

Faith and Human Understanding

W. JIM NEIDHARDT

Physics Department
Newark College of Engineering
Newark, New Jersey

This paper examines the nature of faith as an integral part of all human understanding. Rather than a block to rational thinking, faith is seen as a light by which one can begin to build a rational structure. An analysis is given of major contributions to this viewpoint by men who have grappled deeply with the problem of the relationship of faith to all varieties of knowledge. In particular, the thought of Blaise Pascal and Michael Polanyi is examined. Evidence is presented for recognition of the compatibility of the validity of faith experience with a world-view of reality that is hierarchical in structure.

INTRODUCTION

Now faith is the assurance of things hoped for, the conviction of things not seen.¹

Thus, the biblical writer defines faith as an act of trusting, of holding to convictions when the evidence in a given situation is not immediately apparent. It should be noted immediately that faith is not blind, it does not arise out of a vacuum. Faith stems from man's previous experience; salvation faith from specific historical events (seen through the eyes of faith as God revealing himself in history), more general faith from man's contact with reality through personal relationships with others and experience of order present in nature, etc. Faith, however, is much more than a mere extrapolation of past experience for it interprets such experience and holds to convictions which cannot be reduced to mere inductions from scientific experience. The conviction that a scientific theory must possess a rational beauty and symmetry in an artistic sense is a good example of the latter. The purpose of this paper is to present the viewpoint that faith is an inherent part of all human endeavor and as such it is not destructive to sense experiences and rational thinking but a helpmate as seen so well by Blaise Pascal:

Faith indeed tells what the senses do not tell, but not the contrary of what they see. It is above them and not contrary to them.²

A secondary purpose is to remind readers of past and present works on the nature and purpose of faith

which elegantly testify to its universal quality. Accordingly, we shall now examine key aspects of faith as a guide to understanding reality.

BELIEVE IN ORDER TO UNDERSTAND

Recent studies by philosophers of science have forcibly revealed that scientific theories are not merely summaries of data inductively gathered together. Two recent definitions of a theory and theory formulation will make this clear. Karl Popper defines theory by using the analogy of a net:

Theories are nets cast to catch what we call 'the world': to rationalize, to explain, and to master it. We endeavor to make the mesh finer and finer.³

N. R. Hanson sees a theory and its formulation as follows:

Physical theories provide patterns within which data appears intelligible—A theory is not pieced together from existing phenomena; it is rather what makes it possible to observe phenomena as being of a certain sort, and as related to other phenomena—A theory is a cluster of conclusions in search of a premise. From the observed properties of phenomena the physicist reasons his way toward a keystone idea from which the properties are explicable as a matter of course.⁴

Thus, theories represent keystone ideas which fit a range of phenomena into a pattern. They are formulated not by merely inductively collecting and summarizing data or making deductions from certain experimental facts, but by actively seeking to find a key pattern which provides a unified way of under-

standing the phenomena of interest. Such a process is not automatic; its driving force is the trust that such patterns do exist. Concepts of a given theory may have to be modified or even abandoned as new data arrive, but the basic trust or faith that an intelligent pattern exists is central to theory creation. In summary, it is faith that a key idea will relate phenomena coherently to one another that motivates the selection of what is significant in existing data and the search for new data. It is by looking for key concepts that illumine broad areas of physical reality that science has made progress.

Alan Richardson in his book, *Christian Apologetics*⁵, has some very helpful thoughts on the relationship of faith to human understanding. He first points out that

the minds of the philosopher and the scientist are not different in kind or in operation from the minds of the artist, the poet or the man of religion. We are apt to overlook the fact that the scientist and the poet possess the *human mind* in common, and that when we speak of the scientist or the philosopher using methods of reason and induction while the poet or religious man uses intention and imagination, we are making a distinction which exists in theory (and old-fashioned theory at that) rather than in fact.⁶

Scientists seek to find patterns in Nature by coupling imagination and insight with inductive methods.

