggled against nation, each passing its crest and subsiding toward decay or ordered freedom, only to be engulfed by another tide of despotism, until we reach the

money empires of the present. Yet the brute force and cunning that forever triumph prove on investigation to be a derivative of the inward spiritual strength of social organization—a statement that is more than ever true today.

In the inevitable clash of international interests the nation which evolves the best ordered cooperation, appealing to the loyalty of its people and maturing their serviceable talents, insures the industrial ability upon which warlike strength no less than peaceful prosperity depends. The nation that succeeds best in achieving that vital democratic cooperation which is the essence of Christian idealism will, in the event of war, have the added strength of appealing to the popular interests as against the aristocratic strength of opposing nations, thus paralyzing resistance as did the French armies in the early days of the Napoleonic wars. So in the future as in the past the dice of the gods will be loaded in favor of social organization, and the class and national conflicts of the present day must eventually issue into the broad ocean of world socialization, in which freedom will have become harmonized in law. Taking the long view, we may learn

something of that patience by which Nature climbs through suffering to her goal.

## *2. The Basis of Improvement*

But no one can be content thus to withdraw except temporarily from the more pressing problems of the day. The mind which has been awakened by the social conscience demands a task that shall contribute, however slightly and slowly, toward universal righteousness. We cherish a reasonable faith that the ends of evolution may be materially hastened; that, indeed, only by participation can progress be attained at all, since intelligent effort is now the prime agent of evolution. Yet the practical answer to the question of what to do is not an easy one. Only by pointing out certain general policies may an answer be suggested.

The policies that will intelligently further social progress must, in the first place, be based on a realization of what present society is, in both its good and its evil aspects. Commercialism and militarism are a part of the structure of society as it now exists. They cannot be banished by an edict. Worldly wisdom adapted to actual emergencies must rule in the everyday affairs of life, even while the saints

are ushering in the kingdom. An understanding of the unsocial spirit of the world is good, but wholesale denunciation will accomplish little that is worth while. Patience, tolerance, a willingness to cooperate, and a blending of the practical with the ideal are essentials of useful character. Certainly the broad-minded view will avoid the common error of thinking that justice will be attained simply through the victory of one social class over another. A change of masters is very acceptable to the new masters, but not always so advantageous to the public. The appeal of the future is not to any economic class, but to the men of vision, to the disinterested and idealistic in all classes. Progress may mean the disciplining of some classes, but it will mean primarily the rule of social intelligence and conscience wheresoever uttered.

### *3. The Force of Idealism*

Above everything else, the person who wants to contribute to his times will foster idealism. No inheritance is so precious to the world as the vision of righteousness. Beauty in form, color, and sound are allied to it; truth is its weapon; but righteousness itself is the soul of



society, and the ideal of righteousness is the dynamic of progress. That ideal expressed in the symbols of religion and art is the compelling spirit which persuades men into self-sacrificing cooperation, and is quite another thing from the concept of legality. The civil court of so-called justice where interest contends against interest according to the ancient rules of the game has about the same relation to the vital justice of intelligent sympathy as has the divorce court to the ideal home. Western civilization formally professes as its standard of righteousness the sublime story of Jesus of Nazareth, whose life and teachings constitute probably the purest expression yet achieved of social idealism. Though many upright souls shun the gospel because of the shameless commercialism to which it has been subjected, yet it stands today as the most conspicuous reservoir of spiritual power.

But unfortunately the worst exploiters are pious Christians, and their urging of non-resisting brotherly love on the sheep they shear has become a byword. What is desperately needed at the present time is a clear and forceful realization of the tremendous gap between our idealism and our deeds. The force of

idealism lies in its application, and the application requires scientific vision. Men live in a haze of ignorance because they think in terms of self-interest, and sanctify shrewdness as service. Those German writers who have in the last generation declaimed with such crusading zeal against the baseness of Anglo-Saxon commercialism are right, though they may incidentally have overlooked a beam or two in their own eyes. The money-making ideal which flourishes so luxuriantly in England and America is a hypocritical fraud, a half-truth more dangerous than an open lie, an enemy that Christianity has fought and must again fight if it would not itself be a fraud. Not that religion means asceticism; abundance of life in a material sense is a worthy ideal. The condemnation of wealth lies in its nature as the privilege of ownership divorced from use—a privilege on which leisure-class aristocracy is based and which is morally unjustifiable. Because their spirit is greedy, men will not see that coiled about the legitimate stewardship, which is an unquestioned phase of business activity, is the vicious seeking for property because of its revenues, which we cover with the euphonious phrase of “supplying the capital.”

