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The New Knowledge and the Old Faith

The Bearing of Modern Science Upon Christianity

By

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WE live in a world of fathomless mystery. Everything we see and hear and touch, if pursued far enough, terminates in the unknown. The vital action in a blade of grass or a leaf on the tree, the structure of a grain of sand are staggering mysteries. How I can move the finger of my hand, in spite of all the progress in neurology and psychology, remains a snarled perplexity. True, we can trace the neural path from the brain to the musculature of the finger. But how an immaterial psychic mandate of the will, a spiritual faculty, can grip a material body, and what is the point of contact, are questions which scientists and philosophers from the days of Plato and Aristotle have sought in vain to answer.

Indeed, the progress of science has served but to multiply our mysteries, to pile our cosmic riddles mountain high, and to enlarge enormously the boundary line of the unknown. Our ancient forefathers looked out from a flat and stationary earth upon a universe infinitely less complicated than the cosmos which now bewilders us. Our earth, they believed, was the center of the universe, the sun was made to rise each day to give them light, the stars were candles "lit about the day's dead sanctities" to mitigate the darkness of their night. Creation had occurred a few thousand years before Christ. Canon Lightfoot of Oxford had computed on the basis of the Biblical chronology the exact time of man's appearance. "Man," he said, "was created by the Trinity on October 23, 4004 B.C. at nine o'clock in the morning."

Now modern science speaks of the universe in terms of trillions and quadrillions of years, and frankly acknowledges that its beginning is shrouded in the impenetrable mists of an incalculable past. Our solar system is of comparatively recent origin, yet goes back into the billions of years. In comparison with the stupendous magnitude of the cosmos, our little planet is smaller than a grain of sand or a particle of dust—a granule lost in the infinite night. Life has been evolving on this earth for a thousand million years; humanity has been struggling on its upward climb for more than a hundred thousand years. The period of recorded human history stretches over ten thousand years, while the scientific ear spans but a few centuries.

Astronomers tell us that they know of nothing likely to interfere with the habitability of our earth for more than a thousand million years. What new worlds will science open up for man in the next hundred thousand years, worlds of which at present we can scarcely even dream? Whether we try to peer through the mists of the remote past or penetrate into the uncharted future, we find ourselves, in spite of all the light science throws upon the scene, in a world of fathomless mystery. It staggers us with its duration and baffles us with its immeasurable extent.

Science Expands Universe

Science has not shriveled our universe. It has expanded it a millionfold. It has not lessened the mysteries surrounding us on every side, but has multiplied them many times. A huge bonfire shoots tongues of fire high into the sky. But the higher they reach, the more clearly do they disclose the ever increasing boundary line of the all-encompassing darkness. The tiny flame of a match discloses a few inches of surrounding darkness, but a huge bonfire reveals its much vaster extent. So it is with science. In pushing back the frontiers of the unknown, it

reveals more extensive territory still uncharted and hitherto undreamed of.

Thus the astronomers tell us that with new and more powerful telescopes they have recently located galaxies and supergalaxies, "island universes of stars," far beyond the rim of the previously charted universe. They contain stars so far distant that light traveling at the rate of 186,000 miles per second requires over a thousand million years to reach our earth. Is that the utmost limit? we ask. For all we know, the astronomers answer, that may be only the beginning, the vestibule of the immeasurable universe. We are enlisted in an unfathomable ocean of universal mystery whose farther shore no bark has reached:

"And though thy soul sail leagues and leagues
beyond,—

Still, leagues beyond those leagues, there is
more sea."

The Atom—A World of Mystery

The physics I studied, thought the molecule was composed of hard inert pellets of matter called atoms. The new physics of Einstein, Jeans and Millikan finds the atoms to be miniature solar systems with protons, electrons, photons, neutrons revolving about in their tiny prisons with a speed greater than that of an airplane or a bullet from a rifle. Thus the electron revolves about the proton, in an atomic cell less than a millionth of an inch in diameter, over a million million times per second. It is a veritable volcano of energy quivering to be released. Thus the pebble upon which we walk with such indifference contains a storehouse of energy which, if it could be released, would be sufficient to propel the *Mauretania*, one of the largest ships afloat, across the Atlantic and back again.

In flying from Paris to London, the pilot lowered to

me the ear phones of his radio. There, seven thousand feet above the English channel, flying through space at the rate of 126 miles an hour, I heard an address being delivered in Albert Hall, London, just as clearly as if I were seated on the speaker's platform. Think of the marvelous performance of that little radio tube, hurtling through space with great velocity, battling head winds that shook the craft, yet picking out with unerring precision from all the radio waves impinging upon it, the one carrying to me the speaker's voice from Albert Hall, as distinctly and smoothly as if he were seated beside me in the plane. Truly a speck of dust, a grain of sand, a radio wave, teems with more marvels than Aladdin's Magic Lantern and more wonders than Alice ever dreamt of in her Wonderland. From dandelion to farthest star, the universe is replete with marvels and with mystery.