The powers of induction in the mind of a great scientific genius are not entirely dissimilar to the faculty of a great poetic genius for perceiving all kinds of analogies which ordinary people do not notice without his help.⁷

Secondly, Richardson, following St. Augustine, asserts that faith plays a vital role in all realms of human experiences. St. Augustine, in his development of the Old Latin Bible passage Is. 7:9,

Dost thou wish to understand? Believe. For God has said by the prophet: 'Except ye believe, ye shall not understand' . . . Understanding is the reward of faith. Therefore, do not seek to understand in order to believe, but believe that thou mayest understand; since 'except ye believe, ye shall not understand.'⁸

saw a method of universal significance, faith as a guide by which reason works. Faith does not provide the data of empirical knowledge; faith rather plays its role in seeking to find a keystone idea, a pattern that will fit and explain the data. Such a task requires creative insight which couples an artistic intuition with formal techniques of induction and deduction. Albert Einstein has stated that

There is no logical path to these laws (laws of a scientific theory); only intuition, resting on a sympathetic understanding of human experience can reach them . . . Concepts, considered logically, never originate in experience; i.e., they are not to be derived from experience alone.⁹

Creative insight or intuition is a vague term, but one fact is clear: such insight is intimately related to having faith in the soundness of some key idea or pattern. Once faith in a key pattern is established, reason then

takes over and develops a more ordered picture, looking for possible faults and finally conceiving of experiments to further test the theory. Faith is not a trusting in unprovable truths which can be disregarded as a rational picture develops; it is, rather, illumination (which guides one in seeing a pattern) by which a truly rational understanding can begin.

A UNIVERSAL FAITH STRUCTURE

The great Dutch theologian, Abraham Kuyper, argued that faith is a structural part of universal human nature. Mankind is divided by the possession or non-possession of saving faith in God but not in having faith itself—saving faith is a part of a more general faith-structure inherent in all human nature. The very fact that this faith-structure is universal in character makes it elusive as it is taken for granted and not looked for critically.¹⁰

Kuyper defines faith as

that function of the Soul by which it obtains certainty directly and immediately, without the aid of discursive demonstration.¹¹

It is this capacity to "see" certainty, argues Kuyper, that enables one to trust his senses (or extensions of his senses) in making observations. It is by faith that we accept our sensory responses as being consistent with what is observed, i.e., a one-to-one correspondence exists between the actions of the observable and our sense responses. Even more basically, it is by faith that we accept our senses as reacting with real observables and not merely recording figments of imagination existing only in our minds.¹² Thus the process of observation, a basic component of science, is grounded in a faith-structure.

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Kuyper in linking a faith-structure to science goes much further. He states with respect to formulating the general from a finite number of tested phenomena:

the idea itself that there are such laws, and that when certain phenomena exhibit themselves, you are certain of the existence of such laws, does not result from your demonstration, but your demonstration rests, and in the end it appears the means by which your certainty is obtained. Without faith in the existence of the general in the special, in laws which govern this special, and in your right to build a general conclusion on a given number of observations, you would never acknowledge such a law.¹³

It is an act of faith to generalize from a limited number of observations that is the central motivation for doing scientific work; for scientists must necessarily work from only a finite number. It is my view that faith in this generalization process is intimately related to faith that a rational order exists in all of nature and that such order can be comprehended by rational beings.

FAITH—A SUBJECTIVE CATEGORY OF HUMAN EXPERIENCE

A more detailed analysis of the presence and validity of faith as a subjective element of reality is appropriate at this time. Note that to recognize faith as subjective experience is not to downgrade it to mere subjectivity, for faith comes about in an encounter with real objects (a faith statement!). In theology, faith arises and is necessary to interpret specific historical events of the past and to understand the existence of a living church today with people who have had religious experience, whose lives have been altered in a manner clearly observed by others. In science, faith stems from and is needed to understand specific observable phenomena. It is, I believe, of some significance that the nature and validity of subjective faith experience has been most elegantly discussed by two men who have made significant contributions in the natural sciences—Blaise Pascal and Michael Polanyi. Accordingly, their contributions which bear some striking parallels, are now examined.

