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Books that Shape Our Destiny: Charles Darwin, Origin of the
Species, 1960.

BOOKS THAT SHAPE OUR DESTINY

A Series

Charles Darwin, "The Origin of Species"

The Temple
January 3, 1960

Rabbi Daniel Jeremy Silver

Such is the pace of new research and discovery that a science text must be revised every three years, recast every five years, and entirely rewritten every decade. It is a matter of note, therefore, that when some of the best minds of our country assembled on Thanksgiving weekend last on the campus of the University of Chicago to hear some fifty papers debating and discussing the text book and the biological sciences written and published exactly one hundred years before. The subject of this convocation was Charles Robert Darwin's "The Origin of Species." That Darwin's work has weathered the shifting scientific climates of opinion of the last century is testament indeed to its merit. It is all the more surprising in that the book itself is dry, often prosaic in style, pedantic, and that of course it suffers from being scientifically archaic. Vast new discoveries in the fields of paleontology and embryology and genetics enable modern man to understand his evolution far better than did Charles Darwin. What then makes "The Origin of Species" still the subject of lively debate? This book shares with a very few others in world history the claim to have brought to man a new dimension of thought. We can see our world only with the eyes with which we are taught to see. Until Copernicus published his theories on the revolutions of planets man could only look on this world as the center of the universe, with the sky an envelope protecting him, circumscribing his world. Copernicus taught us to think of the world as part of a larger solar system. And until Galileo published his dialogues man could only think of our solar system as the center of

all that is. Galileo taught us to see the universe as a vast entity of which our solar system was but one rather small, infinitesimal part. And until Newton man was unable to comprehend the texture, the basis of all that existed outside of his world. Newton taught us to see the microcosm and the macrocosm as one, as related chemically in terms of energy and in terms of matter and mass. Like Galileo and Copernicus and Newton before him, and like Einstein and Freud after his day, Darwin gave us a new framework of thought, a new insight into our world. He gave us the theory of evolution. He gave to our bodies a new history, a new new dimension in time. For he taught that all the animals and plants that we see came into being, not full-blown, not as we know them, but rather they developed, they changed and grew out of more primitive, simpler forms, possibly ultimately out of some one or two simple like living organisms.

Darwin's theory of evolution enabled us to explain many things. It taught us why we have in our bodies certain vestigial organs which no longer play a function in keeping us alive and helping us adapt to our environment. It taught us why the big toes of our feet are prehensile in character, seemingly capable of grasping and holding on to limbs. It taught us why the human embryo in its development seems to recapitulate the structure and function of more primitive living forms. It taught us why we find a mammal like the whale swimming in the sea. It taught us why there were on our earth in ancient days dinosaurs and mastodons, huge animals who have left us a fossil relic, but no other living testimony. The theory of evolution taught man many things about himself and about the natural world in which he lives. It taught us that we have a history - a history that reaches back billions of years - two or three billions of years - to the beginning of simple virus and bacteria life here on our earth.

It is, then, of course, not surprising that since Darwin's view was essentially an historical one his own theory had a history, a long and quite proud history. The ancient Greeks and the ancient Jews both had some idea that

lower forms developed into higher forms. One of the great Greek philosophers, Anaxamande, even made the startling, for his age, guess that the human body as we know it was a development of the body of a fish. In the fourteenth century the Jewish medieval scholar Levi ben Gershon -- Gersonides -- suggested that the story of creation in Genesis, which was read to you this morning, was simply an attempt to indicate the higher forms of life had developed from the lower forms. In the century which preceded the publication in 1859 of "The Origin of Species" many men, including Darwin's own grandfather, had toyed with the idea of evolution and had done research attempting to prove its existence, but none of them had been able to account for the many idiosyncracies, the vagaries, the incongruities of the order of animal and flower life as men knew it. None of them had been able to substantiate scientifically the theory of evolution. Darwin, then, did not innovate, he did not initiate nor invent the doctrine of evolution. Rather it is to his credit that he lent scientific credibility to this doctrine. After the publication of "The Origin of Species" it was not given to any thinking man to pass off the concept of evolution as an interesting but as yet unproven, unacceptable bit of speculation. Who then was this man who, at the age of forty, became one of the immortals of our cultural and scientific history?

