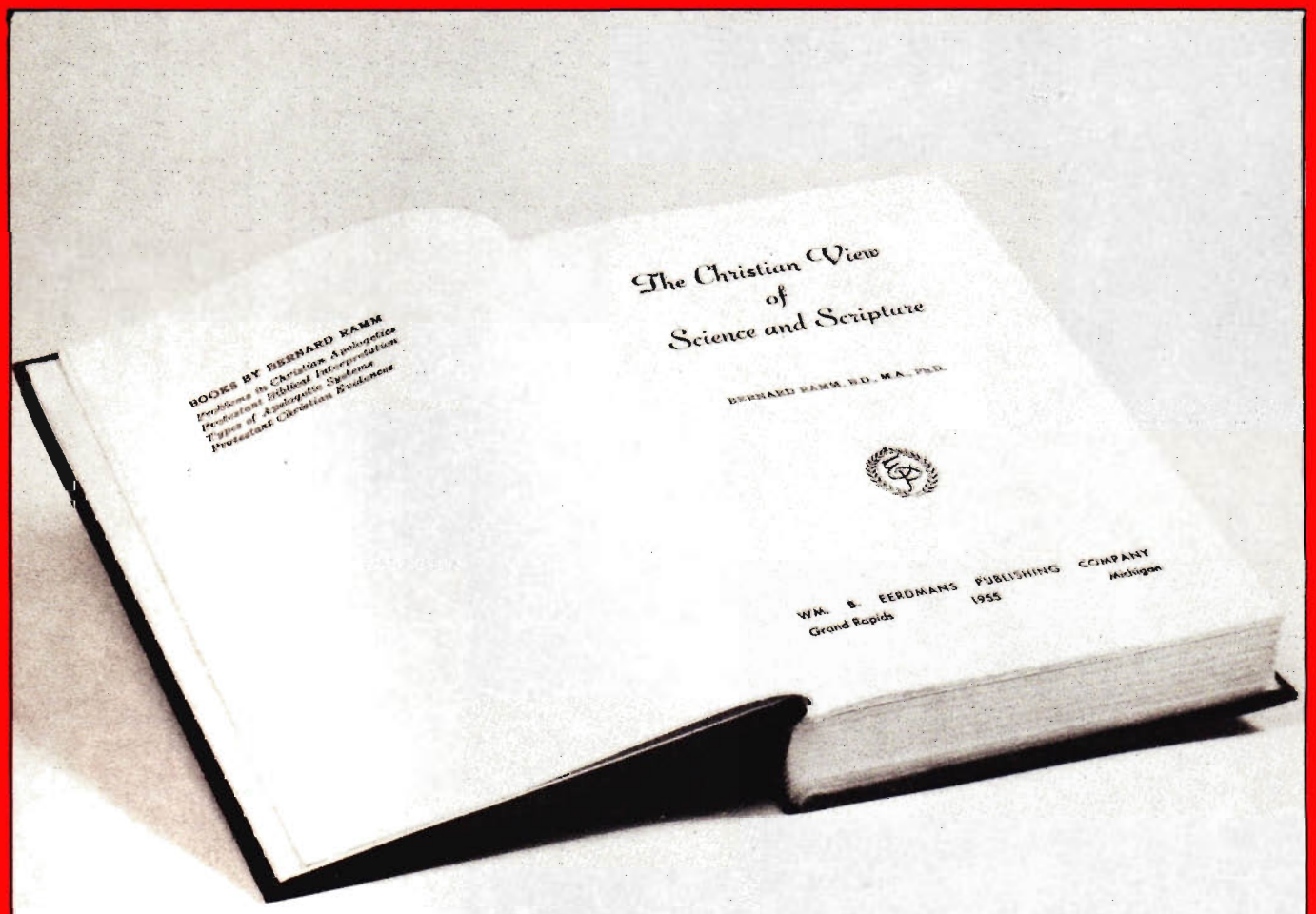
JOURNAL OF THE
AMERICAN
SCIENTIFIC
AFFILIATION

*An evangelical perspective on science and the Christian faith* *(US ISSN 0003-0988)*




# A Bernard Ramm Festschrift

*"The fear of the Lord is the beginning of Wisdom."* Psalm 111:10

VOLUME 31, NUMBER 4 DECEMBER 1979

MEMBER EPA EVANGELICAL PRESS ASSOCIATION



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AMERICAN
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DECEMBER 1979 PRINTED IN THE UNITED STATES OF AMERICA VOLUME 31, NUMBER 4

# THE CHRISTIAN VIEW OF SCIENCE AND SCRIPTURE

## A Retrospective Look

**The publication of Bernard Ramm's *The Christian View of Science and Scripture* in 1954 was a pivotal event for evangelicals concerned with the relation between science and Christian faith. In marking the 25th anniversary of this enduring work, we have charted its influence on individual scientists and the broader Christian community and provided a critical update for the several disciplines represented within its pages. In honoring Dr. Ramm, we in turn call on other theologians to follow his lead by contributing to the science-Christianity dialogue. It is only through the active participation of theologians, philosophers, historians and scientists in concert that we will gain a proper understanding of nature and its use in the service of humanity.**

*John W. Haas, Jr.*

*Gordon College*
*Wenham, Massachusetts 01984*

## BERNARD RAMM

*Bernard Ramm holds an A.B. degree from the University of Washington, a B.D. degree from Eastern Baptist Seminary, an M.A. and a Ph.D. degree from the University of Southern California. He has been on the faculty of Biola College, Bethel College and Seminary, Baylor University, the American Baptist Seminary of the West (Covina), Eastern Baptist Seminary, and the American Baptist Seminary of the West (Berkeley), where he is currently Professor of Christian Theology. He has also taught at Haigazian College in Beirut, the Young Life Institute, and the Mennonite Biblical Seminary of Fresno where he was an adjunct professor. He has carried out further study in his field at the University of Basel and the Near East School of Theology. Dr. Ramm is the author of 18 books (with one or more in translation: Japanese, Korean, Spanish, Serbian), as well as numerous articles and book reviews in journals and popular Christian periodicals.*

# An Interview with Bernard Ramm and Alta Ramm

*Early in 1979 Walter Hearn, editor of the* Newsletter *of the American Scientific Affiliation, interviewed Dr. Ramm and his wife Alta in their home in Modesto, California. The following are slightly edited excerpts from that conversation. The year 1979 marks the 25th anniversary of publication of* The Christian View of Science and Scripture; *on the Asian calendar it is also designated "The Year of the Ram."*

*Walter Hearn:* Dr. Ramm, it's been 25 years now since your book on science and Scripture was published. I'd like to ask you some questions about it since younger members of the American Scientific Affiliation may not know you or understand why many of us regard your book as so significant. First of all, could you tell us something about how you happened to write it?

*Bernard Ramm:* The beginning of the book was a course at Biola [Bible Institute of Los Angeles, now Biola College] on Christianity and science. The professor took a job at another school and the course ended up in my lap. I taught it three or four years before I moved to another school. By then I had all that material and didn't want it to go to waste. So I put a lot of hard work into the material and polished it off as a book. I had to do an awful lot of tracking down of certain kinds of information. I found out after I left Biola that one of the best sources of historical books in biology was back at USC in a special library of the biology department.

*Hearn:* Had you been a student at USC?

*Ramm:* My undergraduate work was at the University of Washington in Seattle. At Southern Cal I did graduate work in philosophy. I can't remember whether it was marine biology or some other specialized department, but they had a very important collection of books, especially from the 19th century.

Tracing down the report of the Scopes trial, I mean the actual stenographic record, was a real problem. I went to about five cities before I found it. Evidently it's something people steal for its historical value.

*Hearn:* Your book was dedicated to F. Alton Everest, the first president of ASA. Where did you meet Alton?

*Ramm:* The ASA had a very active chapter in southern California and Alton had come to work for Moody Institute of Science when I was in Santa Monica. We got together a number of times with the local ASA group and then one year there was a national convention. Our family got to know his family, so there were also social relationships.

*Hearn:* You were no longer at Biola when the book came out but were teaching at Baylor University in Waco. I remember that when I was teaching at Baylor Medical School in Houston in 1954 or '55, you came over and spoke there. The book hadn't been out very long then but you already had a whole file of correspondence from people who didn't like it. Can you tell us a bit about the reaction to it?

*Ramm:* The book was a problem to those who had a very literal approach to the book of Genesis or who thought that any kind of positive word about evolution was a betrayal of the cause. It was that kind of person I got the most static from. But over the years, for every letter of protest, there've been something like 20 of approval. I realize that the real service of the book was not an attempt to straighten everybody out. Yet a large number of people who were at a very critical point in their college career have told me that was the book that helped straighten them out. That's been the most rewarding thing about the book.

*Hearn:* I remember your telling me back then that you got into a lot of trouble over the title. You had called it *A Christian View* or even something else, but the publisher changed it and it came out *The Christian View of Science and Scripture.*

*Ramm:* The original was *The Evangelical Faith and Modern Science* but the publishers wanted a title similar to Professor Orr's book of a previous generation, *The Christian View of God and the World.* One day I walked through library stacks looking at titles and it's embarrassing how many books start out with the word *The.* Eventually I found out that many titles of books are determined by the publicity or sales department of a publishing house.

*Hearn:* In addition to expressing "the" Christian view, you acknowledged that some of your best friends were theistic evolutionists. That also got you in trouble. But I suspect that what got you in the most trouble was that famous bibliography in which you classified books—including some "of limited worth." Have you ever made friends with any of the people whose books were in that category?

*Ramm:* The more I have taught, the more I have seen the value of classified bibliographies. Students really have no way of sorting out books as to what's valuable and what isn't, what's mediocre. So I think classified bibliographies can be very educational.

*Hearn:* Another thing that most of us valued about your

book when we first read it was that you actually *discussed* the history of the controversy. You took seriously even the works you disagreed with, as well as those you tended to agree with. Most people writing about the creationist controversy, at least in those days, acted as though they had invented the whole thing. They never seemed to refer back to other writers who'd had similar ideas.

*Ramm:* Well, that's just a spinoff of the way I teach. I teach the options and then I give my own opinion. I've felt gratified through the years that students appreciate being told what the options are before they're given the dogma.

*Hearn:* I remember being impressed by a particular page in the book. It was a page on which you summed up the battle as it had been fought between evangelicals and scientists. There was a memorable line in which you said the theologians had fought the wrong battle with the wrong weapons at the wrong time—and had lost. That was an honest admission of a view that a lot of us in ASA had come to already, and it was good to see it in print.

*Ramm:* I found out later that Bishop Wilberforce, who debated Huxley on evolution at the famous meeting at Oxford, was called "Soapy Sam" because of the way he could use words. A "Soapy Sam" is not somebody you want to argue science with.

*Hearn:* Another point you made was that the proper grounds for the debate were really philosophical. The debate had been approached before by people who knew some science or some theology but generally didn't speak the other language very well, and didn't realize that the meeting ground had to do with the philosophy of science. Wasn't philosophy always a special interest of yours?

*Ramm:* Yes, and I had been interested in the philosopy of science, so that my Master's thesis had been on the philosophy of science of James Jeans and Arthur S. Eddington. They were hot copy then, but have rather lost out in the last few years. My doctoral dissertation was on whether there were any philosophical implications in the so-called "new physics" or Einsteinian physics. To do that I had to get very deeply into the philosophy of science as well as modern scientific theory.

*Hearn:* One factor that made your book important to many of us was that you were willing to state your own view—but you did it with caution. You were very cautious about making a synthesis. Do you still feel that way?

*Ramm:* Yes, you have to sell your case by the quality of your exposition. I get bothered reading some books that are coming out now, when I run into the "pious come-off." When some Christians get trapped in a corner and science seems headed in another way, they can just say, "Well, they're unbelievers, so we can expect that of them." That's how they handle a tough issue. I'm not anxious to solve problems by that kind of pious come-off.

*Hearn:* Maybe the most important factor in your book was the fact that it was actually read by the people who needed to read it. What about its publishing history? I know it soon came out in an English edition, which must have been cheaper. Everybody seemed to be buying the edition put out by Paternoster Press.

*Ramm:* I've never put all my royalty statements together to figure out the total, but it has continued to sell through these 25 years. What they're selling over here now is the English edition in paperback. The English have different spellings and a slightly different numerical system when you get above the millions, so an Englishman had to translate my Americanisms and the American way of counting into the equivalent Britishisms. What has happened over this 25-year period, and still happens, is that I'll bump into some person in some city where I happen to be, and he'll say, "At a particular time in my career I read your book, and it's the thing that kept me in the evangelical camp." That has been surprising. The most unusual experience I've had is when I went with World Vision to Indonesia. We went to the very last island, the island of Timor. They didn't have hotels there so we were farmed out into homes. I was in the home of one of the few Dutch physicians left in Indonesia, and as I walked into his house there on the coffeetable in the center of the living room was my book. He didn't know I was coming, so it wasn't a "plant." That's sort of funny, to be at the end of the world and the one book in the place is your book. Then sometime in the late '50s or early '60s, the Evangelical Press Association presented something like 1,000 books to the White House library and *The Christian View of Science and Scripture* was included in that. So whenever I see the White House on TV, I can say, "Well, I've got a book in there."

*Hearn:* Has it been translated?

*Ramm:* No, I think because there are very few schools overseas that would teach that topic. Textbooks, or else something terribly famous, are what get translated.

*Hearn:* Do some schools in North America use it as a text?

*Ramm:* I don't know. Once in a while I get a good report that it still covers the territory better than anything that's come out since—at least as far as the range of topics it covers.

*Hearn:* In the best evangelical books on the science-faith issue, I see your book usually still listed as the place to begin. What kinds of review did the book get in evangelical publications?

*Ramm:* It got both rave reviews and lament reviews. It did bring a couple of things to the surface: how few evangelicals had ever interacted with the philosophy of science, which as a kind of articulate subject is rather new in universities; and how few knew anything about anthropology or linguistics. I think that's still true of evangelicals today when it comes to interpretation of Scripture.

*Hearn:* When it was published, did the fact that you said some kind words about evolution—even though you didn't take an evolutionary position yourself—give you any trouble with Eerdmans, the publisher?