Blaise Pascal

Pascal viewed all of reality as possessing a hierarchical structure. Reality was structured in ascending orders and the distinction between orders was not merely quantitative, but qualitative.¹⁴

An excerpt from what has become known as "Pascal's Doctrine of the Three Orders" will make this clear.

... All bodies, the firmaments, the stars, the earth and its kingdom are not equal to the smallest gleam of intelligence: for it knows them and itself and they know nothing.

All bodies and all minds together, and all their products are not equal to the slightest stirring of charity. That is of an order infinitely more exalted.

From all bodies together we cannot obtain one little thought; that is impossible and of another order. From all minds together and from all minds together we cannot derive one movement of true charity. This is impossible, of another order, supernatural.¹⁵

In order to comprehend this order of charity, that part of reality where God through his Spirit is present in an open way, a human faculty qualitatively different from analytic reason is needed. This faculty, which is essentially faith through which man experiences God's presence, Pascal calls the heart.

The heart has its reasons, which reason does not know. We feel it in a thousand things. I say the heart naturally loves the Universal Being, and also itself naturally, accordingly as it gives itself to them; and it hardens itself against one or the other at its will. You have rejected the one and kept the other. Is it by reason that you love yourself?¹⁶

Pascal further points out that

The knowledge of God is very far from the love of Him¹⁷;

purely intellectual inquiry yields an incomplete picture of God, one must comprehend God with more than analytic detachment. The heart, trust or faith in God's eternal sovereignty, goodness, and love is required to begin to analyze His nature and acts. Pascal does not limit the heart, man's faith function, to perception of the order of charity, however:

We know truth, not only by the reason, but also by the heart, and it is in this last way that we know first principles; and reason which has no part in it, tries in vain to impugn them . . . For the knowledge of first principles as space, time, motion, number is as sure as any we get from reasoning and reason must trust these intuitions of the heart, and must base them on every argument. (We have intuitive knowledge of the tridimensional nature of space, and of the infinity of number, . . . Principles are intuited, propositions are inferred, all with certainty, though in different ways.)¹⁸

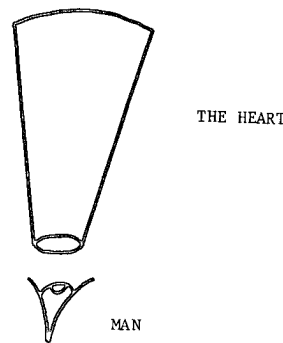
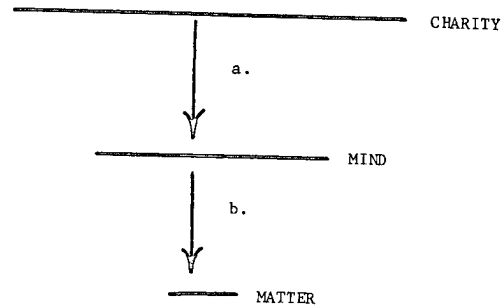


Fig. 1. Pascal's World View. (a) Understanding of ultimate significance (b) General understanding.

Thus, Pascal observes, the heart, that faith-function which uniquely perceives the structuring of God's spiritual realm also plays a significant role in perceiving God's structuring of physical reality. Pascal is saying that there is a component of the innermost parts of reality that is intuitively recognized and cannot be defined. Definition eludes us as we have not reached such a fundamental level of reality that other terms do not exist to make a definition. Nevertheless, understanding is possible, as the great clarity of these

key concepts is recognized by the intuitive part of our nature. Albert Einstein and Blaise Pascal are in complete accord in recognizing that intuitive processes and not merely logic alone are required to understand physical reality.