When Robert Andrews Millikan, one of the greatest physical scientists in America and perhaps the equal of any in the world, was here a few months ago to receive the Cardinal Newman Award for 1934, I told him of the difficulty I experienced in grasping some of the new concepts in astrophysics. "Father," he said, "I have been studying the subject for almost half a century. I have just returned from the International Congress of Physicists at London. As I sat listening to Sir James Jeans deliver the Presidential Address, interpreting space and time as properties of matter and seeking to link them together in a space-time continuum, I confess that parts of it were incomprehensible to me, as I suspect they were to most of the others. The more I study the atom," he added, "the more mysterious it becomes."

Is it clear even to Sir Jeans? Listen to his answer in his new book, *The Invisible Universe*: "The ultimate realities of the universe," he concludes, "are at present quite beyond the reach of science, and may be—and probably are—forever beyond the comprehension of a human mind."

Why there are a thousand million worlds, with their suns and moons, and stars and planets, coursing through the immeasurable reaches of space, whether there are inhabitants on some of the other planets, and what is their nature, we frankly do not know, and perhaps never shall know. To these queries science answers: "*Ignoramus et ignorabimus.*" We do not know and we probably shall never know.

Its Bearing on Faith?

What is the effect of the impact of this new knowledge upon religious faith? Does the Christian religion, born two thousand years ago in Palestine in a prescientific age, when people entertained childish notions of the universe which have long since been outmoded, possess validity in the age of science in which we now live? To the student whose knowledge of religion does not extend much beyond the catechism or the lessons of the Sunday school, the new knowledge is apt to be somewhat disturbing. Coming with the idea of the world created in six days of twenty-four hours each, and the concept of Adam suddenly springing full-blossomed from the slime of the earth about six thousand years ago, science's new picture of the world existing for thousands of trillion years, of the slow evolution of life from lower to higher forms over many millions of years, of man having his physical antecedents in lower organisms, of humanity's long climb from his lowly habitation among the caves of the earth to the mountain peak of his present civilization, and his probable duration upon this planet for millions of years—these are likely, at first sight, to be somewhat unsettling.

"Father," said a young Protestant student to me recently, "in my home we read the Bible after the evening meal. My parents are Fundamentalists and interpret it all literally. I was taught to believe in the direct creation of man by God. Now in my course in geology, biology and

comparative anatomy, the evolutionary viewpoint is presented. Which should I believe—my Christian faith or evolution?” “Both,” I answered, “for there is no real contradiction when both are properly understood.” What is usually most needed is a deeper knowledge of the Christian religion and a more scholarly interpretation of the Bible. For there can never be a contradiction between any truth revealed by God in the Bible and any finding of science, properly tested and verified. The Bible is not a textbook of science. Its purpose is to inculcate moral, spiritual and religious truths. The subject-matter of science is the physical universe, its purpose to discover the laws of nature.

This important truth was clearly stated by Galileo in a letter written to Father Benedetto Castelli in 1613. “Holy Scripture and nature,” he wrote, “are both emanations from the Divine Word: the former dictated by the Holy Spirit; the latter the executrix of God’s commands. . . . I believe that the intention of Holy Writ was to persuade men of the truths necessary to salvation; such as neither science nor other means could render credible, but only the voice of the Holy Spirit. But I do not think it necessary to believe that the same God who gave our senses, our speech, our intellect, would have us put aside the use of these, to teach us instead such things as with their help we could find for ourselves, particularly in the case of those sciences of which there is not the smallest mention in Scripture.”

God does not contradict that which He has revealed in the Bible by any law which He has written in the hieroglyphics of the rocks, in the stamens of the flowers or in the orbits of the stars. Since God is the ultimate Author of all truth, it follows that there can be no disagreement between the truths of divine revelation properly understood and the truths of nature as deciphered by the human mind. For the light of reason is an emanation from the Divine

Light. To set up an opposition between the truths of nature and the truths of divine revelation would be to assert a contradiction in God Himself, which would be blasphemy. There is a fundamental unity to all truth. The Christian need never try to carry his religion in one pocket and his science in another for fear that both will not mix.