I like to think of Charles Darwin as one of the most improbable of immortals. In his youth there was nothing that we could label precocious. His school record was anything but impressive. Family influence secured him an appointment to the medical college in Edinburgh. An absolute indifference to his studies secured him the opportunity to choose some other profession in life. Family influence secured for Charles Darwin enrollment at Cambridge University for a degree in the classics leading to the Anglican ministry. He secured that degree, but his record at Cambridge was more that of a fun-loving playboy than that of a future immortal scholar. Degree in hand, the young Darwin confronted his family with the announcement that he was not prepared to enter the ministry, he was not prepared to

settle down to work, he wanted adventure. He wanted to travel. He wanted romance. His father, in a letter which is preserved, bitterly denounced his son as a wastrel and a scoundrel. "You will bring disgrace upon yourself and upon our whole family. You think of nothing but shooting and the dogs and rat-catching and that is all." But surprisingly, the travel which Darwin sought as an escape proved to bind him to his life's work. A friend of the family's who was a professor of biology and botany at Cambridge University secured for the young Darwin an appointment as naturalist aboard a Royal Navy map-making ship bound for several years of work in the South American waters and in the South Seas. Darwin was appointed as naturalist of the Majesty's Ship Beagle, and for five years aboard the Beagle it was his task to classify and describe the flora and the fauna found on the shores near which his ship was making its soundings and writing out the charts for the benefit for the Royal Navy. Darwin found this work challenging and interesting. He did his work well. He was intrigued by some of the questions - the philosophic questions - which it seemed to present. Why was it, for instance, he began to ask himself, that the animal and vegetable life of an off-shore island tended to be similar to the animal and vegetable life on the mainland, yet visibly there was no means of passage between the two. Why was it, as his ship went southward toward the Pole and changed from climactic zone to climactic zone, animal life and vegetable life changed in turn? And asking and puzzling over these problems, Darwin began to develop the interest in evolution which was to be his life's work. Returning to England after five years' travel, Darwin now had a new, compelling interest, but he was still unwilling to settle down. He married. He married the daughter of the man who manufactured the famous Wedgewood pottery and China, and he refused every offer from his prosperous father-in-law and from his prosperous father to settle down in the family business. He had an interest in intellectual interest, but he refused every offer from the great English universities to teach his new discipline on their campuses. At thirty-one, Darwin ful-

filled the hope of many of us -- he retired, and from that time to his death he lived the life of a country squire, putting in his garden, reading leisurely in his library, working over his important collections of fossils and animal life which he had brought back from his travels, thinking and writing and researching, and twenty-four years of such slow-paced, unhurried research gave the world "The Origin of Species" and a new framework of thought. This is his biography, and this is what makes me consider him as one of the most unhurried and relaxed of geniuses and intellectual heroes our world has ever known.

Darwin had come to the conclusion that there must be the possibility of change between species and species. Individual species were differentiated among themselves, but there was also a great deal of similarity found between the lower forms of animal life and the higher forms in both structure and function. Many had sensed the same thing. The question was how did this change take place? How, scientifically, could we account for this change? Darwin accounted for this change by the theory of what he called "natural selection". He held that nature was a delicate balance between a rapid birth-rate, a limited food supply, and natural, accidental hereditary changes. Looking at nature he recognized that every new generation, every generation of children is numerically larger, all things being equal, than the generation of their parents. If you allow generations to multiply unchecked there will soon come a time when there is not enough food, not enough subsistence, for all the individuals of that that species. At this time a struggle for survival takes place. Now, some individuals of every family are different in strength, in body characteristic than their brothers and their sisters. A giraffe may have an elongated neck which allows it to reach and to take the topmost leaves of the tree. A zebra may have a peculiar kind of striation which adds to his natural protective camouflage. These accidental characteristics of birth allow the animal an advantage in the struggle for survival. It is that animal which survives. It is that animal which reproduces,

and in time it is these characteristics among the animals which can reproduce which become dominant in the species and finally ultimately destroy or blot out and make secondary the earlier, non-successful characteristics. A change takes place, and this change takes place under natural causes, because birth differentiates and because nature gives advantage to certain adaptive characteristics.