*Ramm:* No, I had full cooperation from them. Wilbur Smith read the typescript, though. I had the word "fundamentalist" in there a great number of times, and he said, "You'd better get that out, or it'll sink like a piece of lead." So I put in "hyperorthodox" in its place. I don't think I fooled anybody, but I did force them to take the next step—to see who these "hyperorthodox" people were.

*Hearn:* That was a good choice, because "fundamentalist" had a negative ring to it, whereas "orthodox" was positive and "hyperorthodox" was even more positive.

Looking back now over the things that you wrote, are there things you would say differently? Or that you feel you should have said differently even then?

*Ramm:* Whenever I have seen anything on archaeology and creation accounts of the ancient world, I've read it. If I were to rewrite the book, I would try to show how Genesis was the same kind of genre of writing as those ancient creation accounts and yet how, expecially in its pure monotheism, it's different from them. Now I think I have a much better idea of how the people of biblical times understood Genesis. Something missing from the book is a theology of creation. I've worked on that more. I think that theistic evolution as some kind of operational faith, as one of the options, isn't around much any more. People say "Well, this is the way I look at the development of life through the geological periods," but it isn't a functional operational concept.

*Hearn:* Do you still like the term "progressive creationism," which you said was your own position then?

*Ramm:* Here I'm an amateur among amateurs, but the more I know of DNA and so forth, and the more complicated life becomes, the more I'm puzzled that it could ever happen on its own in such an intricate, complicated chemical way. Something of the order of 100 sets of *Encyclopaedia Britannica* is coded into those molecules. I'm sure that people like Darwin had no idea of how incredibly complex the germ plasm is.

*Hearn:* So you're very much at home calling yourself a creationist, even though some people now take that term to mean something very specific about the age of the earth?

*Ramm:* Yes, with some people the word "creationist" has come to mean a special way of looking at science and looking at Scripture.

*Hearn:* Do you have much dialogue with people who believe the earth is very recent? With the "recent creationist," "special creationists," or "young-earth" advocates?

*Ramm:* No, we haven't bumped into each other—or if we have, I haven't known it.

*Hearn:* Maybe you're on *their* classified bibliography under "Books of Limited Worth Due to Improper Spirit"! What do you think of the course the creationist-evolutionist controversy has taken since your book was published?

*Ramm:* What disturbs me the most about the most rigid creationist views is that they drive Christians and scientists millions of miles apart. Some of them amount to a total denial of anything significant in geology. There's a unity to the sciences and the borders of the sciences overlap. You can't just pick out geology and say, "Science is all wrong there, but it's right in all these other territories." Take the use of atomic materials, high-speed atomic particles, X rays and so on; going to the doctor to get an X ray is one piece of the science, but it spills over into geology. It's odd if you have to say that almost 100% of the world's geologists are wrong, but once you get away from geology the scientists are pretty right. That seems to me to be something creationists have to come to terms with.

*Hearn:* The most energetic special creationists would argue that essentially all of science has to be restructured. Do you think there's any possibility of doing that?

*"I was in the home of one of the few Dutch physicians left in Indonesia, and as I walked into his house there on the coffeetable in the center of the living room was my book."*

*Ramm:* There's a certain pragmatism to science. If you have to restructure science, you have to deny an enormous amount of success up to this point. Take the sophistication of going to the moon and back. However right or wrong one thinks science is, it did do that. Think of the number of successful surgeries that go on in hospitals every day. And technology in industry. So there is enormous pragmatic weight in favor of a lot of scientific theory. Even if you could restructure, that wouldn't mean you're going to totally overturn. Maybe you're going to suggest some new basic principles.

*Hearn:* I imagine you've heard about astrophysicist Robert Jastrow and his admission that the structure of the whole universe is so remarkable that people who look at that structure have to acknowledge that they face mystery. I've seen a quote of his to the effect that when the astronomers have learned all they can, "when they have crossed over the hill they find that the theologians were there ahead of them thinking about these things."

*Ramm:* Yes, and the "Big Bang" theory has picked up new prestige. But I've talked to scientists who don't believe anything, and I find that they are not impressed with that kind of reasoning. Their basic response is, "Yes, there's a crook in the road, and it appears that yes, there's a God who is doing this, but we're going to do some more experiments and ten years from now we won't look at it that way. So we'll just sweat this one out until we find out the answer later on." And when it comes to the "argument from design," I heard a scientist make an absurd statement that at least showed his mentality. He said that if something appeared to be designed with a probability of a billion to one, he still wouldn't believe it was designed. So you have that kind of tough attitude in a lot of scientists. They won't believe anything but what they empirically know, and if there's a puzzle they just say, "Well, we'll sweat it out and we'll eventually solve the puzzle."

*Hearn:* Isn't that why the conflict is really a philosophical one? I mean, there's a scientific way of looking at the data and a religious way of looking at the data. There are two ways to do it, and you have to decide which way to look at it.

*Ramm:* What I had in mind is this: sometimes Christians think that if you come to the place where we are now, with the Big Bang theory picking up what I gather is experimental verification, with discovering the "hisses of the original electrons"—or whatever the new findings amount to—they think all scientists should capitulate, that they are forced to believe in God. But scientists can be tough characters. They don't capitulate that easily.

*Hearn:* Philosophically, can't you say that that's a basic difference between the scientific outlook and the religious

outlook? In science there's nothing that can force you to believe. If there were, you wouldn't need a religious outlook, because you'd get it all out of science.

By the way, what sort of people are you in contact with now? Do you interact with non-Christians? With people trained in science? Where do you see your ministry now, and has your book on science been a part of that? You've written a lot of other books, I know.

*Ramm:* One reason I wrote a book on science and Scripture was that I knew there wasn't any academic career in teaching something like that. My basic orientation is in theology. In my reading and writing, I've spent about 90% of my time on theology. But thanks to the ASA and other groups, every once in awhile you pull me out of my shell to lecture on something—so I get back with it for a period. And of course when I see books here and there that are relevant to the subject, I buy them and read them.

*Hearn:* What are your interests now? What branch of theology?

*Ramm:* I've had about three central interests in theology. One is historical theology, because we can't understand where we are until we know where we came from. I've spent a lot of time in contemporary theology, because theological students need an orientation of the jungle they're going into. And then I've always worked on what I think is evangelical theology, or the best evangelical theology.

*Hearn:* Would you care to make a rebuttal to James Barr's rather scathing remarks about you in his recent book, *Fundamentalism*? [Westminster, 1977]

*Ramm:* When people read Barr's statement that I have no sense of humor, they die laughing. If you have his presuppositions, there has to be something wrong with everybody not in line with him. And if you read the reviews, especially the British reviews, that works in reverse. Barr is out of line with evangelical views and they mow him down. I think the important point of his book is the question, "Are you evangelicals really people of integrity?" So whatever mistakes he makes in interpreting different evangelicals are partly due to his severe limitation in reading the full round of them. What comes through to me is that here's a guy who's blowing the whistle. We ought to hear those things that he has to say.

*Hearn:* It occurred to me that if you took one of *his* books written 25 years ago, you might also find some things to chuckle about. One point he made about conservative theologians was that their interest is often in technical matters—like scientific matters of archaeology or linguistics and so forth—not in what he would call "pure theology." He intended it as a criticism, but as a scientist I thought of it as sort of a compliment. At least he was giving evangelicals credit for taking science seriously. In fact, I've wondered if Barr's crack about your sense of humor isn't also a kind of backhanded compliment. After all, you reviewed a lot of fundamentalist works even though you later classified some of them as of little value. You tried to take them seriously without mocking them or putting them down. Maybe he thought you should have ridiculed them. Ridicule seems to be something that he's good at. Barr said that evangelical theological scholarship, what he would call fundamentalist scholarship, didn't seem to understand historical criticism or literary style. He said those things were largely a matter of taste. I think he was saying that evangelicals should be embarrassed over their lack of taste. But when you come to such matters as Christ's resurrection, that's always going to be a scandal, it seems to me. It's probably very poor taste to believe in the resurrection!

*Ramm:* There's a split right down biblical scholarship all over the place. The evangelicals want to study critical materials to know their text better, to know how the word of God comes through that ancient document to us today. The other guys are studying the Scripture as just so many technical problems in Semitic history or Palestinian geography, as issues just for the sake of issues. Somebody like Barr sees all those technical studies of Old Testament matters where he's a specialist, but he's just looking through a different knothole. Others want to be just as academic about Scripture as he is but they have a different motivation. So you always come out with different conclusions when you have such very different starting points.

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***"It's odd if you have to say that almost 100% of the world's geologists are wrong, but once you get away from geology the scientists are pretty right."***

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*Hearn:* With the kinds of hard-headed scientists you were describing, who aren't made believers by discovering that the world must have been created, belief in Christ is always going to seem "embarrassing," it seems to me. There comes a point at which, if you take a religious view, if you believe, you risk a certain amount of embarrassment. You have to go beyond what the facts require you to acknowledge.

Now that we're on the subject of the Bible and theology, let's talk about the question of how one regards the Scripture. What do you think of the current controversy on inerrancy?

*Ramm:* I mentioned before that evangelicals, apart from the missionary camp, do not know much about linguistics or anthropology. Many of the discussions are about how one produces a perfect book, instead of about how, as a matter of fact, God's word does come to us in ancient languages and in ancient cultures. Just from the standpoint of linguistics we know that languages are put together differently. Hebrew is what we call an analytic language, and Greek a synthetic language. We translate them both into English, which is an analytic language, and such nuances of linguistic theory give the impression that language is the same as mathematics. No matter whether you're Russian, American, or Japanese—mathematics is the same. That might be true in math—but not in language. Language gets skewed as it gets translated. You get these questions of whether statements about women in Scripture, or homosexuals in Scripture, are cultural things or not. They're just two issues about a more basic issue: how much is a cultural cul-de-sac and how much is necessary and transcultural. I think that's where the discussion ought to

be and to the degree that it isn't, it's artificial.

*Hearn:* In other words, even if you took a stand for inerrancy, say, you'd still have all those problems of the Scriptures as we have them now and the way to interpret them.

*Ramm:* Philosophers have tackled the question, "What are the attributes of an inerrant sentence?" "How do you know when you've got one?" Of course, one could solve that theologically: "Only when God says it." But we have a Hebrew prophet writing in a Hebrew language in a Hebrew context, so it isn't quite that simple. At least the logical problem is there, and I would like to see that logical problem discussed. I've lectured on what I call degrees of precision in Scripture. For instance, sometimes New Testament writers quote Old Testament writers rather freely. But sometimes when they want to prove a point, they get very precise. So degrees of precision vary a great deal in Scripture; I can live with that and handle it. I think that people with certain concepts of inerrancy don't know how to handle the wavering and fluctuating degrees of precision you get in Scripture itself.

*Hearn:* In the inerrancy question as well as in the age-of-the-earth question, many of us see that those issues tend to divide Christians who might better be working together to thrash out those questions. Does that disturb you?

*Ramm:* Basically I think that our internal divisions are misplaced battles with the external gang. In other words, I think we feel threatened. Psychologists talk of a "kick-the-dog" mechanism, where you're really mad at the boss, but he's too big and too important to kick—so you come home and kick what is available and won't retaliate. Seriously, I think many of these internal debates really are reflections of how much pressure we feel we're under from a non-Christian world. The helpful thing to do is to look at the threat and see that it's the thing we're afraid of. Then we should respond to the real threat, not to some pseudo-threat. Take this matter of the inerrancy debate. I think the real fear—I have to play psychologist here—is the enormous amount of critical material ground out by the Old and New Testament scholars. What do we do with it? How do we handle it? You can take a certain view of the Bible which makes it all irrelevant. You get the lizard off your back that way.

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*"When people read Barr's statement that I have no sense of humor, they die laughing."*

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*Hearn:* Do you feel that in general young theologians are being trained well now in evangelical seminaries?

*Ramm:* I haven't been around them enough to have anything more than just an opinion. I am concerned about the enormous pressure we're under now to discuss particular issues like world hunger, the world population, the terrible things in South America and so on. That tends to take up so much time in the program that historical theology and so on gets neglected. Students come out very aware of what's happening right now, but not of what happened before. Yet you can really assess the present only if you have some kind of leverage from the past. That's the greatest concern I have with evangelical education, and the problem would vary a great deal from school to school. A very fundamentalist reactionary school would perhaps never even talk about those issues. So it's no problem with them. They have a different kind of problem.

*Hearn:* What do you think the ASA can best address itself to in the future?

*Ramm:* I've just mentioned some contemporary issues. Ecology is a big issue. It was discussed in a recent *Journal ASA*, and that was good. I think what has happened since I wrote the book is that "the Bible and science" is no longer such a big issue across the whole evangelical camp. New things have emerged. Medical ethics is an issue about which I have done a great deal of reading and lecturing related to science in the past ten years. I've mentioned just a sample of the issues. So the ASA has plenty to be doing now. And then I think, again with one foot in history, that there's a certain value in going back and reviewing previous debates to give us perspective. Perspective is the hardest thing to have in the midst of things—to see how big or how small an issue is.

*Hearn:* I am delighted that you have come to Berkeley to teach theology at American Baptist Seminary of the West (and maybe help us out at New College). What was your previous position?

*Ramm:* The First Baptist Church of Modesto, with over 3,000 members, has a large intern program at both the college and seminary level in which I taught. We had our own classroom building and a library of about 10,000 books. The college and seminary classes are accredited through Fresno Pacific College and the Mennonite Biblical Seminary. Once a week I went down to teach in Fresno.

*Hearn:* So you were teaching theology to theological students?

*Ramm:* Oh, it was more than theology. I usually taught an expository course on some book of the Bible, and I also taught Reformation theology and a course in Christian apologetics.

*Hearn:* Did you come here from Eastern Baptist? I seem to remember you went to California Baptist Seminary at Covina from Baylor.

*Ramm:* Yes, I was at Covina for 16 years, then at Eastern for three years. My wife has had a lot of back surgery and Philadelphia was really a dangerous climate for her. We were worried she might slip on the ice.

*Hearn:* To get back to *The Christian View of Science and Scripture,* in the 25 years since then, have you seen any encouraging changes?

