

NATIONAL SECULAR SOCIETY

CIVILIZATION:

A SKETCH OF ITS

RISE AND PROGRESS;

ITS

MODERN SAFEGUARDS & FUTURE PROSPECTS

A Lecture

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BY

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SYLLABUS.

The Creation from the stand-point of Science.

Autobiography of the Earth, and of Life on its surface, from its fluid state through intense heat to its attaining fitness for human habitation.

This knowledge revealed through the sciences of Astronomy and Geology, which exhibit terrestrial existence as a progress towards Intelligence under the dominion of Divine Law.

Civilization explained as Man's progress, by means of his reason, towards the gratification of his social impulse to live peaceably, morally, and happily.

Civilized man first found in Asia—His progress barred by Superstition retarding the development of his reason.

Historical illustrations from Oriental civilizations.

Civilized man in Europe. The growth of his reason enables him to diminish Superstition, to interpret Nature, and to exchange the theological doctrine of Arbitrary Will for the scientific principle of Invariable Law.

Historical illustrations from European civilizations.

The influence of Supernatural Religion.

The extinction of Superstition assured, and modern Civilization protected from decay, by our possession of a criterion of Truth, a standard of Right, and a reserve of Moral Force chiefly derived from—

- 1.—Our knowledge of the Order and Uniformity of Nature. The method of the government of the World. Man's position in it.
- 2.—Our means of preserving and diffusing Truth and Moral Sentiment through the Printing Press—the Steam Engine—the Electric Telegraph.
- 3.—International Conscience, created by Commercial Intercourse.
- 4.—Public Opinion based on Free Discussion.
- 5.—Political Government through the Representative

Our present Civilization a state of relative Barbarism, attested by the existence of pauperism, overwork, vice, crime, disease, premature death, &c.

The causes of these calamities.

Prospect of great increase of human happiness and virtue from the application of knowledge to the improvement of the breed of Man.

How a City of "Hygeia" may become a possible reality.

CIVILIZATION:

A SKETCH OF ITS

RISE AND PROGRESS; ITS MODERN SAFEGUARDS
AND FUTURE PROSPECTS.

I WILL ask you, for our present purpose, to dismiss from your minds all that you may have heard concerning "the Creation," as a stupendous event, represented as occurring, according to the precise arithmetic of our patristic chronologers, 4,004 years anterior to the birth of Christ; and, in place of that definite intelligence, of which I may seem to be about to deprive you, to substitute what science tells us in relation to it.

In the vocabulary of science, "creation" is a term simply expressive of our absolute ignorance of the beginning of the present order of the Universe. Science knows nothing of Creation, having discovered only evolution. But, whilst it can find no trace of the Creation, some 6,000 years ago, science can tell us something of the history of our planet, during those millions of ages in which it was undergoing a process of gradual cooling, from a condition molten with intense heat, until it arrived at a state of temperature and atmosphere fitted for the existence of man, and when, accordingly, man made his appearance on its surface. This knowledge is essential for any comprehensive understanding of human civilization.

At the time of man's first appearance, the Earth, and everything upon it, appear to have been ruled by those natural laws, especially of Motion, of Heat, and of Gravi-

tation, from the study of which has been built up that vast body of positive knowledge, termed collectively the Physical Sciences; for science, however defined, is strictly the pursuit of law, and, man being born under a system of law, his intellectual nature is to seek and discover it. The science of Astronomy, in its calculations of the most ancient events, as well as in its prediction of those that are to come, is founded on the axiom that all its phenomena are subjected to invariable Law, and that there has not been in the times under consideration, and that there never will be in the future, any exercise of arbitrary or over-riding Will.

The first clear view which we obtain, through science, of the early condition of the Earth, presents it to us as a ball of matter, fluid with fervent heat, spinning on its axis, and revolving round the sun. The science of geology then exhibits to us the remains of a long preorganic period, termed the Azoic, or that in which life was not; then the remains of an orderly progression of organic life whose existence had corresponded with the varying condition of the earth's slowly changing atmosphere and temperature, such series extending backwards over an incalculable, but undoubtedly enormous, period of time, termed the Palæozoic, or that of antique life.

Now, when we transport our minds back to these primeval ages, we are enabled, apart from any of the prejudice with which we approach the consideration of the subject during the period of human existence, to contemplate clearly two very important and distinct things, each of which is by some minds even yet denied or doubted. The one is, the divine principle upon which life on Earth is governed; the other is, that orderly and gradual change, towards a determinate end, termed progress.

At the remote period to which I am referring it can hardly be doubted by an unprejudiced mind that the government of our Earth was a dominion of physical law, for there is no discovered indication whatever, in-

deed there then existed no subject whatever, of moral government. The Earth tells us its own history, not founded on fables but on facts, through the sciences of astronomy and geology, and the entire range of terrestrial phenomena brought to light by those sciences are all found to be in harmony with the effects of the operation of the mathematical law which regulates the gradual cooling of a vast body, such as, in size and shape, we know our Earth to be.