The same principle that we condemn elsewhere as "absentee landlordism" rules rampant under our unrestrained capitalism throughout the whole field of our vast industrial properties. The plain fact is that the properties of society are desperately battled for as "investments" by men whose one aim is to make them furnish the greatest possible revenue, and in the resulting scramble social values and public welfare are forgotten. Though it is true that we cannot change our institutions quickly, yet there can be no moral health while conscience slumberingly concurs in the standards of the market and is deceived by Mammon wearing the livery of Christ. The Great War is in a large measure the result of the accumulated greed of the Christian nations clashing in their professed desire to "serve" the undeveloped peoples by trade and investment. We cherish the delusion that we in America are different in organization and motive, though as a matter of fact we stand as the most conspicuous example of *laissez-faire* commercialism. The reckoning for our worship of money lies ahead, in the form of urgent domestic and foreign problems. Only in sober realization of facts, and in the willingness to move in the direc-

tion of practicable progress can we achieve salvation.

#### *4. Regulation of Economic Freedom*

The immediate future will demand less of the riotous freedom of the past and more discipline under expert leadership. It is true that the attractive ideal of freedom may theoretically be workable, and perhaps in the distant future when ethical intelligence has been reached it will become practicable. Society today is like a crowd in a theater startled into a mob by the cry of fire. The fear of poverty and the desire for economic independence cause a rush for the possession of property under which legitimate business is stifled and the un-aggressively useful are trampled underfoot. If men actually lived in the spirit of the Sermon on the Mount there could be no such thing as the ownership of property apart from its social use; capitalization and the consequent exploitation of the useful by the aggressive would disappear; the instinct of mutual service through artistic workmanship would find expression; and organized regulative and charitable programs would be rendered unnecessary. Man would take no thought for the morrow, nor

would he erect leisure-class aristocracies by laying up treasures on earth, but expressing his constructive fraternal nature he would give as freely as through the inheritance of the ages and the cooperation of his fellows he had received. Thus would treasure be laid up in an actual heaven of harmonized human relations. This is the ideal which is urging itself upon man, and which finds some sheltered flowering in the family and community life, but which is as yet a stranger to the world of government, of finance, and of international relations. So in a world where the finer things of life are trampled down, we can only hope to check the mob spirit by enforcing a lock step until the panic is quelled and the spiritual nature has a chance to grow.

The new order, if it is wise enough to escape the anarchy of forcible expropriation, will accept the fact of the present supremacy of capital, but it will hope to modify the administration of capital from irresponsible privilege toward restrained service. The energy and administrative ability that are today building predatory trusts will be enlisted, as far as may be, in the interests of the public. This end will be more feasible under the control of a

few conspicuous captains of industry than under the control of a large group of struggling, competing profit-seekers. As the king under feudalism became the champion of the people against his turbulent nobles, so the kings of finance will find it to their interest to promote the welfare of the masses who both produce for them and constitute their markets. Civil government will doubtless continue to act as a mediating agency between the people and their economic rulers, though in view of the power of money to manufacture public opinion and to direct elections there is little to encourage optimism in the immediate outlook for democracy. *Laissez-faire* policies have reduced government to an inconspicuous rôle from which it cannot quickly emerge, and capital is likely to be the real source of power for some time to come.