*Ramm:* I've been glad to see the emergence of different kinds of groups, like the Christian sociologists, to tackle some of the issues. One thing I've been sort of surprised at, though, is how much the fundamentalist mentality has stuck with us. Perhaps I identified it with small separatist denominational groups, which I thought were going to have a tough time growing much in the 20th century. I was right about that, but wrong on how strong the fundamentalist mentality is, apart from the movement—that is, as a way

of thinking. I find that the average church member in the evangelical churches is a little closer to fundamentalism than—to use another word of the 20th century—to neo-evangelicalism. I have been surprised at that.

*Hearn:* Do you think that ASA or other organizations like it can help to overcome that?

*Ramm:* No, I think it's due to a failure of the theological seminaries. They don't tell students how what they learn in seminary carries over into their preaching, teaching, and general relationship to their local church. On a great number of issues the congregation is therefore kept ignorant—they know the issues as of the year 1750. They take this simple position: "The Bible is as it is, or else it's destroyed by the higher critics." Any evangelical approach to biblical criticism just isn't known or understood. And I guess I'm surprised at so much continued hostility to evolution. I realize that in my research for the book I missed something that I've found out subsequently. From an academic standpoint Freudianism or Watson's behaviorism is perhaps more devastating to Christian faith than evolution. But those who set the pace for fundamentalism in the late 19th century looked at evolution as man's supreme sinful rebellion in science, and to them that made it different from any other anti-Christian scientific viewpoint. I didn't understand that until 10 or 15 years later, but if it's true then I can understand why there's not just disbelief in evolution but stout resistance to it. Consciously or unconsciously we take evolution to mean the secular world's view of Genesis. This takes the place of the Christian doctrine of creation, and therefore we run into each other at the first verse of the Bible.

*Hearn:* Do you mean where "evolutionism" has been made into a religion that competes with the Christian faith?

*Ramm:* No, I just meant the scientific theory as taught in a good sense and spirit in a college class. The very concept of evolution, even without being refined into a total philosophy of science, is aggravating to many Christians. As I go around, and in conversation I pick up, I'm automatically supposed to be against "higher criticism" and "evolution." It's just a standard fundamentalist position.

*Hearn:* Do you ever have opportunity to explain why those aren't the proper categories? Do you find it possible to educate ordinary church people about such matters?

*Ramm:* In the right situation, and where we have about an hour to talk back and forth, I'd endeavor to do that. If it's just on-the-spot conversation, then the odds are against you. I've done a certain amount of teaching to laity and in extended classes, and I've found in reading student papers that many feel there are six modernists in every book they read. I try to tell them that the ticket to criticism is that one must first understand. Understand the writer; then criticize him. If you start deciding on the first page whether he's fundamentalist, liberal or modernist, you'll never learn anything.

*Hearn:* What sort of things have you been learning, yourself, lately?

*Ramm:* The book that's had the biggest impact on me is a book on the philosophy of science by Errol E. Harris, *The Foundations of Metaphysics in Science.* [Allen & Unwin, 1965] It's a kind of oddity because it's a process-philosophy view of science. I have no appetite for "process theology" built on process philosophy, but I do have an appreciation for process philosophy in science. It looks like a wholistic view of science as the other side of the so-called analytic or dissecting view of science. Bergson once said you must never confuse the dissected frog with the living, jumping frog. Well, Harris concentrates on the living frog. He shows the dynamic systems in nature and living things, that we are a positive creation—that is, a human being is a total living organism, not just a collection of parts, like you might make one VW out of ten junked ones.

*"Many of the discussions are about how one produces a perfect book, instead of about how, as a matter of fact, God's word does come to us in ancient languages and in ancient cultures."*

*Hearn:* Could you say a bit more about process theology?

*Ramm:* To begin with, any really close alliance of theology with philosophy has always proved detrimental to theology, whether the philosophy was Kantianism, Hegelianism or Aristotelianism. So I'm allergic to a close affiliation of philosophy with theology. I don't know what the statistics are, but maybe 95% of the process theologians come out of a liberal theological background—so right to begin with, you have to deny the whole evangelical program in theology to get started. That strong disposition toward the historical liberal tradition has made me rather skeptical of process theology.

*Hearn:* Are you working on a new book now?

*Ramm:* Yes, I'm doing an evangelical Christology. I'm on the last draft of that one. I've been thinking that somebody ought to do for biblical criticism something like what I did on Christianity and science. There are efforts in that direction, but I don't know of a wholesale effort to show the positive theological work of biblical criticism that is part of the human and historical side of revelation. Unless we explore that, we don't have the full view of Scripture in hand. It's like the ancient controversies about Christ, where you had a docetic Christology that ignored his humanity. Well, we have a docetic Bible; we don't actually relate to how it was generated—in a given culture, and a given language, how it was written down, their concept of authorship and citations, and so on. But that would be a very difficult one.

*Hearn:* Looking back over all the books you've written, where would you place *The Christian View of Science and Scripture* in your "corpus" of work?

*Ramm:* The book that has sold the most has been a textbook, *Protestant Biblical Interpretations.* It sold mainly because so far it hasn't had much competition. The book *I* like the best is called *The Evangelical Heritage.* I tried to show that we evangelicals of the 20th century weren't

created here, that we want our roots to go back to the Reformation, back through to the New Testament. But I've gotten great satisfaction out of my book on science because so many people that I never even knew existed have said that "this book pulled me across the line" or "kept me straight," and two or three have said it led to their conversion. That's an ample reward to make up for the bad press I got the first three or four years the book was out.

*Hearn:* Throughout your career you seem to have been interested in both "pure" and "applied" theology.

*Ramm:* In an ordinary school year I get around to at least three or four Christian colleges, and I see the particular problems the professors are facing. I think the most critical problem for the Christian professor, or for any thinking Christian for that matter, is the problem of alternative explanations. Take the doctrine of sin, for example. Does the psychiatrist or psychologist tell us totally why there's deviant behavior or antisocial behavior? The sociologist shows how the place where somebody is brought up or lived has such an impact on them. When the psychologist and sociologist are through talking about deviant human behavior, is there anything left to say about a human being as a sinner? We may have a theological explanation, but there's also an alternative explanation. Obviously psychology and sociology have a lot to say, but at what point does the Christian interpretation take over? The same thing is true of history. We have an explanation of things in the ancient world or the New Testament period from the historian's standpoint. At what point can we say "Here's the Christian additive?" It's a problem for the Christian psychologist, the Christian sociologist, the Christian historian, in particular. They have to know where their specialty ends and where the Christian faith has something to say. I've seen instances where somebody buys the whole secular explanation; their Christianity is just something they believe when they go to chapel.

*"I think many of these internal debates really are reflections of how much pressure we feel we're under from a non-Christian world."*

*Hearn:* You talk about alternatives in a relatively positive way, as though it's healthy to have two views, whereas people in the Reformed tradition seem to feel there should be only one view and it should be the Christian view.

*Ramm:* I don't think they're off the hook on this. I've read some of the materials coming out of the Institute for Christian Studies in Toronto. For example, when Seerveld writes on aesthetics he has to know all about secular art theory in order to come along with strength in his Christian interpretation. He can't give a totally Christian interpretation, meaning that there's nothing included in that interpretation that he has learned from secular criticism of art. I've read another of their writers on philosophy and he had to know an awful lot of philosophy before he started to give the Christian interpretation. That's what I mean. You have to have a thorough grounding in the secular subjects as your professional ticket.

*Hearn:* As I understand it, the Reformed concern is always that the underlying metaphysics or presuppositional structure is so wrapped up in the subject that to become actively involved in the subject means to subscribe to that metaphysics also.

*Ramm:* A Christian teaching sociology certainly has to learn what all the sociologists say, and he has to depend on a lot of secular sociological research, so-called laws of sociology—and the Christian element comes in primarily where he ties all that together. I'm thinking particularly of the Christian professors because this is something they face every week. With the rest of us it comes and goes, depending on what we read or who we talk to.

One thing I've gotten tremendously interested in is literature and theology. I've always had an interest in literature, and I've been reading the unusual British products of Williams, Tolkien, Sayers, Lewis, and the American transplant T. S. Eliot. In theology now there's emerging a realization that the best way to understand Scripture is through literature, not through linguistic expertise in Hebrew and Greek. For example, the book of Job is going to be best understood by somebody in literature rather than by an expert in Semitic languages. I've taught a number of seminars on theology and literature. Right now I'm reading Agatha Christie's autobiography.

*Hearn:* I've often thought that the Psalms, for example, are lost on someone who has no sense of what constitutes good poetry in English, let alone Hebrew.

*Ramm:* Yes, I have an Old Testament friend who spends endless hours checking the Hebrew text—to be sure every letter is in the right place—and I sometimes wonder if he knows what that Psalm is about. Maybe a person who doesn't know even a word of Hebrew, but knows a lot of literature, is going to give the best interpretation of a Psalm. That movement in theology is still quite small, partly because it has to buck 400 years of emphasis on the philological approach to Scripture, which started with the Reformation and the recovery of Hebrew and Greek. But I think the protest is going to get louder and louder.

*Hearn:* Now I'd like to ask your wife a question or two. Mrs. Ramm, what has it been like to be married to a theologian who gets into controversial questions all the time? What was it like in 1954 when he was getting a lot of criticism after his book on science came out?

*Alta Ramm:* Well, believe it or not, he was totally surprised that the book was controversial! We had gone to college together and in university days he started to develop his strong interest in science. He had become a Christian just two months before he started university, so one of the big burning issues of his life was putting his Christian faith together with science. He started out wanting to be a chemist, but then he decided he wanted to go into the Christian ministry, so he transferred from science into philosophy. But he kept on reading. Unlike his other books, that one came from the accumulation of articles, thinking and notes from college days. Through all those years he had been putting away little nuggets of thought,

*"I'm surprised at so much continued hostility to evolution. From an academic standpoint Freudianism or Watson's behaviorism is perhaps more devastating to Christian faith than evolution."*

what he'd picked up as he read, and it became very familiar to him. Before he sent it to the publisher in its finished form, each chapter had been sent to a Christian whom he knew as a specialist in that area. He had their high regard and their kind suggestions, so he had worked in a circle of approval among fellow Christians with a scientific interest. That may have isolated him from the rest of the world, and how most Christians were really thinking about science. He had lived in that little sphere of his own for so long that when the criticism poured in, it was such a surprise. He didn't realize he was out of step with so many Christians.

It was interesting to see who criticized the book and what they criticized. It was unbelievable that some of the most famous names of that time in Christian circles—popular speakers and ministers and leaders—read the book and their blood pressure rose so rapidly. They put their reactions down on paper so fast that they fired over like a bullet to us. Some of the things they said we read and reread and could not believe it. The criticism was so sharp, and often it was totally biased and unfair. But just as reviewers reveal themselves more than the book they review, those letters showed us a different side of many personalities that we had known in the Christian faith as fellow ministers. One man, very well known nationally, wrote a three-page, single-spaced, typewritten letter of sharp criticism. Then he went on to give his own views, which were so fantastic that even a science fictionist wouldn't have accepted them—what he believed existed before the world was created, and all sorts of wild things. Then he ended up by saying that "of course no one but myself knows I believe these things." If he had ever put them in print, it would definitely have been the end of his career! So we got a lot of shocks.

The first 50 letters that poured in were almost vicious and dogmatic, coming through like bullets with hostility. Then later, after a month or so, we began getting very thoughtful and very fine letters from educated people. Many started in by saying, "I have never written to an author before, but I want to now." Many physicians said, "Until I read this book I had my science in one compartment of my mind and my Christian faith in another. I had to live with that polarity or dualism because I could never bring them together in harmony." And many Christian teachers of science, either in high school or particularly in college, and those who had Ph.D.'s and were in research, said they had the same problem. They had lived with that dualism and had never been able to merge them or build a bridge between them, until this book, which had helped them a great deal. I had an uncle, now with the Lord, a physician who specialized in obstetrics. When we sent him a copy he was so excited he wrote to say he had just ordered enough copies to give to every doctor he worked with or knew in the city. He said that since his medical school days—I suppose he was in his 50s or 60s then—he had no answers at all. He was a devout Christian and very active in the church, but he said, "I finally have something to grasp and a way to communicate with my fellow physicians in telling them about Christ. This has given me the greatest peace I've had in many, many years."

*Hearn:* Did you lose any friends over the book? Did it sort of "type" your husband in the sense that there were certain places where he was no longer welcome as a speaker?

*Alta Ramm:* Yes, undoubtedly it moved him out of a certain circle. There were certain places once enthusiastic about his ministry who never asked him back after the book came out. They just dropped him. We have a lot of good friends from college days, but with some we find it wise to stay away from the area of science so that we can retain our fellowship. Only twice has a close friend locked horns with us. It isn't my husband's nature to be argumentative. He's an even-natured person. If anyone gets hot, he gracefully changes the subject. But it was very interesting to us that the negative letters poured in at first, and then the positive ones began to come in. It's been many years now since he's gotten a negative one.

*Hearn:* When I came over to do this interview I was thinking primarily of how much *The Christian View of Science and Scripture* has meant to members of the American Scientific Affiliation. But maybe it has worked the other way, too. Maybe a lot of those positive letters were from people in the ASA, so that we were able to be of some help at a time when encouragement was badly needed. Thank you both very much.

# Personal Reminiscences

Of *The Christian View of Science and Scripture,* Wilbur Smith wrote,

> The most important discussion of the problems involved in the vast and difficult subject of modern science and the ancient Scriptures that has appeared in this country in the last fifty years. It is the *only* book that I know of, by an evangelical scholar of today, that can be favorably compared with the masterly, learned works in this field which were produced in the latter part of the nineteenth century.[1]

I shall leave the justification of Wilbur Smith's enthusiastic opinion of Ramm's book to others. However, his appraisal of the book seemed to be fully in line with my own reactions at the time.

Consider the setting: the ASA was 13 years old when Ramm's book appeared, but really only about 9 years if you count the growth rings because of the limited activity during World War II. Much of that early period was taken up in writing the "handbook" which culminated in the volume *Modern Science and Christian Faith* [Van Kampen, 1948, revised 1950]. The ASA membership was small, qualified writers scarce, but the exercise brought into sharp relief the enormity of the philosophical, exegetical, and scientific problems involved.

Ramm's book was a breath of fresh air. I am speaking primarily of the first four chapters of the book which deal with the principles with which problems of science and our Christian faith must be approached. These are of classic and lasting value. The last four chapters, applying these principles in the specific fields of astronomy, geology, biology, and anthropology, were also helpful, but recognized as tentative and from one whose specialty is elsewhere. Ramm's *Science and Scripture* nailed a list of new criteria to the church door right under Luther's.