Darwin thought that this concept of natural selection could account for almost all the changes which had taken place in the two or three billion years of life history. Was man, too, the product of evolution? Did he, like the giraffe, the zebra, and all other animals, come into being as a product of growth from lower, less successfully adaptive forms? Logic would answer, yes. But when Darwin first published, in 1859, his "Origin of Species" he was unwilling to make this final link in the chain of his logic. He was probably unwilling to challenge many of the sensibilities of his Victorian compatriots. But others of his disciples, notably Thomas Huxley, quickly made this claim, and in 1871 Charles Darwin finally published a companion volume to "The Origin of Species" which he entitled "The Descent of Man", a volume in which he argued that man, too, was the product of evolution, that man had in his family tree apes and monkeys and quadrupeds and reptiles and fish and birds and all the simple organisms which breed by the billions in our seas and in our banks of mud and clay.

"Thus, from the war of nature," he writes, "from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, and ultimately the production of man, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved." And Darwin was right. Those who were conscious in England of their genealogies, the blue-bloods, were very much taken aback by suddenly finding

simians and monkeys of all types among their ancestors.

Today we know that the line of evolution is much more complex and diversified than Darwin knew it to be. Darwin was unaware of the experiments of the monk Gregor Mendel. He knew nothing of genes and of chromosomes and of the mechanics of heredity. He knew nothing of the science of genetics as such. In his day the sciences of embryology and paleontology and plant geography and statistics were nascent sciences, science just beginning to develop systems and organizations of their own. Darwin did not know of the force of mutations, of the erratic changes of heredity and nature. We now know that natural selection cannot account for all, or even perhaps most, of the changes which have taken place in the evolutionary growth of man. We are not sure that we can describe many of the great changes which have taken place. But as piece after piece has been fit into the evolutionary picture, the scientist is more and more sure that Darwin was essentially right in this: that there is a continuity of life from the beginnings of life on our earth, and that in this continuum the simpler forms have been gradually replaced and changed and developed into more complex forms.

Darwin gave us great insight into our world. Darwin's studies propelled generation upon generation of men to study the interrelationships of man and nature, the origins of the institutions of man -- comparative anatomy and embryology and many of our basic sciences. But unfortunately, the theories of evolution and especially the theory of natural selection were seized upon by some social thinkers and social critics in Darwin's day as in our own, and were misconstrued and mis-applied, with sometimes quite mischievous results. A social thinker, historian, philosopher by the name of Herbert Spencer had determined that there was such a thing as evolution in nature long before Darwin had proved that there was, and he argued that this was nature's way of improving the breed, that the giraffe with the elongated neck and the zebra with the unique striations was an improvement. He argued that this was nature's way of insisting upon what

he called the "survival of the fittest", and then he argued from the animal kingdom to human life itself. He argued that the struggle for survival, for wealth, for family security, individual survival among men is the way in which society - nature - breeds a better breed of man. He argued that all of our attempts to be charitable, to be kindly, to protect the less successful, the indigent and the poor are misguided, if well intentioned, that what we ought to do is to permit free competition in the arena of work, occupation, and that though it is hard to see suffering and misery this is nature's way of destroying the unfit and in time this kind of free competition would breed a superior type of human being.

Unfortunately, "fitness" in human terms is quite another than fitness in animal terms. It is doubtful whether a Moses or a Jeremiah or a Jesus would be fit to survive in the marketplace. Certainly animal cunning and shrewdness and physical strength are not the marks of the saint or of the artist, the scholar, the religious leader, the teacher, all the men who cement together and give dimension and depth to what we call human society and human life. Fitness in human terms is something infinitely more complex, difficult to describe in fitness in animal terms, and breeding sheer physical strength, sheer acquisitive instinct in the human species is certainly not the way of improving the human breed. But, taking their key from Spencer's arguments, all those who argued to retain the status quo, peculiar economic advantage and privilege, all those who wished to prevent the unionization of labor, all those who wished to prevent child welfare legislation, all those who wished to prevent federal governments from providing aid to the indigent and the poor took their key and argued that it was an act of kindness to allow suffering, because this was the way in which nature did away with human weakness and inadequacy. The whole pseudo-science of eugenics, the so-called scientific breeding of the human species began, took its mark from the works of Herbert Spencer. All of it presumes that there is such a thing as a

white gene or a western gene or a wealthy gene which you can somehow breed, and by breeding improve the human species, forgetting that genius and saintliness and creativity know neither race nor creed nor color nor status nor economic capacity.

