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FORTY YEARS OF NEW TESTAMENT RESEARCH.

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The forty years that have elapsed since the founding of the UNION SEMINARY REVIEW have been a period of such activity in the field of New Testament research that even the barest cataloguing of what has been done would exceed the limits of the present article. The most that we can possibly attempt here is a brief characterization of certain tendencies that have been at work.

In the field of textual criticism, there has been tireless activity. The really decisive labors, it is true, were performed prior to 1888; for by the researches of Tischendorf, Tregelles and others the principal documentary materials of textual criticism were made available; and the epoch-making edition of Westcott and Hort, which appeared in 1881, established on a firm foundation the principles of the science and the methods of its application to the New Testament. Nevertheless, there has been work in plenty for more recent scholars to do. No new critical apparatus has, indeed, succeeded in taking the place of Tischendorf's monumental eighth edition: for von Soden's apparatus, despite its undoubted value, suffers from an unsatisfactory method of presentation and is generally felt not really to meet the need; while Casper René Gregory, who might well have accomplished what is required, met an untimely end in the Great War. But if a satisfactory critical apparatus is still lacking, the materials for its production are being collected with an ever-increasing fulness. Best known,

chology and philosophy of religion, is an effort to bridge this gap, and is the present common task of all Protestant groups. The achievement of this task will draw the historic groups of Christians closer together. It may mean their ultimate union. This can come only if in the effort these groups do not place their major emphasis on Dogma. The major emphasis must continue on Missions.

This study has revealed three major emphases in the experience of historic Christianity. These have been Missions, Dogma and Government. It has been revealed that the most important of these three points of emphasis is Missions. It has shown that when emphasis is placed upon Dogma or Government to such a degree that Missions is demoted to a second place, schism arises in the Christian group. There have always been those who protested this neglect of Missions.

The testimony of Christianity's history is that Church Unity is largely conditioned by a major emphasis on Missions which includes, according to our definition, an heroic faith, evangelism, and Christlike living. In this day, when we are classifying Christian training agencies by the terms fundamentalist and modern, history also demands that we classify these agencies on the basis of their loyalty to Missions as defined in this paper.

THE RIGHTS OF SCIENCE.

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The conflict between religion and natural science is as old as human thought. It has, however, reached its most acute stage in the last hundred years, and its climax, perhaps, let us hope, in the last decade. This conflict should excite no sur-

prise, as divergence of view and various schools of opinion mark human activity in every realm. In Philosophy there are four or five supreme types, each one of which has contending varieties claiming to best represent the type. An interesting volume has recently appeared entitled "Psychologies of 1925" divided into six schools of Behaviorism, Dynamic Psychology, *Gestalt*, Purposive, Reaction, and Structural groups: and there are still others which have escaped the learned author's attention. (Psychologies of 1925, by Carl Murchison, Ph. D.) In natural science itself unanimity exists in less degree than some seem to be aware. Professor Edrington, of the University of Cambridge, tells us that "in the present relativity theory we have the truth in a purer form than in the Newtonian theory which preceded it, even as the Newtonian theory was a great advance over the conception that preceded it". He then adds: "Advanced deductions from the theory may not have secured the same wide acceptance among scientific men as the better known portions of the theory." (Science, Religion and Reality, p. 194.) And so it goes, disputes and contending opinions everywhere in economics, sociology, psychology, ethics, philosophy, theology and even in the wondrous and imperial realm of natural science, too.

All possible emphasis, however, ought to be placed on the statement that the conflict between natural science and religion is more properly described as a contention between some representatives of natural science and some representatives of religion, for their spheres are so different that there can be no more war between natural science and religion than between the multiplication table and the ten commandments, or between the theory of logarithms and the faultless poetical rhythm of Homer or Shakespeare.

1. The first right of natural science is the definition and delimitation of its proper field and bounds. In the words of Sir Arthur Thomson, "Science [by which he means natural science] is a system of knowledge built up on a basis of observation and experiment and compacted by reflection on the data thus supplied. Scientific knowledge is typically of such

a kind that it can be verified by competent inquirers who repeat the observation and experiment and make them the subject of careful independent reflection. Science is a verifiable, communicable, impersonal, unemotional knowledge. . . . The Laws of Nature are man's descriptive formulae of uniformities of sequence which enable him to say, 'If this, then that.'" (Outlines of Science, Vol. IV, p. 1165, by Sir Arthur Thomson.) Of course physical science is here described by a competent master and specialist, and knowledge is certainly reached by this mode in this vast imperial field.