When Bernie Ramm defended his doctoral dissertation in the field of philosophy of science at the University of Southern California, I had the privilege of sitting in. It was a masterly exercise in defending Christian concepts in the face of sharply critical attitudes. The knowledge and poise he exhibited and his winsome elucidation of evangelical perspectives served him well during those gruelling few hours. These same characteristics in the first four chapters of this book have also served the evangelical community well during the past quarter century and should continue to do so for many years to come.

[1] "An Epochal Work on Science and the Christian Faith," appearing in Wilbur M. Smith's *In the Study* feature, Moody Monthly.

**F. Alton Everest**
Whittier, California

It is a pleasure to acknowledge the great influence which Ramm's book has exerted on me. I first read it in 1955, just after finishing my Ph.D. in chemistry, several years following my conversion to Christian faith. Before reading Ramm, I had not done much to relate my views on Christianity and science. I had my hands full scientifically with my graduate work in physical chemistry at Duke University and in my Christian reading and thinking I had concentrated on distinctively biblical and theological writings. Such overall perspective as I had was seriously infected with a God-of-the-gaps mentality coupled with suspicion [acquired from overdoses of what Ramm taught me to call hyperorthodox literature] that scholarly investigations of the Bible and its relationships with other fields including the sciences were almost always fatally flawed by relationalistic presuppositions. Reading and rereading Ramm's book was quite mind-clearing for me. He was the first to show me several important things:

1. The existence of a tradition of scholarly Christian investigation of Christianity and science which combines high standards of scholarship, open mindness, and commitment to the unique revelation given in the Scriptures.
2. The need to see the biblical doctrine of Creation as basic to an intelligent discussion of these matters.
3. The need to see Creation and Providence as involving more than a discussion of origins and mechanisms.
4. The nature of biblical descriptions of natural phenomena as essentially theory-free.
5. The necessity of combining the profoundly theistic view of nature found in the Bible with philosophical categories if it is desired to make contact with discussions which themselves employ philosophical terms.

Ramm helped me to see that legitimate differences of opinion are compatible with a distinctly Christian perspective, and that differing interpretations may be possible even with the same Christian presuppositions. Since Ramm's book seems to have involved a breaking of new ground with many evangelicals it is surprising to realize how well the main part of the book [the first three chapters] stands up to rereading today. I am thinking here primarily of how Ramm treated such general matters as the need for harmonization of science and Scripture, his analysis of the conflict, and his survey of the fundamental issues involved. I suppose that the situation is different with respect to the later chapters of the book in which the specific scientific disciplines are considered, since much has been written on these subsequently, a great deal of it doubtless as a reaction to Ramm's treatment. This is especially the case with evolution, a topic whose supposed importance has never captivated me.

It is not with respect to evolution or any other particular scientific issue or suggested resolution of a conflict where I have found my help from Ramm. Rather, it is in terms of general orientation of learning what the basic issues are, and of the need for bringing an irenic spirit to an investigation which must be both scholarly and devout. I do not expect that I will undergo any significant changes in my opinions regarding these basic and general matters, and

accordingly I owe to Ramm both the incentive to become mature in my Christian outlook towards science as well as the basic outlines of the position which he laid down and which I still find to be best.

**Dewey K. Carpenter**
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It was my great privilege to have Bernard Ramm as a professor during the years 1947 and 1948. I was then a student at Biola Seminary [the forerunner of Talbot Seminary] in Los Angeles, California. He was teaching full time and completing his doctoral studies at the nearby University of Southern California in the philosophy of science. To the best of my recollection, he was the only seminary faculty member there involved in graduate study in other than theological fields. As was typical at the institution then, he was teaching a wide variety of courses, some well outside his areas of professional preparation. Regardless of this handicap, he brought a freshness of approach and an intensity of scholarship to his classes that was unmatched by any of his faculty colleagues.

At that period in the Seminary and the associated Bible Institute, many faculty members followed what Ramm later characterized as the "ignoble tradition" regarding the relationship of science and the Scriptures. To suggest that interpretations of Scripture might profit from some knowledge of science was tantamount to heresy. In this setting, Ramm's scholarly, rational and unemotional presentation of the concepts which later appeared in *The Christian View of Science and Scripture* was both controversial and unsettling to many.

For me, personally, Ramm's ideas were most refreshing. He saw the field of science as a challenge to Christian thinkers, but not a threat. A career in science was viewed as a valid and worthwhile option for young Christian students. Needless to say, such ideas were unusual in an institution dedicated to educating pastors and missionaries. His influence played a very large role in directing me into a scientific career after completing theological studies. His constant emphasis on attempting to harmonize the two fields has been foremost in my thinking for over three decades.

When *The Christian View of Science and Scripture* appeared in 1954, I eagerly secured a copy and devoured every word. Over the ensuing years, I have loaned and given copies to students and faculty colleagues, used it as a text on occasion, and been immensely grateful for its continued availability. It is obviously not the last word on the subject, and I've long regarded the choice of the definite article in the title with some dismay. However, it certainly represents the only acceptable approach, namely that since the world of nature and the word of revelation come from the same author, we must harmonize, not polarize our understanding of their interrelations. While not a new approach, Bernard Ramm has certainly set it forth in the most thorough, reverent and scholarly style of our lifetime.

**David L. Willis**
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This industrial biometrician, a servant of science, who just had had theological questionings satisfied by studying *Mere Christianity, Miracles,* and *Problem of Pain,* all by C.S. Lewis, welcomed the appearance of *The Christian View of Science and Scripture* as an eminently logical, scholarly treatise, which met a definite need and kept me in the fold. Markings in my book give a clue to the needs of those years.

". . . We must insist that one of the greatest mistakes of modern scholars is to equate the Christian mind with the medieval mind and then to accuse the Christian mind of all the mistakes and fallibilities of the medieval mind." (p 26)

"*Creation and development are both indispensable categories in the understanding of geology and biology.* The fiat creationist can be embarassed by a thousand examples of development. Progression cannot be denied geology and biology. The chasms in the order of life can only be bridged by creation." (p 272)

". . . We note that the language of the Bible with reference to natural things is *popular, prescientific,* and *non-postulational.*" (p 76)

A mutual understanding by the "Two Cultures" (especially Christians thereof) is fostered by this book. This understanding can be helped also by a book from the other culture, *That Hideous Strength,* which commonly is viewed as anti-scientist but the facts belie this—Hingest, the *only* eminent scientist in the institute, who motored away when he found it to be really "something like a political conspiracy," was murdered ("No one leaves the Institute."). The message is about something the two cultures share—men seduced by power; mutual understanding is gained here too. Ramm's objectiveness, fairness and, above all, truthfulness set a high tone, e.g. "White's *The Warfare of Theology with Science* needs correctives, yet. . . (it relates) how profoundly the progress of science has purified theological thought." (p 60) This characteristic of "giving the devil his due" is even more evident in his recent book, *The Devil, Seven Wormwoods, and God.* Thank you, Bernard Ramm.

**John D. Haynes**
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As a high school student I was keenly interested in science, giving my first lecture on evolution in the 9th grade. In the 10th grade I was converted to Christ and instinctively rejected evolution, much to the chagrin of my biology teacher.

Before I graduated from high school in 1954, I had read Jeans, Eddington, Dampier, and Heim. But it was Bernard Ramm's *The Christian View of Science and Scripture,* published in 1954, that helped me to clarify the issues between science and the Scriptures, and to demonstrate that there were no insuperable problems and no necessarily final conflict between evolution and a Christian view of origins. Ramm pointed out both the strengths of micro-evolutionary data and the weaknesses of some of the macro-evolutionary theories.[1]

As I have reread the volume, I have been impressed anew at the perceptive way in which Ramm dealt with all the

major issues — many of which still remain today. In a manner which I did not fully appreciate 25 years ago, Ramm demonstrated a thorough knowledge of the literature which was both diachronic and synchronic. That is, he was well aware of the history of the controversies, and was widely read, particularly in the writings of Catholic scholars.

Those who do not know history are perforce often led to repeat the same historical errors, as we can see from the extreme positions which have been taken both by some who affirm the biblical record and by some who deny it. On the one hand, we have Christians who insist that we must interpret the account in Genesis as a "late" creation with only apparent indications of time. On the other hand, Magnus Magnusson, rector of Edinburgh and a commentator on BBC, has just published a book *Archaeology of the Bible* [New York: Simon and Schuster, 1977], in which he pokes fun at Christians who according to "a literal reading of Genesis" believe that Adam was created in 4004 B.C. — a view which Ramm had long shown to be untenable [p. 37].

In the areas where I have contributed articles, e.g. on Noah's Ark,[2] on the Babylonian flood story,[3] on the Table of Nations,[4] etc., I find that Ramm's judgments were essentially sound, and that what he wrote is still well worth considering.

Although it would be captious to suggest weaknesses in such a classic work, I am surprised in rereading Ramm's book to see how little reference there was made to archaeology — with but one reference, for example, to the epochal contributions of W. F. Albright.[5]

In conclusion, I must express my admiration for the courage and the confidence which enabled Ramm to take issue with such popular writers and oracles of conservative Christians as G. H. Pember, G. McReady Price, and Harry Rimmer. His must have been a lonely voice crying in the wilderness at the time. Professor Ramm must be gratified to see many of his views adopted by younger scholars and vindicated by the growing number of Christian men of science, particularly in the American Scientific Affiliation.

[1]Cf. L. Duane Thurman, *How to Think about Evolution* [Downers Grove: InterVarsity, 1978].

[2]"Critical Comments on the Search for Noah's Ark," *Near East Archaeological Society Bulletin* 10 [1977], 5-27; "Is That an Ark on Ararat?" *Eternity* 28 [Feb., 1978], 27-32.

[3]Anthropomorphism in Ancient Religions," *Bibliotheca Sacra* 125 [1968], 29-44.

[4]Meshech, Tubal, and Company," *Journal of the Evangelical Theological Society* 19 [1976], 239-47.

[5]Major works by Albright which were available before 1954 include: *Recent Discoveries in Bible Lands* [1936], *From the Stone Age to Christianity* [1940], *The Archaeology of Palestine* [1949), and *The Biblical Period Abraham to Ezra [1949].*

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# *Response of the Press*

When *The Christian View of Science and Scripture* was published in 1954 I was almost old enough for Junior High; I certainly was not reading books on the relationship between science and Scripture. I still have not read a great deal in this area, primarily because I have felt the relationship to be clear—the relationship which Ramm describes by saying

> If the Author of Nature and Scripture are the same God, then the two books of God must eventually recite the same story.[1]

The necessity for studying both "books" is emphasized by one of Ramm's reviewers:

> Natural and special revelation are complementary. It is the twin task of the sons of the Covenant to probe both sources of knowledge. To be sure, God chose not many wise. Yet that provides the servants of Christ no excuse for lethargy in prosecuting the cultural commission along with "the great commission."[2]

None of the reviews which I have seen contain objections to the validity of probing both sources of knowledge, though several take issue with Ramm's methods for making the two sources recite the same story.

In reading through more than twenty reviews one observation that stands out is the frequency with which this work is specifically praised for its sanity: "sane, objective, instructive, scholarly, and biblical;"[3] "a Christian, rational approach;"[4] "informed, thorough and, above all, sane;"[5] "a valuable and sane critique of scientific theory;"[6] "an eminently sane book on a significant subject;"[7] "the perennial problem of science and religion receives a fresh, sane treatment."[8] That sanity should be an attribute to be praised rather than to be taken for granted is also a revealing comment about the general level of the science-and-religion discussion at the time.

Ramm speaks from a position on the conservative side of the theological spectrum, and it is not surprising that most (but not all) of his reviewers reply from somewhere on the same side of the scale. His vigorous reaction against some of the more hyperorthodox attempts to bring about the harmonization of science and Scripture has been widely noted: "Indeed, one of the sad things in his book is the exposure of great quantities of nonsense that have been spilled forth in misguided attempts to defend evangelicalism;"[5] a "strong, almost bitter, reaction to this attitude (hyperorthodoxy);"[2] "a hostile attitude toward fundamentalism."[3]

All reviewers seem willing to grant that Ramm has a broad and adequate appreciation of the scientific material which he discusses; the fundamental point by which they judge the value of his contribution is theological—their opinion of his attitude toward scriptural authority. Attacks come from both right and left. On the one hand: "Good old-fashioned Bible believers will be disturbed to see the concessions the author makes. . . the present volume is not safe to put into the hands of unbelievers or immature Christians;"[9] "a book which. . . shows the way to a low, neo-orthodox doctrine of Scripture. . . It embodies a number of drastic departures from the standard of faithfulness to the Word of God. . . All things considered, this is a desperately bad book."[10] While on the other hand:

> His rejection of the dialectical position of neo-orthodoxy leaves him unable to retain his orthodox faith and still harmonize it with the conclusions of modern science. . . If Dr. Ramm could emancipate himself from propositional orthodoxy into the more maneuverable orthodoxy of living encounter with God in Christ, his position would be easier. His view of revelation seems to be. . . in line with the idea of infallibly true theological doctrines being conveyed by Holy Scripture. . . (The book) has so many good things and yet it is so perverse.[6]

The majority of reviewers, however, found it to be neither perverse nor desperately bad:

> He believes in the full inspiration of the Scriptures but recognizes latitudes of interpretation. . . This book will not receive wholehearted commendation from conservatives or moderns; that is equivalent to saying that it has something to say to both;[11]
>
> the book has been too severely criticized by some orthodox reviewers and indiscriminately praised by others. It should be regarded as a genuine contribution;[12]
>
> . . . should be collateral reading for every high school and college student. . . Here all obscurity is banished and fundamentalism is faced with a competent critic who still embraces an authoritative Bible;[3]
>
> excellent book—the best I know of its kind;[13]
>
> a splendid book that deserves wide reading by evangelicals everywhere;[7]
>
> a strategically important volume for evangelical scholars of all disciplines;[14]
>
> a monument to a new era of evangelical thinking;[4]
>
> . . . sets out a position which is loyal to traditional orthodoxy and at the same time respectful of science. . . a work that may be unhesitatingly recommended;[5]
>
> this book should increase any Christian's confidence that the foundation of faith is the Word of God, which standeth sure;[8]
>
> the most important discussion of the problems involved in the vast and difficult subject of modern science and the ancient Scriptures that has appeared in this country in the last fifty years.[15]

Since *The Christian View of Science and Scripture* is still going strong after twenty-five years, one reviewer's opinion has been proven correct: "This new book. . . blessed or damned by its reviewers. . . seems destined to be read."[16]

[1]Bernard Ramm, *The Christian View of Science and Scripture,* Wm. B. Eerdmans (Grand Rapids: 1954), p. 25.