Religion and Science move in essentially different orbits. Religion is concerned primarily with spiritual realities, with values, with the intangibles which elude both the scales and the test tube. Hers is the realm of philosophy. Science deals with matter and energy, which can be seen, weighed and measured. It does not concern itself with spiritual realities, with values, nor with the intangibles which transcend completely its methods of observation and experimentation. The appearance of conflict occurs when the theologian, leaving his own domain, enters the field of science to treat of the phenomena of nature or the structure of the material universe. Not less frequently does it occur when the scientist enters the alien domain of philosophy and theology to speculate on the problem of ultimate causes and spiritual values.

Religion Welcomes New Findings

Religion welcomes with eager hospitality every new finding which science can tease from the tangled skein of nature. She knows in advance that if it is really true, it will not only harmonize with spiritual truth, but will aid us in securing a better vision of God and a deeper insight into the Divine Administration of the universe. In this sense there is something priestly in the labors of the scientist in his laboratory, and of the astronomer in his observatory. For they too are seeking to disclose the mind of the Divine Author of nature and the Architect of the universe. It was in this sense that Millikan described his investigations into the nature of the cosmic ray as "the finger printing of

the hand of God." About a century before, Tennyson voiced a similar thought, when walking through an English forest, he beheld a flower growing in the crevice of a wall and apostrophized it in the memorable lines :

Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

Scientists are searching for truth in the field of nature just as priests are seeking to clarify the application of ethical and eternal truth to the changing social and economic conditions of modern life. Just as all streams from the tiny mountain to the majestic river and the mighty lake, lead after many windings and turnings to the vast ocean, so all truths, from those unearthed by the paleontologist from the strata of the rocks to those deciphered by the astronomer from the tangled skein of the stars, lead ultimately to the ocean of truth, God Himself. We must not reject knowledge simply because it is new. This truth was uttered back in the sixteenth century by the greatest scholar of his age, Desiderius Erasmus, who said with such terse pregnancy: "To identify the new knowledge with heresy is to make orthodoxy synonymous with ignorance."

The normal relationship between theologians and scientists is not one of warfare, but of friendly rapprochement. Both are ministers in the cause of truth, both seek its embodiment in human life. Neither can hope for reward either here or in the life to come, if he depart from loyalty to the truth, which means loyalty to the Divine Author of all truth, God Himself. Indeed the scientist aids the cause of religion by freeing it from the barnacles of superstition which tend at times to encumber its

progress, while the divine serves the cause of science by keeping the mind and the heart unsullied by the passions and rancors which tend to mislead men in their search for truth.

“No Fear of Science”

The Catholic Church welcomes truth wherever it may be found, in history, in Biblical research, in psychology, in natural science, in social science, in every field of human inquiry. As the custodian of the religious truths revealed by Christ, she knows that all verities will harmonize, because they all proceed from the same ultimate fountain of truth, God Himself. “Religion,” declared Pope Pius X, “has no fear of science. Christianity does not tremble before discussion, but before ignorance.” Pope Leo XIII emphasized the wisdom of “welcoming every wise thought and every useful discovery, whatever its origin may have been.” No one has stated better the proper attitude of the true historian than this same scholarly Pontiff: “It is the first law of history that it dare say nothing which is false, nor fear to utter anything that is true, in order that there be no suspicion either of partiality or of hostility in the writer.”

Not only did His Holiness enunciate this principle, but he translated it into action. A young layman, Ludwig von Pastor, applied to the Pope for permission to use the Secret Archives of the Vatican. This privilege had been accorded only to Churchmen and but to a few of them. To the surprise of all, the venerable Pontiff granted the permission to the young man. He was free to delve into the secret letters and private documents which had been buried in the archives for centuries. Proceeding to the library, the young scholar found his pathway blocked by the Custodian of the Archives who could not believe that he had really obtained such an extraordinary permission. A second time he asked the Pontiff for permission and

a second time it was granted, only to have the Custodian still bar him from the storehouse of antiquity. When he appealed to the Pope a third time, Leo XIII took the young man by the arm and going with him to the archives, he addressed to the astonished Custodian these memorable words: "Open up the truth! Let it be published to the whole world. There is nothing to fear from the truth." Today scholars of every faith come from all parts of the world to do research work in this great treasure-trove of history.

Even with the hospitable reception of all the findings of science and the unearthing of the buried past, human life on this planet remains set in a sea of limitless mystery. Judging from the past, we have every reason to believe that the discoveries in the future will but increase this sense of mystery enveloping us on every side. Facing stupendous problems which baffle his powers of solving, the true scholar displays the humility of one who realizes that a finite mind is seeking to grapple with the infinite, that the mind of the Creator transcends the mind of the creature. He recalls the words of the great Apostle St. Paul which display such penetrating insight into the unfathomable depths of Divine Omniscience. "O the depth of the riches of the wisdom and of the knowledge of God! How incomprehensible are His judgments, and how unsearchable His ways! For who hath known the mind of the Lord? Or who hath been His counsellor?"

