THE TASK OF EUGENICS.

by

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bers in family groups to make such a study either profitable or successful.

The eugenist does not believe that folks, human beings, can be bred like live stock and the race improved in the same manner and in the same length of time; but he does believe that man is governed by the same laws of inheritance and that selection can be used and should be used in mating for the betterment of the race. He believes, however, that this selection will have to be made by the individuals concerned, themselves. Therefore, he suggests that the only wise course for our nation to pursue, is one of education and agitation, until a public conscience is aroused that will lead to serious thought along this line. His chief program then, is one of education. Further, if the race can be improved by an increase of the birth-rate among superior people, which he hopes to secure through education, it can be equally improved by the lessening of the birth rate among the socially inferior people, and the complete prevention of a birth rate among our defectives. This should be the program of eugenics, and will be the main object of this study.

SECTION I.

HEREDITY OR ENVIRONMENT.

The question that presents itself to all students of the development of the human race is the question of evolution. Has man evolved through a long process of time, from the most elementary forms of life to a state of being superior to that of all other animals, or was he created in his present state of perfection by God in the twinkling of an eye?

To accept the teachings of our early scientists who, is is popularly believed, leave God out of all consideration, is to fly in the face of all the religious teachings of our parents and grandparents; is to destroy the confidence they have reposed in us as intelligent, rational beings. I can see now, the pained expression on the face of my old grandfather, had he found me expressing such a belief. All of us admire and respect our "Great Commoner", William J. Bryan, for his learning and statesmanship, yet we find him giving frequent, fervent expression to his feelings regarding the teaching of anything having for its basis, the theory of evolution. Another of these stalward men, whom we are bound to respect, is Jacob Riis, of New York. At the First Race Betterment Conference, held at Battle Creek, Michigan, he made use of the following expression,

"We have heard here, talk of heredity; the word rings in my ears until I am sick of it. Heredity! Heredity! There is just one heredity in all the world that is ours--we are children of God and there is nothing in the whole big wide world that we cannot do in his service with it." This is but the strenuous utterance of what all or most of our older men and women have believed, still do believe and their children and their children's children believe, --even today.

All this is as much as to say, that although nature[1] has distributed some handicaps at birth, they can be remedied if the body is properly warmed and fed and the mind properly exercised. It is further supposed that this improvement in the condition of the individual will result in the production of better infants. That environment and training cover all our needs and that the expression brought about by good environment and good training will be good and that the race can be steadily improved by creating the right surroundings and providing the right sort of training. In short, folks believe that man's nature can be changed by changing the conditions under which he lives and that this change in his nature will be passed on as a family characteristic.

The Eugenist and Geneticist believe that man is an animal governed by all the laws of biology, just as other animals

1. Popenoe & Johnson, Applied Eugenics, p. 1.

are and that to improve the human race you must begin at the bottom and work upward. Man, then, in their estimation, is a creature of evolution. But they do not leave God out of account as is popularly believed. They are sure that over all this universe and all its creatures, there is an all-wise creator who has directed each step in the course of the development of all life. They are convinced of this by the wonderful coordination in the development of life as evinced in the study of embryos, from the simplest to the most complex that the scientist has investigated; and by many other phenomena of nature that we do not have time or space here to mention.

To lay a foundation for a program of practical eugenics, the Eugenist then offers in evidence of the truth of the theory of heredity, that he no longer looks upon as a theory but an indisputable fact, many facts gathered by such emminent men as Galton and Karl Pearson, of England, who have studied statistically large groups of population and have, by the means of biometric calculations, established facts with regard to heredity that seem to them and to us as undisputable evidence of the truth of this theory. Then, too, there is the history of the development of man as shown in the men of the old stone age, given us best by Osborn in his "Man of The Old Stone Age".

In fact, the whole body of observational and experi-

mental evidence in biology tends to show that the characters which an individual inherits from his ancestors remains remarkably constant in all ordinary conditions to which they may be subjected. The higher the forms of animals, the more definitely do their characters tend to become fixed at birth.[1] For witness, the similarities and dissimilarities of twins. Correlation between myopia in children and the age at which they begin to read, or rather the lack of it, for no factor of environment readily accounts for poor eyesight in children. The conditions of light and the surroundings of children in the school room have been investigated in thousands of cases of poor eyesight and the correlation between these conditions and their poor sight have been figured out by investigators and found to be so small as to be negligible; while the correlation between poor eyesight in children and their parents and other ancesters has been found to be so positive as to leave no doubt that weak eyes are practically always to be inherited.

Again in the case of twins. Twins may be said to be of two kinds, identical and non-identical. The former have been recognized as having sprung from a single cell, therefore, have inherited identical characters. Non-identical twins may be said to have sprung from separate cells, and therefore to inherit char-

1. Popenoe & J., p. 6.

acters of the different cells, and in many cases entirely opposite. Now if environment, (food, clothing, shelter, friends) counts for as much as is popularly believed in the development of an individual, identical twins may be separated and brought up in entirely different surroundings and under different conditions of food, shelter, warmth and training and be expected to grow constantly different.

Galton collected the history of eighty pairs of identical twins. That is, as nearly identical as we might expect to find. Of these eighty pairs, thirty-five were of extreme similarity, such that friends and teachers could not tell them apart. In some cases, the mothers had great difficulty in knowing them one from the other and in one case, the daughter of a twin had difficulty in knowing her mother from her aunt. In seven cases, at least, he found that when one twin suffered from some kind of ailment or peculiarity, the other suffered from the same ailment or peculiarity at the same time.

These twins were reared, in some cases, almost to manhood before separation; in others, there were separated earlier in life and reared in entirely different part of the country in different homes, with different climatic conditions, different food and clothing and different teaching. If environment is to have any effect on the characters of these children, then it must

tell in these cases. In every instance that has been followed up by Galton, just one oppostie was found to be true. They remained as nearly identical throughout life as they appeared to be in their infancy. Only disease or accident having any effect is the change of appearance, and not that always as to disposition and mentality.

Likewise we might assume the non-similar twins to be brought up under the same environment, as is usually the case, and expect them to become constantly more similar. As in the case of the similar twins, Galton followed up a large number of cases, which is the usual condition, dissimilar twins reared in the same homes. He found the results as before--only as the older they grew, the more unlike they became. Expressing only their heredity. Their surroundings and training having nothing whatever to do with their inate characters.

Another interesting case is, why men grow short or tall. It is a well determined fact with agricultural botanists that all plants have their limitations beyond which they cannot be trained to grow. A certain variety of corn can be cultivated till it will reach a certain height, but not beyond it, and there are almost as many varying heights of corn as there are varieties of the plant. Likewise in the animal kingdom, man has determined

that he cannot develop an animal beyond a certain limit. Men, like plants and animals, have their limitations. Take the offspring of two parents, both short, and from a line of ancestors of like characters, and we may expect only short men and women among them. The height of these children will not exceed the limits of their ancestors. "What man, by taking thought can add a cubit to his stature?" When we study the offspring of tall parents, whose ancestors were tall, we will find them invariably reaching up towards the limits of their parents. True, you may stunt them and prevent their development, but you can't grow a short man taller. Heredity determines the question.

It is a popular belief that conditions of environment and health have a great deal to do with the intelligence of children. To get data of scientific value along this line, the children of fourteen schools of New York were measured for correlation between environment and health conditions and mental accomplishments, height, weight, conditions of clothing and teeth, state of nutrition, cleanliness, good hearing and the condition of the glands, tonsils and adenoids. It could not be found that mental capacity was closely related to any of the characters dealt with. The particular set of characters measured was taken because it happened to be furnished by data collected for another

purpose. The various items are suggestive, rather than conclusive. The correlation in most cases was less than .1, as compared with the general heredity correlation of .5*.

In the world of affairs, if opportunities, training and advantages insure success, then we ought to find those persons who have been well provided with these, in the forefront of life. If such were the case, and a large enough number be considered to give the laws of chance or probability full play, then a good case would be made for environment. The best field for such an investigation is England. There Osford and Cambridge turn out most of the eminent men. The graduates of these two great universities ought to be found generally among the successful. Galton found that this was not the case, but that success was a matter of family to an unexpected degree. The son of a distinguished father was likely to be himself distinguished while the son of two ordinary persons had but slight chance of ever being known above the average of the populace. The son of a distinguished judge had about one chance in four of becoming himself eminent while the son of ordinary parents had about one chance in four thousand of being equally well known.

It has always been said in the U. S. that every boy had a chance to become president. That we live in a country of equal opportunities. Now if this be true, then opportunity, training

*These investigations were made by Prof. Thorndyke. Popenoe & J.

(p. 10)

and effort should be the deciding factor and our eminent men would be found rising frequently from the ranks. We do find eminent men rising from the rank and file, but not in sufficient numbers to justify the claim of those who would have us believe that all depends on our surroundings and training. If the great men of this country have fewer close relatives who are eminent, then a clear case will be made for environment.

Fredrick Adams Wood made the same investigation in the U. S. that Galton did in England among the judges or that country. The biographical dictionaries gave 3500 eminent persons in this country. Dr. Woods says that if we suppose the average person to have as many as twenty close relatives as near as an uncle or grandson, then only one person in five hundred in the U. S. has a chance to be a near relative of one of the 3500 eminent men--provided it is purely a matter of chance. The fact is, that the 3500 persons listed are related, not as one in five hundred, but as one in five. If the more celebrated men alone are taken, it is found that the percentage increases so that about one in three of them has a close relative who is also distinguished. The ratio increases to more than one in two when the families of the forty-six Americans in the Hall of Fame are counted. They average more than one apiece. Therefore, they are from five hundred to one thousand times as much related to distinguished people as the ordinary mortal is. Therefore, some-

-thing like one percent of the population of the country is as likely to produce a man of genius as is all the rest of the population.* Environment is a totally inadequate explanation, while heredity explains all or at least ninety-percent of the intellectual side of character. But opportunity is sometimes responsible for the appearance of much talent that otherwise would not appear.[1]

We can go further and show that equality of training will not create equal performance, but will increase the differences between individuals. Take a group of children and give them drill in doing sums of addition or multiplication, or other character of work. All will improve, but the naturally better ones will not only outstrip them and in an ever increasing degree as training progresses, making a greater proportionate gain for any stated length of time, and the greater the length of training, the greater the proportionate gain. Dr. Starch made just such a test and found the above conclusion to be true.

While these examples we have presented may not be sufficient to make an absolute case for heredity as against environment, they are enough to make it quite evident that ordinary individuals cannot be made into a high grade of intellectuality by training. It is not true that every boy can make of himself what

* See "Heredity in The Hall of Fame", Woods. P.S.M. May 1913.
1. "American Men of Science" P.S.M. May 1915. Mc Keen Cattell.

he wishes just by his own grit and effort, even though he receives the best of education. It is inborn nature that causes the achievements of men and women to be what they are. Good environment, opportunity, training will give heredity a chance to express itself; but they cannot produce greatness from bad heredity. A boy turns out well because what's bred in the bone will shew in him if it gets any kind of a chance. It is his nature, not his nurture, that is mainly responsible for his character.

If, then, the character of a human being depends on his inborn nature, it must depend on the cell that is provided by each parent for the production of the embryo, which after fertilization has become a single cell, carrying all the genes or characters that will be represented in the character of the individual. In Darwin's time, it was thought that the body produced the cells and that they dies with the body. Later, August Weisman, discovered the fact that the body is produced by the germ cell, a single cell, and advanced the theory that the germ cell did not die with the body of the individual, but was passed on to the offspring and continued to live in the body of that new individual, passing on to the next and so on into immortality.

Let us take the life of one of the simplest forms, an infusorian, say, and see what becomes of it. The parent cell, when it reaches a sufficient stage of maturity, pinches into two

each half being an exact counterpart of the parent and repeating the life of the parent in exactly the same manner and almost the same length of time, surroundings being equal. May it be said that the parent cell died? Rather the parent continued to live on in each of the daughter cells. Weisman advanced the theory that all life was from a pre-existing life and that the passing of the germ cell from one individual represented a stream of life that continues to flow in what may be termed the germ-plasm, and that even the infusorian is potentially immortal. Not that the infusorian does not die, but that he does not die of old age, only of accident or unsuitable surroundings, and that he is produced in such numbers that though some may die, some--carrying the original stream of life--continue to live on. It is now generally conceded by all scientists that all forms of life are reproduced just as is that of the infusorian, by simple cell division.

The germ-plasm is that part of the parent that does not die and is passed on from individual to individual in the perpetuation of the race. In that case then, we, each of us are the keepers of the stream of life, temporary custodians, as it were, and may be said to have been brought into existance, primarily to pass on this sacred heritage to the next generation. Man's existence can only be justified in the eyes of nature, for the purpose

of passing on this stream of life, which he has been created only to guard for a time. These things being true, it is evident that when the relative importance of the germ-plasm and the body-plasm is understood, that any program for the betterment of the race must be based on the germ-plasm rather than the body plasm if it is to be of any real value to the race.

It has always been more or less believed by people generally that any alterations of character that came about in any manner what-so-ever, would be passed on by the parent to offspring. Now an inborn character is one that is due to heredity and is not acquired through some extraneous source. Therefore, any character that comes about by altering the outward form or size, or any addition to strength that comes from training or food is not inborn, but is an acquired character. For such a character to be inherited, it will be necessary for the change that has been made to be such that it has altered the germ-plasm and must be transmitted through that medium. We know inborn characters to be inherited, but it has never been established beyond doubt that an acquired character is inherited. Let us consider the white family that moves to the tropics. Let them be fair of complexion. They may live long in the tropics, and become so tanned that their tan seems to be a part of the

race and we may be led to believe that their coat of tan will be transmitted to their offspring. But if you will take the trouble to look at their new born babies before they have had time to be affected by the tropical heat, you will find them as white as their ancestors were before they went into the tropics.