Now largely Mr. Spencer's views have, by our day, been shown to be not only wrong but outmoded. But still occasionally we hear a "realistic" individual (and I put this word in quotation marks) argue or convince - try to convince - some of his younger colleagues that one must be "tough-minded" in this world, that if business requires it one must put aside an old employee even though he cannot be retrained for some other business, that we ought not to allow our sympathy for human suffering to destroy the nest-egg, the capital which we have laid away for some rainy day. Unfortunately, it is tender-mindedness, not tough-mindedness", which has made human civilization that great and glorious thing which we enjoy today. Alone of all the animals which inhabit the earth, the human being requires a protracted childhood, and if our parents set personal pleasure above child care, none of us would as children have survived. If our parents did not allow us the prolonged twenty, twenty-five years of growth and education none of us would be equipped for business or professional capacities. If it had not been for those who were willing to sacrifice, willing to give of themselves - the saints, the decent, godly people of any generation - our society would not be cemented together, but it would have long since fragmentized itself and the bones of the human race would be fossils, as are the bones of the dinosaurs and their like.

The views of Charles Darwin were used also by some to attack religion. One of the classic debates between religion and science was based upon the theory of evolution. It was argued first that evolution had disproved the Bible. The Bible said that the world was created in six days, that man came into being on the sixth day of Creation. Evolution spoke of a two- or three-billion year history of human life before the creation of man. How can you believe, how can such a book be creditable which teaches such scientific tommyrot? Secondly, it was

argued that the Bible teaches that man was created by God in His own image, that man has a spiritual kinship to God but did not evolution prove that man's kinship was to the lower forms of animal, not to the higher spiritual forms which we call God? And finally, it was argued that the world as we know it shows no purpose, no God-given plan, that it is a world of happenstance and chance, the blind breeding and struggling, a cruel world, a brutal world of struggle for survival in which only the accidental few had the capacity for survival.

In the half century immediately succeeding the publication of "The Origin of Species" some of Darwin's disciples spent almost as much time baiting the ecclesiastics of their generation as they did seeking to remove many of the obstacles which still impeded a full understanding of the mechanics of evolution itself. In England, Thomas Huxley seemed every week or so to be mounting some debating platform, and in Germany Ernst Haeckel, an embryologist of great capacity, delighted to spend almost all of his leisure time fulminating against the supernaturalist revealed religion and arguing that ours was a godless evolutionary universe and that all men ought quickly to put aside all their misguided notions about God and about divine purpose and about faith and about prayer and the spiritual capacities of man.

A century has now passed, and this century has given all of us a great deal of perspective. We now know that both the defenders of faith and the attackers of faith misunderstood the grounds on which the discussion, the exchange of ideas should have taken place. Yes, it is true, It is true as you heard it read this morning. The Bible does say that the world was created in six days. But already fourteen, fifteen hundred years before Darwin the Talmud had suggested that the Biblical days of Creation were measured by some other clock besides the clock of man. And, as I indicated to you, in the fourteenth century Levi ben Gershon indicated that this whole passage was to be taken metaphorically, allegorically, poetically, and it was in to indicate evolution, the development of simpler forms of life into higher forms of life. Indeed, the Jew, our ancestors, had always

read these creation legends of the Bible metaphorically -- they called it Midrashically. They knew that the Biblical science was not the final word in science. They knew that the import to the first chapter of Genesis was a philosophic, a theological lesson, not a scientific lesson, that it was intended to portray the majesty of God's handiwork, His potential power through creation. There has never been in Jewish life a debate between the evolutionist and the religionist on the issue of Creation itself, and far from attacking the standards of religion, or the Bible's credibility, the Jew looked upon the doctrine of evolution as another proof of the Bible's credibility, as proof of the majesty of Creation and of the beauty of God's handiwork. Fundamentalism -- the belief that the literal surface meaning of the Bible is true -- has never been a part of our faith. It is the part only of adolescent faith. To read the Bible maturely is to read it philosophically, to read it Midrashically, poetically, metaphorically, and the Jew has read the Bible in this way since it was first written.

What of Man? What of the Bible's claimed kinship of man to God and the image of God created in him, "after His own likeness created He him". I think it was Alfred North Whitehead, the great British mathematician and scientist, who first observed that Darwin's theory of evolution accounts for the changes in the material world as we know it. For he nowhere even asks the question how these changes of material phenomena such as we know account for such as we know account for such a man as Shakespeare, or as Newton. Man thinks. Man sings. Man creates. Man paints. Man prophesies. Man has religious insight. Man teaches. Man has these capacities, and no evolutionist would deny it. No other animal has it. The evolutionist has, first of all, never been able to describe how this great jump is ~~was~~ taken between the animal world and the world of man. And secondly, are these not the very capacities which make man God-like? And should ^{we}/not all of us remember that it was Maimonides, five hundred years before Darwin and his disciples, who first suggested that the concept "in the image of God created He him" was to be taken metaphorically, not as literal truth? Again, if we read the Bible as cur