[2]Meredith G. Kline, *Westminster Theological Journal* 18:49-55 (Nov. 1955).

[3]Harold J. Ockenga, *Christian Life* (May 1955).

[4]Henry Weaver, Jr., *Gospel Herald* (March 6, 1956).

[5]Francis I. Andersen, *Reformed Theological Review* 14:92-93 (Oct. 1955).

[6]E. C. Rust, *Review and Expositor* 54:130-131 (Jan. 1957).

[7]Culbert G. Rutenber, *The Easterner* (Nov. 1955).

[8]Delbert R. Gish, *The Seminary Tower* (Spring, 1955).

[9]*Sunday School Times* (May 7, 1955).

[10]Arthur W. Kuschke, Jr., *Sword of the Lord* (June 10, 1955).

[11]J. M., *The Society for Old Testament Study* (Book List, 1956).

[12]*The Christian Beacon* (Oct. 20, 1955).

[13]Howard H. Charles (Book Review Service, Mennonite Publishing House; May 30, 1955).

[14]*Christian Living* (April 1956).

[15]Wilbur M. Smith, *Moody Monthly* (Oct. 1954)

[16]Robert D. Culver, *Journal A.S.A.* 7:7-10 (Dec. 1955).

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# *Effect on the Literature*

Let me first explain what I did to give an admittedly superficial answer to that question. Then I shall discuss what I found.

I looked for "post-Ramm" books which dealt with his subject which also contained either a significant reference list or a bibliography. Sixty-six such books were found. I have no reason to doubt that these sixty-six books are representative of all such books. Next, I arbitrarily divided them into three groups. Group A books are those which are non-evangelical and evolutionistic; Group B, evangelical, either for or against theistic evolution, but anti-young earth; Group C, evangelical, anti-evolutionistic, and pro-young earth. The numbers of books in Groups A, B, and C were 16, 25, and 25, respectively.

What was found with respect to Ramm's book? The numbers of reference or bibliography listings in Groups A, B, and C were 0, 10, and 6, respectively. One thing is obvious. Although any writer would be happy to produce a book which is cited in 24% (16 out of 66) of the books in the field in the following quarter of a century, there is little evidence that Ramm has had an impact on non-evangelicals. Surely this is no fault of Ramm: non-evangelicals are notorious for ignoring the work of evangelicals.

Furthermore, of the six books in Group C referring to Ramm, only one disagrees with him in a scholarly way. In the other twenty-four books of the group his arguments are either ignored, unfairly handled, or mentioned only in passing. (It would not contribute to the spirit of the discussion to identify these books.)

Ramm's book itself would be in Group B and it is in this group where he is mentioned frequently and favorably. One cannot decide, of course, if an author of a Group B book has been influenced by Ramm or if he cited Ramm because he already agreed with him. Perhaps the most important indication that Ramm's book has been influential is this: only since Ramm's book has appeared has Group B, particularly that part of the group in which his book would be placed, attained any size. Such evidence is only circumstantial, but most who have worked in this field believe that the relation between the appearance of Ramm's book and the growth of Group B is a cause-and-effect relation.

Counting references is always dangerous. Yet I am sure, although I cannot prove it, that authors of Group A books do indeed completely ignore authors like Ramm, that authors of Group B books generally appreciate him and others like him, and that authors of Group C books do not seriously interact with those who write as Ramm does. In

other words, I believe in this case that the reference count reflects the actual situation.

Is this good? Thomas Kuhn in *The Structure of Scientific Revolutions* (University of Chicago Press, Chicago, 1962) claimed that scientists work under the umbrella of a paradigm, a unifying set of ideas. According to Kuhn, the scientific community itself becomes a part of the paradigm. A new paradigm and therefore a new scientific community appear only after there has been a scientific revolution. In the pre-paradigm period there are competing ideas and groups and—note this—the members of a group tend to communicate only with each other. Kuhn's model was intended only for the physical sciences. But does it not apply to us? Do we not act as if we are in the pre-paradigm period whenever we discuss the Christian view of science and Scripture?

There is no need for us to live that way. The Christian community surely ought to be above the level at which competing groups of scholars function. It is one thing for physicists to achieve consensus after the give-and-take of centuries. But it is another thing for the Christian community to function so that its members become of one mind in the Lord. Ramm's book and our experience with his book have both taught us.

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# Reflections on the Book

Bernard Ramm was the first to write on issues in science and religion from the neo-evangelical viewpoint. I myself purchased the book in Manchester on the occasion of hearing a lecture by F.F. Bruce at the John Rylands Library and went right home to read it avidly. That was on November 9, 1960, five years or so after it first appeared. I found myself at that time theologically very much where Ramm himself was, burdened with the concern to vindicate the reliability of the Bible in every respect, and therefore I found Ramm to be very reassuring. At the same time I was surprised and delighted to learn from the author that I was not bound to accept a number of facts I had thought the Scriptures taught. For example, it does not teach, Ramm said, an instantaneous creation or a universal flood, but something much more compatible with what modern science too was saying.

Modern science has had a massive impact upon recent theology. It has brought about a radical rethinking in a host of directions and on a wide range of topics. Often in liberal theology it has inhibited Christian thinkers from venturing any authoritative assertions about concrete matters of fact and caused them to restrict their attention to myths and symbols, producing a kind of shaky truce. Bernard Ramm does not go along with this trend fully, but it must be said that he goes a very long way to reconcile the Bible with the modern understanding of the world, even to the point, some will feel, of supplying implausible exegesis to get Scripture off the hook. The intellectual significance of Ramm's book, which seems clearer to me now than it did then, lies in the rapprochement he attempts between biblical faith and contemporary scientific ideas. No more warfare between the two for him. So long as evolution is a complementary language alongside theological dogma it is no more in competition with it than is relativity theory. How does he know the flood was local? By applying the modern scientific rules of evidence to the question. Too much water would be required, astronomical disturbances would occur, clearer evidence of such a catastrophe would be evident, and so forth. Without denying that God *could* have sent a universal flood (what theist could deny that?), Ramm argues on the basis of modern scientific reasoning, that He did not do so, the very reasoning which earlier conservatives warned against. The same procedure can be seen in his treatment of the long day of Joshua and the dial of Ahaz where he is able to eliminate from the accounts any untoward astronomical disturbances which, as we know, could not have occurred without leaving some evidence. Although I personally support Ramm's logic in such cases, I am compelled to point out that a *basic shift* in theological reasoning has taken place in the evangelical thinking which has succeeded fundamentalism.

If I were to make a conjecture, I would guess that in 1979 Ramm and many of us are less anxious about vindicating the Bible on such points as these and are even open, as we were not in 1955, to recognizing legendary elements in them. If so, then the intellectual revolution which Ramm was in on at the beginning a few decades ago has continued to unfold and is probably not over yet. I am sure that Richard Quebedeaux is correct to call attention to this liberalizing tendancy in *Worldly Evangelicals,* and well justified in wondering out loud where it will all end.

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When Bernard Ramm's *Christian View* was published in 1954, I was still in high school. It was not until my seminary days fifteen years later that I first discovered the work. Even then it was quickly supplanted in my ongoing quest for more adequate treatments, first by Richard Bube and Malcolm Jeeves, then by Ian Ramsey, T.F. Torrance, and Wolfhart Pannenberg. So much has changed in the world of ideas since 1954! Michael Polanyi (among others) has taught us to be suspicious of any sharp distinctions between fact and value (*pace* Ramm, pp. 31, 34f.). Thomas Kuhn has taught us not to regard the paradigms of the ancient world as "filled with blunders" just because they do not conform to modern ones (Ramm, p.70). And Mircea Eliade has even taught us not to write off archaic cosmologies as "fantastic, absurd, mythological, or superstitious" (Ramm, p. 89). As a result the worldview of the biblical writers need no longer be a source of embarrassment for us, and many of the problems Ramm was struggling with turn out to be superfluous.

On the other hand, the effects of the divorce of scientific research from social and ethical norms, the resulting ecological crisis, and the ambivalent impact of science and technology on all that is human have caused me to be more and more concerned about the presuppositions of the *modern* worldview, and from this angle I find Ramm to be full of contradictions. He says that "This is not a universe operating at the natural level or material level as if there were no God. . ." (p.108). But, then, how can it be that "in the vast majority of cases of matter of fact the scientist who is Christian and the scientist who is not Christian concur" (p. 31)? Again he says that "The theological, the ethical, and the practical are so conjoined in the Bible with the statements about Nature or creation that it is *impossible to separate them.* . ." (p.33 italics mine), yet he urges us to distinguish statements directly referring to natural things from those which are "theological or didactic," the former being "transcultural" and still binding! (p. 78). The net result is an instrumentalist, pragmatic approach to nature which effectively removes it from the province of prophetic address and subordinates it to the interests of economic man (pp. 92-95). When I read that "It is part of our probation to learn how to capture or control the tiger and the lion. . ." (p. 95), I sense that the all-prevading influence of modern Western secularism has dulled the religious imagination and suppressed sensitivity to the images and themes of scripture (Ps. 104:21ff, Job 38:39f, Gen. 49:9f).

Please understand that what I am sharing with you is not a criticism of Ramm's book so much as a confession of my own change in consciousness since the fifties and sixties. It is a change that has affected all of us to one degree or another. I believe that it is a change for the better.

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# Responses in Specific Fields

## Anthropology

Although many of the data which Ramm used in discussing human paleontology would have to be revised, the problems which he saw in correlating the Bible and the fossil record are still valid. The major problem is still the relationship of the antiquity of man to the advanced state of culture depicted in the 4th chapter of Genesis.

A number of changes in data would need to be made. He placed the antiquity of man at about 500,000 years (p. 315), but the *australopithecine* forms are well over 1,000,000 years old (some even say they are over 3,000,000 years old). In addition, there seems to be good evidence that some *erectus* forms (e.g., the ER 3733 skull from Kenya) are also over 1,000,000 years old.

In dealing with the Genesis flood, he noted that Indians have been in the Americas since about 10,000 B.C. (p. 336), but we now have evidence that they have been here for at least 20,000 years.

His agreement with Marie Fetzer's statement that there is no evolutionary sequence demonstrable in the fossil finds of humans, and his own comment that "This observation coincides with the best scholarship today among physical anthropologists" (p. 310) can be misleading. It is true that no one is able to place *all* fossils in an evolutionary sequence which is both morphologically and chronologically consistent. However, the great majority of anthropologists accept the general stages of the *australopithecines,* the *erectus* forms, and the *Neanderthals* as demonstrating the process of evolution to modern man. Textbooks in physical anthropology are organized according to this model.

Ramm's comments on the Piltdown hoax (pp. 310-313) are still very pertinent. He argued that if one takes the position that scientists such as geologists and anthropologists cannot be trusted, then their exposure of the hoax cannot be trusted. Unfortunately there are still some Christians who use the frameworks and evidence of scientists to support their own position, but reject them as unreliable when they do not offer support. Probably the most common instance is the concept of uniformitarianism. For example, the same people who dismiss it as invalid will appeal to uniformitarianism in arguing that our knowledge of the effects of floods today can be used to describe what happened during the Genesis flood.

Ramm was something of a prophet when discussing the common objection that anthropologists had too few fossils on which they based their interpretations, noting that if there were a hundred Dr. Brooms, "we might well fill a museum up with prehistoric human fossils" (p. 309). Certainly the record of the Leakey family in east Africa shows that given enough time and sufficient funds, large numbers of fossils can be found.

The different options Ramm discussed in dealing with the origin of man are still those basically held: fiat creation a few thousand years ago, fossil forms as pre-Adamites, a metaphorical interpretation of the creation account, theistic evolution. My personal impression is that today not as many fundamentalists "treat theistic evolution like the plague" (p. 323). Although there are notable exceptions, many who would not personally hold that position are willing to accept as fellow Christians those who do accept it.

Ramm realized that there are problems with any viewpoint and concluded that "if we were to reject all views with serious problems, then no view could be held" (p. 343). He maintained that the Christian interpretation is the one which best accounts for the most facts.

In the past, most of us would have agreed with Ramm's statement that "until we get further light from the science of archeology, we must suspend judgment as to any final theory of the harmonization of Genesis and anthropology" (p. 330). The problem is that the most recent archeological

evidence has confused rather than illuminated the situation. It is not possible to discuss the problems here, but some of them were noted in *Journal ASA* 28 (4):155-164, (1976).

Unfortunately, we seem to be even farther from a correlation between Genesis and the fossil record than we were when Ramm wrote.

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# Astronomy

The astronomical issues addressed by Bernard Ramm—such as Joshua's long day and the Star of Bethlehem—were a vital interest to Kepler and Galileo in the early seventeenth century, to me when the book appeared in 1954, and probably to many people now. That these problems, and those of creation, are as perplexing today as they were in 1610 or 1954 attests to their depth and complexity. What impresses me now is how Ramm's careful research and referencing on these questions has stood the test of time.

When Ramm was preparing his book, the steady state cosmology had only just been introduced. According to that view the universe had no beginning and hence no moment of creation; it had lasted forever, always expanding, and with the continual *ex nihilo* creation of enough hydrogen to maintain a constant density. Ramm never mentions this challenge to a harmonization of science and Genesis.

In the meantime, as a result of discoveries of the 1960's, the steady state cosmology has totally fallen by the wayside, despite occasional attempts at revival. Observation of the 3 K background radiation and its interpretation as the redshifted light from the primeval fireball, plus the ever-increasing data on the non-uniform distribution of quasars in time, have pretty well demolished the steady state theory as a viable world picture.

In fact, the remarkable agreement between the astronomical picture of the abrupt creation of dense radiation energy and Genesis' "Let there be Light!" has driven an agnostic astronomer such as NASA's Robert Jastrow to express his unease publicly in his *God and the Astronomers*. His book has sparked enough interest for *Time* magazine to take up the subject in an essay, which in turn has brought further attention in the media, but astronomers as a community do not seem particularly exercised by the issue.