We usually hear folks say, in the case of disease, that tuberculosis is inherited. But the scientist has determined that the baccillus is not carried in the germ-plasm and that therefore, the disease cannot be inherited. What is inherited is susceptibility to the disease after it finds its way into the blood of the individual. It may be in the infant when it is born, but then only because it has been in the blood of the mother during parturition. If the infant is of sufficient strength to resist the affect of the baccillus and is given proper care it may outgrow the disease and the fact that it has carried the tubercle baccillus never be known. In fact, most of us carry the baccillus at some time in our life, it is freqeently said.

Popence and Johnson give us the case of a woman who feared her offspring would be weak because she was not strong and thinking to make her prospective child strong, took to outdoor life and athletics in the hope that she might gain that end.

In the course of time she built up her body and a strong, healthy child resulted. But in place of its heredity being made stronger by the practice of the mother, she simply provided it proper nourishment because of her healthy body and whatever heredity the child had, had an opportunity to express itself. Such evidence does not often go beyond a single child and is not of value as evidence in behalf of the inheritance of acquired characters.

Most cases of acquired character, in inheritance, come under the head of mutilation. In evidence of such inheritance, we have the case of oriental people who have had their noses, ears and lips split and weights and ornaments hung in them for centuries past, and no case of the birth of a child with such a deformity has ever been recorded. In our own country, the tails of rats and mice have been cut off for generation after generation, by investigators, and no case of bobtailed rats or mice has ever been discovered as having been born. The nearest we have ever come to evidence of such inheritance is the experiment that was carried on by a scientist of the University of Chicago, in New Mexico, with the potato beetle. He took the beetle from a low altitude to one of high altitude and low atmospheric pressure and under different conditions of temperature, and succedded in getting variations in

coloring and stripes that bred true under the applications of Mendel's law. These have been offered as evidence of the inheritance of acquired characters, but it is recognized that any such changes were brought about through the alteration of the germ-plasm of the insect and not to any outside or superficial change. Therefore, we are ready to conclude that acquired characters are not inherited and that any differences that exist in men are due to their inheritance.

If the results of all the tests that have been made on all the mental traits that have been studied, it will be found that human mental ability as shown in at least nine-five percent of all the traits that have been measured, is distributed throughout the race in various degrees in accordance with the law of chance. The consequences of this for race progress are significant. For the purpose of eugenics it is sufficient to recognize that great differences exist between men and women, not only in respect to physical traits, but equally in respect to mental ability. Under the ordinarily accepted theory, these differences are due to the differences in opportunities and training. But if we will recall the study of twins, and again Weisman's theory of the germ-plasm, that is now recognized as not just a theory but a well established fact, we must conclude that these differences can be due only to man's nature and not to anything that may have happen-

ed after birth.

It is not difficult to present evidence that the differences between men are actually inherited by child from parents. Take the inheritance of eye color. The correlation between brothers, or brothers and sisters in the inheritance of this character is .52. For that of stature is .51, for that of cephalic index, or head measure, size and shape, is .47.

When an insane or epileptic person marries a normal individual in whose stock no taint is found, generally their offspring will be sound. But on the other hand, if two sound persons marry in whose heredity there is the taint of insanity, some of their children will be of unsound mind.[1]

This production of sound children from unsound parents in the first case and unsound children from the sound parents in the second case is just the opposite of what would ordinarily be expected, but it is found that insanity in some of its forms acts as a recessive and breeds out in just the manner indicated. Heredity offers the only reasonable explanation of the fact. Certainly children do not just absorb their feeblemindedness from their surroundings and associations.

There are many other examples we might offer, but time and space are limited and we do not believe that a multiplication or repetition of similar cases is either desirable or neces-

1. Popenoe and Johnson, p. 88

sary. We believe that the evidence at hand is sufficient to establish the fact that man owes all that he is, in a broad sense, to his inheritance from his ancestors, and that his opportunities and training do nothing for him, more than to give his inborn character an opportunity to express itself. In the following section, we will give something of the history of the development of man, as found by Osborn, in his "Man of The Old Stone Age".

SECTION II.

THE MAN OF THE OLD STONE AGE.

Beginning not far back in our history, there came the discovery of a fossil, that in some characters, had human resemblances. The reconstruction of the creature, along what paleontologists term the principles of harmony, led to much speculation and conjecture. The first discovery was made in the year 1848. Following this came other discoveries and other reconstructions and much more of conjecture and speculation.

The first was known as the Java Man, the next, the Heidelberg man, the third, the Piltdown man, the fourth, the Neanderthal and the fifth, the Cro Magnon. The steady advance of these from the ape-like forms toward that of the human characters are very striking, and have led to the conclusion that man is the product of a long process of evolution, extending, perhaps, over a period of 200,000 years. A brief sketch of this history is offered here, from a study of the work of Henry F. Osborn, in the Man of The Old Stone Age.

THE TRINIL RACE OF JAVA.

Eugene Dubois, a Dutch army surgeon, was excavating on the Bengawan River in Central Java, for fossils, in the hopes of finding pre-human remains. In the year 1891, he found near Trinil, a single upper molar tooth, which he regarded as of a new species

of ape. He next found the top of a skull about a meter's distance from the tooth. Later, he found a second molar tooth and a left thigh bone, about fifteen meters from where the skull had been found, all embedded and fossilized in the same manner.

This find was made at a place that was in the path of migration routes of the great races of mammals and amidst a fauna closely related to that of the foot-hills of the Himalaya's and more remotely to that of southern Europe.

In 1894, Dubois described these scattered parts and designated the type "Pithecanthropus erectus", meaning the upright-standing ape-man. The term being based on the long femur bone, which he concluded, was designed for the same mechanical functions as in man. The two articulations and the mechanical axis correspond so exactly to the same parts in man that the law of perfect harmony between the form and function of a bone will necessitate the conclusion that this fossil creature stood erect as man and walked on two legs. His height, erect posture and brain-capacity, all point to the fact that he may, in all probability, be the link between the simian and man, if such there be.

THE HEIDELBERG RACE.

In 1907, excavations were made along the ancient stream Elsenz, south of the mouth of the Neckar, near the village of Mauer, near Heidelberg, in the first inter-glacial stage. The remains of

many animals were found, and among them, the lower jaw, or mandible, of a striking human appearance. The fossil had drifted with the sands and had separated from the skull, which was never found. The teeth, which were in a good state of preservation, were the characters on which it was determined to be human. The jaw lacked the protrusion of the chin, which is a marked difference between the anthropoids and the human, but the molars, canines which did not protrude, and the incisors were of an almost exact counterpart of the human dentition. The outlines of the jaw show it to come between that of the Eskimo and the chimpansee and to be almost exactly half-way between the highest anthropoids and the Neanderthal man, suggesting strongly that he may be the Neanderthal in the making.

THE PILTDOWN RACE.

In the year 1911, Charles Dawson, a geologist, inspected a gravel bed near Piltdown, Sussex, England, lying between two branches of the Ouse, about thirty-five miles south and east of Gray's Thurrock; the Chelean station of the River Thames. The gravel showed to be, by the fossils it bore and otherwise, of Chelean or pre-chelean times. Early Pleistocene age, or pre-glacial age.

While looking through this gravel he picked up a small portion of an extremely thick human parietal bone, from the gravel bed from which gravel was being taken for road making purposes. Later he found a larger piece of bone belonging to the fore-head region of

the same skull and including a portion of the ridge extending over the left eyebrow.

Struck with the importance of his find, he sought the cooperation of Smith Woodward, a paleontologist. Together they made a systematic search of the gravel bed in 1912. The skull seemed to have been scattered by the workmen, but they found the right half of the jaw, so far as they could judge, on the spot identical with that where the skull had rested. Near the jaw, they found an important piece of occipital bone. Later in 1913, Father P. Teilhard, a French anthropologist, discovered a single canine tooth and still later a pair of nasal bones were found.

From these fragments, the skull was reconstructed. It was estimated by those making the reconstruction that the brain capacity was from 1070 cc., to 1500 c.c. The skull and brain, while the most primitive that had been discovered, were classed as human. The brain equalling the smaller human brains and surpassing that of the Australian. The jaw appeared to be that of a chimpanzee, but it has been suggested that the development of the brain preceeded that of the bones of the face and the teeth. Canine teeth being retained even after the power of speech had developed. The brain of this fossil showed development in the part in which we locate that power. The skull was eleven to twelve millimeters thick as compared to five to six millimeters of the European and six to eight

millimeters of the Heidelberg and Neanderthal races.

It has been thought by these geologists and paleontologists, that possible this "Dawn Man" Eoanthropus of Piltdown was an offshoot of the Trinil race of Heidelberg and that then the Neanderthal race was an offshoot of the Piltdown Man, or "Dawn Man", but on further study our author and some others, Elliot Smith being one, have advanced the theory that the Piltdown men may be an ancestor of Homo sapiens--modern man--himself and that the Neanderthal race is an offshoot of the Piltdown. If this be true, then Homo sapiens was in existence during the early Pleistocene age. The finding of this fossil showed the wide range of the early ape-man races.

THE NEANDERTHAL RACE.

From the Pre-chelean times, nearly to the close of the Acheulean--the tribes of man lives a nomadic life in the open. His aged members and his dead were more than likely thrown out to be devoured by the hyenas tht surrounded their stations, and even cannibalistic customs prevailed among them. If he buried his dead in the open soil, they would not be preserved. The discovery of the Java man, the Heidelberg and Piltdown specimens were due entirely to chance. Their remains having been washed down and deposited with the sands of running streams.

But with the coming of more rigorous temperatures, before the close of the Mousterian age, and for protection from

enemies, these early races of men, if such we may term them, sought shelter in caves and grottos. This brought about a closer association and a possible tribal relation that resulted in a degree of respect for the dead, many of whom were buried under the floors of these caves, and have since been found there. This has been the source of the most important evidence of the history of these, possible ancestors of ours.

In 1848, Lieutenant Flint, of the English army, stationed at Gibraltar, found near a stone quary on the north face of the Island known as Forbe's Quary, a skull quite well preserved, with the parietal bones only, missing. The face and base of the cranium remarkably complete. It is at present, in the Museum of the Royal College of Surveyors in London.

There is some doubt as to where this fossil belongs. Some, Sera and Keith, believe that it is the most ape-like of all human fossils, and that it is pre-Neanderthaloid, but Boule believes that this skull is of the same geologic age as that of the man discovered at Spy--La Chapelle, La Ferrassie and La Quina. He believes that this skull is that of a female Neanderthaloid type. Schwalbe considered it the most important missing link between the existing species of man and the anthropoid apes.

From the skull formation, the lack of the supraorbi-

tal ridges of the apes, the brain capacity and the dentition, this fossil was recognized as undoubtedly human. The lower jaw was ape-like and from the similarity to the fossils named before, we must classify it with the Neanderthaloid races.

In 1856, a skeleton was found by some workmen in the Neanderthal valley between Elberfield and Dusseldorf. Dr. Fuhlrott recovered it from the debris and restored to form. The parts consisted of the skullcap, both thigh bones, the right upper arm bone portions of the lower arm bones of both sides, the right collar bone and fragments of the pelvis, shoulder blade and ribs. The restored skeleton is now in the Provincial Museum of Bohn. This fossil was placed by our leading scientists as a distinct species of man and called Homo Neanderthalensis, the man of the valley of the Neanderthal. A number of other fossils of similar races were soon after discovered and are known as Neadnerthaloid.

In 1887, the Belgian geologists, Fraipont and Lohest, discovered near Spy, on the Meuse, the remains of two individuals now known as Spy I and Spy II. These were in the stratum with the flint implements of the Mousterian age and were recognized as belonging to the Neanderthal race. The proportions of the cranium and brain and the primitive foatures of the lower jaw and

teeth, the low stature and the ape-like character of the limb bones--the prominent supraorbital ridges, (ridges over the eyes) of the Neanderthal type, the receeding forehead, the cranial profile, inferior to that of the lowest Australian races and the fact that he could not stand perfectly erect, since the shin bone was out of proportion with the thigh bone and the knee joint would not permit the limb to become straight. These all show him to be very closely kin to the anthropoid apes. But the development of his brain, his industry and method of living show him to be decidely human.

In 1908, a series of discoveries of remains of ceremonial burials were made at La Chapelle-Aux-Saints, at type station Le Moustier, La Ferrassie, another station on the lower Vezere and at La Quina. All these point to the wide distribution of the Neanderthal and Spy races and to the steps in their advancement. Among these was the partly preserved skeleton of a youth at the Le Moustier station that has been determined to be a Neanderthaloid of the Mousterian age.

At the same time, the Abbes H. and H. Bouyssonie and L. Bardon discovered near La Moustier, one of the finest Neanderthaloid skeletons with a well preserved skull, almost the entire backbone, twenty ribs and bones of the hands and feet. The individual being between 50 and 55 years of age. It was carefully laid out in an east and west direction and represented a ceremonial burial.

This fossil made it possible to find out the proportions, size and brain capacity of the Neanderthal man and is one of the most important discoveries of the age. So much has been discovered and thoroughly studied and classified that it has been reasonable determined that the Neanderthals and Neanderthaloids extended all over western Europe during the late Acheulian and the entire period of the Mousterian times and that they were filled with reverence for the dead and perhaps believed in some form of future existence.

THE CHARACTERS OF THE NEANDERTHAL RACE.

The skulls and skeletons of these many individuals and races have so many distinctive features in common that they must be classed in a closely related group. Some of these are found in different existing races of men but never in the anthropoid apes, therefore, they must have been human. Some have never been found in the recent races of men. Therefore, they represent a distinct species of man. Some were outside the limits of variation in recent races of man and intermediate between them and the variation limits of the anthropoid apes. The Heidelberg man is supposed to have been without mental capacity while the Neanderthal man is supposed to have been a creature with mental capacity. It has been determined by the comparison of the skull and brain

capacity that the Neanderthal is an intermediate or halfway form between the anthropoid apes and Homo sapiens, or modern man.

Schwalbe in 1901, found that there were many features of the Neanderthal skull that more nearly represented the anthropoid than they did the human, and again that there were other features in which the human skull more nearly approched the anthropoid than did the Neanderthal. The skulls of the Australian and Tasmanian races and those of the Neanderthal are very similar and the conlusion may be drawn that these races are Neanderthaloid.