Figure 1 summarizes Pascal's world-view. Man, through the "telescope" of his faith-function, the heart, begins his comprehension of the basic structure of reality. Reality is arranged in a threefold hierarchical framework, full awareness of an upper level being required to understand the significance of a lower order. Our world of men and things is paradoxically filled with rational and beautiful coherence in the midst of confusion and even chaos. Only by possessing the ethical and moral strength to work hard under difficult conditions, to ignore frustrations and report data accurately, and, finally, not to lose one's conviction that rational laws guide the universe, can scientific and human progress be made. Pascal envisions such strength coming to man as he opens his heart, i.e., responds in faith to that ultimate realm of God's self-giving love; it is in this realm that God, the source of all rationality, reveals himself fully as creator, sustainer, moral judge, redeemer, and loving father of all. A basic comprehension of the order of charity does not depreciate the realms of mind and matter, rather it enables one fully to see God's love in His mental and material creations. Such insight motivates man to use the God-given order present to care for and regulate these realms for good. In an analogous but qualitatively different manner, the realm of the mind understands and regulates the material universe. Also note that Pascal clearly states that one cannot go in reverse order: matter leading to understanding of mental processes, which in turn lead to self-giving loving relationships between people and things. Nor can a denial of reality above material and mental existence lead to a complete world-view. Pascal's legacy to us is not a philosophical system but a vision that a basic structure exists in a complex universe. From a comprehension of this structure, which sees reality as far more than a reduction to physics and chemistry, we can order and regulate our understanding and our lives.

Michael Polanyi

Blaise Pascal was a man of wide interests: he made important contributions in mathematics, science, philosophy, urban transportation (he introduced the concept of public bus-like transportation to Paris), and religion. A man of equally wide interests in our day, who has significantly contributed to physical chemistry, social science, and philosophy, is Michael Polanyi.¹⁹ Polanyi, reacting to the reductionism of extreme objectivism, has extended Pascal's insight in the validity of intuitive or faith statements. In the words of a reviewer of his classic book, *Personal Knowledge*²⁰:

... By stressing the active components in scientific knowing—appraisal and commitment—Polanyi shows that knowledge is less 'objective' more complex, and more widely distributed in nature than is tacitly supposed by most epistemologies. Knowing implies a

foundation in skills, a confidence in one's ability to judge beyond the range of well-formulated rules, and a commitment to the existence of an answer to one's questions before the answer is in sight.²¹ (Such a commitment is part of the basic structure of faith.)

Polanyi's central thesis is that knowledge does not exist without knowers; the extreme objectivist's impersonal theory of science is a myth. Extreme objectivists claim that:

- a) All observable processes can be evaluated by impersonal, scientific judgements—only empirical verification by the five senses (or extensions thereof) is conclusive;
- b) science possesses a method which is essentially automatic and infallible; and
- c) all knowledge other than scientific is not valid.

Polanyi refutes these objectivist tenets in great detail in *Personal Knowledge*, a key part of which is an analysis of the question: How does one make a new discovery? Polanyi argues that the history of science shows that discoveries come about not by just an ordering of empirical facts, but by a scientist committing himself to a framework in order to learn. A motivating part of such commitment is the faith that rational beauty exists in nature.

Einstein's creation of the theory of special relativity is a good example of Polanyi's analysis.²² The textbook story is that Einstein developed relativity to satisfy the Michelson-Morley experiment's results that the vacuum speed of light remains constant independent of the motion of the earth. Polanyi, through an examination of Einstein's papers and by personal correspondence with him, shows that a commitment to the framework that nature's behavior is symmetric with respect to uniform motions led him to abandon the concept of absolute space-time and postulate the universal constancy of the vacuum speed of light. Not empirical facts, but a strong faith that rational beauty exists in nature's laws (as expressed in this case by symmetry or in variance principles) motivated Einstein to create relativity theory. Polanyi's case is enhanced by the historical evidence that the scientific community generally ignored the results of a long series of Michelson-Morley type experiments (1902-1926), performed by a distinguished physicist, D. C. Miller. These results indicated a small change in the vacuum speed of light but scientists were so committed to the new rationality of the Einstein world-view that little attention was paid to these experiments, as it was hoped the behavior would turn out to be wrong or explainable by a combination of small effects. Faith in the beauty and rationality of a theory, its ability to simply and coherently relate a wide range of phenomena, is seen to be a criterion of truth that scientists consider valid; empirical results are not the sole criteria of scientific truth.