Of greater moment to cosmologists just now is the question of whether the universe is open or closed, that is, will it expand forever into a ever colder, more tenuous set of cinders, or will it collapse once more into a fiery cataclysm? For years the observational material has favored the former cosmology, but some recent evidence looks as if it might tilt the balance the other way. Christians have always sought for a definite beginning, a moment of Creation, but they have tended to be more indifferent as to whether the world ends with a bang or a whimper. Even a final bang would be so far in the future that the sun itself would long have extinguished its nuclear furnace. In any event, the scriptural apocalypse seems far more likely to involve the nuclear arsenal on the earth than in the sun.

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# Chemical Evolution

There have been tremendous advances in our biochemical knowledge in the past twenty-five years. We have progressed to the point where many protein molecules of defined sequence and with defined biological activity have been synthesized in the laboratory. Also, in the past ten years, some polynucleotides of defined structure and with biological activity have been prepared. In each case, the synthesis of these macromolecules has been the result of the application of human intelligence. The syntheses of these complicated structures are the culmination of planning and experimentation by hundreds of scientists over a number of years. Yet, even today, we are some distance (both in achievement and probably in time as well) from producing life in the laboratory.

In the past quarter of a century, the scientists engaged in origin of life studies, who have depended upon chance (and some limited applications of intelligence), have produced some of the building blocks of biological macromolecules, In each case these building blocks (amino acids, etc.) are mixed with a wide variety of compounds that have no significance to living cells.[1] With chance as a guide, these investigators have also produced some macromolecules from known amino acids in their origin of life experiments. These macromolecules are heterogeneous mixtures of polypeptides, with the components varying markedly in molecular size and physical properties. No polypeptide of defined sequence has been isolated from the products of these experiments. This is not to say that there are no polypeptides of defined sequence in these mixtures. There are undoubtedly many different molecules (possibly $10^{100}$ or more), but each is formed in such infinitesimal yield that isolation of one would appear to be a hopeless task. Contrast this with the synthesis of a specific polypeptide using the machinery of the living cell. For example, let us consider the alpha chain of the hemoglobin molecule. The information for the sequence of this polypeptide resides in a specific messenger ribonucleic acid (mRNA). The sequence of this mRNA in turn has been enzymatically transcribed from a complementary sequence of DNA. The enzyme-catalyzed translation of the information from the mRNA to the polypeptide is so perfect that each alpha polypeptide molecule that is released is identical in every respect (chain length, type of bonds, sequence of amino acids, etc.) with every other alpha chain of the globin molecule. There are no wasted by-products, there is no accumulation of inactive macromolecules, the errors in sequence are infinitesimal,

and the rate of production of the alpha chain is carefully controlled to meet the needs of the cell.

Scientists, by the application of human intelligence, have unravelled many of the mysteries of the living cell. These scientific studies indicate that in order to function, the simplest living cell must have a wide variety of nucleic acids (DNA, ribosomal RNA's, transfer RNA's, messenger RNA's), a wide variety of proteins (enzymes, structural proteins, etc.), and other types of compounds (carbohydrates, lipids, etc.).[2] Each of these macromolecules is of a specific defined sequence, has a unique biological activity, and is made up of a limited number of building blocks, each with a definite chemical structure. Many of the enzymes have unique non-protein groups (coenzymes) that are essential to their function as biological catalysts.

With these facts in mind, the words of Bernard Ramm written in 1954, are still very appropriate, "It is further conceivable that when the biochemists tell us the fairly complete story of the chemistry of the human body, we will bow our heads in holy reverence and admit the only feasible accounting of this is the work of an 'Omnipotent Wisdom'."[3]

[1]Dickerson, R.E., Chemical Evolution and the Origin of Life, *American Scientist*, 239, No. 3, 70-86 (1978).

[2]Dillon, Lawrence S., *The Genetic Mechanism and the Origin of Life*, Plenum Press, New York, 1978

[3]Ramm, B., *The Christian View of Science and Scripture*. Eerdmans Publ. Co., Grand Rapids, pp. 181-183, 195 (1954).

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# *Evolutionary Biology*

Those whose lives have included a healthy interaction with books can no doubt recall many times when a book has given them something they desperately needed at a most critical time. It was that way for me, when I first read Ramm's *The Christian View of Science and Scripture*.[1] I was trying to cope with evolution. With a background in fundamentalism, I was in graduate school in biology at Harvard, the capital of evolutionary thought. Ramm's analysis of evolution, from Chapter 7 (Biology), is just as refreshing to read today as it was 20 years ago. His insight cut the issue open to the bone. The following encapsulates some of his thought. The most serious problem is whether evolutionary thought is antithetical to Christian doctrine. Where it is—philosophical evolutionism, for example—scholarly Christian apologetics should be applied (and Ramm did this so well). As a scientific theory, however, evolution is a probability statement. Here forthcoming evidence can play an important role—to strengthen or to weaken the status of the theory. Ramm concludes (p.280):

> . . .evolution may be entertained as a possible secondary cause or mediate cause in biological science. But to raise it to a metaphysical principle or as the all embracing key or category or scheme of Reality and to cancel out the metaphysical worth of all other possible clues is improper science and doggerel philosophy.

Ramm's analysis helped me to avoid the kind of schizoid thinking that can so readily separate science from faith, and often can prove destructive to one or both. Indeed, I was encouraged to think that there was the potential for reconciling evolutionary theory with Christian doctrine. I had become impressed with the weight of evidence favoring evolution, as I encountered that evidence in my graduate work. Sixteen years as a professional biologist has tended to confirm those graduate school impressions. It is probably safe to say that the deeper one goes in an open-minded investigation of evolution, the more one is driven to the conclusion that the evidence is strong, and it is convincing. Hence, there has been and still is the need to provide a scholarly argument that shows why one can accept both evolution and the historic Christian faith.

The years since the publication of Ramm's book have seen some immense changes in the biological sciences. In the sense of Ramm's "forthcoming evidence," it is fair to say that the evolutionary theory is much stronger today than it was 25 years ago because of the new information in biology. Occasionally one encounters articles in popular or Christian periodicals to the effect that the evolutionary theory has been proven impossible on, e.g., mathematical or philosophical grounds. This "news" is not to be taken seriously. In a recent issue of *Scientific American* devoted to evolution, Ernst Mayr introduced the issue with the following words:

> This issue of *Scientific American* deals with the origin, history and interrelations of living systems as they are understood in the light of the currently accepted general theory of life: the theory of evolution through natural selection, which was propounded more than 100 years ago by Charles Darwin, has since been modified and explicated by the science of genetics and stands today as the organizing principle of biology.[2]

In particular, the discoveries of molecular genetics have given rise to an understanding of evolutionary process at the molecular level. We now know that genetic information is encoded in base sequences in the DNA of the genes. We can also "read" the encoded messages. This can be done indirectly, by learning the amino acid sequences of proteins which depend ultimately on the base sequences in DNA. Or, it can be done directly, by learning the base sequences themselves. We fully understand the nature of mutations as variations in the DNA base sequences, occurring as "errors" in the replication of DNA. And we have learned that the genetic code is universal—the same base sequences are used to code the same amino acids in mammals as in bacteria. The fact that the genetic code is universal carries immense implications. It implies the strong possibility of a single original organism and common descent, and can be viewed only as powerful supporting evidence for evolution.[3]

The amino acid and nucleotide sequencing information is now being used to "reconstruct" evolutionary relationships,[4] based on the assumption that a number of fundamentally important proteins and nucleic acids, such as Cytochrome C, are "living fossils," whose structures have evolved from common ancestral sequences by a great

number of small changes over millions of years. These evolutionary relationships have proven to be very similar to (but not identical with) the relationships long assumed on the basis of anatomy and embryology.[4,5] This approach will no doubt be applied more extensively in the near future.

Molecular genetics has also contributed greatly to an understanding of variability in natural species. Genetic variability determines much of the potential for evolutionary change in a population. Techniques involving gel electrophoresis are able to reveal slight differences in proteins between individuals in populations.[5] These analyses have shown much larger amounts of genetic variation than previously expected on the basis of more conventional genetic studies. This variability provides a natural population with adaptability and a great potential for change over time, given a selective agent (natural selection).[5]

Fewer major advances have come from the study of fossils in recent years, with one notable exception: the fossil hominids. Missing links are still missing, and the evolution of the invertebrate phyla is still a study in speculation owing to the scarcity of pre-Cambrian fossils.[6] Nevertheless, the fossil record of multicellular organisms continues to provide strong evidence of evolutionary change over time.[7]

It has always seemed to me curious that Ramm opened the door for a Christian reconciliation with evolution but stopped short of going through that door. He espoused the view of progressive creation, which sees God as intervening at various times by creating basic "kinds of organisms, then allowing them to radiate (evolve) into different species over time. This view has a few adherents among prominent Christian scientists,[8] but has never generated much support. I think it is safe to say that today the majority of Christian biologists have accepted the evolutionary hypothesis as God's creative method, and have successfully integrated it into their theistic world view. Much of the credit for this can certainly be traced to Ramm's book.

[1]Ramm, Bernard. 1954. *The Christian View of Science and Scripture.* Wm. B. Eerdmans Publ. Co. Grand Rapids.

[2]Mayr, Ernst. 1978. Evolution. *Scientific American* 239: 47-55.

[3]Herrman, Robert L. 1975. *Journal ASA* 24: 156-159.

[4]Schwartz, Robert M. and Margaret O. Dayhoff. 1978. *Science* 199: 395-403.

[5]Ayala, Francisco J. 1978. The Mechanisms of Evolution. *Scientific American* 239: 56-69.

[6]Valentine, James W. 1978. The Evolution of Multicellular Plants and Animals. *Scientific American* 239: 141-158.

[7]Cuffey, Roger J. 1972. Paleontological Evidence and Organic Evolution. *Journal ASA* 24: 160-177

[8]Willis, David L. 1977. Creation and/or Evolution. *Journal ASA* 29: 68-72.

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# *Uniformity of Nature*

When I reviewed *The Christian View of Science and Scripture* for the initial issue of the *Gordon Review* in February of 1955 I wrote that Ramm's intent was to present a creationist view of things which necessitated "a harmony of science and evangelical theology." Thereby he sought to rescue science both "from the illicit grasp of a naturalistic world" and from "an anachronistic limbo in the minds of many Christians." These ambitions were brought sharply into focus in Ramm's treatment of the uniformity of nature.

The regularity of nature is an idea with two distinct aspects which we may call ontological and epistemic. The distinction is made clear in Ramm's remarks that "reverent science will admit the creatorship of God, the activity of God in Nature, and the validity of a teleological aspect to Nature" but also that "intelligent faith will grant ample room for the legitimate inquiries of science and will not theologically dogmatize outside of its domain" [p. 172]. Ontologically the "regularity of Nature is the constancy of God, and the laws of Nature are the laws of God" [p. 85]. Epistemically, there remains the problem of discerning the means by which nature's regularities may be sought out and of identifying adequately the character of these regularities.

If we look at the quarter century since Ramm's extended treatment of these distinctions [in one form or another they form most of the substance of his book], it is clear that too often attempts like his at clarifying the proper premises and ambitions of creationism have been ignored or forgotten. The consequences are confusion, dissension, and a diminishing of the Christian message.

Take first the ontological aspect. It sees nature as the product of God's wisdom and work, a creative action which brings into being nature and the very time by which we give order to its processes. Thus, while we see nature with a long past as well as a future, and we can understand creation only by analyzing it into a series of events, we must recognize that the Creator is beyond the constraints of time and that creation has no past or future for God. In the truest sense creation is complete: if that is so then God's creative act is inseparable from His providence.

We will, then, be mistaken should we conceive of nature deistically as an automous realm of laws established, and as a set of self-perpetuating events begun, at some long-past occasion by a Creator. Yet that is surely what we are doing when we fail to see the Creator in every regularity and every event of our world, both the very ordinary and the extraordinary, and when we speak of the Creator *intervening* in nature during miracles or through "special creations" in the history of life. It is also what we do when we speak of theistic evolution as if it were a process whose end God could not see as one with its beginning. On the other hand, the naturalistic man who stands against creationism, thinking that it entails a belief in the supernatural and a rejection of science, makes an attendant blunder.

Science is a high calling for the creationist. It is so because nature's uniformity is the natural consequence of God's creativity and the study of nature teaches us of God's power and God's wisdom. And it is so because the understanding of divine providence, which the human mind

must separate in time from the divine creative act, is in large part the comprehension of natural processes and structures. Indeed, because the creationist accepts the usual and the unexpected as equally natural, his or her sense of what the uniformity of nature implies may provide a more satisfactory basis for scientific work than many another worldview.

This brings us to the epistemic aspect. Here, when we assert that nature is uniform, it turns out that we are not reporting some kind of empirical discovery but rather that we are laying down a principle of methodology or what we might call a rule of scientific inquiry. It is one which regulates our assertions about constancies in nature across time and space, one which asks that we be parsimonious in our causal agencies and economical in our scientific notions. This is a complex request and I shall not pursue it here: I shall make only two points relevant to the creationist's use of the principle.

One has to do with the claim that a science based upon the uniformity of nature, seen as an epistemic principle, cannot live with miracle. The mistake here lies in failing to recognize that the occurrence of unusual events may be as well authenticated as many normal happenings and should form a part of our account of nature. It also lies in assuming either that miracles must always remain inscrutable to science or that the scientist is somehow excluded from attempting to comprehend them. Neither is true. If the creationist does not commit these errors, surely his or her principles of scientific work will be less constraining than those of the naturalistic opposition.

The second involves the thesis that biblical teaching must form a part of the *scientific* assertions of creationism and must alter the content of the uniformitarian principle when it is employed by creationists. At issue here is the extent to which biblical teaching that nature and history and ourselves are under providential control shapes the substance of what it interprets to that end and selects to the minds of those taught. Many articles in this *Journal,* and large portions of Ramm's book, deal with the question. Beyond the obvious caveat that we be charitable to one another's answers to this vexing puzzle, I would suggest that something like the epistemic principle that we seek as simple assertions about nature [past and present] as are possible be applied here too.