Now our knowledge of this life of our globe, previously to man's appearance is, comparatively speaking, quite modern. It has been revealed to us through a number of discoveries, made by a succession of scientific men, all flourishing within about the last 300 years. I may say that the very basis of the facts and reasonings upon which it rests was the geometrical conception of our solar system by Copernicus, whose book on the revolutions of the celestial orbs was published in the year 1543. That conception, as most of you know, was in direct opposition to the prevailing religious views of his time. Those views, derived from texts of Scripture, and dogmas of the Fathers, asserted that the Earth was the centre of the Universe and immovable, and that the sun and stars moved round it. Copernicus, on the other hand, deduced from mathematical considerations a theory directly the reverse of this. He showed reasons for assuming that the sun was the centre, and relatively immovable, and that the Earth and other planets moved round the sun. When Copernicus divined this theory there was no sufficient astronomical science, or power of penetrating space (for the telescope had not then been invented), to corroborate or refute him, and, so little did the ecclesiastics of his day appreciate the probable correctness, or comprehend the vast significance of his theory, that his great work was published at the solicitation of a Cardinal, and dedicated to Pope Paul III. Copernicus died before his work was fully before the world, and, with the exception of a courageous expression of con-

currence by the ill-fated Giordano Bruno, hardly any serious notice was taken of it. Nearly a century afterwards, indeed, at a time when, through astronomical observations by means of the telescope, and philosophical reasonings resulting from the discovery of the laws of motion by the illustrious Galileo, and by the publication in 1632 of his remarkable Dialogue respecting the opposite systems of Ptolemy and Copernicus, the sublime yet simple grandeur of the Copernican system began to be verified as true, then the infallible Church became roused to resentment, and condemned Galileo to abjure his views; to solemnly declare that the proposition maintained in his dialogue, that the sun is the centre of the world and immovable, was absurd, false, and expressly contrary to Holy Scripture, and that his other proposition, that the earth is not the centre of the world, and that it moves, is absurd and false, and erroneous in faith.

Next in importance to the discovery of the laws of motion was the grand discovery, by the astronomer Kepler, of the laws that regulate the planetary motions. This extraordinary man, one of the last of the old astrologers, by the help of a mass of observations of the Heavens, recorded for the most part by his celebrated precursor Tycho Brahe, discovered the three great laws which actually regulate all the movements of the planets, including our Earth, round the sun; and the subsequent marvellous discovery by Sir Isaac Newton of the very cause itself of Kepler's laws, viz.—the principle of Universal Gravitation, showed, that those laws might actually have been predicted as well as observed, Newton proving, by mathematical deductions from his discovered principle, that all bodies attract each other with a force directly as their masses and inversely as the squares of their distances; that the movements of the celestial bodies, their described areas, their elliptical orbits, the relation of the squares of their times to the cubes of their distances, may be mathematically

accounted for, and are indeed mathematically necessary!

But the fact which strikes the reason with perhaps greatest force, as revealing the vast duration of the past history of our planet, is the Earth's peculiar form, which was also discovered, through mathematical calculations, by Sir Isaac Newton. The history of this discovery is interesting.

In the year 1691—the astronomer Dominic Cassini, whom Louis XIV. had placed over the observatory of Paris, looking through his telescope at the planet Jupiter, was struck by observing that the figure of the planet was not round, as had been supposed, but oblate, or flattened at the poles. The reason of this peculiar flattening at the poles, as regards the planet Jupiter, we are not now concerned to follow, beyond remarking that, as it evidently had resulted from the planet's movements in obedience to the laws of motion and gravitation, it suggested that the Earth must have a similar shape. That is to say, a body revolving round an axis gives to those particles the greatest tendency to fly off which move with the greatest velocity, those, viz., which are furthest from the centre of rotation and nearest the equator, whilst those particles near the poles, describing smaller circles, move slower, and have less tendency to fly off, hence there would be an accumulation of matter towards the equator, whilst the poles would be depressed or flattened. Now, if the body were fluid such tendency must have the effect of shaping it accordingly, causing its equatorial axis to be longer than its polar.

The intellectual consequences of this apparently simple matter have been amazing. It led at once to the discovery by Newton of the actual form of our Earth, Newton solving the problem by an application of the dynamics of his immortal *Principia*, on the supposition that the Earth had been originally fluid, and thence calculating that its diameter at the equator would be to its diameter at the poles, as 230 is to 229—and the Earth's

elliptic figure, which he thus arrived at, was subsequently verified by actual admeasurement! Now, the consistency of these results, the correspondence of the fact with the theory, is, considered rationally, a resistless proof of the original high temperature of our globe, when it must have been fluid from intense heat; fluid and solid being the opposite material effects of heat and cold.

The age then of our planet is no fact of supernatural revelation, nor is it a question to be decided by authority or tradition. It is simply a mathematical problem, that is, regard being had to the discovered laws of motion, of heat, and of gravitation, to determine the time of the cooling of a rotating globe, of known diameter and conductivity, by the radiation of its heat into space—and even an approximate solution of such problem must convince us, that our Earth has existed for myriads of ages, and, moreover, that it has been moulded into its present shape by mechanical means, that is, by secondary causes.