Polanyi's insight is further born out by Einstein's statement that:

A conviction, akin to religious feeling of the rationality or intelligibility of the world, lies behind all scientific work of a high order.²³

The following quotes make abundantly clear that this conviction or faith is common experience to those who have made great discoveries in science. Max Born, one of the early developers of the quantum theory, said of relativity:

the grandeur, the boldness, and the directness of the 'thought' of relativity, which made the world-picture of science 'more beautiful and grander.'²⁴

Paul Dirac, who united quantum theory and relativity, said about Schrödinger's development of his wave equation:

I think that there is a moral to this story, namely that it is more important to have beauty in one's equations than to have them fit existing experiment.²⁵

And as a final example, James Watson, referring to his and Crick's discovery of the double helix structure of DNA, said

... too pretty not to be true.²⁶

Terms like 'boldness and grandeur', 'beauty', and 'pretty' are clearly of the language of faith and not of the language of probability distributions²⁷ and strict empiricism.

Life can thus be envisioned as a whole hierarchy of principles related to one another by boundary conditions, each level utilizing the principles of the levels below it, while being irreducible to those principles.

It is not possible to provide here a full survey of the creative, coherent, and exhaustive research present in *Personal Knowledge*. A small segment has been given of the approach; the book must be read in detail to be fully appreciated. Let me now simply restate and examine possible consequences of the main theme of the book. That knowledge cannot exist without knowers leads to the recognition that all knowledge depends upon personal, tacit components. These tacit skills are built into the knowers. We know much more than we can tell to others in a strictly objective way. The presence of these personal, tacit skills are more readily acknowledged in some cases, i.e., the learning processes that result in a gifted pianist stems from intimate personal contact with a master musician.²⁸ And the skills imparted of "touch" and "feel" for great music are not defined but appreciated by one who has acquired from others the tacit skills to appreciate great music. But even in the so-called purely objective fields of the pure sciences, knowledge possesses a personal, tacit component, for the knower is making a confirmation of his framework

MARCH 1969

—he is by faith trusting in the soundness of it, using it to break out into new reality. In the last analysis knowledge is always accompanied by a committed knower.

Although not pursued by Polanyi, the personal character of all knowledge is of significance from a Christian perspective. Jesus Christ pointed to Himself as truth and emphasized the primary importance of personal relationships between God and man, man and man. He also stressed that a personal faith is essential to a true relationship to God and He praised those who responded in faith without complete factual details.²⁹ St. Paul continued Christ's message, pointing to Him as the personal creator and sustainer of all reality, who calls us to commitment to Him as our Savior and Lord. Personal response by faith to God is central to Christian teaching, and part of that teaching is St. Paul's observation that God's presence can be seen in what he has created.³⁰ Perhaps part of the meaning of the last teaching of St. Paul is that God, the author of all order, who calls us to a full and complete knowledge of Him by personal response and relationship, has structured all of reality in such a way that a personal response and commitment is necessary to acquire valid knowledge.

In analyzing Pascal's and Polanyi's insights into the validity of faith-experience, it is of some interest to note that both men's world-views are characterized by some striking similarities—for both see reality as structured in a hierarchical manner. Polanyi's world-view is presented with great clarity in a recent paper, *Life's Irreducible Structure*.³¹ Polanyi begins by examining how a machine works:

So the machine as a whole works under the control of two distinct principles. The higher one is the principle of the machine's design, and this harnesses the lower one, which consists in the physical-chemical processes on which the machine relies.³²

The structure of the machine thus serves as a boundary condition harnessing the physical-chemical processes on which the machine relies to carry out meaningful functions. To Polanyi, a living organism can be looked in a similar way for:

... the organism is shown to be like a machine, a system which works according to two different principles; its structure serves as a boundary condition harnessing the physical-chemical processes by which its organs perform their functions. Thus, this system may be called a system under dual control.³³ (The system is under the control of both the harnessing boundary condition and physical-chemical laws.)

