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THEOLOGY AND MODERN SCIENCE.

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It was with great diffidence that I accepted the invitation to address you on a topic which has caused so much contention and controversy for more than 2000 years, and which today, in some churches, is such a burning topic that many sincere and earnest men are "roasted" by the clergy, to satisfy the desire that only the best shall be offered in sacrifice.

You will observe that the text allotted to me, is "Theology and Modern Science", not "Modern Theology and Science". During every age science has been regarded as modern, and in course of time our science of today will be regarded as ancient. Am I to assume that Theology is always ancient - that no progress, no evolution has taken place throughout the ages, that God has ceased to reveal Himself to man, and that modern man has no clearer conception of God than that possessed by primitive man? Or, shall I assume that evolution has taken place concurrently in both Theology and Science, that there is the same difference between ancient and modern theology as we find between ancient and modern science.

Having had no academic training in Theology, I cannot speak with authority on this subject, yet this lack of training may help me to approach it with an unbiased mind. Although I do not find the word mentioned in scripture, I believe that 'Theology' - literally interpreted - means a "discourse or discussion about God".

Ancient Theology I understand, consisted largely of assembling all the man-made doctrines and dogmas,- the more contentious the better,- discussing and arguing them from various points of view, and trying to agree as to which deserved greatest prominence. The heat and bitterness of some of the theological battles in this and other countries, furnished sufficient evidence to the layman that theological discussions were not necessarily discussions about God. I may be mistaken, but I assume that in modern Theology these doctrinal mole-hills do not loom so largely as to obscure the clearer vision, and Christian conception, of God and his relation to modern man.

Before leaving this topic, permit me to give you a childrens story, perhaps you can use it again. I have listened to some of yours, sometimes it was the only part of the service I remembered. This one is the "Parable of the elephant" "Once upon a time, there lived in a far off land, a wealthy nobleman whose great hobby was to collect pictures of all the different kinds of animals in their natural surroundings. Many artists and photographers found lucrative employment in catering to his desires. One day the nobleman called his staff, and told them he had learned that the greatest of all land animals, closely related to the extinct Mammoth, was to be found in Central Africa, he was arranging an expedition to obtain pictures of Elephas africanus in his natural surroundings. To shorten the story, the party arrived in Elephant territory and succeeded in isolating a giant bull

elephant, the photographers formed a circle around the clearing, and snapped him just before he charged and disappeared.

Notice, there was only one elephant, all photographed it at the time, yet every picture had a different view of the elephant, and a different back ground, - no two were exactly alike. I leave it to you to imagine the possibilities for discussion and argument as to which picture was the most characteristic. One showed what appeared to be a tail at each end, another showed only one small tail in the centre; some said it had one eye on the left side, others said no! it was on the right side, and produced their photographs to prove it. All were agreed as to its greatness, but all had different views in regard to details.

When I read the Saturday Evening press and observe the great number of denominations, sects, and cults of the so-called Christain Church, each maintaining that their particular view is the right one, and that any person daring to hold a different view is not sound: it reminds me of the "Parable of the elephant". We all have a different background, our views must vary to a greater or less extent, even on the same subject.

I have been interested in natural science since I was a youth, and for over 40 years I have been actively engaged in botanical work. During these years I have been intimately associated with workers in other branches of modern science and, though I have no authority to express their views, I know that

many of my co-workers are imbued with the same sincerity and earnestness in seeking the truth, and expressing it in language which will be understood in the light of the 20th. century.

May I suggest that, for the remainder of the time at my disposal you try to adopt the scientific attitude while I endeavour to approach some familiar topics by the scientific method. To explain the scientific attitude, I cannot do better than quote a few sentences from the introduction to Dr. Hitchcock's "Descriptive Systematic Botany" a text book used in one of my advanced classes. He says "Scientific investigation is fundamentally a search for truth. It seeks to establish facts. At the outset one must distinguish between that which is a fact, and that which is supposed to be a fact. One must divest oneself of all biased opinions, all preconceived theories or notions. In other words, one must approach one's subject, one's search for truth, with an open or unprejudiced mind. This mental condition is called the scientific attitude. This condition of open-mindedness is not natural with most of us, but is the result of mental discipline. The average person is influenced by tradition, and swayed by prejudice. The race has not yet outgrown the hampering effects of its savage ancestry; the mental attitude of our childhood persists in our maturer years; and the average social environment retards, rather than hastens, the development of independent thinking. Social environment hinders the development of the

scientific attitude, because even the most enlightened peoples tend to accept things as they are and to resist changes in established customs. One's judgment approaches the truth in proportion as it is the result of accurate observation, clear thinking, and the unbiased weighing of evidence. Having reached a conclusion, the student should not hesitate to change it in the light of new evidence". (End of quotation),