Is it not a wise creationist credo that we seek out solutions to the Bible-science relationship which allow for an accommodation of modern scientific knowledge to our theology rather than leading to incoherence and conflict? In my opinion this is seldom achieved, in areas such as geology and biology, by attempting to introduce biblical texts, as if they were scientific in intent, into current scientific discussion. The pursuit causes exegetical difficulties and fails to form an integral whole with other well-corroborated scientific beliefs. It seems simpler to me, and more satisfying, to learn my science from nature and my understanding of it in creationist and providential terms from biblical teaching. Then the debate is not between science and Scripture but it is a more fundamental one between naturalism and theism: it is the confrontation of ultimate stances toward the world.

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# *ASA: Then and In the Future*

At the time when Bernard Ramm's book, *The Christian View of Science and Scripture* appeared, the ASA was thirteen years old. Our first president F. Alton Everest, to whom the book was dedicated, had retired from the Executive Council and his place had been taken by Russell L. Mixter. Other members of the Executive Council at that time were Hendrik J. Oorthuys, Delbert N. Eggenberger, Brian P. Sutherland and H. Harold Hartzler. Eggenberger served as editor of the *Journal ASA* while Sutherland was vice-president and Hartzler was the secretary-treasurer.

By 1954 the ASA had published *Modern Science and Christian Faith* edited by F. Alton Everest. This marked our first major publication effort and dealt with the relationship between Christianity and various fields of science. Each scientific discipline was dealt with by an individual author. The author well recalls the first appearance of this book at the national convention held at Calvin College in 1948.

The ASA had also published three monographs by 1954. The first was *Christian Theism and the Empirical Sciences* by Cornelius Jaarsma. The second by Russell L. Mixter, titled *Creation and Evolution,* has been our most successful publication in terms of sales and has been reprinted a number of times. The third monograph authored by Frank Allen was titled *The Eye as an Optical Instrument.* This 16-page illustrated booklet discusses the intricate marvels of the eye.

Some articles appearing in the *Journal ASA* for 1954 were: "A Christian Philosophy of Science" by Henry Weaver, "Genetic Evidence as to the Color of Adam and Eve" by Irvin A. Willis, "The Nature of the Gene and the Theory of Evolution" by John C. Sinclair, "The Principle of Growth as an Obsession" by William J. Tinkle, "The Psychological Implications of the New Birth" by Norvell L. Peterson, and "Biblicism and Science" by Chester K. Lehman.

In the latter article, which was an address given at the ninth annual convention of the ASA held at Eastern Mennonite College, Harrisonburg, Virginia, August 24-27, 1954, Professor Lehman suggested that the Christian viewpoint should be carried into other scientific organizations. I quote from this article: "Is it not possible for the whole

question of evolution to be reopened, or for a first class interpretation of the creation account to gain a hearing? The genius of Christianity is that of a prophetic mission in the world." I question how much we of the ASA have accepted the challenge of Chester Lehman.

By 1954 the ASA was becoming of age, nine annual conventions had been held, the *Journal* had become established, our first major publication had appeared, and our membership had grown from five in 1941 to over four hundred. Among the new members of the previous year was David L. Willis who later became president of the ASA and also edited one of our most recent publications entitled *Origins and Change: Selected Readings from the Journal of the American Scientific Affiliation.*

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The infinite variety of variables that can interfere in predictions into the future render predictions certain to considerable error. I can hope only that the reader will exercise Christian grace in future years when my mistakes become apparent!

Despite the limitations of the task, it is worthwhile to look carefully into the future. While one is constrained to educated guesses on where an organization may go, the discipline of projecting current trends and goals over several years increases awareness of what must be done now to make progress in a specific direction. Conscious decision now about the future will be the foundation for significant positive change and growth.

The ASA is near the end of a time of transition. For 30 years the Affiliation grew and prospered with almost total volunteer help. Around 1970 it became apparent to the Executive Council that we were at the limits of what could be done with volunteer help alone. The Council decided to adopt a new model for the organization by combining the volunteer efforts with a full-time staff. This model was implemented in 1972 and is gradually taking hold as we approach 1980. It took several years to work through the changes in policies and procedures that go along with a new model. This transition is almost complete and a new focus is taking shape.

The new focus centers on ASA becoming not only a member-oriented organization, as it currently is, but also ministry oriented. This outreach or ministry will be directed to specific audiences that most need the benefits ASA can offer.

Our internal focus on member service for the future can be outlined into two major categories:

1) *Publications* - The current quarterly *Journal* will probably continue steady growth in length, quality, and distribution. In 1979 the length increased from 48 pages to 64 pages (except for issues after the fire that destroyed the ASA office). Similar increases will continue in the future up to some practical limitation in length when we will go to an increased frequency, from quarterly to bi-monthly or monthly. The *Newsletter* will improve its format in the direction of increased readability. Greater length and increased frequency will probably occur here as membership needs expand. A likely development will see the *Newsletter* expand its services to more timely information on meetings, jobs and issues of interest to the members.

2) *Meetings* - We will see the Annual Meeting increase in quality, size, and influence. I see a time when our Annual Meeting will be a major event in at least the Christian community, but also to some extent in the science community. Our meeting will be looked to for insight and guidance on the increasingly complex and difficult issues raised by the science and society interface. Within 25 years I expect to see over 1,000 people in attendance at our Annual Meeting.

Less clear is the future of local groups. The traditional Local Section works well in some places and not at all in others. As the membership increases we will probably see more sections that work, but future local activities may center in special purpose small groups. These groups would focus on specific ministries depending on the unique gifts of the individual members and the special opportunities of where they live. This sort of group is effectively working in several locations now and represents unlimited potential for effective outreach.

Both of these categories of member-oriented services represent considerable potential for ministry as well. However, the past has clearly demonstrated that little outreach automatically results from our current activities. Conscious effort is required to apply our current strengths in ministry outside the organization. In addition, new efforts are required to fulfil the potential of the organization in effective ministry for our Lord.

New efforts will spring out of the current model of a small professional staff working with volunteeers to carry out our purposes. We intend to strike a balance between the extremes of a staff that does everything and a membership left to drift with the changing tides of volunteer leadership. Great strength lies in the balance between the stability provided by a professional staff and the vast potential of volunteer leadership and service. The application of this model in the future will dictate a geographically dispersed professional staff with many small regional headquarters rather than one large central office that tends to grow increasingly remote from the members. This model fits well into the pattern of increasing costs in national travel and the growing effectiveness of electronic communication.

Future staff additions will be made when our financial stability allows it. The current distribution of members suggests that the next staff addition should be on the West Coast, with subsequent additions in the Northeast and the Southeast. This approach will allow us to indefinitely postpone the need for buildings for the office staff, so resources can be concentrated on ministry and outreach.

The long range future of the ASA lies in our development of effective ministries after this model. The audiences we are responsible to are the church and the science community. The church needs to be made aware of the many issues and inputs of science that interface with it. We must help the church both to face these issues and to deal constructively with them.

On the other hand, the science community must become aware of the inadequacy of continuing to ignore Christianity as if it were not relevant to the scientifically minded. While all scientists will not be converted to Christ, a general change in attitude is needed from ignorance to enlightened

dialogue.

There is no organization or institution, apart from the ASA, that can effectively minister to these audiences in the areas indicated. If progress is made, it is up to us to make it. The greatest resource of the ASA is the strong consensus among our members that both science and Christianity must be handled with utmost integrity. Since God is the Creator of what science studies and the Revealer of the Bible that Christianity is founded on, an inherent unity exists between science and theology. While many problems arise between the two, the long term direction is one of harmony when people handle science and theology with care.

The ASA has consistently and courageously stood for this basic unity in science and theology. For over 35 years we have successfully resisted vigorous efforts to compromise this stand. We have been urged to compromise good science for the sake of protecting traditional, yet unnecessary, interpretations of the Bible. We have been pressured to compromise good theology in the name of current scientific fashion and peer pressure. Our uncompromising resistance to these pressures is the firm foundation and bright hope for the future of the ASA.

I see a vision of great harvest for the ASA over the next 25 years. Unlimited opportunities for ministry in both the church and the scientific community lie before us. To realize that vision will require much hard work and persistence. There will be failures and set-backs, but let us press on to complete the mandate of God for the ASA. Let us build on our foundation of biblical and scientific integrity a structure of effective service to both the church and the scientific community.

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# Integrative Strategies in a Secular Age

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*The theory of secularization offered by Peter Berger suggests that the modern world is characterized by a competition among diverse ideologies each seeking to become the definer of social reality. Included in this theory is the notion that the relationships among competing ideologies operate much like economic competitors in a marketplace. Building upon the metaphor of an ideological marketplace it is possible to explain the form of the diverse proposals concerning the relationship between religion and science as arising out of competition. A typology of seven strategies is outlined which are a logical response to ideological competition. Each of the strategies is described and representative examples from the religion and science literature are cited for each strategy. Some concluding observations concerning the relationship between religion and science are offered.*[1]

The concept of secularization may be understood as a process whereby various aspects of society are removed from the domination of religious symbols.[2] This process is one of the fundamental characteristics of modern society. By understanding this process it is possible to clarify the relationship between religion and science. The last three or four hundred years of western civilization manifest a shift from a unified world view to a situation marked by a multiplicity of world views. Although this is no doubt overly simplistic, the fact remains that modern society reflects a

pluralistic context with a number of competing world views—none of which seems to be able to gain hegemony. The idea that there can be competition at the level of thought or world view was eloquently argued by the sociologist of knowledge, Karl Mannheim.[3] The notion of competition among world views has been incorporated into Peter Berger's statements regarding secularization in his book *The Sacred Canopy*. Developing a "cognitive minority" model of secularization, Berger helps delineate certain trends in religion. It is my contention that Berger's model can help explain some of the aspects of the relationship between religion and science.

There are at least three evident values in relating the cognitive minority theory of secularization to the religion-science relationship. First, Berger's theory aids in explaining why a conflict arose in the first place. A conflict can come about only if alternative views are put forward. Having examined the course of thought in the Western world, Berger argues that a unified world view which was essentially religious was reduced from a position of centrality. When alternative views were subsequently articulated a crisis of legitimacy was created that did not exist before. The various competing viewpoints became locked in combat, each seeking to establish its right to be the sole definer of reality. Second, by building upon the foundation of a sociology of knowledge, Berger's theory requires that all knowledge, including science, must be conceived of as ideological. This makes it easier to understand why it should be presented as a competing alternative to a religious world view. Third, having set forth a model of competing world views, Berger argues that an ideological marketplace exists in the modern world.[4] Drawing upon economic analogies he proceeds to show how competing world views might logically develop certain strategies in order to win converts to a world view or to avoid the negative consequences of competition. For example, competition may provoke the competitors to call a truce and agree to stay out of each other's territory [e.g., complementary spheres of activity]. Again, competition may encourage the competitors to show that they have everything the competition has to offer and thus can be selected with confidence [e.g., homogeneity of product]. Another response to competition is to form alliances with one's competitors in order to secure an edge in the marketplace [e.g., cartelization or hybridization]. Finally, competition may cause one to change a name but retain essentially the same product [e.g., co-optation].[5]

Taking this understanding gained from Berger as a starting place, it is possible to construct a typology of the various strategies that have been used to relate religion and science. While some strategies have been used more extensively than others, it is possible to sort much of the voluminous "religion and science" literature into seven proposed categories. A brief summary of each of the strategies and some problems associated with each are as follows:

*It is possible to construct a typology of the various strategies that have been used to relate religion and science.*

## Problem Solving

This approach assumes that if one or more problems currently preventing harmony between religion and science can be solved, then the two areas could exist at peace with one another. It seems that many of the earlier attempts at resolving the conflict were aimed at solving specific problems. For example, some felt that if only the issue of creation versus evolution could be resolved then the conflict would disappear. Others cited problems such as freedom and determinism.[6] The difficulty with this position is that the list of problems is seemingly inexhaustible. Furthermore, there is a gross failure to understand that the conflict is not merely at the empirical level but rather at the philosophical level.

## Attitude Change

Fundamental to this strategy is the belief that the conflict between religion and science is largely the result of exaggerated claims on the part of scientists and proponents of religion. The stress is upon a shift in attitudes towards greater humility and less doctrinaire rejection of other realms of knowledge. Furthermore, by realizing the limits of scientific and religious knowledge, the respective parties might reduce the knowledge claims that are put forward.

In some ways there is an affinity between this viewpoint and another strategy—namely, that of complementarity. However, if the issue of attitude change is stressed it is possible to see those arguing in this manner as constituting a distinct position. Robert Millikan typified this approach when he argued for an attitude of humility, which, if adhered to, would solve much of the conflict between religion and science:

> Physics, however, has recently learned its lesson, and it has at the present moment something to teach to both philosophy and religion, namely, the lesson of not taking itself too seriously, not imagining that the human mind yet understands, or has made more than the barest beginning toward understanding the universe.[7]

## Complementarity

There have been many discussions of the relationship between religion and science that have made use of a complementarity motif. The approach basically argues for a separation of science and religion into two realms. Some conceive of this as a separation into equal but wholly different spheres that can have no relationship.[8] Other complementarity schemes argue for a hierarchical arrangement with certain areas of thought nesting within other areas of thought.[9] While there is a certain validity to the view that religion and science are different entities with different languages, concerns, methods and so on, a number of writers have raised questions concerning the validity and usefulness of such an approach.[10] Implicit in the complementarian view is a model that sees science as existing apart from an integrated world view. In fact, if recent philosophy of science has taught us anything it has shown us that science does not exist in a vacuum. It is culture bound, it is theory bound, it is paradigm bound, and it is intrinsically united to a world view. I would argue that

science is as much ideological as is religion in the sense of ideology as understood by the sociologist of knowledge.[11] Hence, to the extent to which religion permeates a world view, it must also permeate science.

Furthermore, complementarian strategies face the same problem as that of attitude change strategies. What happens when science and religion offer contradictory propositions concerning truth? What criteria will be used to select between the two? Does one look within one or the other domain for such criteria or must a meta-level be constructed that will aid in selecting what propositions will be accepted? The tendency arising out of this approach is to develop a religious schizophrenia. Religion is placed in a separate compartment isolated from the rest of life. An impenetrable concrete-like barrier is interposed between religion and other fields.