"You Can't Do That"

There comes to mind the incident related in the life of St. Augustine. One day the Saint was walking along the shore of the sea, trying to comprehend in their entirety such mysteries as the Trinity and the eternity of God. He noticed a little child digging a few holes in the sand. He stopped to observe him. After filling a little bucket

with water from the sea, the child then poured it into the holes. "What are you trying to do, my child?" inquired the Saint. "Why I'm trying to empty the ocean into these holes," replied the child. "You can't do that," said the Saint, "for the ocean is far too big to be put into such little holes. "Neither can you with a finite mind comprehend the infinite," replied the child who was then revealed as an angel sent by God to teach St. Augustine this fundamental truth, which lies at the heart of all religion and all science.

Whether the incident be legendary or not, the lesson it teaches is authentic and all-important. It is the lesson taught by the Book of Proverbs when the inspired writer proclaims: "The fear of God is the beginning of wisdom." Fear of God in the sense of a reverential awe in the presence of the mighty works of the infinite God is indeed the beginning of wisdom and of understanding. Humility in the presence of a universe of fathomless mystery, giving to us ever and anon glimmerings of a Supreme Intelligence, is the unfailing mark of the true scholar. He is grateful indeed that the universe is replete with marvels and mysteries which transcend the capacity of his puny mind to understand. How tame and dull and circumscribed would the world be if it were dependent upon his tiny brain to conceive and his feeble arms to fabricate. The universe fills him with ceaseless awe and wonderment because it carries to him the evidence of an infinite Mind binding the discrete phenomena of nature into the unity of law, and merging their dissonance into a symphony of divine melody—the music of the celestial spheres.

It was this spirit of reverence and humility which was manifested by the great scientist, Sir Isaac Newton, as he lay upon his deathbed. "What a comfort it must be," observed a friend of his, "to be able to look back over a life of such epochal achievements. In discovering the law of gravitation, you have laid the foundations for both

physics and astronomy. You have pushed back the boundary line of the unknown and have brought new worlds under the reign of law. You have every reason to be proud." "On the contrary," replied Newton, "I must confess to a feeling of profound humility in the presence of a universe which transcends us at almost every point. I feel like a child who while playing by the seashore has found a few bright-colored shells and a few pebbles while the whole vast ocean of truth stretches out untouched and unexplored before my eager fingers."

"Lack of Reverence Begets . . ."

Such an attitude of reverence and humility before the marvels and the mysteries of nature has been the characteristic of the true scientist and the ripe scholar. A lack of that saving touch of reverence before a universe that staggers us not only by its immensity but also by the infinite complexity of the network of laws which govern the movement of every atom, causes a loss of perspective, and begets either the smart-aleckism of an H. L. Mencken, or the sophisticated conceit of a Bertrand Russell or worse yet—the narrow dogmatism of a Harry Elmer Barnes. Even the immature student with the feeblest smattering of knowledge in any line is sometimes found striking one of these poses, and making himself look ridiculous if he were not so pathetic.

"Father," wrote a pastor to me some years ago, "will you please look up Tom Smith and straighten him out. After finishing high school, he read a copy of Fraser's *The Golden Bough*, and learning of some superstitious practices in the religion of primitive tribes, has discontinued the practice of his own religion." How ridiculous, how pathetic, how tragic! He little knew that the greatest authority in the world on comparative religion, Father Wilhelm Schmidt of the University of Vienna, and editor

of *Anthropos*, who has spent a lifetime in the study of the religion of primitive tribes finds beneath all their errors and superstition the unmistakable evidence of a universal belief in a Supreme Being. It shows that such a belief is not dependent on geographical or social environment, nor degree of culture, but is the universal reaction of the human mind, tutored or untutored, to the phenomena of nature.

Similar to the reaction of the young student mentioned above, was that of a young non-Catholic lady, a graduate of a large university and a teacher in a college for girls in the South. "I have just finished Mencken's *Treatise on the Gods*," she said, "and I consider it a devastating attack on all religion. It undermines faith in all of them."

"How?" I inquired.

"It shows that the religious practices of primitive peoples contained a large admixture of magic, error and superstition, and consequently that all religion is buncombe."

"Your conclusion," I observed, "amazes me. If that line of reasoning be valid, then you would have to consign every form of modern science, art and culture to the scrap heap."