To approach our study of the scriptures and of Christianity by the scientific method in the light of modern science we must eliminate all prejudices, superstitions, and cobwebs of Judaism which have accumulated during past ages to such an extent that Christianity is almost obliterated. When we have done this, Christ stands out today as a sparkling diamond, a guiding star, and it seems that the Church has failed to lift up the heads and direct the eyes of the masses towards that star. We have been catering too much to the formalism and ritual of our savage ancestry, "bow down prostrate before Him" instead of lifting Him up. "If I be lifted up, I will draw all men unto me". Are we letting Him down?

One of the greatest mistakes the Christian Church ever made was in following the lead of the Roman Church when it attacked the works of Chas. Darwin. The Roman Church has opposed Modern Science in every age, and at every opportunity sought to suppress the advancement of knowledge, just as it sought to suppress the advance of Christianity; it was easier to control the ignorant masses by the fears and superstitions which constituted an important part of the Ancient Theology, and those

preachers - who today are urging young people to flee from the wrath of God, accept their particular formula, and escape an eternity in hell - are largely responsible for the indifference and atheism which is so rapidly spreading over the world. There is a clash between Ancient Theology and Modern Science, just as there is between Ancient Science and Modern Science, but Ancient Theology never was Christianity, and there is no clash between Christianity and Modern Science.

The evolution which used to be referred to as "Darwin's Theory" is now regarded by modern scientists as a fact. All God's works have declared it, God has revealed to the scientist that this is His method of creation. We find harmony between His works and His word when we approach both in the scientific attitude by divesting ourselves of all prejudices and preconceived ideas. Darwin displayed much more of the spirit of Christ than did those who so bitterly denounced him.

Prof. Huxley's opinion of Darwin is generally accepted by scientific men everywhere. He said "The present generation think of him as a combination of genius, industry, and unswerving veracity, who earned his place among the famous men of his age, in the teeth of a gale of popular prejudice and, notwithstanding provocations which might have excused any outbreak, he kept himself clear of all envy, hatred and malice, nor dealt otherwise than fairly and justly with the unfairness and injustice showered upon him; while to the end of his days he was ready to listen,

with patience and respect, to the most insignificant of reasonable objectors". Charles Darwin was buried fittingly in Westminster Abbey in 1882; he conducted himself in a Christ-like manner, the "Ancient Theologians" did not.

Our Bible opens with an account of the evolution of the earth "The earth was without form and void". Let us consult the astronomer who is reading the story God has written in the heavens. Is that true? "Yes" says the astronomer, and he shows you photographs of worlds in progressive stages from the gaseous and nebular, to the stage when "God saw that it was good". When the earth was ready "Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit". Let us consult the biologist who is reading "the book of life" as written by the Creator, "Is this correct, were plants created before animals?" "Yes" replies the biologist "plants alone can manufacture food from inorganic material by the energy derived from light, which appeared at an earlier stage in Creation; plants are necessary for the existence of animals".

"Let the waters bring forth abundantly the moving creature that hath life". Here the biologist, the botanist, zoologist and palaeontologist join in chorus "Correct, we all agree with Darwin that the lowest forms of plant and animal life were aquatic, and advanced from swimming to creeping forms then to birds, in the order given in Genesis. The geologist proves this by showing successive fossil remains of many strange extinct reptiles which lived partly in water and partly on land, and of

Pterodactyls - flying reptiles - which preceded feathered birds. The story written by the Creator on tables of stone corroborates the story in Genesis.

"And God created great whales" Aquatic mammals, then the cattle, land mammals, and after all that, "God saw that it was good" and the Modern Scientist had not yet evolved. "And God said let us make man in our image, after our likeness". I leave it to you theologians to settle who is referred to as us and our. Apparently God foresaw that this new creature was liable to develop into a theologian or a modern scientist, and He would need some help. Did you ever notice that immediately after his previous creations "God saw that it was good" but that after the creation of man He hesitated to express an opinion. In fact it is recorded that 1,500 years later "It repented the Lord that he had made man" because "God saw that every imagination of the thoughts of his heart was only evil continually".