It has been said that we cannot say that there has never been an infusion of Neanderthaloid blood into the human race, but that any such infusion must have been accidental, for there is no recent type which can be considered even as a modified direct descendant of the Neanderthals, (Schwalbe). This decision has been confirmed by Berry and Robertson.

The brain capacity of the Neanderthal man was larger than that of many modern Frenchmen. Darwin was compelled to acknowledge the skull of Neanderthal was well developed and capacious. This is explained by Broca by saying that the skull of the modern man is lowered in capacity by the preservation of

the many small and weak individuals, while in the Neanderthal, only those of large brain capacity were able to survive, only the more capable individuals. The capacities of the brain of the various fossils show as follows:

Skull of Spy II. (Fraipont) . . . . . 1723 cc.
Skull of La Chapelle (Boule, Vernean and Rivert). . . 1626 "
Skull of Spy I. (Fraipont) . . . . . 1562 "
Skull of Neanderthal . . . . . 1408 "
Skull of La Quina, female, (Boule, approx.) . 1367 "
Skull of Gibraltar, female, (Boule, estimate . 1296 "
Skull of modern man, 950 cc to. . . . 2020 "
Skull of Piltdown estimated at from (1070 to . 1500 "

So we may say that in the volume of cerebral matter, the Neanderthal man is surely human, but in form it lacks the proportions characteristic of the brain of the human, and since the absolute cubic capacity of the brain is less indicative of intelligence than the relative development of those portions of the brain in which are located the higher processes of the mind, we must conclude that the state intellect was of a low order.

In height the average Neanderthal, supposed male, was 5 feet, 4 5/10 inches and others estimated at from 5 feet, one inch to 5 feet 5 1/5 inches. His shin bone, from the knee down, was shorter than even the anthropoid apes, in proportion to the thigh. This proves him to have been a slow moving animal. His fore arm was shorter than that of the apes, the whole arm be-

ing shorter than the leg, proving him to have been a ground and not a tree dweller, back in remote geologic times. His shoulders were broad, ribs angular and strong, collar bone long. His arm relatively short, and non-anthropoid, represents the mingling of human and ape characters.

To sum up his total aspects; an enormous head, placed upon a short thick trunk, with limbs very short and thick set and very strong; the shoulders broad and stooping, with the head and neck bent forward; the arms short as compared with the leg, the lower as compared with the upper, shorter than in a ny of the existing races of men; the knee habitually bent forward and the hands extremely large; his position squating, characteristic of the flint makers. Thus, his attitude, very much unlike that of modern man.

Apparently the Neanderthal race disappeared about 25,000 or 30,000 years ago; and while they were much below any existing races, they were immediately followed by a race that was high in its development towards that of the present races, and which is recognized as Homo sapiens--modern man. This was the Cro Magnon Race. Evidently their evolution took place in Asia. They bear almost entirely the Asiatic characteristics and none of the Neanderthal or negroid characters.

Their migrations were along the south coast of the Mediterranean Sea through Phoenecia and Tunnis and thence into

Spain; and also along the north coast through Italy and France. This has been established by the discovery of skeletons in these regions in the geologic layer just above the Mousterian where the Neanderthal was discovered. In nine of the grottoes of Grimaldi, a promontory from the southern end of the Alps as they jut out into the sea between Italy and France, sixteen skeletons were discovered and fourteen of these are assigned to the Cro Magnon race and two to the negroid races of Africa.

The Cro Magnon and Grimaldi are attributed to the upper paleolithic and post-glacial period. They brough with them the Aurignacian industry and were predominant over all other races as shown by the wide distribution of their skeletal remains and their implements.

These discoveries and studies were made by Verneau and others. The Grimaldi exhibited characters almost like those of the present day African negro. It is believed that they existed during the time of the Neanderthal race and that they were widely distributed over the earth, by Verneau, but others do not agree with him for lack of skeletal evidence.

The two that were discovered in the Grotto des Infants, were a youth about sixteen and a woman past middle age. Their height was about 5 feet, 1., and 5 feet 2., their heads were long with short

broad faces. Their thigh bones and fore arms and dentition were especially of negroid character. The brain capacity of the youth was about 1580 cc., being decidedly human.

THE CRO MAGNON RACE.

Buckland made the earliest discovery of a member of this race in a cave in paviland, on the coast of Gower, Wales. For a time this specimen was called the "Red Lady", but was later determined to belong to a man of the Cro Magnon type. Paviland is the first Aurignacian station found in Britain and marks the most westerly out-post of the Cro Magnon race.

In 1852, a laborer accidentally discovered the sepulchral grotto of Aurignac in the Pyrenees, in Haut-Garonne. It was filled with bones among which were two complete skulls and many fragments, showing at least seventeen skeletons. The Mayor of Aurignac ordered the bones buried in the parish cemetery. In 1860, when Lartet visited the place and determined it to have been a type station of a distinct industry, all the human remains were lost beyond recovery. The only evidence left was a hearth containing one hundred flint implements together with the remains of the fauna.

In 1868, Lartet explored a grotto in the little hamlet of Cro Magnon on the Vezere where he found five skeletons which have become the type of the great Cro Magnon race of the upper

paleolithic times. His chief find here was that of an old man, a woman, her babe and two young men, together with flint implements and perforated shells.

Broca described these fossils and referred to them as incontestable proofs of the contemporaneous existence of man and the mamoth. The remarkable characteristics are the great height of the race, from 5 feet, 4, to 6 feet, 4 1/2 with an average of 6 feet, 1. The large brain capacity, 1590 cc. The long narrow eye socket and the system of dentition. Also the broad strong face and long head. They are remarked on as the finest human type that has existed down to the present time and are directly connected with Homo sapiens.

The wide short face, the extremely prominent cheek bones, the spread of the palate and a tendency of the upper cutting teeth and incisors to project forward, and the narrow pointed chin recall a facial type which is best seen today to the north and to the south of the Himilayas. Their height recalls the Sikhs living to the south of the Himilayas. The facial characteristics and the narrow skull resemble the Eskimo of Today. Thus this great race is directly connected up in human characteristics with existing races of men today.

THE BRUN RACE is represented by two fossil skull caps discovered in 1871 at Brux, Bohemia and a skeleton discovered in 1891 at Brunn, Moravia, together with the remains of pleistocene animals,

this fixing the geolic age. In 1906, Schwalbe showed the affinity of these skulls and their approach to the lower forms of Homo sapiens. They were lower than the Australian negroids, but showed a skull with a frontal angle of 74 to 75 per cent and a brain capacity of 1350 cc. Both skulls were harmonic and did not represent the broad, high cheek bone characteristic of the Cro Magnon race. The face being a narrow but not very long modern type. The chin is prominent and there is no prognathism, (protrusion of the teeth and jaws).

It is possible that this race was ancestral to some of the long headed or dolichocephalic races along the Danube. It appears to be distinct from the Cro Magnon race and that it became established in early Solutrean times.

One of the Brunn skeletons was found to be coated with red and to be ornamented with strings of teeth shells, perforated stone discs and bone ornaments made from the ribs of the wooly rhinoceros. An ivory idol was found with it, apparently of male figure.

Keith contends that the Galley Hill skull, which was found at that place on the river Thames in England, and is supposed to be a representative of the Brunn race; was of geologic antiquity of 200,000 years. But Evans and Dawkins regard it as of a long headed neolithic race and place it as of probably 20,000 to 40,000 years back. But these opinions did not shake Keith in his conclusion.

CRO MAGNON DESCENDANTS IN MODERN EUROPE.

On the close of the paleolithic age, the Cro Magnon race broke up throughout western Europe, into small groups or colonies, which can be traced into neolithic, and even into recent times. The anatomical evidence of this consists of the highly characteristic form of the head. A very broad face and long, narrow cranium is such an infrequent occurence in Europe that anthropologists contend it affords a means of identifying the Cro Magnon race wherever they may exist today.

The people of Dordogne, France, have that characteristic broad face with high cheek bones, the cranium wide and high at the back and narrow at the front; an extremely disharmonic structure. They resemble no other race than the Cro Magnon. They are of medium stature, but are susceptible to environment in this respect. In fertile places they are tall, and in less prosperous places, they are less so. They are not degenerate, but are keen and alert of mind.

This Dordogne was the home of the ancient race of the Cro Magnon. Is it not reasonable to believe, then, that these people are the descendants of that great race? This geographical evidence seems to be sustained by a comparison of the characteristic of the skulls of these modern peoples with those of the ancient race. Even complexion and color of the eyes and

hair; black, are still prevalent.

The survival of these people here in southern France, while not elsewhere, may be attributed to favorable climatic conditions there and to geographic barriers which kept their enemies out. If the people of Dordogne are survivors of the Cro Magnon race, they are the oldest living race in western Europe.

In evidence again, the most primitive language in Europe, that of the Basques of the Northern Pyrenees, is spoken only 200 miles to the southwest. It is thought to be possible that the Basques conquered the Cro Magnons, and made slaves of them, discovered the superiority of their language, made use of it for themselves.

These Cro Magnon men then, seem to have remained in the same locality for thousands of years and represent the most persistently unchanged population in the history of the world.

SECTION III.

HOW HEREDITY HAS AFFECTED THE RACE.

The cardinal point of all the work of the horse-man, the dog fancier and the horticulturalist is heredity. Then, too, heredity is recognized in the development of the physical form of men. If it dies so much in moulding physical form, may it not do as much in determining the shape and quality of the brain? In short, the mental and moral man in his highest form*. The rival claimants in the creation of mental and moral traits are heredity, environment and free-will.

All great schools of the past have taught that man's proneness to good and evil was either a fixed principle implanted within him, without reference to heredity, or else was something to be modified by an effort of the will or by the influence of surroundings. The advocates of this view are educators and philanthropists, while heredity has been championed by the scientists.

Galton and Karl Pearson made exhaustive studies of the great men of both England and the United States and by the records of the families of great men have made quite a showing for the view of heredity. In the U. S., they offer the families of the Lees, Adamses, Lowells, Johnathan Edwards, Washington and Lincoln, all of whom produced a number of eminent persons, helping to show the close

* Fredrick A. Woods, in P.S.M. May 1913.

between our great men. The climax of their research seems to be in the 46 names in our Hall of Fame, who talley 47 relations who are counted among our eminent persons. This is from 500 to 1000 times greater than random expectation calls for. The world over, the proportion is the same. The men of the highest caliber continue to show relationship, one in two, with other distinguished men and these usually in their own field of activity. From their reasoning, 99 % of the whole population is no more likely to produce a man of genuine than is this one per cent of the superior part of the race.

Genius is a subject of much interest. Many of our great men have risen from obscurity, but from the above study, and much other evidence of like character and importance, it seems but natural that it should be inherited like other traits. Like produces like, or nearly so. Galton has offered much evidence that tends to prove that natural powers are inherited in the same manner and subject to the same limitations as are the physical form and features of the whole organic world; therefore, selection in men should produce these results. But social agencies must not be left out of account for they have provided the means of all the expression of all the inheritance of the race.

In his study of the English judges, Galton found that one hundred and nine of them sprang from eighty-five families and that the female influence was inferior in the transmission of legal ability but

superior in that of transmission of the ability of the devine. In his study of the statesmen, he did not find so satisfactory evidence, but found that the nearer kinsmen are far more rich in ability than the remote. Eminent kinsmen generally precede rather than follow the person in question and genius of supremely great men is not often inherited by posterity. Our author has concluded that as a new race can be obtained in plants and animals and can be raised to so great a degree of purity that it will maintain itself with moderate care, so a race of gifted men might be obtained under exactly similar conditions*.

Plant and animal breeders base their success on geneology, therefore success in the production of a race of superior men needs to be based on human geneology, and this has been one of the oldest of man's intellectual activities, from sentimental and historical interests. But man has never, until more recent years, even thought of applying this science to his own improvement. Now geneology consists of a specific, and complete family history, recording his character, mentally, morally and physically, to be of biological significance. If such a record were kept of all people it would very materially aid any individual who wished to exercise care in the selection of a mate. And such a record will tell any individual just what he himself is. This expression is one of Ot-

*From a paper on hereditary genius by Dr. Charles O. Chambers, O.A.M.C.

taker Lorenz, who has been called the father of modern scientific geneology. To be of value, a geneology need not show an individual of exceptional ability, but should show a long line of substantial men and women. Take the family of Lincoln. We do not find outstanding characters like him, but we do find a line of folks who were among the best of their time and surroundings. In the family of Pasteur, the greatest man ever produced by France, we find only ordinary folks of every day substantial character. His father was a non-com. soldier and his mother's family were gardeners for generations. Faraday was a son of a blacksmith and a farmer's daughter. But these men are looked upon as being due to the accidental conjunction of favorable characters and not to the inheritance of acquired characters.

When it comes to deciding what a boy or girl shall do, the geneology should be very largely the guide. Let it tell them what their progenitors have been most successful in doing, and let them consider well before they undertake work not found in their family history.

The principal institutions of geneological service in the U. S. are Geneological Record Office, by Bell, Washington, D. C. The Race Betterment Foundation, by J. H. Kellog, Battle

Creek, Michigan. The Eugenics Record Office, by Mrs. E. H. Harriman, Charles P. Davenport, President, Cold Springs, Harbor, Long Island, N. Y.

There are two different ways for man to progress, one by changing the intrinsic qualities of men as they are born, from generation to generation. This is biological or is evolution. The other is by changing the things men have, know or do. This is social. Now there has been but little gain in the best tribal stock in 2000 years but social progress has been astounding. The question arises, is it possible for the new born babies of the future to secure an inate moral, mental and physical nature superior to that of the present generation. Plato was willing to give up even family to gain this end. But Galton says, "Eugenics beliefs extend the function of philanthropy to future generations. It renders its actions more prevailing than before by dealing with families and societies in their entirety and it enforces the importance of the marriage covenant by directing serious attention to the probably quality of future offspring. It strongly forbids all forms of sentimental charity that are harmful to the race, while it greatly seeks opportunity for acts of personal kindness as some equivalent to the loss of what it forbids. It brings the tie of kinship into prominence and strongly encourages love in the family and the race"*.