Polanyi then points out that a very important consequence of the boundary condition concept is that:

... their (the boundary condition's) structure cannot be defined in terms of the laws that they harness. Nor can a vocabulary determine the content of a text (a boundary condition on the vocabulary), and so on. Therefore, if the structure of living things is a set of boundary conditions, this structure is extraneous to the laws of physics and chemistry which the organism is harnessing. Thus, the morphology of living things transcends the laws of physics and chemistry.³⁴

Fulfillment of these views is seen in what we have learned of the nature of the basic building block of life—the DNA molecule. The DNA molecule carries in its structure a code, a linear sequence of items which convey information. The order present in the DNA molecule is that of a boundary condition, it conveys information and acts as a blueprint for the development of the living organism. This order is qualitatively different in character from the order present due to physical-chemical forces acting in a crystal structure; the latter is merely that of a repeating structure, while the former carries distinct informational content. Once having established the conceptual validity of the boundary condition framework with respect to DNA and living organisms, Polanyi argues that:

The irreducibility of machines and printed communications teaches us, also, that the control of a system by irreducible boundary conditions does not *interfere* with the laws of physics and chemistry. A system under dual control relies, in fact, for the operation of its higher principle on the workings of principles of a lower level, such as the laws of physics and chemistry. Irreducible higher principles are *additional* to the laws of physics and chemistry.³⁵

It is quite possible, therefore, to expect that there are *additional* and *transcending* principles above those that directly guide physical-chemical laws. Life can thus be envisioned as a whole hierarchy of principles related to one another by boundary conditions, each level utilizing the principles of the levels below it, while being irreducible to those principles. To give a specific example, Polanyi points out that

... once it is recognized, on other grounds, that life transcends physics and chemistry, there is no reason for suspending recognition of the obvious fact that consciousness is a principle that fundamentally transcends not only physics and chemistry but also the mechanistic principles of living beings.³⁶

... a boundary condition which harnesses the principles of a lower level in the service of a new, higher level establishes a semantic relationship between the two levels. The higher comprehends the workings of the lower and thus forms the meaning of the lower. And as we ascend a hierarchy of boundaries, we reach to even higher levels of understanding.³⁷

The similarity to Pascal's "Doctrine of Orders" is immediately evident; the great difference occurs on their views of the possibility of gaining insight of a higher level from lower levels. Pascal denies this possibility completely, whereas Polanyi feels the integration of principles of the lower levels to yield a higher principle may be beyond our powers. Both Pascal and Polanyi clearly acknowledge that faith is a valid component of all knowledge. They have clearly recognized that all forms of reductionism, the reducing of all reality to physical-chemical laws for example, deny other points of view, partly by their own misguided faith. (Reductionists usually fail to recognize that faith plays a role in their own work.) Reductionism's great appeal is its simplicity and great rational order. What Pascal and Polanyi have sought, therefore, is a world-view that testifies both to the existence of great rational order inherent in all reality and to the

openness and complexity of a reality in which the person through his faith is an intimate part. In my opinion, a hierarchical structure, with its ascending levels of reality each governed by unique principles, provides a world-view that serves these twin purposes well. Such a framework could do much to overcome the great cleavage between the extreme positivist and existentialist poles into which our age has divided itself.

CONCLUSIONS

The scientisms of our age have presented to us the distortion of faith as the height of irrationality. Some Christians have reacted by completely compartmentalizing their perspectives of the spiritual and the natural orders. Others, perhaps repelled by the very radical nature of the Christian solution to life's dilemma³⁸, have tried to build a 'Christianity' without the necessity of faith. Such attempts, to my mind, are reactions to a very faulty picture of faith. Faith, correctly viewed, is that illumination by which true rationality begins, as has been seen through history by men the caliber of Augustine, Pascal, Kuyper, and Polanyi. Faith, the capacity to trust, is inherent in human nature and is an integral part of all personal relationships. As we have seen, this deeply personal element is a component of all knowledge. Faith as a guide to a rational understanding can be viewed as a direct consequence of the biblical insistence that in Christ, who stressed the ultimate importance of personal relationships, "all things hold together."³⁹ The willingness of a scientist as distinguished as Polanyi to present to the scientific community a viewpoint which is unpopular, should give Christians courage in developing a world-view in which faith plays an integral role. Only such a world-view can do full justice to the great richness, complexity, and order present in all of reality which is far wider and more comprehensive than we can imagine. Truly the more we know, the more we come to realize how little we really do know.