I presume it is unnecessary for me to draw your attention to the evolution of the idea or concept of God which runs through the scripture. The primitive concept of a God, with man-like characteristics, a jealous God, a vindictive unjust God, meting out punishment unto the third and fourth generation because their grandfather or great grandfather sinned; a God who "will laugh at your calamity and mock when your fear cometh"; the God of a clan Abraham, Isaac and Jacob; becoming a nationalistic God, the God of Israel; a God of wrath whose anger could be appeased

by sacrifices and burnt offerings. Compare this Judaic concept of God at one end of the evolutionary line, with the concept of God revealed by Christ at the other end; the one is the antithesis of the other. Christianity changes us from God-fearing subjects, to God-loving children of our Father God; from the negative "Thou shalt not" of Judaism, to the positive "Do unto others as ye would that they should do unto you".

I have often wondered how Moses began his account in Genesis with the evolution of the earth. Most religions have some theory or story of creation, but I am impressed with the simplicity and accuracy of his story. He has written millions of years into a few verses so that it looks like the work of a few days, and in this connection, I feel that those zealous people who cling to the literal accuracy of every word in the Bible hold a very weak position, contrary to the teachings of Jesus "the letter killeth, but the spirit giveth life".

Next time you read through the journeys of Moses, think of him as a distinguished geologist on a geological survey. See how he sent auxiliary parties off from the main party to explore and report on the fauna and flora. His knowledge of geology would be valuable in locating sources of water, and I have often wondered if Moses was the first to drill an artesian well. He could get the story of creation from the fossils in the rocks, just as our geologists do today. God has written that story on tables of stone, and I do not agree with the preacher I heard in one of our largest city churches who said "God put the fossils

in the rocks to fool the geologist". The God he worshipped might do a thing like that, but I am sure my Father would not.

I have a Sunday morning class of young people from seventeen to twenty years of age, it is an organized class under the name "Path-F-Twig". One of our aims is to show harmony between God's works and God's word, and we have occasion from time to time to discuss selected passages in the light of modern knowledge. Amongst the words to which the young people have drawn my attention is the word "heart" as it is used in the bible; - oh how I wish teachers and preachers would say what they mean, and mean what they say to young people, and cease the parrot-like repetition of abstract and meaningless phrases. Scores of times have I heard Sunday School speakers appeal to children to "give their hearts" to Jesus, and refer to black hearts or clean hearts.

The word "heart" as used in the Bible recalls the ignorance of the 16th. Century. Had the function of the heart been discovered before 1611 the translators of the King James Edition would have found some other word to express their meaning. It was not till 1628 - seventeen years after the appearance of our English bible - that Harvey, a British physician, discovered the function of the heart and the circulation of the blood, followed as usual by the severe criticism of the Church for desecrating the holy handiwork of God by dissecting the heart and arteries of man. When we read "Out of the heart proceed evil thoughts" "The thoughts of many hearts may be revealed". "Why do thoughts arise in your hearts", most children from public school age and

upwards know that thinking is not the function of the heart, and that in the light of modern knowledge the passages are not true. If the Church insists that every word in the Bible is literally true, she has herself to blame for the scepticism so common in adolescent young people.

I have referred to the corroborative value of the work of the geologist, astronomer and physiologist. I would like to use my own studies to show how Modern Science illuminates and enhances the teachings of Jesus. Take for example His exhortation to "Consider the lilies of the field". How many of you have done this? Are you all agreed that it refers to the White Easter Lily? The translators no doubt did their best in accordance with the knowledge of the 16th. Century to translate it into the english of that period. It would take too much time to review the efforts which have been made to identify this so-called lily, so I shall give you only the high lights, and reserve the details for those who particularly desire them.

Some one may say "you are too far away in time and space to settle a doubt which has existed for close on 2000 years. Various authorities on biblical difficulties have suggested no less than twelve different flowers, three of which are different species of lilies, yet the majority of theological writers are agreed that the plant to which Jesus referred was not a lily. In this I believe they are right.

The majority of theologians accept Dr. Tristram's opinion, given in his "Natural History of the Bible", that it refers to Anemone coronaria, but he too seems wide of the mark. Yet, relying on this, visitors to Palestine buy and treasure, pressed specimens of this Anemone as souvenirs of the "Lilies of the field".