*"Evolution of Man and Its Control". Roswell H. Johnson.

It is a widely entertained belief, especially among reformers, philanthropists and many educators, that the force of environment is very great; but experimentally, and statistically, there is not a grain of proof that ordinarily environment can alter the salient mental and moral traits in any measurable degree from what they were predetermined to be through innate influences. However, our institutions, inventions and social advancements go to show that environment has made vast changes. That remarkable modifications occur, has been proven by many experiments, but that they occur more frequently and with less changing surroundings among the lower orders of life. Therefore, we may conclude that in the mental or moral world we can expect the least results from outward forces.[1]

Throughout all the ages, the method used in the development of all life, until about the last hundred years, was natural selection. This consisted of a selective birth rate, resulting in the survival of the fit and was expressed by Darwin as "The survival of the fittest". In ordinary animal world this method rested chiefly on the supply of food and its ease of difficulty of being gotten, the climate and upon enemies. In the plant world, the controlling elements were climate, soil and moisture. The distribution of the species of both animals and plants was controlled by climate, enemies and natural barriers. In the case of man, he has been governed by the same laws

1. "Laws of Diminishing Environmental Influence" F. A. Woods.
P.S.M. April 1910.

and physical conditions. In all his early history, only the strong, both mentally and physically could meet the conditions of life and the weak were forced to succomb to enemies or hunger just as all other creatures. This resulted in the gradual elimination of the unfit and was the prime cause in the development of the present strong race. This is sufficient to show us that a race will improve if the worst stock is cut off before it has a chance to reproduce and if the best stock survives to perpetuate its kind.

In Malthus' Essay on Population he presented the theory that population increases in a geometric ratio while food increases in an arithmetic ratio. If these ratios are to continue to be the controlling factors then, within the comprehension of man, starvation will face the race and the species must pass out of existence, just as other species have done before. But due to science and invention in the field of agriculture, the increase in the production of food has been much greater than in an arithmetic ratio. It seems then that the Malthus theory must fail. However, on a close study of population, it has been found that its increase has held closely to the geometric ratio and in spite of the rate of increase of the production of food, the earth is rapidly filling with people. China has reached a

state in which she can support no greater population. Great Britain and all Eastern Europe have about reached their limit and it seems that Africa, South America, North America and Australia are to be looked to for any further increases. It has been suggested that the tropics will be opened up to habitation of the caucasian races in the matter of a few generations by the application of science and sanitation, but that when they are, it is estimated that it will be but a few more generations, at the present rate of increase, till they will have reached their full food capacity. Suppose such a condition existing in all the countries of the earth. No longer will food be shipped from one country or continent to another and the competition for sustenance will be such that only those who are able by brains or brawn to secure a sufficiency will be able to survive. Then the theory of the survival of the fittest, as stated by Darwin, will be in operation in spite of all man's efforts to forestall it. It has been suggested that before that time comes, the arctics will be opened to the production of food and the support of large populations. Let us grant it to be true. Then the same ratio of increase that has been in operation will come again into operation and only a few more generations, will be necessary to overcome the new supply and the same degree of competition will exist as before.

Now it is obvious from these facts, that if the constitu-

tion of the race can be altered by an excess of deaths in a certain class, it can be equally altered by an excess of births in a certain class. Natural selection has kept the balance of the race up till the last hundred years. During that period of time, man has stepped in, and with his philanthropy, medicine and surgery, aided by personal and civic hygiene, has enabled the weaker element of the population to survive, and to live on, reproducing its kind in plenteous quantities. At the same time, the advance in science and invention has placed in the forefront of the progress of the world, the best brains and brawn of the race, causing it to be exposed to all the dangerous occupations that go with progress. The best of the race have been our pioneers in every walk of life. And that best blood of the race have fallen prey to the elements that he has attacked. In the development of our unsettled country, they have fallen before the American Indian and the elements. In the construction of our railroads, they have fallen under the wheels of the mighty machinery that has made those roads a success. When war came the best have been sacrificed and all this time, the weak and feeble minded have been left behind to multiply without let or hindrance. This is but the history of the race the world over, and though man has tried to overcome the law of natural selection, it still operates, and would keep the race clean, if it were not for this interference of man. But since man

has interfered and brought about the survival of the unfit and the destruction of much of the fit, he has, in no small sense, brought about a reversal of the operation of natural selection. How can such a condition affect the race? Undoubtedly if left to continue as now, the race must degenerate.

Then if man would prevent this degeneration that threatens him, he must reverse the process and aid natural selection instead of hindering it. Not that we would have him follow the example of his early progenitors and place his weak out for the wild beasts and the elements to destroy, nor that we would have him cease his philanthropy, sanitary measures, or his medicine and surgery. Now, we believe that these things are but the evidences of a civilization that can rest only on christian principles and we would let the weak live. But in letting them live, it is necessary that they shall have all the rights and priviliges and duties that should devolve on the best of the race? Shall they enjoy the privilege of reproduction, for it is a privilege as well as an obligation, and is such a privilege necessary to their happiness and to the happiness of the race? We do not believe so. Man then, must step in and aid natural selection, and change the character of his offspring by the number of the contribution of the weaker and less desirable part. Natural selection operates through a birth-rate

as well as a death-rate.

The birth rate of a people can only be governed by the marriagable men and women of that people and some facts have been gathered regarding marriage and the resultant reproduction of those marriages in our country by Crumm and others. Popenoe and Johnson have given us a summary of these facts in chapter 13 of their recent book on Applied Eugenics. They have found that out of 200 babies born of native American stock, 103 will be boys and 97 will be girls. This indicates that our stock might outnumber the female, but losses to the male stock due to accident and disease brought about on account of his greater risk in occupation and due to war, the female stock is more numerous that the male stock. But out of their number, only 85% of the native born women marry during their productive age and that 20% of these do not produce children. It has been determined that each woman who has ability to bear children must bear at least 3.7 babies. The race will not hold its own in numbers unless every married woman brings three children to maturity. Since this cannot be done by every one then the average must be kept up by a greater number from some. The fact that men and women deliberately limit the number of their offspring to less than these numbers is a plain case of antagonism between man and nature. In

the last analysis, the only wealth a nation has is its people and since there are differences, great differences, in people, we need the best to make an honest contribution to the race. There should also be a decided limitation to the contribution of the nonsocial element of our population. But our native whites are not reproducing themselves and it is from this stock that most of our eminent men have come. Now, eugenic value is to some extent correlated with economic success in life. Within reasonable limits it is justifiable to treat the economically superior parts of a population as eugenically superior and it is among these economically superior sections of our nation that the birth-rate has more rapidly and dangerously fallen.

In the period of time from 1875 to 1884 in Rhode Island, the foreign born women had 3.35 children per wife while the native born women had 2.06 children per wife. In Massachusetts for the same period of time the foreign born women showed 4.5 children per wife and 2.7 per native born wife. The following is from Crumm's Geneologies showing the descending birth-rate:

1750 to 1799 - - - - - - - -	6.43	children	per	wife.
1800 " 1849 - - - - - - - -	4.94	"	"	"
1850 " 1869 - - - - - - - -	3.47	"	"	"
1870 " 1879 - - - - - - - -	2.77	"	"	"

New England has always been looked to as being the intellectual leader of the nation. Why this can no longer be true is shown

best in the comparison between the birth rates of the foreign born women and the native white women. The birth rate for native born population was 12.7 per 1000 in 1890 and 14.9 in 1910. For the foreign born it was 38.6 in 1890 and 49.1 in 1910. That is enough to show that the birth-rate of the old American stock is so low that that stock is rapidly dying out and being replaced by immigrants. To the scientist it appears that the system of our higher education is at fault. In Wellesly, the classes are not even reproducing themselves. Less than.86 of a a child being born to each of them. The best students are even lower. The Wellesley members of Phi Beta Kappa having less than .65 of a child each. In the case of Normal school girls who stood highest their rate of marriage and of child birth was materially higher. It seems that in the last two years of college life interferences are built up that hinder both the rate of marriage and of reproduction. In Holyoke and Bryn Mawr less than half the graduates marry. The scientist believes that if the women's colleges were fulfilling what he thinks is their duty, the rate of marriage and birth would be higher than that of their sisters, cousins and friends who do not go to college.

In the case of the men's colleges, conditions are little better. The number of children of Yale graduates declined during the period from 1870 to 1879, from 5.16 to 2.55 children per

father. Something wrong with our educational system. The low birth-rate seems to be characteristic of educated people without regard to the precise nature of their education. Dr. Crumm's Geneologies shows the percentage of childless wives for the period covered by the following to be:

1750	to	1799 - - - -	1.88%	
1800	"	1849 - - - -	4.07%	
1850	"	1869 - - - -	5.91%	
1870	"	1879 - - - -	8.1%	
		1910 - - - -	12.5%	native born wives
			20.%	negro wives
			5.%	foreign born wives.

From the geneologies given above we could expect children

Native born - - - - -	27
Negro born - - - - -	31
English born - - - -	34
Russian born - - - -	54
French Canadian - - -	56
Polish born - - - - -	62

The women of the old American stock are, on the whole, more sterile or, if not sterile, less fecund than other women in the U. S. It is an accepted fact with the scientiest that fertility goes with both mental and physical superiority. We wonder why then, that the above condition can be said to be true. It appears, after a little of observation and study, that women no longer bear so many children because they do not want to. Economic and social reasons being largely the reason they do not wish to. It seems to us that the duty of eugenics is to bring about a change in sentiment, through education and propaganda that will point these facts

out to the women of our country so that the superior element of our population will begin to take some part in the preservation of our civilization. The Mormons and Catholics teach that fecundity is a virtue and voluntary sterility a sin. The result will be, unless we change our ideas of our duty to the future generations, that the Catholics will soon be in the majority in the Eastern U. S. and the Mormon population steadily gaining in the West. The Breton is rapidly becoming the dominant race of France because his women are the most fecund, while others are practicing race suicide, though not so rapidly as the old American stock of New England. Again the roll of religion in China, where ancestor worship leads to a desire for children and makes it a disgrace to be childless. Unless the Christian civilization shall meet the Chinese birth-rate in competition in the future, the Chinese must ultimately prevail because of their numbers.

During the last 50 years the birth-rate has declined in virtually every civilized country in the world. In the beginning of the last century France had twenty-nine million, Germany twenty-three million and England eighteen million. A century later, Germany had sixty-five million, England had forty-five million and France thirty-nine million. The change was due to the changing birth-rates in these countries. Changes in the constitution of a population almost invariably occur with changes in the birth-

rate. Thus one-fourth of the population in Germany is under 11, one-fourth of the population of England is under 12, while one-fourth of the population of France is under 14 years of age. Again one-half of the population of Germany is under 25.5 years, one-half of the population of Germany is under 25.5 years, one-half of the population of England and Wales is under 26 years while one-half of the population of France is under 30 years of age. Three-fourths of the population of Germany is under 41 years, for England and Wales, 42 and for France, 49 years of age, leaving the old and the weak too numerous*. There seem to be no forces tending to check the decreasing birth-rate but there are forces tending to push it below the danger line. We should accustom ourselves to social control for the betterment of the race and perhaps to provide for its continuation. Only by a eugenic selection can this be done[1].

* "Significance of The Declining Birth Rate" Louis I. Doublin.
1. "The Diminishing Family" J. M. Cattell. Ind. Sept. 27, 1915.

SECTION I V.

WAR AND THE FUTURE OF THE RACE.

There has always been war throughout the history of man and there will be war and rumors of war when the last trump shall sound. War always changes the composition of a nation. The racial effects occur in the period of preparation, the period of actual fighting and finally in the period of readjustment. The first withdraws men during part of their reproductive period and during their war experiences, they are actuated by standards that would not be countenanced at home by their families, their friends or themselves. The result is much destruction of health and the spread of the venereal diseases. Then the best of the nation leave a larger share of their numbers on the battlefield and its accompanying elements of destruction than any other part of the population, thereby decreasing the stock on which a nation can depend for their contribution to the future.

In the World War of 1914, in the U. S. the burden fell heaviest on the men and women of the highest education and moral worth from the beginning. They were the first to volunteer, the old American stock, and when the great army of drafted men was called together, the men of our colleges and institutions of higher learning were the fellows who went in to the officer's training camps and made preparation to assume the responsibility

of leadership. These men took upon themselves the greatest risks of that great war and left a larger portion of their numbers behind than any other class. Undoubtedly, if the war had been long drawn out, our country would have been forced to sustain a very great eugenic loss in these men.

The nation who wins its wars is not always the most successful. But the one that sustains the least disgenic effects is the most successful. In the war between France and Prussia in 1806 Prussia lost to France at Jena. In a repetition of that war in 1813, France lost to Prussia at Leipsic. Which was the superior nation? The values were reversed. Defeat does not always destroy a nation, but on the contrary, when a nation is forced low in the economic prosperity that often accompanies its war successes, limits its contribution to the race, and within a few generations the defeated nation is the stronger. When the higher nations go to war, they fight with pertinacity and accompanying great destruction of both property and life with resulting disgenic effects.

The people of France were made up of the finest stock of Europe. They were celtic people and when conquered by the Romans, became Gallo-Roman. They were strengthened by the Franks, Normans and Scandanavians. But no people have made greater sacrifices to way, and through the reversal of selection due to war the

men of France lost in stature and the nation in iniative. In the Wiertz Gallery in Brussels, there is a painting entitled "A Scene In Hell". Napoleon with his arms folded, descending slowly into the shades without the slightest change of countenance while behind him is looking on the millions of young men who had gone down to death before their prime in his campaigns. Napoleon said "A boy will stop a bullet as well as a man. A great soldier like me does not care a tinker's dam for the lives of a million soldiers".