### 5. *Social Legislation*

Civil government will, however, furnish an important fulcrum in the furtherance of various schemes for mitigating the evils of capitalism, such as industrial insurance against incapacity and unemployment, control of hours and conditions of work, scientific wage and

price regulation, and the arbitration of labor disputes. This program of constructive reform, already well advanced in other countries, has been held back in the United States by the unique power of the courts to block legislation. In conformity with our obsession in favor of private initiative, much of it is now developing under the arbitrary control of the great business feudatories; but even so it will be an advance, and under later standardization by government may accomplish the ends sought. The fundamental value of such reform measures need hardly be urged after the survey we have already made of the nature of society. They constitute the logical and practicable first step out of the anarchy of *laissez-faire* competition. A few of the advantages may, however, be briefly pointed out.

Social legislation will do much to lessen the greed for the speculative ownership of property that now so inflates values and hampers business by the dead weight of parasitical capital. As things are now, the producer has little incentive to take pleasure in his work and to become an artistic workman, since his position is cruelly insecure unless he can amass considerable property. Safeguarded by insur-

ance and other devices, he will not be compelled to attempt the unfamiliar specialization of investment and property management in an endeavor to secure economic safety. With the basement of society cleared of its wretched slums, with defectives scientifically cared for and the weaker protected, the frantic desire to rise to a leisure-class position will somewhat give way to an endeavor to excel in a chosen vocation. As a result, property will tend to fall into the hands of the real business manager rather than the speculator, and the burden of capitalization will diminish.

A further important advantage will be derived from the weight of taxation that will be thrown upon property. This will relieve the pressure of unemployed capital that in its eagerness to exploit foreign fields is now the most fruitful cause for war, and by expanding the spending power of the public will increase home markets. Through the governmental machinery that must be built up it will eventually be possible to bring about an adjustment between the social income that is expended in real capitalization on the one hand and in consumption on the other, so as to prevent the inflation of speculative property values and the



underconsumption that lead to industrial stagnation.

We can but mention one phase of the organization of the social environment that is of the most fundamental importance; namely, the socialization of education. The school system of the present is narrow, inadequate, ill adjusted to its task. It prepares principally for a few so-called learned professions, or for the culture of the leisure classes. It must be enlarged and diversified so as to produce trained workers in all the varied specializations of society, as well as to give the physical, artistic, and moral training that is necessary for complete living. In the discovering of talent it will serve, as it has to a considerable degree in the past, as an important means of making that talent effective, and so of partly neutralizing class lines. It will be the principal means of bringing the individual into vital relations with the social heritage.

#### *6. Expert Leadership*

Finally, scientific social organization will produce, and is already beginning to produce, a new type of leader. The trained expert, knowing the facts of society and alive to

dynamic ideals, will eventually give to the blind, blundering civilization of today an intelligent leadership. The present custom of looking to captains of industry and their political hangers-on for direction is perhaps more dangerous than the ascendancy of feudal aristocracies. Business tends to unfit for leadership because the pursuit of individual profits is the element in society that most of all needs regulating. The business man is trained in keen competition to struggle for his own advantage; his most natural thought in legislation is for tariffs and similar weapons that will give him success over his competitors and exploitive power over worker and consumer. To look to him for far-sighted direction is as absurd as to appoint a prize fighter referee over his own match. Society must therefore develop from its most gifted youth a broadly trained group of leaders, recruited through education from all classes on the basis of merit, who shall fill the posts of legislative and administrative experts in the widened civil service of the future. In touch with modern conditions and problems, kept free by reasonable salaries and insurance benefits from the temptation to amass wealth, they will come to

form a new priesthood of science through whom worthy and intelligent ideals may be put into practice.

But, after all, it is impossible to foresee the details of the socialization of the future. Probably society, now so unstable, will eventually go through radical transformations. The attempt has here been made merely to show that the narrowly biological views so widely held are dangerously destructive, while the working out of social ideals in the spirit of religion and with a scientific regard for truth is the pathway leading from threatening evils into the promised land of abundant life. Western civilization is faced with the somewhat alarming necessity of actually becoming Christian in its everyday affairs!

## APPENDIX

CORRELATIONS FROM TABLE I. SPEARMAN METHOD, BUT COEFFICIENT CONVERTED TO PEARSON'S "r." (Letters refer to specified columns in table.)