The discoveries which have been made, through the investigations of geologists into the Earth's crust, of the evidence of the action of heat in remote ages, and of the countless remains of extinct plants and animals of different species, all having apparently successively arisen and died out in close correlation with the changes in their physical surroundings consequent on the Earth's gradual decline of temperature, are not only in harmony with but, confirmatory of, the discoveries of the astronomers, and the two, taken together, form cogent evidence of the fact of the state of our planet at the time of man's first appearance having been the result of a process of cooling continued through enormously long periods of time, not without oscillations, sometimes of the reverse of heat, as shown in the remains of the glacial epochs.

They are also evidence of the two important matters to which I have referred. They show that the divine

government of the earth had been and was a dominion of primordial law, and they show that the series of countless changes, that had occurred throughout the lapse of those preceding ages, constituted progress, for, when looked at as a whole, they appear as a continuous, orderly, and progressive change towards the development of intelligence. Life and mind gradually becoming properties of matter, or matter becoming inhabited by life and mind. Throughout the entire animal series there is distinctly seen a progressively ascending nervous development with its correlated or parallel phenomena, automatic, instinctive, rational; this progress amongst the vertebrates consisting in their increasing resemblance to man, and, when we take into one view the whole succession of organisms including man, whether we regard it physiologically or historically, we find the direction of evolution is towards the intellectual. Indeed, physiologically, there is no apparent provision in the nervous system for moral improvement save through the intellectual, and historically (regarding our race rather than the individual), we find it is the intellectual that has led the way in social advancement, the moral being subordinate; even our monitor within, the conscience, being seen to be an organ of the mind, and to be strengthened and purified in proportion to the education of the intellect.

I should here remark that though, whilst we are summing up the results of immense periods of geological time, progress is very clearly visible, yet that when we attempt to gauge its rate of advance during so comparatively brief a period of historical time as human civilization, it is sometimes scarcely discernible. Now, this is owing to the rate of change in man's physical surroundings being itself so slow as scarcely to be measurable by human means, our planet having attained so nearly a condition of equilibrium that, since the age of the astronomer Hipparchus, who flourished about a century and a half before the Christian Era, the length of

our solar day (according to the calculations of Laplace) has only varied the fraction of a second of time!

Thus have I endeavoured to present to you some idea of the grand principle or Law of progress, that vast orderly concourse, which has successively risen in the past, introduced the present, and is preparing the future, and of which Human Civilization is the now continuing phase, or further development, under the divine dominion of natural immutable Law.

Wherever we find man, or the traces of his former existence, there is one fact which invariably meets us, viz. : That the nature of the human being is social, that is, he has an instinct which impels him to live in the society of his fellow-creatures; and, generalising our knowledge of his history, I may venture to define the complex term "civilization," as man's progress by means of his reason, acting under the control of natural law, towards the gratification of his social impulse to live with his fellow-creatures peaceably, morally, and happily, and in accordance with the ever-increasing knowledge for accomplishing this object that results from the gradual improvement of his intelligence, for, another fact, which history teaches us, seems undeniable, viz.—That the intelligence of our species has improved, and is improving; that the powers of the mind grow with the possessions of the mind.

The most ancient accounts we have of man show us that originally, or as near as we can get at his origin, his condition was barbarous and brutal, his tastes, his habits, and his understanding apparently only in degree elevated above those of the animal life below him. They were such as we see in the savages of the present day, which have been so closely observed and described by modern travellers, especially by one whose untimely end will ever be lamented by this Society, for the first and only lecture which the late Winwood Read lived to deliver in this Hall gave hopes of future brilliant and instructive discourses.

If you have followed my introductory argument, I need hardly impress upon you that man's career has been one of constant progress, however slow and variable, from the barbarism of the savage to our present comparatively high condition. There have been and are, however, writers who think differently, and who have inferred that man was originally civilized, and afterwards became degraded to the savage state. In the face of the primordial law of progress, which is traceable throughout the countless ages during which the Earth has been the abode of organic life, to hold that man was first civilized and afterwards retrograded to the savage state, is, scientifically speaking, the same as it would be to hold, in the face of the primordial law of gravitation, that the rivers, which we now find flowing from the valleys of the hills downwards to the sea, commenced originally by flowing upwards from the sea towards the hills.

The earliest Civilizations of which we have any authentic accounts are those of the Assyrians, the Babylonians, the Phœnicians, and the Egyptians. They were all located in or near the Torrid Zone of our Earth, and they were probably the earliest manifestations of civilized man, since there are strong reasons for concluding that man's birth-place was in the warmer regions of our globe. When first these ancient communities became known to us, man had already achieved the primary step towards his civilization, that which enables him to advance by means of the experience of his predecessors—the invention of written characters, or means of recording past events.

These civilizations were, intellectually and morally, very far inferior to the civilizations which have subsequently flourished in the European or Temperate Zone of the Earth, and they were all characterised more or less by the fact that the great masses of the people were uncared for, often treated as slaves, and always more or less oppressed. The upper ranks of their rude societies monopolized not only power, but nearly all such enjoy-

ments of life as their civilization produced. Their mental powers were for the most part absorbed in the cultivation of gross superstitions, or in weaving systems of philosophy which were not based upon observed facts, but were the offspring of imagination, clothed in the allegories and subtleties of Oriental speech, or their active powers were exhibited in styles of architecture based upon the employment and display of great physical force. If we attempt any general review of their intellectual productions, their theology, their law, or their science, we find that they follow a marked tendency to fall into system and to stagnate. The mind of the Asiatic seems essentially synthetic, that is, ideas are added together rather than separated and analysed, and such adding together being a process that is sooner brought to an end, everything becomes invariable; there ensues what in Europe is called stagnation, though in the East it is considered repose.