But there is more than one valid mode of cognition, as Canon and Professor Streeter, of Oxford University, so ably argues in his treatise on "Reality". In his chapter on "Two Ways of Knowledge" he defines science as consisting of classification, analysis, and explanation; he holds that "the method of science is to take the individual concrete thing and (a) assign it to a class, (b) to split it up into its component parts, (c) to see everything about it as a particular instance of some universal law. . . . But what if there be anywhere anything that either (a) has some element of uniqueness which eludes classification, or (b) has on it something which defies analysis, something which completely disappears when analysis begins, or (c) behaves in a way which cannot plausibly be described as merely one instance of a mode of action in accordance with some universal law." (Reality, by Burnett Hillman Streeter, p. 81.) There are, according to this Oxford professor, everywhere things or entities which defy classification, abhor analysis, or veto explanation according to the methods of natural science.

He argues that in psychology and religion both there are methods of reaching knowledge both of self and of God which are just as valid and rational, though in the nature of the case different from the method of physical science. Psychology involves an immediate self-consciousness which eludes physical classification, analysis or explanation. Religion involves a knowledge not only of a Personal Self, but of an infinite Personal Not-Self, incarnating all moral and spiritual values. This knowledge is realized as the result of an immediate and vital

experience which can have solution *only* on the basis of the "Reality" of this Supreme Personality or Infinite Life-Force. —History testifies that all men with rare exceptions claim to have this knowledge, and demonstrates that a normal man is as naturally religious as he is scientific.

The fields of natural science and religion are thus distinct and exclusive and there can be no real contradiction between them. Religion deals with moral, spiritual, and religious truth, while physical science describes the external and material universe by mathematical measurement as expressed in uniform laws. Unfortunately, their disparate realms have not always had universal recognition. Past ecclesiastical objections to astronomy, geology, and some biological teachings have been based on wrong interpretations of the inspired Scriptures which in no sense are designed to teach physical science, but occupy the far loftier realm of ethical and religious truth relating to God, duty, and the supreme value of life and destiny. It is to be deplored that even today, despite all the enlightenment of the modern age, there remain some combative disputants who still affirm that the fields of religion and physical science overlap in certain mutual territories.

The brilliant Dean of St. Paul's, Dr. Inge, is anxious to find a *modus vivendi* between religion and science and informs the listening world that he has "rejected with decision that kind of agreement which rests on a delimitation of territory. Some recent writers have said that 'there can be no conflict between religion and science because they never meet. They love on different planes. . . .' To acknowledge such distinctions and rest an agreement upon them, assigning all on one side of the line to science and all on the other side to religion, is at best a proposal for armistice: it can lead to no permanent peace. A religion which does not touch science and a science which does not touch religion are mutilated and barren. Not that religion can ever be a science or science a religion: but we may hope for a time when the science of a religious man will be scientific and the religion of a scientific man religious." (Science, Religion, and Reality, p. 348.)

Of course it goes without saying that the science of a religious man ought to be scientific and that all scientific men ought to be religious. All colleges and universities ought to have true physical science taught by competent scientists, but it is a fine example of provincial parochialism to insist that the field of physical science is co-extensive with human knowledge. There are other modes of valid knowledge. Physical science knows by experimentation and observation, historical science through credible testimony, psychology by immediate consciousness of freedom and personality, philosophy through the universal laws of pure reason or thought, religion by the answer of the infinite Personality to the call of moral and spiritual need; and to claim that knowledge belongs alone to any one of these fields is to ignore the breadth of possible knowledge and the high endowments of human nature, through a certain concealed Pharisaism which is the essence of conceit and "obscurantism". For natural science, history, psychology, ethics, philosophy or religion to affirm that there is only one mode of cognition, and that its own, is to betray a fatuous pride which convicts of lack of real culture in the court of right reason.

2. The second right of natural science is the recognition that in its own proper field it is undoubted master, whose teachings are determined solely by its own methods and canons. Neither philosophy nor religion have any right to challenge the teachings of natural science upon any other ground than its failure to support such teachings by proper and convincing scientific proof. Some great philosophers and wise theologians have erred at this point. Luther called Copernicus a fool and an "upstart astrologer"; Melancthon thought that those who set forth such theories as the Copernican astronomy had no "sense of decency"; and even the consummate citizen and statesman in the kingdom of reason, John Calvin, asked: "Who will venture to place the authority of Copernicus above that of Holy Scripture?" He reduced to a minimum the scientific deliverances of the Scriptures, as the study of his Institutes of Theology will show, but erred in this particular instance in

regarding the geocentric theory of the cosmos as built into the texture of the Inspired Word.

This mistake is one that blemishes the history of the past in too many cases and is due to the belief that "the Bible does teach natural science both directly and indirectly, and that those who do not believe the science which is there supposed to be found are infidels. It has been shown so very often in the past that the Bible was not teaching science when it was supposed to be doing so that a presumption in the same direction would seem to be raised so strong that we ought to act upon it." (James Woodrow, *His Teachings*, pp. 654-5.)