1.	A&B,	0.60 ± 0.08	25.	H&K,	0.60 ± 0.08
2.	C&E,	0.88 ± 0.03	26.	H&L,	0.96 ± 0.01
3.	C&G,	0.72 ± 0.06	27.	I&R,	0.96 ± 0.01
4.	C&L,	0.89 ± 0.03	28.	I&X,	0.89 ± 0.03
5.	D&H,	0.74 ± 0.06	29.	K&R,	0.96 ± 0.01
6.	D&I,	0.75 ± 0.05	30.	K&Z,	0.75 ± 0.06
7.	D&J,	0.59 ± 0.08	31.	L&T,	0.86 ± 0.03
8.	D&K,	0.77 ± 0.05	32.	M&N,	0.69 ± 0.09
9.	D&L,	0.84 ± 0.04	33.	m&n,	0.55 ± 0.11
10.	E&G,	0.66 ± 0.07	34.	O&P,	0.76 ± 0.05
11.	E&H,	0.77 ± 0.05	35.	O&Z,	0.65 ± 0.07
12.	E&K,	0.86 ± 0.03	36.	P&R,	0.43 ± 0.10
13.	E&L,	0.76 ± 0.05	37.	Q&R,	0.78 ± 0.05
14.	F&G,	0.59 ± 0.10	38.	Q&S,	0.72 ± 0.06
15.	F&H,	0.74 ± 0.06	39.	Q&T,	0.82 ± 0.04
16.	F&K,	0.93 ± 0.02	40.	R&X,	0.94 ± 0.01
17.	F&L,	0.80 ± 0.05	41.	R&Z,	0.80 ± 0.05
18.	F&U,	0.87 ± 0.03	42.	S&T,	0.75 ± 0.06
19.	G&I,	0.35 ± 0.11	43.	U&V,	0.71 ± 0.06
20.	G&K,	0.46 ± 0.10	44.	W&X,	0.34 ± 0.11
21.	G&P,	0.97 ± 0.01	45.	W&Y,	0.64 ± 0.07
22.	G&S,	0.94 ± 0.01	46.	W&Z,	0.45 ± 0.10
23.	G&W,	0.91 ± 0.02	47.	Y&Z,	0.78 ± 0.05
24.	H&I,	0.47 ± 0.10			



## STATISTICAL SUMMARY — RANKING OF

1850

1860

States in Census of 1840	Noted men born in State per 1000 white pop.		Noted men born in State per 1000 population		Scientists born in State per 1000 pop. (Macmillan)	Scientists born in State per 1000 pop. (Cattell)	Density of population	Density of white pop.	Literacy of native whites	School attendance, whites	Elementary education, I & J	Capital in manufactures per square mile
	A.	B.	C.	D.								
Ala.	21	21	24	20	21	25	20	23	23	22	23	24
Ark.	27	26	29	29	28	29	28	28	24	28	27	29
Conn.	2	3	2	2	2	2	3	3	2	7	2	3
Del.	5	9	8	6	26	17	9	9	21	15	19	8
Fla.	20	27	27	27	27	28	29	29	22	29	29	28
Ga.	25	19	25	25	23	24	21	24	27	25	25	23
Ill.	8	20	14	16	13	14	13	13	14	9	14	16
Ind.	18	12	17	19	16	16	10	10	17	13	16	14
Ia.			16	18	14	12	27	22	13	8	12	26
Ky.	22	13	20	22	18	21	14	14	25	17	22	15
La.	19	23	26	23	24	26	24	27	18	27	20	25
Me.	11	17	6	7	5	5	18	16	5	1	4	12
Md.	12	6	13	9	6	9	6	8	15	23	15	9
Mass.	1	2	1	1	1	1	2	1	1	5	1	2
Mich.	6	25	11	15	12	10	26	20	9	4	9	17
Miss.	24	22	28	26	25	27	23	26	16	21	17	27
Mo.	17	24	19	24	17	18	22	18	19	18	18	19
N. H.	7	10	5	5	15	6	11	11	6	2	5	7
N. J.	10	4	9	10	4	8	4	4	11	16	13	4
N. Y.	9	5	7	8	8	4	5	5	7	10	7	6
N. C.	23	18	22	21	22	23	19	21	29	20	28	22
Ohio	13	8	10	12	10	11	8	7	12	6	11	10
Penn.	14	7	12	14	11	15	7	6	10	12	10	5
R. I.	3	1	4	4	9	13	1	2	8	14	8	1
S. C.	15	16	21	11	29	20	17	25	20	24	21	21
Tenn.	26	14	23	28	20	22	15	15	28	19	24	18
Vt.	4	11	3	3	3	3	12	12	3	3	3	11
Va.	16	15	18	13	19	19	16	17	26	26	26	13
Wis.			15	17	7	7	25	19	4	11	6	20