Eastern civilizations appear to have reached a certain point, and there to have stopped, hindered probably from advancing by reason of their knowledge being bound up with theological opinions held to be sacred and immutable, or by reason of their mental constitution having attained the natural limit imposed by their climate and surrounding physical circumstances. Those physical surroundings being such as powerfully to exalt the imagination, for the sublimity and grandeur of the aspects of Nature in the Torrid Zone, the suddenness and violence of her convulsions, engender terror and depress the reasoning faculty, suggesting the perpetual interference of a supernatural Will, and so give rise to those appalling superstitions which have to so great an extent been inherited by Europeans, and, in their disastrous influence upon the peace and happiness of life, have probably done more to hinder the progress of civilization than any of the numerous inventions and luxuries, derived from the East, have done to advance it.

It is not until, following the migrations of man

from his birth-place, we find him in the climate of Europe we can discover that any considerable progress has been made towards the social happiness of our race. Ancient Greece is the country where we first find man shaping the course of his life by the exercise of his reasoning faculties, and gradually noting those invariable sequences in surrounding phenomena that indicate the settled order of nature, and free the mind from the bondage of superstition, beginning to observe and investigate nature, and gradually exchanging the theological doctrine of the government of Life by arbitrary Supernatural Will, for the scientific doctrine of such government being regulated by invariable Natural Law.

In ancient Greece this beginning was made. In the cross-examining elenchus of Socrates, in the logical organon of Aristotle, in the mathematical science of Euclid, in the mechanical genius and resources of Archimedes, we find exhibited in wonderful distinctness the analytical character of the European intellect, that quality which gives birth to doubt, impels to inquiry, and demands a reason, and which, transferred to Alexandria, flourished there in such remarkable exuberance. In the lives of the great men of Greece we also find moral qualities that were unknown in the East. Yet much of Grecian learning was evidently derived from Oriental sources, more particularly from Egypt, several of the Grecian sages having visited that country—Amongst others, Pythagoras had resided at Thebes, Solon at Sais, Thales and Democritus at Memphis, Plato at Heliopolis. But what they derived from the East the different physiological and intellectual endowments of the Greeks materially modified and improved; and we, now looking back, can plainly perceive that many of the ancient Grecians had just, however elementary, notions of the various problems, still under controversy, in theology, law, politics, natural science and philosophy.

With respect to their fascinating philosophy, which,

from the period of its birth under the shadow of the Pyramids to its final extinction in the very same place, extended over a period of twelve hundred years, it can hardly be affirmed that it has added very much to our stock of practical wisdom, or that it has greatly assisted in promoting the happiness of the human race. In the few words I can now bestow upon it I am constrained to say rather that the Greek philosophy, on the whole, affords little else than a picture of the subtlety and restlessness of the human mind. Its professors, with a few exceptions, instead of observation and experiment, satisfied themselves with constructing, by means of metaphysical verbiage, ideal theories, and these, wanting the facts of nature for their basis, have chiefly served to perplex the human understanding and to retard the advancement of useful knowledge. Greek Philosophy was a failure, because its method was a false one.

To her mathematicians, however, great admiration is due, for, as Condorcet said, the sailor, who now escapes from shipwreck by an exact observation of the longitude, owes his safety to the speculations in quest of Truth of the ancient Greek geometers, since it was their mathematical reasonings that brought about the renovation of the science of astronomy, which has since led to the present perfection of the art of navigation.

Passing onwards from contemplation of the life of ancient Greece, the mind is arrested by the civilization of the ancient Romans; but, in the slight survey I am taking of the progress of mankind towards the attainment of social and individual happiness, though that illustrious people aspired to an Imperial sovereignty that eventually subjugated almost the entire then existing civilized world, if we inquire what they effected towards man's intellectual and moral advancement, the account, with one exception, is not considerable. In intellectual acquirements, as well as in original genius, they were inferior to the ancient Greeks, from whom indeed they

acquired the greater part of what real knowledge they possessed. In their language and literature this contrast is conspicuous, but in one respect, and that certainly of the highest moment to our argument, they did make a decided advance. They showed a remarkable aptitude for the science of Jurisprudence and for political and municipal government, and the protection afforded to life and property under Roman rule was very greatly superior to what the world had ever previously seen. We perhaps can hardly realize the proud self-respect with which a Roman citizen asserted his simple credentials—"Civis Romanus sum." Still however, if we look to the condition of the people at large, we find them subjected to great tyranny and oppression—an absence of anything approaching our own notions of the dignity and happiness involved in a life of honest industry. The populace of Rome itself being encouraged in idleness and sensuality, supported very largely by contributions wrung from the conquered countries that formed the outlying provinces of the Empire, and kept amused by the frequency of brutalizing gladiatorial shows.