As a taxonomic botanist, I set to work to see if it could possibly be a lily, and was not long in finding a negative answer. Altogether 331 species of lilies have been described, but only 147 are distinct and valid species. The majority of these are circum-boreal-pacific that is:- distributed around India, China, Japan, Korea, Siberia, and N. America, and no lily grows in Palestine anywhere near the region in which Christ lived and travelled. One species L. Martagon with orange and black flowers grows in Asia to the north, and isolated specimens may extend to the mountains of Lebanon, but this could not be the Krion agrion of the New Testament.

When our Bible was in process of translation, Botany - as we know it - was not in existence. Anyone referred to as a botanist in the early ages was only a herbalist, who studied plants from their utilitarian point of view - those used for food, medicine, perfumery, or textiles. The greatest and most reliable authority for many centuries was Dioscorides, who

lived about the middle of the first century, close to the beginning of the christian era, he was a greek physician who travelled far and wide in search of medicinal plants, and in his writings he translates the Greek Krinon Agrion as Abib-labon which in ancient greek means "White flower". This helps us to believe that whatever the plant was to which Jesus directed our consideration, it at least had a white flower, hence some people think the white easter lily must be the "Lily of the field", but all true lilies in Greek are "lirion" and are to this day known by that name.

Dioscorides wrote a two volume book on *Materia Medica* which was the standard work up to the 16th. or 17th. century. After the invention of printing, his writings went through three editions in greek, numerous editions in latin, twelve in spanish, and many in Italian, French, and German - the last German edition was in 1614 three years after the Bible appeared, so that his works, in several languages, were available to the translators of the Bible. But Dioscorides reference to the Abib-labon "white flower of the field" was overlooked until about ten years ago when a Jewish botanist Dr. Ephraim Ha Reubeni announced its rediscovery through the publications of the Torrey Botanical Club, New York.

Dr. Reubeni during a visit to the district south of Gaza discovered that Anthemis palestina is known to the Bedouins as "Hanun Abiad" which is the arabic for "White flower". These Bedouins have lived far from foreign influence, and have preserved the ancient name of this plant.

Anthemis is a common little roadside weed abounding throughout the region in which Jesus travelled; this plant is somewhat wirey, with deeply cut, almost grass-like, leaves. When the people of the east gather grass for straw to make bricks, this little weed would not be noticed, and its texture would not be objectionable.

Modern Science now presents Christ's exhortation in a most illuminating light, in this light read that portion over again, and see how it has been enhanced by a richness characteristic of the rest of Christ's teachings. "Consider this common little white flower of the field, this roadside weed, which you so despise that you tread it underfoot without observing its beauty, "yet I say unto you that Solomon in all his glory was not arrayed like one of these", little roadside weeds.

Jesus' keen appreciation of simple, humble, commonplace things, like the widow's mite, sparrows, the sower and thistles, suggests a new interpretation of Krionon Agrion to replace a mistaken one by the translators of our Bible. Yet, the mistake is a pardonable one, "Solomon in all his glory" My: this lily of the field must have been gorgeous; and thus the theologians were led into confusion, trying to decide which one of twelve different

flowers could be regarded as excelling the glory of the gold and regal purple of King Solomon.

Before concluding, I would like to discuss another statement of Jesus in the light of modern science, "I am the true vine, ye are the branches". In olden times it was the common belief that vines and other green plants got their food from the soil, and that the vigor of a vine depended on the food supply in the soil. Many old gardeners today adhere to these old beliefs which have been handed down to them by older gardeners. By the application of our modern knowledge of physics and chemistry to the study of the life of a plant, aided by up-to-date microscopes and methods of botanical research, we have been given a new vision of life's processes, one which is as applicable to our spiritual life as to the life of a vine.

We now know that the vine does not get its food in the soil, all its food is manufactured by its leaves through the process known as photosynthesis - meaning building up by the assistance of light. An extremely small percentage, sometimes less than 1% of mineral chemicals may pass into the plant by the roots as part of the raw-materials required for food manufacture; but, as the vast bulk of the plant is composed of carbon, and this is obtained from the atmosphere, we can now understand how the vine may be "in the earth, but not of the earth".