## EXPLANATIONS:

A. Based on *Who's Who in America* (Chicago, 1912), see p. xxiii. Number of living noted persons born in each state (irrespective of date of birth) divided by the population of the state according to the census of 1850. States then ranked from highest to lowest. This census was more than a decade earlier than the average age of the noted persons, but the computation was made for purposes of comparison.

B. The census gives the density of population in each state for each decade. See *Statistical Abstract of the United States*, 1911, pp. 52-53 (Bureau of Statistics, Washington). The census figures for 1850 have been ranked, as above.

C. Same as A except based on census of 1860.

D. Same as A except based on census figures for white population in 1860. See *Statistical Abstract of the United States*, 1909, pp. 46-52 (Bureau of Statistics, Washington).

E. Based on *Who's Who in Science*. (Macmillan, 1910.) A selection was made of all scientists born in the United States between 1850 and 1870. These were classified by state of birth, and the number for each state was divided by the population of the state in 1860. The ranking was then made as in other cases.

F. Out of a large list of noted American scientists Dr. Cattell has selected with the greatest care the 1,000 most prominent. From this 1,000 he has selected the 867 native-born, classified them by state of birth, and divided the number for each state by the population of the state in 1860. He also makes a tentative comparison with density of population, and it is noteworthy that though he does not push the investigation very far, he suggests practically the same conclusion as that arrived at in this study. See Cattell, *American Men of Science*, pp. 553-559. On p. 554 will be found the table from which the rankings in Column F have been prepared.

G. Same as B except based on census of 1860.

H. White population (as in D) for each state divided by area of state, and results ranked.

I. Not given directly in the census of 1860, but easily arrived at from the figures on illiteracy there given.

J. Total school attendance for each state was divided by the age group 5-15. White population only. Census of 1860.

K. The two preceding measures of elementary education were combined by multiplying the per cent of literacy by the average school attendance for each state, and the resulting abstract index figures were ranked.

L. The capital invested in manufacturing in each state was divided by the area of the state, and the results ranked. Figures from the census of 1860.

M, N, m, n. In these columns the data used in preparing columns D and H were reranked for specified groups of states. The object was to discover whether the correlations previously found were due mainly to differences between North and South, or between East and West, or both.

O, P. Same as A and B except based on census of 1870.

Q. Same as A except based on census of 1880.

R. Based on census figures for illiteracy of native whites.

S. Same as A, except based on census of 1890.

T. Based on census figures for per cent of urban population, by states.

U. Prepared from same source and in same way as under column F, except that here the classification is on the basis of the state of residence in 1900.

V, W. Same as B except based on censuses of 1900 and 1910 respectively.

X. Based on census figures for illiteracy of native whites.

Y. Number of noted men resident in each state has been divided by the population of the state. Data from *Who's Who in America*, p. xxiii of introduction, and census of 1910.

Z. Based on the ranking of the states in public education according to the Russell Sage Foundation investigation. See Russell Sage Foundation pamphlet No. 124—*A Comparative Study of Public School Systems in the Forty-eight States*. New York, 1912.

NOTE: Specific references have not been given to the most accessible census material, inasmuch as it is readily found through the census indexes.