The superstitions of the ancient mythologies were, as superstitions usually are, thoroughly inculcated upon the credulity of the masses, and, though the educated class, of necessity a small one, utterly disbelieved and despised them, there was no possibility of freedom of discussion respecting such matters. The morals of the ancient Romans under the Emperors were extremely impure, especially in everything relating to the true position of woman, and, although many eminent men of lofty principles and pure lives are found amongst their Philosophers, especially of the distinguished sect of Stoics, such men as Seneca, Epictetus and Marcus Aurelius, yet such characters were rare, and the general moral tone of their society, summed up with graphic force in Mr. Leckie's instructive volumes, was degrading and selfish. But the genius or overmastering passion

of the Roman People was for military conquest and territorial annexation, and at last their unwieldy Empire became too extensive to hold together, and was overwhelmed by the incursions of the barbarian nations by whom they were surrounded, and whose enmity they had so often provoked.

If it be asked what then became of the Romans, we must answer that they were actually obliterated, for the Roman ethnical element, any more than the Roman proper names, cannot be said to have survived in the degenerate half-breeds that resulted from the settlement on their soil of the hordes of invaders to whose prodigious numbers the Roman legions had succumbed, and whose inferior natures composed the mongrel Italian population, which throughout the middle or dark ages was the main support of that monstrous superstition, the mediæval Papacy, which then ruled the emasculated minds of those credulous men who, abdicating their God-like prerogative of reason, sought refuge in a fatuous faith that led them to cringe with servility at the feet of Pontiffs, whose history is indeed imposing, but whose lives were infamous, and whose object was, not the promotion of civilization, but the aggrandizement of their Church.

For, throughout the long ages during which the papal despotism was omnipotent, (from about the 5th to the 15th centuries,) nothing whatever was done by that baleful tyranny towards advancing Civilization, nothing to forward intellectual development. Its policy was to subjugate the human mind, and to keep men illiterate and ignorant, well knowing that, whilst ignorance is the mother of devotion, knowledge is power. Century after century passed away without any real improvement in the condition of the people, and it is a fact, very shocking to those who comprehend its full meaning, that at the end of a thousand years of this government under an 'infallible' head, the population of Europe had scarcely doubled!

After the fall of the ancient Civilizations it is not until about the end of the 15th century of our era that we can find much trace of any real improvement in the social life and happiness of the people at large, but an impartial study of history from about that time compels us to conclude that the progress Europe has made from barbarism is really due to its intellectual activity, and that, though eminent individuals, whose virtuous lives seemed essential as examples of moral principles, die, and nations, that had attained the pinnacles of political power, decay, and superstitions, that once ruled the mind of the community, become extinct, yet, when man, in some fresh latitude springs up, forms societies, and cultivates his reasoning faculties, we observe that in proportion as he endeavours to guide his life by the dictates of reason, so does his civilization, that is, all that tends to make him moral and happy and free, follow in his wake.

The greatest foe to Civilization has been Supernaturalism, that principle which is the genius of every religion whose object is to withdraw man from the study and improvement and regard for this world, to the contemplation of a future state of existence in a world that is to come. To depreciate the present life as fleeting and worthless compared with the life of that unknown world where happiness and repose are expected to be everlasting.

To attempt to trace in outline, however vague, the history of Civilization without some allusion to the part which religion has played in it, would I have no doubt strike you as involving an obvious omission, and therefore I shall venture to refer to the part which Christianity has taken. This indeed is not easy in a sketch, for to say all I could wish on the subject would be disproportionate to the rest of the picture. In regard to one form of Christianity, that which was represented by the Romish Church in the Middle Ages, I have already made some remarks; what I can now say must

have reference to it as it is manifested in the Life and Sayings of Christ himself, as we find them portrayed in the New Testament writings.

Now Civilization, as I am viewing it, is the progress of this world and of this life, through the advance of human intelligence, and it has for its main object the getting rid of poverty and misery, and promoting worldly prosperity, human enterprise, and happiness. Christianity, as exhibited in the life and sayings of its great founder, was not put forth as a supernatural scheme for improving the affairs of this world, which indeed was believed to be then shortly coming to an end, but for establishing an unworldly kingdom in its stead, or in opposition to it. Poverty was not to be got rid of, but to be caressed. The Poor were to be the blest, those who had riches were to sell their possessions and give what they had to the poor. No thought was to be taken for the morrow. Happiness here was not the end in view at all. A man was to fling all he had at the foot of the Cross and follow Christ—a man of sorrows. The maxims of the great modern Science of organised industry, Political Economy, a main source of our present prosperity, are set at nought by it. In fine, the genius of Christianity, as a supernatural religion, like the genius of nearly every other supernatural religion, is the very opposite of the genius of Civilization, and, so far as it has been believed in and followed as such, when we call to mind the frightful religious wars, crusades, persecutions, massacres, and atrocities that have followed its footsteps—the dread Tribunal of the Inquisition, with its horrible apparatus for the torture and vivisection, not of the lower animals for the ends of science, but of man himself, for the glory of God and in the name of Christ, we may be permitted at least to doubt whether the march of Civilization has been most aided or most hindered by it.