His armies were raised by conscription and the best of the nation were taken, first for one campaign then another. The minimum stature for admission into the army in 1701 was 1624 millimeters. This was lowered in 1799 to 1598 millimeters, or an inch lower. Again in 1804, it was lowered two inches. This was raised an inch during the restoration but was lowered again in the war with Spain in 1830 to 1540 millimeters and in 1832 was raised again to 1560 millimeters. The minimum age limit was lowered and the maximum age raised during this same period of time, thus bringing into line for service in the army the best of or all of the able-bodied men of the nation. The fluctuations in stature were the results of the original tall

stock in war leaving the shorter, weaker ones at home to reproduce their kind, till France saw the height of her men reduced more than three inches. The nation was continually drained of her best and there could be no other result.

But left to the arts of peace, the spark of life revived and the stature and initiative of her people soon started upward, and would have so continued had war not intervened. Napoleon's grand armies, with which he marched into Russia, numbered more than 600,000 but not more than 20,000 unarmed, frost-bitten, ragged men straggled back home. France's victories and defeats have been very costly. But the greatest losses do not always come from direct losses in battle, but from disease, and that too, often after the men have returned home and are engaged in the arts of peace. Again it is difficult to measure the loss because a large body of the most able men of a nation or race are out, for even a short time from their duty of reproduction. The soldier is usually the most fecund of the race.

For a thousand years Spain was a great power. Her armies and Armada, feared throughout the world. Not until Rocroy were the Spanish armies finally conquered. Then too, the inquisition wasted more men than war. A Spanish Knight said "This is Castile, she makes men and wastes them". Spain has lost all her colonial possessions and is beginning to recuperate since she has nothing on which to waste her men".

* "War Selection In Western Europe" David S. Jordan. P.S.M. 82. 145-54

In the days of Marcus Aurelius, the historian writes, "The harvest of men was bad". Not that there were not plenty of men--but such as they were--not men to bear the burdens of the Roman people. Rome was not peopled by a race but by a number of peoples banded together for defense and aggression. Etruscans, Sabines and others who lined the valleys of the Appenines. They were men of courage and action, strong virile, austere and dominant. They recognized no superiors or inferiors, hence Rome in their day was a democracy. They were given much to aggression against neighboring peoples and had many slaves. These fast became more numerous than their masters. As the masters continued to war, their numbers grew less while the slaves and weaklings who remained at home grew more numerous.

Such characters as Julius Caesar and Junius Brutus destroyed many of the old stock in their contests for superiority in Rome. As Rome became an empire her fleets and armies encompassed the world she continued to draw on her best blood and even imported whole tribes to cultivate her fields. These tribes continued to multiply while the old Roman continued on the decline. With Marcus Aurelius and the Antonies, there came a period of barrenness, when marriage was urged upon every citizen and RACE SUICIDE was the continued cry. The rulers became the creatures of the mob that had grown

up in this period of war and decline of the old stock. As the people grew in numbers, and in loss of independence and power, the rulers took on the attributes of the devine and were worshiped by the mob. As this attitude grew, the officials grew in numbers and in contempt for the mob and oppression was so generally practiced that the people were left in continual fear, not having independence enough to right their wrongs. In the words of Prof. Seeley, "the Roman empire had perished for the want of men". Not numbers of men, for there were plenty, but men, Vir--the Virulent, courageous, dominant, intelligent, independent, original man.

Such had been the decline of the Roman stock at the time of the Ostrogoths that there was little resistance left in them. Not because of profligacy and debauchery, for too few people could indulge in such practices to be of any account, but because of the continual decline brought on by WAR SELECTION, the best men continually at the front. A nation is like a bee, writes Bernard Shaw, "As it stings it dies".

Ancient Greece, like Rome, was an intelligent, independent, virulent people, perhaps made up of many tribes of people inhabiting the rugges coasts of the Aegean and its contiguous country. They were one man to ten slaves. They were continually at war with surrounding peoples--and often among themselves. Their best blood was continually being scarificed on the altar of conquest and inter-

nal strife. Their slaves and weaker members were continually on the increase until finally we do not believe the Greek of the old stock exists. He was not superior because of the magic country in which he lived, but because of his inate nature; because of his inheritance. When that inheritance failed, Greece failed. And Greece failed because of her scarifice of her strong men on the alter of war*.

This brings us to wonder what may be the affect of the world war on future generations of the countries concerned. In that connection, it has been suggested that a relatively small loss of men will seriously cripple a nation if these men are the best she has. It has been said that if France were to lose fifty of her greatest statesman, leading scientists, shining lights of education, and so on through those who accomplish things, there would be no more of France. This may be somewhat overstated, but in the light of the losses she sustained in the recent war, well worth thinking about. Let us suppose that her losses were one percent of her population, about 400,000; her losses were far in excess of that number, what part of her effectives may she have lost. Not, of course her greatest leaders, for they were not exposed directly to the destruction of war, but a very great proportion of her effectives that are necessary to the

* "War Selection in The Ancient World". David S. Jordan Sci. Mon. V 1.- 36 - 45.

reproduction of her leaders, granting that the leader does not directly contribute his successor, but only through representative members of his family. So great a proportion of her effectives that it will take her many generations to regain her position previous to the war, if indeed, she ever does. It has been suggested that she never will. Likewise, England and Germany have sustained almost equal losses and will suffer in proportion to what France may suffer. But since France had not held her own with these countries in her population, her loss is the greater. Now one percent of the population of the U. S., in round numbers, is one million men. But less than a quarter of that number may be said to be among our leaders. How would it affect us if we were to lose these leaders? We can look at Russia and see what would happen to us if such were ever to sustain such a loss. It is a startling thought that inheritance of the qualities essential to the effective maintenance of civilization are lodged in a scant ten percent of a population, yet that is the logical conclusion if we accept what appears to be plain facts.

In the case of France, her race values have gone down under the long continued failure of her best stock to adequately perpetuate themselves. But numbers secured by an increased birth-rate add nothing to social values. Her hand-ful of effectives is

shrinking, and faster than her rivals. No agitation over birth-rate can set the effectives of France or any other nation, for that matter, to mending their ways. The conclusion that we are to draw from these facts, is that France is not to be a source of future ability to make good the wastage of our present civilization.

In the case of France's chief ally, Great Britian, she is preeminently a country of extremes in social values. No other country exceeds her in the production of able men, yet she has a higher proportion of ineffectives, underbred, hopelessly inferior white stock than any other dominant nation. But no great power has come to disaster solely through the increase of its unsocial population. There must be also a drop in its effective values. If England can devise a way to reduce the fecundity of her in-effectives she may lighten her social burden, but for the preservation of her national life she must look to the adequate perpetuation of high genetic values which supply her with able men. If then, it is true that her population is made up of so large a share of undesirables and so few of the better stock she is rapidly approaching a critical disproportion between her sustaining and her socially dependent stock is an arithmetical certainty, and that too, in the

comprehension of the present generation. But one of the chief reasons for this condition existing is the fact that since the discovery of the new world, the best and most aggresive element of her population has been emigrating to all the outlying lands of the earth, while the overcrowded home land has been replenished with this undesirable stock. If the time is to come when we can no longer look to the mother country for leaders to help carry on the work of civilization, will we be able to discover the necessary leaders in the descendants of that aggresive part of her population that has gone out into other parts of the world. In answer, we may say that superb part of the English population had much to do with the colonization of the U. S. and in its development up to its present state of perfection. They are found in Australia and New Zealand as parts of populations that are the direct descendants of that old stock. That they are doing a large share in the reproduction of the virile peoples of the earth and that long after the mother country has ceased to be a factor in the world's affairs they will be found directing the affairs of the caucasion civilization of the world.

France's other ally, Russia, has fared even worse in her racial affairs than either France or England. Her entire government and practically all her leaders have been swept away in the revolution that has developed during and since the war and only her

peasants and their masters, the bolshevicki forces in charge of the government are left to direct the affairs of the nation. What the outcome will be cannot be told for a generation to come. It may be democracy and a rising tide of civilization but to us now, it looks as though Russia must touch the bottom in matters of both government and civilization before the end comes. At the present time and the two years just preceding, it looks as though the reign of terror in France was but a beginning, and the end is not yet in sight. The Russian people have always been a borrowing people, never having established a civilization of their own, but using that of her conquerors and her neighbors. They have always been a subject people and have submitted to the domination of foreigners.

Of all the nations involved in the world war, Germany is the youngest in the development of her inheritance--and youth is always full of possibilities. Her advantage is in the newness of her vigor, the abundance of her developed ability and the small proportion of her ineffectives. These give to Germany a survival value which other Aryan stocks in Europe do not possess. There is likely to be a long struggle between the Germans and the English speaking nations for world supremacy. The decision must rest upon the survival of racial values. Germany is self-sustained, fully populated and will continue to hold the advantage she has held from the beginning in being able to maintain her racial integrity and

purity of her stock against deteriorating mixtures.

In the case of America, she is handicapped by an infusion of African blood that has created one of her most difficult racial problems and one that will vex her and tax her ingenuity for years to come. Then too, she has drawn on the old world from the beginning for her stock and when that stock became established and self-sustaining, she has been forced to still admit to her shores vast hordes of immigrants from all parts of the world and these have been drawn into the make up of the nation until she presents somewhat of a mongrel appearance. Much of this stock has been good, but the vast of it is practicing that race suicide that has brought about all the racial difficulties of older countries while the less desirable part of them are reproducing without let or hindrance. Unless the people of America wake up to the conditions that are facing them, and that soon, and take steps to correct them, she will be in as bad a way as France. But there are some signs of that awakening already showing and we hope much for the future of this country.

But when we think of Canada, we think of a country with a splendid English inheritance, with only the cloud of her early French settlers. Spreading across from the Atlantic to the

Pacific is a great country peopled by a sturdy race that will give good account of itself in the generations of the future. Along with the U. S., New Zealand and Australia, she helps to form a group of English speaking giants with whom Germany will not be able to compete, since her boundaries are full and her overflow must migrate to other countries and mingle with other races. Upon this group of giants rests the civilization of the English speaking world.*

Regarding the U. S. and the effect of the world war on its immigration, Prof. D. E. C. Ward, of Harvard College, published an article prior to our part in the war, making predictions as to what the effect would be. Our records of immigration since that time have born him out in a large sense.. He said in substance, the war of 1914, for the first time in a long period of our history, reduced very materially the number of immigrants to our shores. We enjoyed a breathing spell that let us find out something about how drastic restriction of immigration to our shores would work. During this period, immigration fell off till labor grew less plentiful and prices advanced till American standards of living could be met by much of our laboring class of people, bearing out the contentions of those restrictionists who had always contended that unrestricted immigration was not fair to the laborer.

* From a review by Seth K. Humphries. Chas. Scribner & Sons.

The war had taken the able-bodied from home and many left our shores for foreign homes for military service and to find vriends. Then too, passenger service was not maintained, making it not possible for the stream of immigration to our shores is the great question with us. It is maintained by some that we will never again see so many immigrants. The war torn countries will need their services to rebuild and reorganize the industries of Europe. Wages will be high and the laborers scarce and work plentifull. Then, too, the European countries will discourage and even prevent any immigration of able-bodied people while they are so seriously needed at home, so say some.

But on the other hand, we have the warnings of the philanthropists and economists, among them our commissioner of immigration, that after the war there will be a greater influx of people than ever before. Dissatisfied on account of tax burdens, and poor living conditions--everything lost of destroyed by the war; the long service and close discipline. These people will seek to come to our country to friends who are urging them and through steam ship agents who tell them wonderful stories of America. The history of after war conditions bear out fully the warnings of these men. We are further warned that the class of immigrant will be far inferior to the old English, Scandanavian, Belgian and others that came earlier in our

history. They will be weakened from the war and less capable of making a living. The strong will not be permitted to come and the weak will not be restricted by their home countries. This will mean that our institutions, charitable, eleemosenary and penal will have to bear a heavy burden on their account. Again it is argued that the offspring of these folks, for years to come, will be an inferior people. This argument is born out by Japan, in its 1915 conscriptions of men who were born during the Japanese -- Chinese war, they were the sons of the stay-at-homes, weaklings from old age and otherwise, and were found to be of a very inferior class of men. Also, by France's experience following Napoleon's campaigns as mentioned before. These conditions being true, then we are in need of immediate drastic legislation to restrict immigration.

The chief opposition comes from the idealist who holds that our country is the melting pot of the world and that it is unamerican to restrict immigration. He is supported by the big user of unskilled labor who is glad to use the cry of the idealist and it is only in recent years that it has been possible to get serious considerations of the welfare of the race before our congress. Some recent legislation is in effect,

which if enforced, will give some degree of relief; excluding the criminal, the insane, those afflicted with contagious or loathsome diseases and providing a reading test that is aiding in restriction, and is providing for more adequate facilities for the physical examination of the immigrants. It is also providing a penalty on the steamship company for bringing persons who are not physically fit that is heavy enough to have some effect.

SECTION V.

POPULATION.

Until the time of Lamark and Darwin, little was thought of the problem of population. True it was, an essay of population, written about 1809 by J. R. Malthus, gave Darwin his clew to Natural Selection. The author had delved deeply for facts and had found them. Only the theologian and the economist have really studied the problem; and the theologian superficially, feeling the subject to unpleasant and repugnant for the spiritually minded. The economist has studied rather carefully to discover, if he can, the cause or causes of distress among the human race and has come to the conclusion that the constant tendency to increase beyond the means of subsistence in common with the lower animals, who never question the supply of food for existence, is the chief cause of all man's woes. Mankind is somewhat restrained by his reason, but in spite of his reason, he continues to increase, race suicide not-with-standing.

The immediate checks to the increase of a population is the disease that are brought about because of the lack of food and by the customs of a race. The ultimate check is the want of the necessary food for sustenance. It may be stated

that immigration only relieves a population temporarily, increasing it where it lands and by the increased birth-rate that is permitted at home because of the removal of the immigrants and the resulting release of economic pressure. Further, the lower classes of population tend to replace the upper classes, for that part of the population that takes no thought of the morrow has the highest birth-rate.

In spite of these facts, there is a constant hue and cry from individuals before the public for an increased population. There are constant warnings against the ever declining birth-rate. What may we expect from the average individual who never troubles himself to give a thought to the problem. Just a big country, lots of people. Let them live as best they can.