ancestors read the Bible we have no conflict here between science and religion. Science, too, is amazed by man, and it is after all the scientist himself who has given us this understanding, this puzzlement, about the nature of man. And what about the question of purpose in our universe? What about the claim of the evolutionist, or some evolutionists, that nature is red of tooth and claw, that nature knows only cruelty and brutality, and that form is a matter of chance, chance accidents of birth and nothing more. Well, there is brutality and there is cruelty in life. "Even though He slay me, yet will I believe in Him." It was Job, not Darwin, who was first disturbed and first wrestled with the question of how to justify God's ways to man. And we cannot justify these ways, but there is another way of looking at this question. There is not only the question of cruelty in the world, but there is the amazing fact of accomplishment in the world. There is man, and no mathematical theory of statistics can give us any probability which would establish the fact that blind chance as working on some infinitesimal bacteria bit of life two billion years ago would create any of the great religious, artists, scholars, teachers of our day. Man is not an inevitable concomitant of a world of chance. Man can be explained only in a world of purpose. How else can you think of a being who has the capacity to sacrifice himself for an ideal? to limit his activity to protect his children? to add beauty to an already magnificent world, and above all else, to use his mind to understand and to develop the framework, the structure of that world?

Professor Loren Eiseley, Head of the Department of Anthropology at the University of Pennsylvania, is Curator of their Museum of Pre-History, and is a competent evolutionist and biologist as well as anthropologist. I recently came across these words of his, which I should like to share with you. He was thinking ahead to a day when the evolutionist will be able to answer many of the conundrums of scientific evolution which they cannot yet answer, the day when they will explain how life came into being, how the simplest forms of life became the one-celled animals which are in essence infinitely complex, how the animals as we

it became man -- the instinct-ridden animal became the concept-conscious man.

If the day comes (he writes) when the slime of the laboratory for the first time crawls under man's direction, we shall have great need of humbleness. It will be difficult for us to believe, in our pride of achievement, that the secret of life has slipped through our fingers and still eludes us. We will list all the chemicals and the reactions. The men who have become gods will pose austere before the popping flashbulbs of news photographers, and there will be few to consider -- so deep is the mind-set of an age -- whether the desire to link life to matter may not have blinded us to the more remarkable characteristics of both.

As for me, if I am still around on that day, I intend to put on my old hat and to climb over the wall as usual. I shall see strange mechanisms lying as they lie here now, in the autumn rain, strange pipes that transported the substance of life, the intricate seedcase out of which the life has flown. I shall observe no thing green, no delicate transpiration of leaves, nor subtle comings and goings of vapor. The little sunlit factories of the chloroplasts will have dissolved away into common earth.

Beautiful, angular, and bare the machinery of life will lie exposed, as it is now, to my view. There will be the thin, blue skeleton of a hare tumbled in a little heap, and crouching over it I will marvel, as I marvel now, at the wonderful correlation of parts, the perfect adaptation to purpose, the individually vanished and yet persisting pattern which is now hopping on some other hill. I will wonder, as always, in what manner "particles" pursue such devious plans and symmetries. I will ask once more in what way it is managed, that the simple dust takes on a history and begins to weave these unique and never recurring apparitions in the stream of time. I shall wonder what strange forces at the heart of matter regulate the tiny beating of a rabbit's heart or the dim dream that builds a milkweed pod.

It is said by men who know about these things that the smallest living cell probably contains over a quarter of a million protein molecules engaged in the multitudinous coordinated activities which make up the phenomenon of life. At the instant of death, whether of man or microbe, that ordered, incredible spinning passes away in an almost furious haste of those same particles to get themselves back into the chaotic, unplanned earth.

I do not think, if someone finally twists the key successfully in the tiniest and most humble house of life, that many of these questions will be answered, or that the thick forces which create lights in the deep sea and living batteries in the waters of tropical swamps, or the dread cycles of parasites, or the most mobile workings of the human brain, will be much if at all revealed. Rather, I would say that if "dead" matter has reared up this curious landscape of fiddling crickets, song sparrows, and wondering men,

it must be plain even to the most devoted materialist that the matter of which he speaks contains amazing, if not dreadful powers, and may not impossibly be "but one mask of many worn by the Great Face behind."