The convincing testimony of history, combined with the growing scholarship of the soundest thinkers, rest on the same foundation that physical science interpreting nature and Biblical science interpreting revelation belong to realms so different that each is master in its own realm and that both these are estopped from seeking to enslave the other by insisting that interpretations by either shall rule the other. Physical science has no arbiter to which to submit its findings save to its own canons of proof by observation and experiment; and all other departments of knowledge, including psychology, philosophy or religion, ought to recognize without debate or quibbling this undoubted right.

3. The third right of natural science is the recognition of the wonderful discoveries by which it has really transfigured our view of the cosmos in comparatively recent years. How small the universe of Moses, Paul, Augustine or Calvin compared with the universe which defies the boldest imagination in its extent, age and complexity! Professor Thomson informs us that "our sun is in a more or less central region of the universe, or a few hundred trillion miles from the center. It is now known that the more distant stars of the Milky Way are at least a hundred thousand trillion miles away from the sun. The immensity of the Stellar Universe, as we thus see, is beyond our apprehension. The sun is nothing more than an ordinary star, perhaps an insignificant one. There are stars enormously greater than the sun. One such, Betelgeux, has

recently been measured and its diameter is more than three hundred times that of the sun. The proof of the similarity between our sun and the stars has come to us through the spectroscope. The elements that we find by its means in the sun are also found in the same way in the stars. Matter, says the spectroscopist, is essentially the same everywhere in the earth and the sun, in the comet that visits us once in a thousand years, in the star whose distance is incalculable, and in the great clouds of "fire mist" that we call "nebulae". (*Outline of Science*, Sir Arthur Thomson, pp. 14, 37.) The unity and yet the vastness of our cosmos awakens and arouses every mind capable of thought, and raises questions which natural science alone cannot answer.

Geology extends the dimensions of time as astronomy those of space and millions and trillions of years are as easily conceded as millions and trillions of miles. The age of the cosmos is as incalculable as its extent, if the findings of geology have scientific value. There is no reason why historian, philosopher or theologian should begrudge conceding all the time which the geological ages seem to require. There is plenty of time and plenty of space to meet all the needs of any science and illiberality here is simply irrational.

The complexity of the universe has received wondrous confirmation in the abolition of the old-fashioned atoms and molecules of Faraday and Agassiz, and the discovery of electrons and protons through the spectroscope, X-ray, and radio-activity. Bertrand Russell, in his charming book, "A B C of Atoms" (pp. 3, 5), says: "An atom is a kind of solar system consisting of a nucleus which has electrons revolving around it. The physicists have now all but succeeded in reducing matter to two different kinds of units, one 'the proton or hydrogen nucleus' being positive electricity and the other (the electron) being negative electricity. It will help us to picture the world of atoms if we have to begin with some idea of the size of these units. Let us start with a gramme of hydrogen—about one-four hundred and fifty-third of a pound. How many atoms will it contain? If the atoms were made up into bundles of a

million million and then we look upon a million million of these bundles, we should have about a gramme and a half of hydrogen. That is to say, the weight of one atom of hydrogen is about a million millionth of a gramme and a half."

It is true, this same Bertrand Russell, in another book, declares, "Electrons and protons, like the soul, are logical fictions". (What I Believe, p. 17.) It may well be that modern science is on the road to proving that as space and time are boundless, so also limitless divisibility into the infinitesimal and the still more infinitesimal as we go down the scale marks the cosmos in which we live. Dr. B. B. Warfield used to have an aphorism to the effect that the divine method in every sphere was the method of infinitesimals: all things great being composed of many little things. Some things can grow bigger and bigger forever, and others smaller and smaller forever, there being no limits to divisibility.

In all these ways natural science gives us a wonderful universe which far transcends in dignity and worth the cosmos which confronted the gaze of the centuries behind us.

4. The fourth right of natural science is its denial of the shallow optimism that calls all nature good. The results of physical science are of a piece with the constitution of the cosmos itself. The mechanization of commerce has created hard problems in industry, economics, and international life which natural science cannot solve alone and unaided by all the other sciences. It emphasizes the point which natural science itself reveals, that there are dark shadows upon the face of our world. Pain accompanies all life, and death reigns with undisputed sceptre. Germs of disease are everywhere a part of the very structure of nature. Heart disease, Brights disease, diabetes, cancer, degenerative diseases of the arteries, liver and central organs are all here to stay. Functional neuroses, neurasthenia, hysteria, epilepsy, insanity are equally in evidence. As John Burroughs so often said, "The whole animal world is forever frightened by the foes pursuing and ever pursuing". The "sins and inadequacies of nature", in the phrase of a recent brilliant writer, are part of the disclosure

of the best of modern science. Tennyson's poetic vision saw this:

"Are God and nature then at strife,
That nature lends such evil dreams?
So careful of the type she seems,
So careless of the single life;

So careful of the type? But no.
From scarped cliff and quarried stone
She cries, 'A thousand types are gone,
I care for nothing, all shall go.