For methods of computation see Whipple, *Manual of Mental and Physical Tests*, Chapter 3. The fraction  $\frac{1}{2}$  appearing in the tables is due to the method of handling ties, as explained in Whipple's manual. The Spearman method of computing correlation has been employed, but the Spearman value has been reduced to the corresponding Pearson value by means of tables which Whipple gives. The Spearman method has been criticized as inaccurate in negative values, but the criticism has no application in the present case. The method has been checked in one or two instances by the computation of the Pearson products-moment coefficient, based not on the rankings but on the values from which the rankings are taken, and in many cases the Pearson method of rank differences was used. Another method employed as a check was one in which the states were "weighted" so as to give force to each in proportion to its population. In nearly every case it was found that the result by the more precise method was a little more striking than the result by the Spearman method.

It may also be worthy of note that the values on which the rankings are based show very decided differences. For example, in column A, the first rank is 6.7 times greater than the last rank; in column B it is 86.5 times greater; in column C it is 14.3 times greater, etc.

TABLE II

States in 9th Census	A. Noted Men Born in State ÷ Popu., 1870 Rank	B. Noted Men Resident ÷ Popu., 1910 Rank	C. Density of Population, 1870—Rank	D. Density of Population, 1910—Rank	E. Elementary Education, 1910—Rank
Ala.	33	39	24	23	46
Ariz.	42	15	44½	44	29
Ark.	43	45	29	28	41
Cal.	16	6	32	34	4
Col.	30	7	40	38	9
Conn.	3	3	4	4	5
Del.	8	11	9	9	33
Fla.	39	35	33	36	32
Ga.	36	43	23	21	42
Ida.	24	24	42	41	18
Ill.	18	12	11	10	8
Ind.	17	29	10	11	10
Ia.	23	34	20	24	20
Kan.	31	32	31	31	24
Ky.	26	36	14	12	40
La.	35	38	28	27	37
Me.	6	10	21	30	21
Md.	11	9	6½	7	34
Mass.	1	1	2	2	2
Mich.	15	26	22	17	17
Minn.	27	22	30	29	19
Miss.	38	46	27	26	43
Mo.	29	20	17	18	30
Mont.	44	31	44½	43	16
Nebr.	22	23	35	33	25
Nev.	37	13	40	46	26
N. H.	4	4	13	19	13
N. J.	10	16	3	3	7
N. M.	45	27	38	42	38

TABLE II—Continued

States in 9th Census	A. Noted Men Born in State ± Popu., 1870 Rank	B. Noted Men Resident— Popu., 1910 Rank	C. Density of Population, 1870—Rank	D. Density of Population, 1910—Rank	E. Elementary Education, 1910—Rank
N. Y.	7	2	5	5	3
N. C.	28	40	19	20	44
N. & S. D.	46	37	44½	37	22
Ohio	9	18	8	8	6
Ore.	19	21	37	39	15
Penn.	12	17	6½	6	23
R. I.	5	5	1	1	11
S. C.	25	42	18	16	45
Tenn.	34	33	16	13	35
Tex.	41	44	34	35	36
Utah	21	19	36	40	14
Vt.	2	8	12	25	12
Va.	13	25	15	14	39
Wash.	20	30	40	32	1
W. Va.	32	41	26	15	31
Wis.	14	28	25	22	27
Wyo.	40	14	44½	45	28

Correlations from the above data. Spearman method, but coefficient converted to Pearson's "r." (Letters refer to specified columns in table.)

$$48. A\&B, 0.68 \pm 0.05$$

$$49. A\&C, 0.70 \pm 0.05$$

$$50. A\&E, 0.55 \pm 0.07$$

$$51. B\&D, 0.18 \pm 0.10$$

$$52. B\&E, 0.67 \pm 0.06$$

$$53. D\&E, 0.10 \pm 0.10$$

#### EXPLANATIONS:

The above rankings have been prepared from the same sources and in the same way as those in Table I.

A. See explanation of column A, Table I. A change is made, however, to the census of 1870.

B. See explanation of column Y, Table I.

C and D. Based on census figures.

E. Like column Z, Table I, based on Russell Sage Foundation investigation.



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Specific references in connection with statistical data are given in footnotes.

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