If indeed Jesus of Nazareth had been always regarded, in reference to his pure and beneficent life and sublime

precepts, simply as a great moral Teacher, the case would have been otherwise, for much of that which we may suppose, and are taught, that Civilization owes to supernatural Christianity is owing in reality to that moral and social standard which the advance of human intelligence and culture, through a succession of great minds (amongst whom Christ shines conspicuous), has woven into our course of life, and which is partly derived from Greek and Roman exemplars of noble patriotism and heroic virtues, and is chiefly secular, and has, in truth, little closer connection with supernatural Christianity than conventionally going by its name.

Since the 15th century the cultivation of the human reason, stimulated chiefly by the observation and interrogation of nature through the methods of the physical sciences, and the discoveries which have been thereby made, has greatly diminished the influence of superstition, and in distinguishing knowledge from emotion has enabled the highest class of minds to perceive that human affairs are not regulated by any discoverable influence of a supernatural arbitrary Will, but that the course of life proceeds now as it did during those countless ages that elapsed previously to the birth of man, that is, in obedience to natural invariable Law. It is also seen that our civilization is really the result of intellectual development, keeping pace with the improvement and exercise of man's natural intelligence. A philosophical historian of rare erudition, the late Henry Thomas Buckle, has shown us that the diminution of the two greatest evils with which men have yet contrived to afflict their fellow-creatures, viz., Religious Persecution and the Practice of War, has been effected solely by the activity of the human intellect, and the inventions and discoveries which, in a long course of ages, man has been able to make.

Now, glancing backwards over the historical period I have so slightly sought to traverse, we see indeed that nations, like individuals, have apparently a physiological

life, that they are born and progress with marked regularity through periods of youth, maturity, decline, and death, but we also see that the ideas and principles, both intellectual and moral, that have been elicited through experience in the course of their careers are not wholly lost to mankind, and that, though for a time they may remain buried beneath the barbarian wave, they become resuscitated for the use of succeeding generations. Thus it was that Greece acquired much of her wisdom from the Egyptians, then again the Alexandrians were the pupils of Greece, Rome learnt from both, next the Arabians held aloft the lamp of knowledge, helping to rekindle it in Moorish Spain, amongst the descendants of the Goths and Vandals that had overrun that portion of the Roman Empire. The great nations of modern Europe, especially Germany, France, and England, have imbibed the lore, and garnered the experience, of all preceding times, and our own mission perhaps may be to pass on the sacred deposit through those English speaking races that are now illuminating with their intelligence the New Worlds of America and Australia.

The progress of Civilization is at present more rapid and more firmly established than at any prior period of the world's history. Are we to believe that it is destined to become again extinguished or suppressed? or can we discover modern elements and safeguards apparently sufficient to protect our modern civilization from retrogression or decay?

If we compare our social life with that of ancient times we shall observe some very remarkable differences. We shall find that we are in possession of a Criterion of Truth, a Standard of Right, and a power of Moral Influence that were entirely wanting to the nations of antiquity.

In the first place I will observe that one of the most important particulars in which the moderns have advanced beyond the ancients consists in our having attained to a knowledge of the nature of and right method

of using the reasoning faculty, of discovering truth, and of acquiring real knowledge. We may assert that man was never thoroughly taught these until the advent of the two great thinkers, Bacon and Descartes, now recognised as the Fathers of true Philosophy. At the time when they flourished, the beginning of the 17th century, the powers and authority of the human reason had become discredited, partly through the influence of superstition, and partly from centuries of failure. Taking all the philosophers together, it was asked, what had their subtle reasonings done towards promoting the happiness of mankind? Yet these two illustrious men, in the face of such discouragement, in Bacon's case, after reviewing the deficiencies of all preceding scientific systems, boldly proclaimed that nevertheless the human reason was the only instrument for acquiring and testing truth—both pointed out that doubt and inquiry were its necessary preliminaries, and both inculcated that sound maxim of wisdom; to distrust what the Reason cannot be appealed to to verify. But our great countryman Bacon went beyond this, and enunciated a further principle, which collected from his writings, and compressed into a single aphorism, may be thus stated: that the Reason, as an instrument for the discovery of Truth is like the lever; it requires a point of material support. Hence he called on men to interpret the facts of nature, to observe her through experience and to interrogate her by experiment; and our superiority to the ancients in real knowledge, and in those correct moral principles that flow from real knowledge, is greatly the result of modern scientific men following this the objective method of research. Pursuing this method, Sir John Herschell made the important intellectual discovery that the axioms of mathematics are not, as the ancients and some moderns supposed, intuitive truths, but that they are inductions from human experience of comparison and measurement; and thus has been imparted to the human mind a new tendency withdrawing it from that

delusive, and mentally demoralising doctrine, that deems intuition to be the voice of God, and to speak with an authority higher than Reason or Nature.

In the second place, we have become acquainted, through the Physical Sciences, with the order and uniformity of Nature, the method of the government of the World, and man's position in it, and we are thereby enabled by foresight of the future, that true power of prevision which science bestows, to regulate life in accordance with those inexorable conditions or laws of nature upon which its health, its longevity, and its happiness, so materially depend.