"Thus medicine in the early days contained certain errors. Doctors were in the habit of bleeding people to relieve fever and cure other ailments for which it was no remedy at all. Would you say that the modern science of medicine is therefore all buncombe? Chemists in the early days often used erroneous methods and sought among other things to change the baser metals into silver and gold. Would you say that the modern science of chemistry is therefore all nonsense? Astronomers in the early days often engaged in astrological practices, seeking to foretell events by the position of the stars. Would you say that the modern science of astronomy is therefore all folderol and that every textbook on the subject should be burnt? If that line of reasoning were to prevail, then no

form of modern science, art or culture would be left standing in the world today."

"I begin to see," said the young lady, "that my conclusion is too wide for the premises."

"Yes, much too wide," I replied.

Carcinoma of Intellect

There are few diseases more malignant in their consequences and more difficult to eradicate than intellectual pride and conceit. It is the carcinoma in the world of intellect. The penitent sinner, the humble scholar searching for light, can be ministered to, but rarely the sciolist, the sophist, the intellectually proud. True indeed are the words of Pope:

A little knowledge is a dangerous thing.

Drink deep, or else taste not of the Pierian spring.

Perhaps the best prescription to deflate the bumptiousness of such an individual would be for him to walk out alone at night under the silent stars. Let him then reflect that he is on a little ball of matter flying through space at the rate of $18\frac{1}{2}$ miles per second, that the nearest star is twenty-five thousand billion miles away. Let him remember that there are a thousand million worlds coursing through a cosmos of such stupendousness as to shrivel by comparison our whole solar system to the size of a grain of sand. Let him contemplate the power and the intelligence of that Supreme Being who hurled a million worlds into space and who keeps every atom in the universe obedient to the reign of His universal law.

If that does not help such an individual to realize at least dimly how inconsequential and puny he is in comparison with the infinite power of the Great Architect of the universe, then I know of nothing that will help him. It

will be sufficient to prompt the normal individual to cry out in the words of St. Paul: "O the depth of the riches of the wisdom and of the knowledge of God." And to exclaim with the Psalmist: "The heavens show forth the glory of God and the firmament declareth the work of His hands." Well indeed might the Creator ask him: "Where wert thou when I laid the foundations of the earth? Tell me if thou hast understanding."

"Truth Shall Make You Free"

The Church encourages her children to go fearlessly into all the fields of knowledge, to investigate every science and explore every art, to push farther back the veil which still hides many of the laws which the Almighty has written in the mosaic of nature. She encourages them to find running through the tangled skein of nature the golden thread of purposiveness which constitutes the universal esperanto by which mind discerns the work of mind and loses the sense of its cosmic loneliness in the realization of the abiding omnipresence of intelligence throughout the entire universe. While she asks that they distinguish carefully between theory and established fact, she knows that a profound grasp of any science will not weaken faith but strengthen it. She wishes to remove from the minds of people for all time the false notion that there can ever be any real conflict or antagonism between solidly established facts of science and the eternal truths of religion.

"You shall know the truth and the truth shall make you free," is the gospel which the Church, following in the footsteps of her Divine Founder, has preached to mankind. Nature, in the eyes of the Christian, is a vast book wherein are written the thoughts of God. The more clearly the truths of nature are deciphered, the deeper becomes the admiration for the power and the wisdom of the Most High. For nature, in the words of Chaucer, is but "the

Vicar of the Almightye Lord." The Church welcomes eagerly every new discovery of natural science, knowing in advance that it will serve to disclose more clearly a segment of the objectified thought of God.

After every secret which the race, if it lives on this planet for a thousand million years, shall have torn from nature's bosom, the universe will still be an abode of fathomless mystery, replete with insoluble riddles and snarled perplexities. There will be not less but more room for reverence and awe and humility. Then as now the fear of God in the sense of reverence and awe will be the beginning of wisdom and of understanding. The garment of humility will never become outmoded while man is on this planet. Eternally true are the words of Holy Writ: "The greater thou art, the more humble thyself in all things, and thou shalt find grace before God. For great is the power of God alone, and He is honored by the humble." There will always be an abundant need for faith to light the way out of the tangled maze of our bewilderment, across a sea of limitless mystery to the harbor of eternal Truth where the light will dispel at last our many darknesses. It was this truth which George Santayana, regarded by many as one of the profoundest thinkers America has produced, expressed toward the close of a long life of thought and study, in lines of simple beauty:

Our knowledge is a torch of smoky pine
That lights the pathway but one step ahead
Across a void of mystery and dread.
Bid then, the tender light of Faith to shine
By which alone the mortal heart is led
Unto the thinking of the thought divine.