Thou makest thine appeal to me:
I bring to life, I bring to death:
The spirit does but mean the breath,
I know no more.' . . ."

Darwin's striking terms, the "struggle for existence" and "survival of the fittest", describe features of this strange and wonderful universe by which we all find ourselves environed, and in whose character and texture all of us have so profound an interest. There is a scientific revelation of nature in the visit to the operating room of a great hospital with malignant disease staring one in the face as well as in the spectroscope proclaiming the make-up of the stars or radio-activity disclosing the structure of the atom.

5. But one more and final right of natural science is to decline the attempt to solve the problems of other sciences or departments of knowledge. This effort is sometimes made by scientists themselves, but oftener by representatives of other fields seeking to support their views by forcing natural science to speak. For example, historical science alone can answer by competent and credible testimony questions relating to events in the past. Physical science cannot settle disputes as to the character of Washington or Jefferson, as to the authorship of "Ecce Homo" or the "Vestiges of Creation", as to claims of either Mohammed or Jesus: all these must appeal to the court

of historical science upon the basis of sufficient and satisfactory evidence.

Nor again can physical science be forced to answer the questions which philosophy must seek to solve as to the efficient cause and final purpose of the universe. Natural science deals with processes and uniform laws by observation and experiment. Philosophy inquires for the efficient cause and final purpose. Yet philosophers of renown are guilty of the "obscurantism" of seeking through physical science to solve their own peculiar problems, and in so doing condemn their own systems as based on others than sound philosophic grounds. Professor Perry, of Harvard, tells us that "if we conceive the sciences to form an order from physics through biology to logic, ethics and aesthetics, the so-called normative sciences, we may say that Naturalism reduces all to physics, spiritualism (or idealism) to the normative sciences, while the third view (vitalism) reduces both ends to the middle or conceives both physics and the normative sciences as biology". (Philosophy of the Recent Past, p. 168.) Naturalism builds on physics, spiritualism on logic, ethics and aesthetics; vitalism, voluntarism, or pragmatism on biology, according to the learned professor who correctly diagnoses the case. They are all vitiated by this patent fact. And yet he informs us: "There is nothing new or philosophically significant in the continuing progress of scientific discovery or in the increasing utility of its technological applications. . . . Nor is there anything radically new in the continuous refinement of the mathematical and physical instruments of research, unless it be a growing recognition of the extent to which the results of science depend on technic and may therefore be regarded as in Poincare's sense 'conventional'." (Philosophy of the Recent Past, p. 76.)

I think the time has come when the physical scientists themselves should demand that philosophers should cease invading their field and distorting by violence scientific teachings into apparent support of a philosophy which has no real basis whatever in the pure science of the scientific specialist. The truths of science are betrayed, the rights of science are violated, when loud and insistent proclamation is made by the clamorous phil-

osophers that they are speaking in the name of nature and of science. The natural scientist as such is neither materialist nor naturalist, idealist nor spiritualist, vitalist nor voluntarist, nor pragmatist, and he ought to ask with strenuous insistence that philosophers cease this learned and classic impertinence and henceforth keep to their own territory while allowing the scientist to cultivate his own field unharassed by the intrusion of those illicitly borrowing his treasures for uses for which they were never intended.

Thus the rights of natural science are clearly seen: first, the right to the careful delimitation of its own field; second, the recognition of its unquestioned mastery of its own realm; third, due tribute paid to its splendid services in transforming the modern view of the universe; fourth, its frank disclosure of the dark shadows on the face of nature; and fifth, and perhaps most important of all, its right to decline an attempt to answer certain questions which psychology, ethics, philosophy and religion must each ask and each answer by investigating reality in its own realm according to its own peculiar and valid methods.

I am neither a "prophet nor the son of a prophet", but I venture to predict that with the rising of tomorrow's sun the day will have come when all the sciences, natural, psychological, ethical, philosophical and religious will gladly cooperate by each recognizing the rights of all the others, when none of them will attempt to function in the disguise of any other, and when all will accept the results of the valid findings of every other science. The cosmos, so wonderful and vast as we know it to be, will wear a still more glorious aspect when the light which shines from all the realms of reality is focused into the unity of a world view vouched for by philosophy, ethics and religion as well as by natural science. God speed the coming of that day.