Thirdly, through the modern inventions of the Printing Press, the Steam Engine, and the Electric Telegraph, and their subsidiary appliances, we possess means (unknown to the ancients) of both accurately recording, and speedily and universally diffusing, those intellectual truths and moral sentiments which the foremost minds amongst us are ever and anon inspired with, and flash forth for our benefit and guidance. Thus, society at large in all the civilized nations is early and continually being impregnated with the principles and maxims mental and moral that should regulate the conduct of civilized men towards one another.

In the fourth place, consequent on the first practical use of the discovered polarity of the magnet, the mariner's compass, that diffusing agency of Civilization, Commercial Intercourse,

"By which remotest regions are allied,
Which makes one city of the universe,"

has become established amongst the modern nations of the Earth, and being founded on mutual interest and reciprocal integrity, unites them into one brotherhood, enabling the moral force of the whole to be brought to bear in turn upon each, and creating, so to speak, an International Conscience, to whose dictates each state becomes more or less sensitive, and thereby acts of inhumanity, aggression, and persecution, that were of so

frequent perpetration in the isolated communities of antiquity, are shrunk from beneath the reproachful gaze of surrounding nations.

In the fifth place, that assured Freedom of Speech, (by virtue of which we are enabled freely to address you in this Hall), and that full discussion by a Free press which are now secured in all European countries to an extent that in ancient times was undreamt of, have become the true source of an enlightened public opinion, which the greatest of potentates, be they sovereigns or statesmen, are powerless to resist; and lastly, I will mention that great modern discovery in the science of politics, the Representative Principle, through whose operation the voice of all finds utterance in the very making of the laws enacted for the government of all. This freedom of speech, and discussion, and political enfranchisement, constitute our great security (wholly wanting to the peoples of antiquity) that our property, our lives, and our liberties, shall be, everywhere and at all times, duly respected.

These are indeed advantages and safeguards that seem to render our present Civilization impregnable, and to enable us with confidence to predict a continued progress that shall bring about a great increase of the happiness of the human race—or, perhaps I might with more accuracy say, a great decrease in the unhappiness of life; for, though the condition of modern society is, in this respect, greatly in advance of that of ancient nations, if we will consider it in relation to what the life of man is capable probably of being made, we shall see that our boasted Civilization is in truth a state of relative barbarism. If we reflect upon the frightful miseries of pauperism, overwork, drunkenness, vice, crime, disease, premature death! that are so rife amongst us, and consider the amount of physical suffering and mental anguish that are essentially bound up with them, we must conclude that modern Civilization, comprising as it does all these calamities, falls very far short of what Civilization should be.

The calamities to which I am referring are so familiar to us that they can hardly be made more impressive by any statistical proof, yet it is painfully convincing to know, on such undoubted authority, that, whilst (according to the Registrar-General) the normal length of the life of man is probably now nearly 100 years, the average length of the actual lives of our industrious classes is not nearly half that amount, whilst, of the children that are brought into existence, a fearful number never live to attain manhood at all!

Now, it is a true, however melancholy, reflection that there is sufficient knowledge in the world, if it were only universally diffused and acted upon,—if even it were preached from the thousand pulpits of our land in the stead of superstition,—to banish from life nearly all its miseries, for nearly all are traceable to ignorance, and we may well ask how it happens that such is still the shocking condition of our civilization, notwithstanding all our intellectual, scientific and moral progress. The answer is a very simple one. Man has never yet applied his knowledge to devise the proper remedies. In the case of premature death, medical and sanitary science have indeed accomplished much towards the prevention and cure of fatal diseases,—yet the plague is not stayed, and why, because diseases are not the causes of premature deaths, diseases are nature's expedients through which such causes operate, and, though all known diseases were stamped out to-morrow, the effect upon the Registrar-General's return of deaths could be but slight.

Before I refer to the probable reason of this somewhat startling proposition let me in some measure proceed to verify it as a fact. I will take as an illustration the single disease of small-pox. Previously to the discovery by Jenner of a specific means of preventing small-pox, the deaths that occurred through that loathsome malady were numbered by tens of thousands. At the present day, death, through the agency of small-

pox, is so rare that, except at long intervals, it is scarcely observable; even in this densely-crowded metropolis frequently not one death out of its entire population occurs through small-pox in the course of several weeks. Yet the average proportion of premature deaths has been but slightly decreased by the stamping out of small-pox, that is, nearly the same proportion of deaths to the whole population has continued to occur, and, when the small-pox returns and claims its victims, again the average of total deaths is not appreciably affected by it. In proof of this I can appeal to facts within your own knowledge, for doubtless none can have forgotten the terrible outbreak of small-pox in this metropolis in the year 1870-1. Well, the Registrar-General's weekly return of deaths throughout that period showed that at the very time when the small-pox epidemic was most fatal, the total number of deaths from all causes was not only not increased, but was actually below the usual average. Thus, (to present you with actual details), in the week ending the 2nd of February, 1871, the deaths from small-pox were 187, the total deaths "from all causes" were 1,632, being 163 *below* the estimated average. In the week ending the 9th of February the deaths from small-pox were 196, the total deaths from all causes 1,683, being 46 *below* the estimated average. In the week ending the 27th of February the deaths from small-pox were 227, the total deaths from all causes were 1,633, being 13 *below* the estimated average.