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- ¹¹*Ibid.*, p. 129.
- ¹²*Ibid.*, pp. 125-139.
- ¹³*Ibid.*, p. 139.
- ¹⁴Walter Jim Neidhardt, "Pascal and the Dilemma of Modern Man", *Journal of the American Scientific Affiliation*, 16 107-111 (1964).

¹⁵Pascal, *op. cit.*, p. 278.

¹⁶*Ibid.*, p. 95.

¹⁷*Ibid.*, p. 95.

¹⁸*Ibid.*, pp. 95-96.

¹⁹The illuminating seminars of Dr. Walter Thorson, given at 1965-1967 metropolitan N. Y. ASA meetings, awakened my interest in Polanyi. It should be understood, however, that possible misinterpretations of Polanyi's thought are my responsibility.

²⁰Michael Polanyi, *Personal Knowledge*, Harper Torchbooks, New York (1964).

²¹From *The Review of Metaphysics*, reprinted on the rear cover of the Harper paperback edition of *Personal Knowledge*.

²²Polanyi, *op. cit.*, pp. 9-15.

²³Source unknown, but authenticity has been attested to by several well-informed colleagues.

²⁴Max Born, *Einstein's Theory of Relativity*, translated by H. L. Brose, London (1924) p. 289.

²⁵P. A. M. Dirac, "The Evolution of the Physicist's Picture of Matter," *Scientific American*, Volume 208, No. 5, May 1963, pp. 45-53.

²⁶James D. Watson, *The Double Helix*, Atheneum (1968). Quoted in book review of the *New York Times*, Monday, February 19, 1968.

²⁷With respect to statistical analysis, incidentally, Polanyi points out that personal value-judgments are present even there as one must decide that something is significant before statistics can be applied.

²⁸Even in the so-called 'objective' sciences of physics and chemistry one serves an apprenticeship under an experienced researcher(s) and the skills and attitudes transmitted are often rather hard to define in an objective way.

²⁹The risen Christ's dialogue with Thomas in John 21:24-29.

³⁰Romans 1:19-20.

³¹Michael Polanyi, "Life's Irreducible Structure," *Science*, Vol. 160 (1968), pp. 1308-1312.

³²*Ibid.*, p. 1308.

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³⁴*Ibid.*, p. 1309.

³⁵*Ibid.*, p. 1310.

³⁶*Ibid.*, p. 1310.

³⁷*Ibid.*, p. 1311.

³⁸"For the word of the cross is folly to those who are perishing, but to us who are being saved it is the power of God." I Corinthians 1:18.

³⁹Colossians 1:17.

Research, A Key to Renewal*

EDWARD R. DAYTON

Director, Missions Advanced Research &
Communication Center
919 W. Huntington Drive
Monrovia, California 91016

It is the purpose of this paper to make a plea for additional research into the operational life of the church, to describe the type of information and research center that might be useful in carrying out such research, and to describe briefly the work of the Missions Advanced Research and Communication Center in Monrovia, California.

THE NEED FOR APPLIED RESEARCH

It is paradoxical that the Protestant church, and in particular, the American Protestant church, has lagged in doing systematized research on the effectiveness of its own operations. In a society which is characterized by its emphasis on feedback and its glorification of the new and changing, little has been done descriptively to place the church in the society in which it finds itself. This applies not only to those church members and leaders who come out of a nonscientific background, but it is also true for that part of the scientific community which calls itself

Christian. A review of ASA Journals of the past few years adequately makes the point. There is considerable concern for a scientific approach to geology, anthropology, linguistics, and the nature of man. There is a good amount of discussion about the spirit and the body of man. But in this writer's view, there is a dearth of discussion about the church and how it is operationally to face the world in which it finds itself.

The explanation for this is manifold. In a paper prepared for the March 1967 edition of the *Journal*, I attempted to trace one cause of secular/spiritual dichotomy back to the initial split in the church caused by the introduction of the Darwinian theory into scientific teaching. It is also a reaction against the

*Paper presented at ASA Convention, Calvin College, Grand Rapids, Michigan, August 23, 1968.