It is not known how fast the population of the earth has increased in the past nor will it be known; but after a careful investigation of the records of a large number of countries the fact has been discovered that the rate of increase is from seven per thousand in France to forty or fifty per thousand in Russia and some others. On the average, the increase is about nine per thousand. It has been estimated from these same records that the population of the earth is about 1700 million and that it increases about fourteen million per year. The U. S. census rates the increase about twenty-five million per year.

China's population of three-hundred million is at a standstill. Japan is increasing at the rate of thirteen per thousand. The negro, only in America, is increasing very slowly. The white races are maintaining a high average of increase on account of its low death rate and is destined to control all others. The further conclusion is drawn that war does not stop the increase but only checks it for a time, and that there is a curve of increase that is applicable to all great wars. During the world war there was an approximate total loss of eighteen million during the pandemic of influenza. Approximately twenty millions of people were lost on account of the war; but when these are considered as percentages they are comparatively insignificant when we think of the losses sustained in former great wars and plagues from which those suffering countries recovered rapidly.

What will become of the vast population of the earth? China's vast population of three-hundred million is at a standstill and is just barely feeding itself. Northern Asia, Central Asia and India can support few more. Europe has about reached its capacity and England has more people than she can feed, and is depending on importation of food. Only Africa and South America remain as colonization possibilities. Granting that science opens the tropics to the white races and that they have great possibilities it is still within the realm of human thought that they will have reached their full capacity within the lifetime of the grand

children of persons living now. But, we may say, what of the U.S.? If we will think of the fact that we have taken the census thirteen times since 1790 and that at that time there were four million people and now one-hundred and ten million--that our population has increased twenty-three times in a hundred and twenty years and presumable will have increased twenty-seven times in one-hundred and thirty years, we will conclude that it will soon be able to support no more people. When this condition is reached then there will no more be tolerated the wholesale exportation of food; and when that time comes each geographical unit will have to support itself and the struggle for existence will be beyond imagination.

So much for the question of the production of food, what of the character of the future generations of our people? There are two great fears that present themselves to any people. The one is the immigration of peoples with lower standards of living and greater rates of natural increase, with resulting replacement of native stock. The second is aggression from the outside. In the case of the U. S. the latter need not concern us seriously; with ample preparation for war, we are well able to take care of ourselves, while with the former we may concern ourselves in all seriousness for it is very real. There were ten million negroes in our country in the 1910 census. Their natural increase was about eleven per cent. As they intermixed with the white their restlessness and agres-

siveness increases and their vast numbers make them a real menace. From foreign shores have come a steady stream of immigrants, some of whom are good stock, most of whom are economically and otherwise a liability on any country. They have low standards of living and forced to labor continually to keep from starving. Their birth-rate is very high as compared to our own, but their death-rate is high,--at first--lessening as their conditions of living are improved by philanthropic organizations, to where their natural rate of increase far surpasses ours. Our political legacy, our Americanism, is North European, North Aryan, Nordic. Our great men in all lines--statesman, warriors, writers, scientists and inventors have sprung almost entirely from this mixture, and if they are left out there is nothing much left for us.

The economic conditions of these people have been so cramped in competition with these hordes of immigrants that they are no longer replacing their kind, let alone increasing it. It has always been an influx of such peoples that has destroyed civilization. We may look for the destruction of our own in the same way unless we change our tactics. We believe the answer to these problems is education, restriction or immigration and equitable readjustment of our customs and a rational marriage selection with a somewhat increased birth-rate in families of high civic value and a restriction of births in line with the families resources

and the mother's strength.

The term "race suicide" as used by the students of our population questions does not mean the failure of our population to increase--from year to year--by more births than deaths. As used by most of these students, the term means that our old Anglo Saxon and Teutonic stock are failing to replace themselves and that they are being supplanted by the progeny of our immigrants --Slavic, Latin and Hebrew. The question for us is: "is this true?" Are people of the older stocks actually dying out, and if so, what will be the effect on the future of our nation and race? It is feared that with this older stock will go the ideals of America.

The most of the investigations to discover the evidence of these fears have been done in the New England States. It has been shown in Boston that the rate of increase of the old native stock is one per thousand while the increase over the state is ten per thousand. There are many immigrants in Massachusetts and this might indicate that the rate of increase of the old stock was too slow to maintain its relative position, but the rural sections have not been taken into consideration and may change the results of this observation. In Rhode Island it has been determined that the number of children per married woman of the old stock is 2.5 while for the foreign woman it is 4.5, or nearly twice that of the native woman. The deciding element in this matter will have to be the net increase

in births over deaths. We will find that the death rate for children born of foreign mothers is much higher than that of our native born children and it would hardly be safe to draw conclusions from the data offered.

In the U. S. the number of children born per thousand women whose ages are from fifteen to forty-four is: urban 382; rural, 603. This fact when studied from geographical units, shows many variations, but always with the rural sections leading the urban. The percentage of native born while population is, in every case, greater--much greater--in the rural sections. These facts being true, then it is too soon to draw fearful conclusions regarding the passing of our older stock, that stock being found frequently and away from the industrial sections where the newer immigrants seem to gather. We do not believe that the movement of the population in the New England States is typical of the U. S.

Compared with the urban population of the New England and Atlantic states as far south as Delaware, the number of children per thousand women varies from 412 in Massachusetts to 493 in Maine. This is the smallest group of states. The old stock in these states has remained in the rural sections and its more active members have either gone to the West or to the cities, leaving a decadent population to replenish the stock. In the Northern, Central and Western States there is a wide variation in the number of children per one thousand women but it usually varies from more than 500 to less than

600 and there does not seem to be any close relation between foreign stock and a large proportion of children to women in these states. It seems that wherever there is opportunity for success, there is a large proportion of children to women, whether the population be foreign stock of old native stock; but in the West the proportion seems to be less in spite of opportunity and largely because of the independence and self-assertiveness of the women of these states. In the Southern and Southwestern States the number of children seldom falls below 650 per thousand women and in many exceeds 700. In all of these states, the rural population is almost entirely old native stock. We are therefore justified in speaking of this, the rural population of this third great division as a native population and it is in the part of our population that the greatest increase is taking place.

Of our entire population 51.3% lives in the rural districts, the reaminder in the cities. In 36% of the rural population are more than 650 children to one thousand women. In 52.5% of it there are 500 to 650 children per thousand women while in only 10.9% does the number fall below 500 per thousand women. In only 25% of the urban population does the number rise above 400 per thousand women and one-fourth of these live in the

south where the urban population is almost entirely of the old native stock and the other three-fourths live in Conn., Penn., and New Jersey in none of which the children exceeds 433 per one thousand women. Of our total white population, six-sevenths lives in the rural sections and one-seventh is urban. It seems from these facts that there is no need for alarm over the rate of increase of our newer immigrants*.

In the city many more women of marriagable age do not marry than in the rural sections. In the New England States only 53.9% of the urban women marry, are widowed or divorced while in the rural communities 63.8% are married, widowed or divorced. The women of the cities do not bear as many children as the rural women. The first fact is one of the causes of the lack of children, but the second is a much greater one. The causes of the difference in birth-rates is largely economical. Those people having an income of less than $750.00, being the poor, the unskilled laborers do not know how to limit their families and many of them would not do it if they knew. There are many shiftless, ne'er-do-wells, who have no thought or care for the future and these people will always have large families, but the net increase of this class is not large. If the net increase for a given city is 5 or 6

* "Race Suicide in the U. S." Warren S. Thompson. U. of Mich.

per thousand then it will be 6 or 8 for the poor their death-rate being so much greater than that of people situated so much better economically that their increase exceeds but little, that of their more comfortable neighbors. It has been determined that as the father's income decreases the death-rate among his children increases.

The family whose income is from $750 to $1500, the comfortable class, the skilled worker, do not look upon their children as assets as do the poor and limitation of families is practiced to some extent, but not generally. The union man can readily see that it is good for him to have the supply of labor, in his class, limited and readily sees that he can best bring this about by limiting the number of children in his family. Occasionally, we find a family in this class who wish to give at least one of the children greater advantages than his parents had and this becomes a an incentive for limiting the family. While this class does not have so many children as the first their rate of increase is about the same due to their lessened death rate.

The class of people whose income is from $1500 to $5000 constitute the well-to-do. They are the professional people--managers and salespeople. Their chief object in life is recognition, financial, social or professional. For them children become a hindrance to their ambitions and they limit their number to one or

two at the most, or none. It is said of them that they hardly bring into the world children enough to replace themselves. There are no exact data to bear these statements out, but observation and study leads us to this general conclusion.

There is little margin between the wealthy and the well-to-do class. The most people in the wealthy class are in the lower strata--that is, they are just climbers who are striving for the wealth and position of the more fortunate class. The wives of the men of this class are much the same, having only ambition for wealth and social power. Children are a marked hindrance to them and they quite often have none. Among the upper strata of this class there is wealth, power, position and family pride. All powerful incentives for the rearing of children to inherit the family wealth, power and position; but the women of this class are reared in luxury and ease and do not readily submit to the burden of bearing and rearing children. It seems quite true that they are not living up to their opportunities and duties. Of all classes of women who should bear and rear children, this class should because they are so widely imitated by womed in other classes.

In the cities the girls are so engaged in the shop, office and factory that they do not have the time or inclination

to learn the arts of home making. In the country the girls grow up in the home helping their mothers with the work of the home at a very early age. They are in the open with the garden and poultry and on the way to school and when they have finished the common school they expect in time to become wives and mothers. Both boys and girls are an asset at any early age and most every farmer looks forward to the time when his children will become dependable helpers in the work of development and cultivation of his acres. In the city where business life is so technical a high degree of training is necessary for every boy and girl who does not expect to go into unskilled work. This necessitates a long season in which the child is a liability instead of an asset and the parent must look upon it as a hindrance to him in his climb toward independence and success. In the country the affairs of the family are such that they can be profitably discussed in the presence of the family and the children soon learn to look upon their parents as partners in the business and soon understand all that there is to know about the business. The farmer does not look to the higher opportunities for his children but expects them to be able to shift for themselves when they have completed the common schools. He does not consider his children in danger from the competition of others and sees no cause to limit his family. If he is engrossed in acquir-

ing more acres he still looks forward to his children to help till them and to inherit them.

On the whole it seems that the country is a much better place in which to rear children and a much easier place. Life is simpler and purer and healthier. Since the average of ability seems high in the rural people it appears that it is for the good of the nation and the race for them to go on producing the greater portion of our population. We believe that ability is transmissable through inheritance and while there are many children of the superior class who go to the bad, we believe that is because of the lack of proper training and not because of the lack of ability. We know there are many, who through good fortune and not through any merit of their own, have risen to the benefits of this class, but the average of the class is possessed of much ability and a small portion is of the superior. These people are not reproducing themselves but are being replenished from those who rise from lower classes because of ability. Here then, may our democracy by the means of the deterioration of our race. This class of people should be led to see that if our progress is to be maintained, it will be necessary for them to make sacrifices sufficient to rear children enough to at least maintain their kind, transmitting their abil-

ity to their offspring that our growth and progress may be maintained. To do this it has been estimated that it is necessary for each family to rear from 4.5 to 5 children, and only by such sacrifice for the welfare of the race can our progress continue".

It is clear that progress in knowledge and institutions has surpassed progress in our congenital endowments. Mankind has come to recognize progress as the natural and possibly necessary cause of things but it may be true that rapid advance in material things and institutions may be only the accomplishments of a deteriorating race. The question with us is, is there evidence of race deterioration? It cannot be definitely shown to be true but there are so many facts that point that way that it is high time to begin to investigate. To obtain an insight into the factors of human evolution is needed an accurate knowledge of the facts responsible for the evolution of the lower animals. Unfortunately, biologists are all agreed upon all of these, but undoubtedly natural selection in one or another of its modifications is still the moving factor explaining our progressive evolution. We have no other reasonable course for the development of man than that followed by the lower animals as they were brought up from their most primitive forms and therefore, no reasonable recourse from the

conclusion that man owes his origin to natural selection and that only by selection in some form can his congenital endowments be improved.

Civilization has wrought such changes in the conditions under which man now lives that it is more than likely that the character of the stock of the race can scarcely fail to be seriously altered. The conditions under which primitive man lived were such as to be favorable to the selection of the superior in both physical and mental endowments. Man was in continual conflict, not only with the beasts of the forest, but with his own kind, clan against clan and tribe against tribe. In many instances to the extinction of whole clans or tribes. Only those of superior physical and mental vigor could survive in such open conflict. The advent of man is the expression of the struggle for life. We may understand that the period between the primates and man was one of intense struggle for existence and a lively elimination of the unfit. The history of man has been one of conflict and war and along with the period of conflict and quite largely because of it has he increased his intelligence and gained the attributes of courage, reliability and loyalty, mutual helpfullness and social solidarity.

All this is the result of nature's way and nature cares little whether we like it or not. All nature does care for is success in the struggle for existence and only as pro-

gress may be an aid in that struggle is it nature's concern and at any time nature is perfectly ready and willing to reduce a highly complex organization to the most degenerate of creatures whenever conditions favor simplicity of organization. There are many deteriorating forces in human society. Only recently has modern warfare been recognized as one of them. Dr. David Starr Jordan in his address on "The Blood of the Nation" said, "The best blood of the nation goes to the front in times of conflict, while the weak, the cowardly and degenerate remain behind to multiply". Dr. Jordan ascribed the fall of both Greece and Rome to this reversal of selection. Spain is another example of this reversal of selection after the best blood of the nation had been sacrificed on the alter of war and the inquisition*.

The better class of our people who are not reproducing their kind will have to be made to know the facts just quoted and convinced that there is a real need for them to make a proper contribution to the nation and to the race. It is with such a purpose in mind and such a hope that we are gathering these facts, believing that some may become interested.

*"The Decadence of Human Heredity". Dr. J. S. Holmes. Atlantic Monthly 114:302-8. 1914.

SECTION VI.

CHANGING THE MAKE-UP OF THE RACE.