Evolution, rightly understood, makes man humble again before the miraculous majesty of God's creative nature. It has not unlocked and solved for us the secret mysteries of life, but it has given us a new insight, a new dimension of scientific understanding. But the mystery remains. Man remains. The capacity of our mind to reach out beyond the selfish needs of survival remains. And, above all else, God remains in His heaven, as He has always been, conscious of our needs, conscious of our wonderment and of our puzzlement, determined as only He can be determined to help us little by little understand the world in which we live and build on this world such a civilization as He would wish and will.



BOOKS THAT SHAPE OUR DESTINY

A Series

Charles Darwin, "The Origin of Species"

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January 3, 1960

Rabbi Daniel Jeremy Silver

Such is the pace of new research and discovery that a science text must be revised every three years, recast every five years, and entirely rewritten every decade. It is a matter of note, therefore, that when some of the best minds of our country assembled on Thanksgiving weekend last on the campus of the University of Chicago to hear some fifty papers debating and discussing ^a ~~the~~ text book ⁱⁿ ~~and~~ the biological sciences written and published exactly one hundred years before. The subject of this convocation was Charles Robert Darwin's "The Origin of Species." That Darwin's work has weathered the shifting scientific climates of opinion of the last century is testament indeed to its merit. It is all the more surprising in that the book itself is ^{LONG AND DISCURSIVE} ~~dry~~, often prosaic in style, pedantic, and ^{impassioned} ~~impassioned~~ that of course it suffers from being scientifically archaic. ~~Yet new~~ discoveries in the fields of paleontology and embryology and genetics enable modern man to understand ^{The Theory of} ~~his~~ evolution far better than ^{MR} ~~the~~ Charles Darwin. What then makes "The Origin of Species" still the subject of lively debate? This book shares with a very few others in world history the claim to have ^{OPENED MAN'S MIND TO} ~~brought to man~~ a new dimension of thought. We can see ⁱⁿ our world only ^{what} ~~with the eyes with which~~ we are taught to see. Until Copernicus published his Theories on the revolutions of planets man ^{VISUALIZED THE HEAVENS AS THE EARTH'S PROTECTIVE GARDEN} ~~could only look on this world as the center of the universe, with the~~ ^{BEFORE COPERNICUS THE EARTH WAS THE WORLD'S CENTER POINT.} ~~sky an envelope protecting him, circumscribing his world.~~ Copernicus taught us to think of the world as part of a larger solar system. ~~and~~ ^{and} until Galileo published his Dialogues man could only think of our solar system as the center of

Our knowledge of ^{things} is multiplying at such an astonishing rate that
a record kept must be revised every three years. Almost every five years,
and entirely reconsidered every decade. It is a rapidly increasing, expanding and
thrusting ^{forward} and every other part and of our worldly concerns in the corner
of the humanity of Europe to have over 50 pages promoted by a number
of brothers and others with published yearly 100 years before.

Subject of the collection was Charles Rudolph Davis. Two new species.
To have mentioned the subject of scientific opinion for a century in
one volume, indeed, to its end; all the more so because in a piece of Robinson
it has been so common. It is long. It is diverse and often full of
the most of the Davis and a variety of approximation and reason for making
modified and certain really represented the end of the Davis
collection in hand.

Why was in The Orogeny also a subject of record?

We are in our world only what we are able to see. United Expansion
 published in Theorie no one would recognize the meaning or anything else
 but an other ground for our world. Expansion revealed matter to see
 that that small element is not the center of the universe. United Expansion on
 our and its elements accepted and they - upon values at and in Object
 never began to comprehend the structure of the universe. United Matter
 men and not understood that similar elements and ground from more
 abstract in all elements small and used. Matter's Principle made the
 small one. End of the man and end of that world opened a new avenue
 of understanding for man. ~~United Expansion published and accepted~~

~~the~~ Cooper and Campbell and several others here and Frank and
Lester after the Fog Service ~~house~~ ^{house} to be used as new headquarters of
Admiral. His theory of evolution game life is now dominant. Pioneer game
and life a big job for the established test now of the survival - plants and
animals and the children came into the world full blown - captured and
left to see that it is the world of 253 billion years of
life now on. Life is now the world of the world beginning the 253 billion
years and the world is now the world of the world.