The explanation of these facts is, that when, in our present social condition, deaths decrease or increase through one particular form of fatal disease the number of deaths through other forms of disease becomes correspondingly varied. Thus at the present time we are apparently enjoying the fruits of a remarkable stimulus that has within the last few years been given to the appliances of sanitary science, and there can be no doubt that diseases and deaths that were occasioned by over-

crowded dwellings, putrescent food, polluted water, defective drainage, and deficient ventilation, have been very much diminished, for, not only have the medical faculty exerted all their skilled and benevolent energies in this direction, but the improved education of the people has brought them to some knowledge of the laws of health, and to the regulation of life in accordance with their teachings; yet the aggregate gain to life by such improvement is but slightly felt, and at this moment the attention of the sanitary authorities, as appears from Dr. Buchanan's presidential address to the Medical Officers of Health in October last, is greatly engrossed in the observation of an insidious and fatal form of diarrhœa, of recent appearance, that during the summer months attacks and destroys young children by thousands upon thousands!

Such is a sample of the evidence that exists in proof of the proposition that, though all existing diseases could be at once stamped out, (the ratio between population and subsistence remaining the same,) the diminution in the aggregate number of deaths would be but slight. Well, if that be a matter of correct inference from actual observation, we must conclude that those diseases, though they were the agencies by which the deaths occurring took place, yet were not themselves the causes of such deaths, and that the real causes must be sought elsewhere. Now there are some interesting considerations that should guide us in the search.

What is it, would you suppose, that occasions the number of people to be so different in different countries, or in the same country at different times? Why, for instance, should the population of these Islands, in the reign of Queen Elizabeth, scarcely number five millions, whilst, in the reign of Queen Victoria, it exceeds twenty-five millions? The answer, in a general proposition, is this. The means of human subsistence for our population in Queen Elizabeth's reign were less than they are in Queen Victoria's reign by the proportional

difference between their respective populations—for the number of the population of any particular country at any stated time is simply that precise number which the resources, or means of subsistence of such country, can then support. If such resources remained stationary the population would remain stationary, as they increase so does the amount of the population.

Now if we turn our attention to the lower forms of life we find that the researches of physiologists have ascertained as an undoubted fact that all organisms are endowed with a physical tendency to multiply beyond their means of subsistence, that is, by reason of the high geometrical ratio of their increase more are born than can possibly survive, so that there is a surplus that must perish. The discovered principle of the continuity of Nature forcibly suggests that man himself can be no exception to this physical law, that probably more human beings are born than can possibly survive, and that the population is constantly being reduced, to that inexorable limit which the resources of the country can for the time being sustain, by those various death-dealing agencies, "Nature's terrible correctives of redundancy," to which I have referred.

Man, however, by the exercise of his intelligence, controls the operation of this law in all lower forms of life, whereby not only a limited number of individuals is produced, but the breed itself is continued under conditions of permanent health and vigour. The late Edward Holland of Dumbleton, one of the greatest breeders of sheep in this country, assured me that the loss of life amongst his lambs, from those causes that in a human being would occasion premature death, did not amount to ten per cent.

Now, can it be supposed by any reflecting mind that, whilst man, by the use of his intelligence, can so regulate the multiplication of the lower animals as to produce and rear them in normal health, he is using his intelligence aright in abandoning the breed of the supe-

rior animal man to such recklessness, ignorance, and superstition as combine to produce the diseased, the physically and mentally stunted, the half-starved and short-lived individuals that form almost the very staple of the masses in the cities and towns of our most highly civilized countries. Of our human lambs it is not ten per cent. but forty per cent. that perish in agonies during the period of infancy!

It was a saying of Descartes that if it be possible to perfect mankind the means of doing so would be found in the medical sciences, and it has become a settled axiom that a sound philosophy of human life must be based upon the truths of Physiology.

The future prospects of our Civilization, not only the future happiness, but the future virtue, (if they be separable,) of the community are probably greatly dependent upon the discovery of remedial means whereby this wholesale slaughter of children, and the diseases and other agencies that bring an untimely end to life, may be put a stop to, and the ratio of human increase subordinated to the ratio of the increase of adequate human subsistence, so that the miseries of the masses, resulting from the pressure of their numbers, may be effectually alleviated, and the balance of the population maintained, not, as now, by premature deaths, but by fewer births. Such means, whatever they may be, must approve themselves to our highest moral sense, otherwise they would deservedly remain inoperative.

If, then, instead of resigning ourselves to the despairing contemplation of that remote and visionary future, which Herbert Spencer, in his 'Principles of Biology,' has shadowed forth as the only human prospect of relief from these evils, we may sensibly look forward to such more immediate remedies as I have adverted to, then we may yet hope to see the lower level of life raised to a really civilized condition, and the most miserable and degraded classes or members of our present society absorbed into a superior type. Then, too, though not,

it is to be feared, until then, the sanguine creation of the genius of Dr. Richardson, in his captivating address to the Social Science Congress at Brighton, may be expected to prove a reality, and the sanitary city of "Hygeia" be found descending from the realms of the Imagination to assume a beneficent sway upon Earth.



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