We have presented much evidence, in a general way, that man is largely a product of evolution. In the study of these facts as they have been presented to us, we have reached the conclusion that there are wide differences in men and that these differences are inherited. The make up of the race can then be changed by any method that will alter the relative proportions of the contributions which different classes of people make to succeeding generations. We have offered evidence to show that both mental and physical as well as moral differences are inherited. It will be possible then to raise the level of the human race--the task of eugenics--by getting half of the race, which we believe to be superior in traits that make for human progress and happiness, to contribute a larger portion to the next generation than does the portion which we believe to be inferior in these traits. The manner in which these traits are inherited need not concern us. We need only to think of the fact that the level of the race can be raised and go about arousing the sentiment that will aid us in the accomplishment.

Natural selection has been named as the chief means of evolution. We have before suggested that natural selection operated through both a selective death rate and a selective

birth rate. Since a christian civilization cannot consent to the use of a death rate for the betterment of the race, the selective birth rate must be its chief reliance, though the selective death rate has not entirely ceased to act. When we consider man we realize that relatively few babies or adults starve to death. The selective death rate then must include only those who are unable to escape their enemies, and while these enemies of the race still take a healthy toll, science is making that toll much smaller. It is plain that a race will improve if the worst stock is eliminated before it has a chance to reproduce and if the best stock survive to perpetuate its kind. Drawin wrote, "The preservation of favorable individual differences and variations and the destruction of those which are injurious, I have called natural selection, or the survival of the fittest".

We are convinced by a study of the human death rate that half or more than half of the persons who die before their prime, now-a-days, do so because they were not fitted by their inheritance to survive under the conditions into which they were born. They are the victims of a selective death rate in the course of natural selection. All of us who have lived through hot summers and hard winters have seen this same selective death rate at work. We may imagine a thousand babies born into the world in a single day. It is known that under American conditions that half

of their number will die the first year. Now if those who die are inherently weaker than those who survive, then in the years to follow, the death rate will be correspondingly smaller, they not surviving only to succomb later on. On the other hand, if only a few die the first year, though doomed by their inheritance to fall before their time, they only linger on to fall by the wayside, increasing the rate of death in lter years. If it is found that a high death rate in the first year is associated with a low death rate later on in life, then there is ground for believing that natural selection is really cutting off the weaker and allowing the strong to survive.

Survival of the fittest does not mean that the mentally and morally superior survive, but only those who fit into their surroundings survive. In a community of rascals, the greatest rascal is best fitted to survive. Man has so interefered in recent years with natural selection that it seems not to have done more than to have kept the race from deteriorating and may not have wholly succeeded in that. We are not certain that any race today has a physical and mental average higher than some races two thousand years ago. Natural selection, through a selective death rate has been of great force then in the development of the race and still has its place, but it is only half the story. If the constitution of a race can be altered by an excess of deaths over births in any class of people,

then it can equally be altered by an excess of births over deaths in a class.

The problem of selection then is one of the adjustment between a selective death rate and a selective birth rate, but which ever force is the greater, there will be a change in the constitution of the race. A population will remain stationary only when the death rate and birth rate remain the same. The evidence presented in the chapter just preceeding goes to prove that the rate of birth is not the same in any two sections of the population or geographical units. The death rate is subject to the same evidence. It is evident then that the constitution of our people is constantly changing from generation to generation. In the study of the U. S. Statistics for the city of Pittsburg, Penn., it was found that the net increase in population is greatest where the percentage of foreign born and illiterates is greatest. The value of such statistics on natural selection must be evident. Pittsburg, like probably all other large cities, breeds from th bottom up. The lower a class is in the scale of intelligence, the greater its contribution is in reproduction. Recalling that intelligence is inherited, and that like begets like, one can hardly feel encouraged over the population of Pittsburg a few generations hence.

Karl Pearson stated a formula for the reproduction of our population. He said, "50% of the married population provides 75% of

the next generation". He expressed the same rule in another way. "50% of the next generation is produced by 25% of the married population". At this rate, in a few generations, the less efficient and the less socially valuable with their large families will overwhelm the more efficient and socially valuable with their small families. Fecundal selection is at work today on a large scale, changing the character of the population, and from a eugenic point of view, changing it for the worse. This change may be said to be but the survival of the fittest, and in a sense it is, and it is necessary that the more intelligent class should make themselves "fitter" to survive by the change of attitude toward reproduction. It has been found that fecundity goes well with superiority and that there is no real necessity for the superior to be overcome by the inferior if they will but see the necessity of doing their full share of the world's work.

Francis Galton, who founded the science of eugenics, defined it as the study of the agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally. Applied eugenics embraces all such measures that will either improve or impair the racial qualities of future generations of man, either physically or mentally or both. We believe man to be subject to the same laws of nature that all the other animals are and that man can use his knowledge of these laws to improve his species just

as he has been improving plants and animals for centuries past. Because of man's interference with the process of natural selection and the fact that he has almost, if not quite, brought about the reversal of natural selection, it has become necessary for him to become interested in his own welfare and help out nature in the course of its selection, if he would survive. In the olden days, the criminal was summarily executed. The weakly child soon dies from the lack of proper care and medical attention. The insane were so violently dealt with that if they did not die from the treatment given, they became hopelessly incurable and had little chance to become parents. These were harsh measures but they kept the sources of the race clean and strong. Today, the inefficient, the wastrel, the physical, mental and moral cripples are carefully preserved at public expense. The criminal is turned out in a few years to become the father of a family. The insane is discharged as cured. The feeble minded child is carefully educated, often at the expense of his normal brothers and sisters. All those whom natural selection would have swept away through their inability to compete with their normal brothers and sisters in their struggle for a livelihood. They are now permitted to live to maturity and to take a part in the reproduction of the race. To be sure, we would not deny them the right to live, for only those pagan peoples who preceeded us might be expected to be so

heartless, and the very essence of a christian civilization is its tendency to shield the weak. Eugenics demands that a distinction be made between the welfare of the few and that of the many; between that of the individual and the race. We contend that, while the weak must be protected in their right to life and the pursuit of happiness, that it is not necessary to either their life or their happiness, that they be permitted to enjoy the privilege of reproduction and to create offspring who will pass on their weaknesses to future generations. While each individual has the right to all the happiness that can be gotten out of life, it is to be expected that selfish, shortsighted indifference to all except himself in the world shall not be his guide. When he understands his relation to the race he will find his greatest happiness only in a marriage that will result in a family of healthy children. He is temporarily the custodian of the inheritance of the whole past and it is to be expected of him that he shall not squander that inheritance in selfish gratification.

If germinally antisocially persons are kept humanely segregated during their lifetime, instead of being turned out after a few years of institutional life and allowed to marry they will leave no descendants and the number of defectives in the community will be considerably diminished. If that policy were followed through succeeding generations, the number of individuals who are a detriment to society will grow smaller and smaller. The fact

that these people hand on their defects is shown best in some of our great families of defection. Among the chief of these is the so-called "Juke" family, who originated in New York. Their history was published by R. L. Dugdale as far back as 1877. "From one lazy vagabond, nicknamed "Juke" born in 1720, whose two sons married five degenerate sisters, six generations numbering about 1300 persons of every grade of idleness, viciousness, lewdness, pauperism, disease, idiocy, insanity and criminality were traced. Of the total seven generations, 300 died in infancy, 310 were professional paupers, kept in alms-houses a total of 2300 years, 440 were physically wrecked by their own diseased wickedness. More than half of the women fell into prostitution, 130 were convicted criminals, 60 were thieves and seven were murderers. Only 20 learned a trade, two of these in state's prison and all at a cost of $1,250,000. The clan had reached its nineth generation in 1915. "A complete and exhaustive study was made of the Jukes in that year, which can be found in the Carnagie Institution. He enumerates 2820 individuals of whom half are still living In the early 80's, they left their original home and are now scattered all over the country. The change in environment has enabled some of them to rise above their old level, but on the whole, they still show the same feeblemindness, indolence, licentiousness and dishonesty even when not handicapped by the associations of their bad

family name and despite the fact of their being surrounded by better social conditions". Estabrook says that the clan might have been exterminated by preventing the reproduction of its members and that the nation would thereby have saved about $2,500,000. He further notes that out of approximately six hundred feebleminded and epileptic Jukes, there are only three now in custodial care.

H. J. Goddard, a few years ago, published the history of the Kallikak family. In it he attempts to show how heredity works both ways. "At the beginning of the revolutionary war, a young man known as Martin Kallikak, had a son by a feebleminded girl from whom there have descended in direct line 480 individuals. Of these 143 have been known to be feebleminded and only 46 have been known to be normal. The rest are unknown or doubtful; 36 have been illegitimate, 33 sexually immoral, mostly prostitutes, 24 alcoholic, 3 epileptic, 82 dies in infancy, 3 were criminals and 8 kept houses of ill-fame. After the war, Martin Kallikak married a woman of good stock. From this union have come in direct line 496 individuals among whom only two were known to be alcoholic and one known to be sexually immoral. The legitimate children of Martin have been doctors, lawyers, judges, educators, traders, landholders, in short, respectable citizens. Men and women prominent in every phase of social life. These two families have lived on the same soil and in the same moral atmosphere, under the same general environ-

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ment, yet the bar sinister has marked every generation of the one and has been unkown in the other".

It is the hope of the eugenist that fewer defectives be born. This phase of the question has been emphasized so much that eugenics is likely to be left in a bad light before these conservative persons whose ideals are such that they see only the interests of the weak and the afflicted, feeling that the superior elements of the population can take care of themselves. The fact is, more good citizens are wanted and enough is known now about the inheritance of human characters that it is quite possible to predict the quality of the leaders of the future and to know, in a general way, from whence they are to come. We need more families like that of the old Puritian strain that is represented by the Johnathan Edwards family of our early history. From him there is a line of descendants numbering in 1900, 1394; of whom 295 were college graduates 13 were presidents of great colleges, 65 were professors in colleges besides many principals of other important educational institutions; 60 were physicians, many of whom were iminent, 100 and more were clergymen, missionaries or theological professors; 75 were officers in the army and navy, 60 were prominent authors by whom 135 books of merit were written, and so on down the line of accomplishment for the family and the nation. All will agree that we need more families like them. How can we get them? We are certain that we cannot

breed human beings as the horseman breeds horses, but we are equally as certain that the improvement of the human race depends upon the same laws and that those laws must be called into play in some manner if the race is to progress and not to retrograde. In the following and last chapter, we will attempt to present some of the means that we believe are practical and possible and that will not offend our American sense of propriety and decency*.

*This last chapter is based on information taken largely from chapter 7 of Popence & Johnson's Applied Eugenics.

SECTION VII.

THE PROGRAM OF EUGENICS.

We may ask, does the progress in ideas and institutions which form so conspicuous a feature in our recent history, imply a corresponding improvement in the characteristics which we owe to heredity? In answer, we may say that in the animal world, the strongest, the most successful, leave the greatest number of progeny. With man, as he has ascended the scale of civilization, pushed up by the "Irish" and others, according to President Hadley of Yale; the higher up the scale of civilization he climbs, the fewer the progeny he leaves; leaving to those individuals and races of lower standards of living and thinking, the privileges of replenishing the race, and they see well to it that the privilege is not neglected. The result--that any population living under such standards must deteriorate.

If then, the race is to survive, thinks Mr. Kidd who believes in the Darwinian theory of selection, there should be no checks to this process of nature, and in fact, the more advanced our civilization the more certainly does the law operate. We seek the end of war, but in place of war the very implements of civilization take the place of war in the human toll they take in the course of their operation. The fatalities each

year equaling and even surpassing, in some years, those of war. In the course of civilization whole tribes and nations are swallowed up by the progress of the stronger or those who have more corporate ability. The individual must give way for the good of the race. But has Mr. Kidd found the correct analysis of the problem? Most post Darwinian writers, not-with-standing Darwin's warning, have placed too literal a construction on the theory of natural selection. True it has been the chief factor in the evolution of the lower animals, but we cannot be certain that the theory will work with mankind. Man is no longer in conflict with his kind for food and mates, but he is in constant economic conflict. He works in groups and communities and his problem is a social one. His wars are destructive, but who can say that the victor nation will increase in population and strength more rapidly than the vanquished. Or that our modern philanthropic ideals really lessen the death rate among the weaker of a population, or that if aid to the weaker were done away with that such conditions of living might be brought about that the whole group would deteriorate. Natural selection is not always letting the stronger survive, but is often a deteriorating, destructive force. Again what nation wins its wars because of its inate superiority? Wars are won by the group best organized. When a people is forced low in the economic scale its birth rate increases rapidly. Should a conflict place a nat-

ion in economic advantage over another, the looser may out breed the conquerer and gain through the cradle what it had lost on the battlefield and thus supplant the conqueror.

From the studies that we have made it is evident that the influence of group selection cannot be determined simply by applying biological formula to human society. Actual investigation is the only means that we can absolutely trust and instances of such investigations in the human family are few. It is easy to draw conclusions from biometry, but these conclusions do not rest on firm grounds. Some writers, as Steinmetz and Schallmeyer may contend that while war destroys the best blood of the nation, the biological advantages of victory compensate for the loss. Proof of this contention has not been satisfactorily made, especially, as applied to modern civilization.

The arts of peace and its factors may not have so operated as to destroy natural selection as many would have us believe. Our indoor life, our diseases, alcohol and methods of eating and the miserable living conditions under which vast numbers of our working people live--more than likely --if closely studied may show that in the face of social improvement and amelioration, the death rate while much lowered, is still as active as at any time, but the birth rate is lowered, is still as active as at any time, but the birth rate is lowered in like

proportion. The great question for our consideration must be: will the conditions under which we live, alcholism and intemperance in other lines, have any effect on the germplasm of the race? This question cannot be subjected to actual experiment on the race but if experiment on animals of like biological origin can show that these things change the inheritance of the species, then we can draw reasonable conclusions as to the human race. In a recent investigation by Stockard, a large number of guinea pigs were subjected to alcoholic treatment and controls were kept to which no alcohol was fed. The experiment showed many defects in the group treated with alcohol such as still birth, a high death rate among the live born, blindness and many like defects. In the offspring that were bred without being fed the alcohol, many defects were found in their progeny, such as pigs with no eyes or too few digits and many others of striking character. In the progeny of the controls that were fed no alcohol, little or no defects were shown. If this experiment may be carried far enough, decided conclusions may be arrived at.