[illegible]

aboard HMS Beagle - and the 5 years of his travel turned on a number
 of things intellectual developments into a self taught, highly competent and
 first rate biologist. Darwin found no more exciting. More interests
 chemistry and anatomy. He had been asked over placed questions - Why
 did the ^{off shore} island have life much as long recorded but on
 the mainland? Why did forms of animal life differ in the climate, temperature
 zones, shaded into one another - and out of the classification and the
 philosophy grew the germ of his theory of evolutionary process which
 was to make the intellectual globe of the world the most famous
 scholar of his day.

Released from his duties as a member of the Board in 1935, Dawson returned to England with a ^{definite} ~~definite~~ ^{definite} purpose in mind but still without passion for either work or research. He married ~~but~~ but found some offer to work with either of his sons to pass on some of a remainder of his life in his new situation. In 1931 Dawson returned, T.D. and of his life he enjoyed the life of a country & quiet publicity & his son, reading, comfortable in his study, arranging his botanical and fossil collections, reading of his researches and travels, & knew of no other so self-indulgent, relaxed, and unburdened on himself.

Dorsal branch nerves and the spinal ganglia he considered as
nerves and ganglia - yet often so similar in function and structure to
other ganglia - but all had evolved from simple forming bodies,
in fact, all had developed from certain simple primitive organisms.

may have raised the before Darwin's day, But none had been able to adequately describe or account for the growth. Why did these important places & Horse - Twenty years after my return to England Darwin felt that he had ~~understood~~ ^{understanding} the Horse, He called them as planarians.
Theory of Natural Selection.

[illegible]

Which makes a fog on a fog abate & none against the smaller,
Pursue the head of the world, & none no one can stop out of the

Material selection has explained my change in thinking from evolution to matter in all living organisms. The movement of matter & life - the search has been important both in recent years & in the past - But unfortunately, some men regard such work as obsolete and unimportant. It is very much more helpful to man & progress.

On the north of the Great Ocean - Northern, the red water, red. - national
religion in the north "the sacredness of the forest". The holy griffon, the white
camouflaged yellow - sacred - the same sacred the same with the
to sacred,

[illegible][illegible][illegible]

Don't forget to send me a letter or two.

It was held that evidence destroyed the credibility of the ~~Book~~ - because it contradicted the testimony of General

at 1000 held that conclusion destroyed the "spiritual" "qualitative" or non-quantitative number the number among is another 8 some meters the
Boltz = 2 "number of good in the own number".

and at the same time ~~there is no~~ purpose to do which build stage of
anarchy to achieve. The world as we know it is the product of a never not
conscious design plan. ~~Materialism~~ ^{Materialism} not renewal - or the rule of the
the hundred of gods.

For the 1st half century the work of Darwin & post modernism in medicine
altering religion is the child attacking the difficult structure which still
stands in the way of an evolutionary thing itself, in England Thomas
Huxley was an almost universal debate with an ecclesiastical, or
German and the school was opposing what he called "dogmatic
world system" of evolution to the thesis of an eternal mistatement
of the revealed facts, ~~in contrast to the~~ ~~opposed~~ ~~world~~
~~perception~~ ~~begin~~

The past half century has given us a better perspective on these changes between science and religion, we now see that both were hindered a real understanding of the other's territory.

It is true that we have not been able to find a single one of the
 the modern religious had in any of the last century. I mentioned -
 in general another set of modern - a part - a philosophy
 rather than a religious truth. Fundamentalism, the belief and the belief
 is a kind of a product of religious & religious - not religious
 understanding.

The Talmud always suggests that the olive leaf measured its full 6 days after the 24^{hour} variety of olive leaves family, (Laurus) as a hint suggested about it in the 1st century some credit and history, not in the present, (Believing you had no trouble according to broad culture of evolution because existence of motherland variety of olive had made them ^{dear} seems that it would be deep seated.

What of man? must he leave forever all spiritual kingdom. Surely, it
was Alfred North Whitehead who wrote "and Darwin grasped the
principles of evolution in material life, but he never ceased to see to
ask how evolution in material life could result in a much less, such
as, Newton"

Man builds and puts out signs and shows out sacrifice and death - and
no one can account for these qualities, and neither can the qualities
which are the kind analysis makes man like to God? Copernicus of the world
the Bible profoundly - unintentionally - as given by the Bible and
the Bible - but it is no difficulty. Menimists long before Christ
suggested that "it is the spirit of God" is always not fact.