Healthy branches will produce healthy leaves; an abundance of healthy leaves will manufacture an abundance of food for the production of flowers and fruit, provided the leaves are exposed to day-light. If kept in darkness the vine will perish. When leaves are attacked by mildew or other diseases, the whole vine is affected to a greater or less degree by loss of vigor, so the modern scientists say "Let us spray"; then get busy and do something about it. One diseased leaf is a menace to the rest of the vine.

Another danger to the vine is the parasitic growth known as a stem canker, which forms under the bark and saps the tree of manufactured food as it passes down to supply the roots. The roots must be fed by the leaves, in order that they may be able to perform their duty in supplying their share of the raw material. Keep in mind that the leaves may be perfectly clean and free from disease, and working at full blast manufacturing food for flowers and fruit, but if this canker uses the food intended for the growth of the root system, and insufficient raw material is absorbed, the whole tree suffers and may ultimately die.

Now, in the light of modern science, Christ's statement "I am the true vine, ye are the branches" has infinite possibilities as to its application; it may be applied to individuals or to Churches. When one looks around the world today it seems that the Vine is in a bad condition, so bad that in Russia, Germany and

Spain they are uprooting it and casting it out, and I am not sure that the Vine is healthy on this continent. In Biology we use the term Catabolism applied to the tearing down or breaking down of complex substances and the formation of waste products. When we think of the enormous number of weak branches - denominations, sects and cults, - so weak they are unable to flourish, far less to bear fruit, it looks as if the disease may be Religious catabolism devoting their energies to tearing each other down, squabbling over their differences instead of uniting on their agreements. "Ye are the branches" and the world is judging the vine by the condition of the branches.

Instead of Religious catabolism, let us substitute Religious Photosynthesis - building up by the assistance of light - "I am the Light of the world". Vine leaves are naturally heliotropic, that is:- they turn towards the light as the source of energy for the work they perform. But if the leaves - the workers - are diseased with a mildew such as selfishness, jealousy, conceit, then let us pray, not the public prayers of the Judaist, or the hypocrite, or the heathen, but the christian prayer prescribed for the leaves and branches. "When thou prayest enter into thy closet -- pray to thy Father which is in secret". This is the cure for the mildew.

Is there canker on the Vine? Have you a mortgage on your Church? How much interest have you already paid which might have been used in extending the means of bringing in raw material? Is your congregation pressed and squeezed to provide that interest?

Are there some branches impoverished as a result? Could the money sapped by the moneylender be used in the Sunday School, Young People's work, increasing educational facilities? Is the Vine flourishing? Is it producing fruit? Is the fruit attractive and palatable? "I am the true vine ye are the branches" if ye are not clean, active, and living in the light, I suffer. We are united, but my success and fruitfulness depends on you. By your fruits the world will judge me".

I leave you to develop this in other directions. I have endeavoured in the spirit of helpfulness to share some of the light God has revealed through science - the search for truth; to show that Christianity has nothing to lose, but much to gain by the adoption of the scientific attitude, which means divesting ourselves of all prejudices, superstitions, and preconceived notions; earnestly and courageously sifting out all traces of Judaism which is so often mistaken for, and served in place of, Christianity.

Judaism thrives in the darkness of ignorance. "The Light of the world" nearly 2000 years ago showed us how great was that darkness, when the orthodox fundamentalist church of His day incited the mob and trumped up the charges which led to His crucifixion. Today, as then, the enemies of Christianity are not in the underworld, they are within the Church, "The leaven of the Pharisees", the mildew and cankers of the Vine. Nearly 2000 years ago Jesus said "Woe unto you Pharisees, -- hypocrites, for ye compass sea and land to make one proselyte, and when he is made, ye make him twofold more the child of ~~hell~~ than yourselves" and the Pharisees were devout Churchmen.

Christ came with the Gospel of Peace and goodwill towards men, He revealed God to us as a Father, and showed how we too may become Sons of God, and all men become brothers. During the Great War did our Churches preach "Love your enemies"? or Did they aid in recruiting to slay their brothers? Today the world is yearning for Peace, peace between nations, peace in industry, peace in churches. We have passed through a spiritual depression, the world is watching the branches of the Vine for refreshment and inspiration. Let the branches of Theology and Modern Science unite, and co-operate for the spiritual uplift and enlightenment of modern society. "If I be lifted up I will draw all men unto me". "Ye are the branches". It depends on how high we - by our lives - lift Him up, so that our fellow men may see Him in us, and we through Him glorify our Father God.