From the evidence presented in our previous chapters and this just above, the chief means of race improvement, seems to be education along biological lines to the point that an eugenic conscience may be aroused or created, till the stronger, better

element of our race may voluntarily take it upon themselves to further the interests of the race--to perpetuate the race, but as yet such a conscience does not exist and such a thing as intelligent selection in mating along biological lines is seldom if ever thought of by those entering into marriage, and it will not be brought into existence until such experiments as the above are frequently done and widely published till their conclusions shall be conclusively known by the race.

The laws and customs of a country have an influence either direct or remote, on eugenics. The gradual and appropriate change of laws and customs is the chief means of eugenic progress. The chief purpose of eugenic agitation should be to cause people to think eugenics, and not to try to make radical changes in birth control. A knowledge of biology seems to be the greatest means of eugenic thought. The following is a study of some of our American laws and customs as related to eugenics.

Taxation.

It must not be repressive to productive industry and must not be easily evaded, and if possible, must be an aid to the eugenic strength of a people by not penalizing superior families. Some have advocated a land tax and a tax on bachelors; but the land tax is too liable to discriminate against the very families that

*"Social Amelioration and Eugenic Progress". Holmes, S.J., Sci. Mon. 8:16:32

should be aided, since the best of our increase in population is coming from our rural sections. The bachelor tax might be disgenic in itself. It appears that the average married man is superior to the average bachelor and that it might be better eugenics to leave him unmarried. To force him to marry might be to weaken the very cause we wish to strengthen. An inheritance tax seems to have more merit. It would not be just for the government to confiscate all inheritances for that would destroy the individual's right to pass on to his offspring the fruits of his labor and leave no incentive for the accumulation for the protection of large families. An exemption of a reasonable amount, say a maximum of $50,000, enough to insure a family ample protection, and above that a graduated scale based on the amount of the inheritance to each individual and on the degree of consanguinity of the testater and legatee. The federal estate law, passed in 1916 placed such an exemption but the rate does not rise rapidly enough, as estates that excees $250,000 and less than $450,000 are taxed only 4% and the macimum for estates over $500,000 is only 10%. It is to be hoped that as eugenics is thought more, that the wealth of a family will be one of the factors determining its size and that its numbers will not vary inversely with the income as at the present. For these reasons, it seems that it would be wise to exempt the incomes of all married people below $200, an additi-

onal $2,000 for the wife and an additional $2,000 for each child and a steeply graded advance above these figures.

Back to the Farm.

The population of the U. S. in 1890 was 36.1% urban. In 1890, 40.5% and in 1900 near 46.3%. The components of this growth are (1) the excess of births over deaths; (2) immigration from rural districts; (3) immigration from foreign countries and (4) by the incorporation of suburbs. It has been found that 29.8% of this increase is due to the immigration from the country while 70.2% is accounted for by the other three causes, enough to make the movement of importance for eugenic investigation. It is believed that when country people move into the city their family strength soon grown less and their stock soon dies out. It is also believed that those who go from the country to the city are the best stock of the country. If it is true that superior people go to the large cities and that when they have gone their contribution to reproduction is lessened, then the growth of such cities is a dysgenic factor. O. F. Cook, author of Eugenics and Agriculture, likens the cities to the seguanas of the Indians of Honduras, or the places where their rivers flow into sink holes and disappear. The flow of population to them never comes out

people to occupy the surrounding country, but always the flow is toward the city.

Democracy.

It is said that our democracy, because of its elevation to authority, so many whose ideals are such that they do not see the welfare of the nation and the race, but only their own selfish interests and those of their class or friends, may be decidely dysgenic. In its stead may be offered as a substitute an aristo-democracy, or the democracy of the best, or of those whose ideals are such that they are actuated at all times by the interests of the progress of the race. Not that we would do away with our democracy, but that we would appeal to the higher ideals of the superior elements of our nation to see the direction in which we are drifting and cause them to become interested in the welfare of the race and to assert their power in the conduct of our government.

Socialism.

Another of our American ideas is that or socialism. There, some of the ideas and ideals of socialism that undoubtedly have for their object the uplife of the race, but socialism is dominated by too many of our people whose fund of knowledge of racial and governmental affairs is too limited to be trusted with a

large share in the affairs of the race. It proposes that aristo-democracy, but at the same time it seeks to subordinate women to such an extent, that in the extreme of socialism they would be no more than domestic animals. It ignores economic determinism in the face of the fact that man's acts are governed by economic conditions. It seeks an equitable distribution of wealth but rests on the idea of equalitarianism, that is, it attempts to place all men on an exact level without regard to biological differences. Now eugenics is in accord with a distribution of wealth and position and is in accord with biological differences--according to worth.

Child Labor.

The children of the poor work at an early age, and they therefore look upon them as an asset, but to rear a large number of children is a heavy tax on the strength of the mother and may be dysgenic as to her. Then as the number of wage earning children increases the wages of the father decreses. This causes the children of a family to work early and long, lessening their power of resistance. If these people are of the inferior, then child labor is an eugenic force. To abolish child labor is to give the children a chance to develop and if they are of the superior, then abolition of their labor is an eugenic force; if they are of the inferior, then the abolition of child

guidance, every man in the right place. Undoubtedly ability to do a certain thing, or certain class of work is one of the characteristics of inheritance. The American teacher needs to be trained in the means of discovering these several abilities early in the school life of American children and be skilled in turning him in the right direction in the early days of his school experience. Ability needs its own peculiar environment and only as we progress in our system of education in this respect will that environment be discovered early in the lives of our American children. There is no greater loss to our nation or our race than the loss of time and success in the blind alley, blind pig, manner of getting into the right place in the serious business of life. Many never do find the place they are best fitted for and waste, as far as actual progress for the race is concerned, their whole lifetime.

The minimum wage.

The object of a minimum wage is to make all men economically fitted to have a wife and to rear three or four children. If all men were fitted biologically to transmit the best of inheritance then such a law would be of the highest eugenic value, but we have been offering evidence that goes to prove that only a limited portion of the race is biologically fitted to do that. If our premises are correct, then a minimum wage would be providing the very people whom we do not wish to have a part in the reproduc-

tion of the race with the means to do the very thing we are trying to prevent. It would be the most dysgenic force possible for us to create. Poverty is in many respects eugenic and with the spread of the knowledge of birth control, will be more so. The minimum wage does not attempt to pay every man what he is worth, but attempts to make it possible for him to rear a family.

Femininism.

Eugenists will accept the principle that woman is as well adapted to her work as man is to his but not that she is as well adapted to man's work as he is. Politically and economically she is about equal with him now. She owns property in her own right and conducts business in her own name and right and she votes. In many cases, she is being admitted to high official position. We must remember that civilization covers but about ten thousand years, while man has been in existence for a period of a half-a-million years. During four hundred and ninety thousand years he was the hunter and the warrior. Woman was the vessel of the home, bearing and rearing the children while the man was the provider. Undoubtedly in all that period of time there have been set up characteristics existing biologically in the two that are widely different and cannot be overcome in a short space of time. Woman is now appearing to be the equal of man in intelligence and is equal-

ly important in the development of the race, but she cannot expect to take the helm of affairs and do man's work.

Old Age Pensions.

The superior families will always, through thrift and foresight, provide for their old age. The parents of superior sons will not need their aid and support in their old age and there will be no need of their limiting the size of their families on their account, but the inferior will not provide for old age and must be supported by the son who must limit the family to support the parents. This is an engenic condition and old age pensions would relieve these sons of such an obligation and permit the growth of inferior families, making such a pension a dysgenic force.

There are many other American customs and ideas that need the consideration of the eugenist, some of them of eugenic value and some of positive dysgenic forces. It behooves all thinking people to study them carefully before they give their support to such measures. All law is but the expression of public sentiment and until a law is the result of such a sentiment it is a dead letter and cannot be enforced. Laws that are intended to be of eugenic value have not attained any very serious support in our country as yet. In fact, where such laws have been enacted, they are either not enforced, or become obnoxious and are repealed. The last legis-

lature in one of our north central states repealed a law requiring a physical examination by a competent physician of contracting parties before marriage for the reason that timid couples were forced to leave the state to be married and the law casting a reflection upon such people, suggesting that they were not fit to undergo the examination. The repeal was unanimous.

Eugenic measures are divided into coercive and non-coercive. Non-coercive measures chiefly consist of education and philanthropic undertakings. Coercive measures are chiefly a segregation of the unfit and limitations on marriage, such as was just mentioned above. Of the coercive measures, Dr. Walter Fernald, Superintendent of the Massachusetts School for the Feebleminded, has presented a constructive and somewhat ideal program, extending well into the non-coercive. He states that no state has yet taken cognizance of 10% of the mentally defective persons in that state. No state has even ascertained the number of feeble minded in the state, their location or the nature and expression of their defect. The great majority of these defectives receive no education or training and no adequate protection and supervision. We know that feeblemindness is highly hereditary but in most states there is no legal obstacle to the marriage of the moron, the most numerous class of the feeble-

minded.

Dr. Fernald's first suggestion for constructive work is a census of the feebleminded throughout each state, giving the number and location of defectives and nature of the defects for each defective individual. Having once located the defectives, then next, create a supervisory commission for each state headed by a competent person, one trained in the treatment of the feebleminded. This supervisory commission then should have representatives in each community, either voluntary or appointed. The chief means of the census would be the public schools and only those pupils who are from two to four years retarded need be examined. Only about two or three percent of all of our school children being in that class. Since our schools have charge of each child when he is six years old it will not be difficult to extend the present growing system of medical examination of school children to cover the entire need. When once the census is made and supervision established, then suitable, tactful tracts should be put in the hands of the parents and friends of the feebleminded and through the local teachers these parents taught the condition and needs of such defectives. They should be led to be willing to have such children trained in an institution prepared to take care of them and if their defects are of such serious nature as to preclude their being safe to live openly in the community, then let them be segre-

gated in an institution suited to their happiness and well being. When parents are found who are not capable of caring for such individuals or who would be unwilling to do so to the extent that they would be protected from mistreatment and prevented from becoming parents, the state should step in and use compulsion.

Dr. Fernald closed his statement by saying that there is no panacea for feeblemindedness. There will always be mentally defective persons in every state and every country. All of our experience in dealing with the feebleminded indicates t that if we are adequately to manage the individual defective, we must recognize his condition while he is a child, protect him from evil influences, train and educate him according to his capacity, make him industrially efficient, teach him to acquire correct habits of living, and when he has reached adult life, continue to give him the friendly help and guidance he needs. These advantages should be accessible to every feebleminded person in the state. Most important of all, so far as possible, the hereditary class of defectives must not be allowed to perpetuate their decadent stock.

To sum up Dr. Fernald's program, some of which we have not presented, the program now possible included the mental examination of mentally backward school children; the mental clinic; the traveling clinic; the special class; directed train-

ing of individual defectives in country schools; instruction of parents of mentally defective children; after care of special class pupils; special training of teachers in normal schools; census and registration of the feebleminded; extra institutional supervision of all uncared for defectives in the community; selection of defectives who most need segregation for institutional care; increased institutional facilities; parole for suitable institutionally trained adult defectives; permanent segregation of those who need segregation; mental examination of all persons accused of crime and of all inmates of penal institutions; and long-continued segregation of defective delinquents in special institutions.

The above program would require teamwork on the part of psychiatrists, psychologists, teachers, normal schools, parents, social workers, institution officials, parole officers, court officials, prison officers, etc. There would be a highly centralized formulation of plans and methods of authority, but much of the real work would be done in the local community. The degree of the development of the program in a given state, would depend upon existing knowledge and public sentiment on the subject in that state and this in turn would be measured by the wisdom and experience of responsible officials. Nearly

every suggestion in the proposed program is already being followed in some state. No one state has anything like a complete program.

The next most advocated coercive measure is sterilization. A number of states have laws requiring sterilization in some form or other and for either punitive or eugenic motives. The most prominent of these is California. It passed a sterilization act in 1909 and again in 1913 and 1917 and the law is in force now in the state as passed in 1917. It was at first for eugenic motives, but was later made largely punitive. The law has not been sustained by the courts when resting on purely eugenic motives, but has been sustained in state supreme court where resting on punitive motives. What the U. S. Supreme courts will say when such a law is brought before it on test remains to be seen. There is much to commend in such action, but also much that is debatable. It is founded on the principle that society has the right to prevent the procreation of defective or criminal types but that society does not have the right to make a eunoch of a man; that he has the right to the enjoyment of the sexual relation and that to deprive him of the power of procreation must be followed by the retention of his sexual powers.

What can we do to further any program that is to aid in the progress of the race? In answer, we may say first,

that our colleges can train a large number of our young teachers along biological lines and get them interested in the future of the race. That there is nothing else that they can do, but they can dothat well and should become enthusiastically in earnest about it.

The chief means of creating a public sentiment for some vital purpose has been throughout the history of civilized countries, their public schools, if such existed. Germany taught her children for forty years that there was a great day coming in which Germany was to assert her supremacy over all the world, a day of revenge on her ancient enemy just across her border, and when that day came, all Germany was ready. In the U. S. A. hygiene was taught in our public schools for thirty years showing the effects of alcohol on the human system, and when the time came for the W. C. T. U. to act through the medium of the American vote, king alcohol was voted out of legal existence. If our nation cares to make safe her future generations from deterioration, then she must begin in her public schools and teach biology, economics, sociology, and sex hygiene till the American conscience is aroused to the point that it will take the steps necessary to insure the perpetuation of its race. Such

a conscience can be aroused in as little time as it took the W. C. T. U. to arouse a public sentiment that made it possible to vote alcohol out of legal existence in this country. It should be gone about immediately and with energy. Our colleges should be the aggressors and their departments of education should demand the utmost of biological and genetical training of their graduates.