Finally, surely the view that evolution reveals is limited, infinitely
crushed and limited - a narrow set of facts and ideas which are a result
of humanism and idealism and can not be accounted for by God.

To the degree that man is a creature of the world is ^{much} ^{more} ^{seemingly} ^{crucial}
in nature, the religious has long been a ^{recognized} ^{with} ^{crucially}
seen in the world of man. To not this among the problem set to
God.

But if there is a world in the world then in the world is the world
personhood, no one has explained how better than alone
could understand in man - as man with can regulate his
entire life; ^{regulate} ^{the} ^{world} ^{of} ^{life} ^{of} ^{happiness}
death; add to the beauty of life to his end; and if he is
voluntarily of need for good cause.

an understanding of the world is a ^{great} ^{problem} ^{for} ^{man} ^{to} ^{solve} - a ^{great}
life which leads to a ^{great} ^{man} ^{with} ^{himself} ^{and} ^{the} ^{world}
more of the world which now leads to a ^{great} ^{man} ^{with} ^{himself} ^{and} ^{the} ^{world}

he writes
Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, *and ultimately the production of man,* directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved.



Beautiful, angular, and bare the machinery of life will lie exposed, as it lies to my view. There will be the thin, blue skeleton of a hare tumbled in a little heap, and crouching over it I will marvel, as I marvel now, at the wonderful correlation of parts, the perfect adaptation to purpose, the individually vanished and yet persisting pattern which is now hopping on some other hill. I will wonder, as always, in what manner "particles" pursue such devious plans and symmetries. I will ask once more in what way it is managed, that the simple dust takes on a history and begins to weave these unique and never recurring apparitions in the stream of time. I shall wonder what strange forces at the heart of matter regulate the tiny beating of a rabbit's heart or the dim dream that builds a milkweed pod.

It is said by men who know about these things that the smallest living cell

he wants

If the day comes when the slime of the laboratory for the first time crawls under man's direction, we shall have great need of humbleness. It will be difficult for us to believe, in our pride of achievement, that the secret of life has slipped through our fingers and eludes us still. We will list all the chemicals and the reactions. The men who have become gods will pose austere before the popping flashbulbs of news photographers, and there will be few to consider -- so deep is the mind-set of an age -- whether the desire to link life to matter may not have blinded us to the more remarkable characteristics of both.

As for me, if I am still around on that day, I intend to put on my old hat and ^{to} climb over the wall as usual. I shall see strange mechanisms lying as they lie here now, in the autumn rain, strange pipes that transported the substance of life, the intricate seedcase out of which the life has flown. I shall observe no thing green, no delicate transpirations of leaves, nor subtle comings and goings of vapor. The little sunlit factories of the chloroplasts will have dissolved away into common earth.

Beautiful, angular, and bare the machinery of life will lie exposed, as it ~~is now~~ ^{is} to my view. There will be the thin, blue skeleton of a hare tumbled in a little heap, and crouching over it I will marvel, as I marvel now, at the wonderful correlation of parts, the perfect adaptation to purpose, the individually vanished and yet persisting pattern which is now hopping on some other hill. I will wonder, as always, in what manner "particles" pursue such devious plans and symmetries. I will ask once more in what way it is managed, that the simple dust takes on a history and begins to weave these unique and never recurring apparitions in the stream of time. I shall wonder what strange forces at the heart of matter regulate the tiny beating of a rabbit's heart or the dim dream that builds a milkweed pod.

It is said by men who know about these things that the smallest living cell

probably contains over a quarter of a million protein molecules engaged in the multitudinous coordinated activities which make up the phenomenon of life. At the instant of death, whether of man or microbe, that ordered, incredible spinning passes away in an almost furious haste of those same particles to get themselves back into the chaotic, unplanned earth.

I do not think, if someone finally twists the key successfully in the tiniest and most humble house of life, that many of these questions will be answered, or that the ~~dark~~^{thick} forces which create lights in the deep sea and living batteries in the waters of tropical swamps, or the dread cycles of parasites, or the most noble workings of the human brain, will be much if at all revealed. Rather, I would say that if "dead" matter has reared up this curious landscape of fiddling crickets, song sparrows, and wondering men, it must be plain even to the most devoted materialist that the matter of which he speaks contains amazing, if not dreadful powers, and may not impossibly be, ~~as Hardy has suggested,~~ "but one mask of many worn by the Great Face behind."