Finally, the existence of parallel explanatory systems raises the issue of parsimony.[12] If both systems refer to the same phenomena might not one of the explanations be rejected as superfluous? Again, criteria must be adduced to validate the need for parallel explanations.

### Privatization

A variant of the complementarian strategy that merits separate attention is the privatization approach. This deals with the conflict between religion and science by withdrawing religion into the inner world of the self. As long as religion offers propositions extending beyond the personal to the objective world conflict can occur. However, if religion becomes my personal, non-cognitive, emotional experiences there is no need for science to conflict with that realm.[13] The difficulty with this increasingly attractive option is that the possibility for institutional religion and a religious community is undermined. Furthermore, truth testing becomes an extremely difficult operation under this strategy. What data can be brought to bear upon the truthfulness of religious conceptions? It is difficult to offer such tests if religion is sealed off.

### Hybridization

As in the economic realm, competition among ideologies may result in the union of the competing elements. Hence, it is not surprising that one ploy in the religion and science debate has been an attempt to unite religion and science. Usually, this has been carried out by some kind of accommodation or redefinition of either religion or science. John Dewey attempted to bring about a rapproachement between religion and science by creating a hybrid—a new kind of religion. In part he argued that:

> . . .were we to admit that there is but one method for ascertaining fact and truth—that conveyed by the word "scientific" in its most general and generous sense—no discovery in any branch of knowledge and inquiry could then disturb the faith that is religious. I should describe this faith as the unification of the self through allegiance to inclusive ideal ends, which imagination presents to us and to which the human will responds as worthy of controlling our desires and choices.[14]

A major difficulty with this approach is that a true hybrid is rarely formed. Usually religion is drastically modified so that it can be fitted together with science. When this occurs the strategy becomes one approximating co-optation with science absorbing religion within itself.

### Equation

Related to the strategy of hybridization is the approach that identifies religion and science as basically the same phenomenon. This has taken several forms. In some cases both religion and science are depicted as pursuing a common goal (e.g., truth seeking). In other cases attempts are made to show that science is basically like a religion or that religion is science-like.[15]

Some of these discussions have been helpful in regaining a sense of how both religion and science are human enterprises and share many similarities. This has aided in correcting the specious image of a *homo scientificus* who operates apart from the normal human socio-cultural processes. Yet, by showing similarity the conflict may still not be resolved. The most that may be concluded is that science and religion are integral human activities—neither of which can be eliminated.

*It is not enough to say that the Christian viewpoint is one among several equally appealing alternatives. To do so reduces the matter to an arbitrary selection resembling a game of chance.*

### Co-optation

A more sinister alternative to hybridization or equation has been the co-optation of religion by science or vice-versa. In other words, the conflict is resolved by translating religion into scientific symbols.[16] One of the two realms is extinguished under the guise of a shift in symbols. This, no doubt, solves the conflict but it does so without retaining the integrity of either science or religion.

### Some Future Possibilities

These various strategies are understandable in light of Berger's model of a competitive ideological marketplace. The respective viewpoints of religion and science vie for public acceptance as the interpreter of reality. Competition may result in one view gaining ascendency (co-optation); a division of territory (complementarity, privatization); movement towards similarity or unity (homogeneity, hybridization, equation) or an attempt at an uneasy truce (problem solving, attitude change). None of these strategies seems to be without problems. The question arises as to whether yet another strategy can be constructed. While I am not inclined to put forward a new proposal, several observations seem appropriate to the solution of the conflict between religion and science.

First, if science is understood as being intimately tied to a world view then it is evident that the issues cannot be resolved on the level of empirical data alone. It will be necessary to deal philosophically with the relationship between religion and science. In a Christian world view this may involve an

elaboration of the data of science and Scripture within the framework of that world view. What is the nature of reality? How does one know? What is the nature of man? Using this world view as a selector it may be possible to decide between scientific explanations that are congruent with Christian revelation and those that are not, between explanations that may be useful but not comprehensive, and between explanations that are logically sound and those which are not.[17] The approach to religion and science that simply pleads for tolerance or that scurries about on an *ad hoc* basis from one specific problem to another is doomed to failure because it does not reach down to the foundational level.

Second, attempts at solving the conflict between religion and science that accommodate religion to science without a sense of the validity and integrity of religion are ultimately self defeating. If carried to its extreme this approach reduces religion to something indistinguishable from ethics or morality. From a Christian perspective any attempt to relate science to Christianity must respect the truth statements proposed in Christian revelation. For example, Christianity does imply certain positions regarding the nature of man. Integration can occur only if this perspective is retained. Hence, any attempt to reduce Christianity to a non-cognitive, emotive level may solve the conflict but only at too high a cost.

Third, if the modern situation is accurately depicted as a competitive ideological marketplace, then the selection of one world view must be accomplished on a rational basis rather than a traditional basis. If Christianity is to offer a viable world view to the modern milieu it is imperative that attempts be made to show that the Christian view is superior to alternative viewpoints. Reasons need to be adduced to show why a Christian world view is necessary for a true understanding of human behavior (to cite only one example), while also showing that alternative views without the Christian perspective fail or are less than adequate. It is not enough to say that the Christian viewpoint is one among several appealing alternatives. To do so reduces the matter to an arbitrary selection resembling a game of chance.

## REFERENCES

[1]*This paper is a revised version of a paper read at the 1976 Annual Meeting of the American Scientific Affiliation held at Wheaton College in August, 1976.*

[2]This definition of secularization is borrowed from Peter Berger, *The Sacred Canopy* (New York: Doubleday, 1967), p. 107. This paper is heavily dependent upon the ideas developed by Peter Berger. For a more detailed discussion of some of these ideas see: Ronald J. Burwell, "Religion and the Social Sciences: A Study of Their Relationships as Set Forth in the Terry Lectures: 1924-1971," unpublished dissertation for the Ph.D., New York University, 1976.

[3]Karl Mannheim, "Competition as a Cultural Phenomenon," in Kurt Wolff (ed.), *From Karl Mannheim* (New York: Oxford, 1971), pp. 223-261.

[4]Peter Berger, "A Market Model for the Analysis of Ecumenicity," *Social Research*, XXX, 1, (Spring 1963), pp. 77-93.

[5]*Ibid.*

[6]Certainly many of the articles that have appeared in the *Journal of the American Scientific Affiliation* might fit this category. Further examples might be Arthur H. Compton, *The Freedom of Man* (New Haven: Yale University Press, 1935); and Henry M. Russell, *Fate and Freedom* (New Haven: Yale University Press, 1927).

[7]Robert A. Millikan, *Evolution in Science and Religion* (New Haven: Yale University Press, 1935), p. 93.

[8]Karl Heim, *Christian Faith and Natural Science* (New York: Harper and Row, 1953).

[9]Donald MacKay, *The Clockwork Image* (Downers Grove, Ill.: Inter Varsity Press, 1974).

[10]The dialogue represented in the exchange of letters and articles by John Cramer and Donald MacKay in the pages of the *Journal ASA* is one indication of the problems that exist: John A. Cramer and Donald MacKay, *"The Clockwork Image* Controversy," *Journal of the American Scientific Affiliation,* 28,3, (September 1976), pp. 123-127. Several papers given at the 1976 Annual ASA meeting at Wheaton College also raised some problems: Jack Haas, "Complementarity and Christian Thought—An Assessment"; and James E. Martin, "Interpretive vs. Generative Science." A recent discussion of the ideas of Donald MacKay also reflects some of the uneasiness many have with the complementarian approach: Clifton J. Orlebeke, "Donald MacKay's Philosophy of Science," *Christian Scholar's Review* (Summer 1977), pp. 51-63.

[11]Karl Mannheim describes ideology as the notion that: ". . . opinions, statements, propositions, and systems of ideas are not taken at their face value but are interpreted in the light of the life situation of the one who expresses them. It signifies further that the specific character and life-situation of the subject influence his opinions, perceptions and interpretations." Karl Mennheim, *Ideology and Utopia* (New York: Harcourt, Brace and World, Inc., 1936), p. 56.

[12]The issue of parsimony was raised in the dialogue betwee.i John Cramer and Donald MacKay cited above.

[13]Robert N. Bellah, "Christianity and Symbolic Realism," *Journal for the Scientific Study of Religion,* 9 (Summer 1970), pp. 89-96.

[14]John Dewey, *A Common Faith* (New Haven: Yale University Press, 1960), p. 32.

[15]A significant example of this type of argument is Langdon Gilkey, *Religion and the Scientific Future* (New York: Harper and Row, 1970).

[16]This may take the form of a "sociologization of religion" or a "psychologization of religion." See: Berger, *The Sacred Canopy,* pp. 166-169.

[17]Recently Nicholas Wolterstorff has argued that a person's Christian world view should operate as a selector when confronting diverse theoretical options: Nicholas Wolterstorff, *Reason Within the Bounds of Religion* (Grand Rapids: Eerdman's, 1976).

# Science Education for The Emotionally Disturbed Child

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In recent years public education has given much attention to the problem of emotionally disturbed children and youth. Money has been appropriated, classes established, curricula written, materials and equipment provided, and evaluation techniques developed. In spite of all this, emotional problems are increasing alarmingly among the school population, especially at the primary level. This contributes to the increasing number of educationally handicapped pupils, which in turn interacts with and aggravates the original disturbance. Without getting into the etiology of the syndrome, we can point up two facets of the problem: motivation, and moral and spiritual values, especially in the context of the Christian Gospel.

Too often the goal of this type of special education has been to improve the child's grasp of the basic skills—reading, writing, language, and mathematics. The next step is to move the pupil back into the regular classroom. But unless his individual motivation and interests are touched to the point that he sees the need for educational improvement and desires it enough to make the effort, teachers may, to all intents and purposes, be marking time. The goal is to move the child back into regular school and social channels, not to segregate until drop-out time (Fuson, 1970).

As more attention is given to special classes and instruction for the emotionally disturbed, the development and construction of curriculum will become increasingly important. There should be a difference in quality and kind from that offered to other public school children. While goals may be similar, the means will not always be the same. A science-oriented program may be one way to go.

The problem to be faced is to first capture the interest of these pupils, provide a rich science curriculum with an abundance of activities and experiences, and use this medium as motivation for improvement, both in the basic educational skills and the value standards which ultimately determine the life style of the individual (Fuson, 1970). The stakes are high. An emotionally disturbed child can become an emotionally disturbed adult. An educational handicap may ruin a life.

There are often opportunities through parental counseling, a suggestion to a local clergyman or lay Christian, or even at times out-of-class contacts, to channel the emotionally disturbed pupil into church related activities which may lead to a conversion experience.

## Teacher Motivation

The factor of motivation applies two ways, both to the teacher and to the pupil. Not only is the goal of committed Christians to provide educational and attitudinal remediation, but they also seek to develop moral and spiritual values in their students that will, through the leading of the Holy Spirit, result in a born-again experience. They must do this, and they can, within the limits of the existing laws.

The Westminster Confession states that:

> . . .the light of nature, and the works of creation and providence, do so far manifest the goodness, wisdom, and power of God, as to leave men inexcusable.

Paul declares in Romans 1:19-20:

> . . .what can be known about God is plain to them, for God himself made it plain. Ever since God created the world, his invisible qualities, both his eternal power and his divine nature, have been clearly seen; they are perceived in the things that God has made (TEV).

It is my firm conviction, growing out of many years of experience in public education, that science activities can point the way to an awareness of God and result in the

development of character and personality traits consistent with the Christian perspective. However, Hebrews 11:6 must remain a corrective to this goal:

> No one can please God without faith, for whoever comes to God must have faith that God exists and rewards those who seek him (TEV).

Richard H. Bube states that:

> The investigations of science have uncovered a variety of evidences that support the basic Christian contention of the origin of the world as the creative work of God.

He goes on to list the existence of order, purpose, and design in the universe, its temporal nature, and the characteristics of man and human personality as considerations favorable to a Christian interpretation of creation (Bube, 1971).

As children tend to oversimplify explanations, the teacher must be careful not to appear to equate nature with God, thus suggesting pantheism, nor to imply any other aberrant view. The Hebrew-Christian tradition sees the world as totally dependent upon God. The world is noneternal, created by God, supported by Him in its moment-by-moment existence. God is eternal, but nature is created and will one day pass away. The natural order is not divine, not autonomous. Purpose resides in God, not in nature. He alone is to be worshipped. Nature testifies to His existence (Jeeves, 1969).

Unless one has had first had experience with the many educational programs, often mandated and/or government funded, such as Title I, Early Childhood Education, Head Start, Diagnostic-Prescriptive Teaching, it is difficult to comprehend the creeping materialism that is gaining control of our public schools. The behaviorists like John Watson and B. F. Skinner have widely influenced contemporary educational theory and therapy. In the area of emotional disturbance, Frank M. Hewett, perhaps to his own surprise, has made considerable contribution to current efforts in behavior modification, with his highly structured no-decision-making classroom.

One of the newer theories of behavior, sociobiology, portends even more startling implications for education, especially of the emotionally disturbed. Conflict between parents and children is considered biologically inevitable. Children are born deceitful. All human acts are ultimately selfish. Morality and justice are evolved from man's animal past, and are securely rooted in the genes, the result of millions of years of evolution. All forms of life exist solely to serve the purposes of DNA. Donald Campbell claims religious teachings have evolutionary importance. "The truths in religion have been selected because they are necessary and essential to man," states Ralph Burhoe, theologian, also a devotee (*Time,* August 1, 1977).

As Christian teachers stand before their pupils each day, they must be aware of the demonic forces that attempt to negate all the tenets of the faith they hold dear. Of course they are biased. To be evangelical they must also be missionary minded. They want their students to learn the Good News and to become followers of the Master they serve. Hence, within the legal code, they will teach science in such a way that God will be seen as the Creator and Sustainer. They will seek, through this subject area and its discipline, to develop concepts of moral and spiritual values consistent with the Christian Gospel.

*Within the legal code, they will teach science in such a way that God will be seen as the Creator and Sustainer. They will seek to develop concepts of moral and spiritual values consistent with the Christian Gospel.*

## Definition of Terms

*Emotionally Disturbed.* These children have inner tensions and show anxiety, neuroticism, or psychotic behavior. They are often socially maladjusted as well. For the purpose of public education pupils who fall into this classification are not seriously disturbed enough to require residential care. They can function within a special class organization. They may be educationally handicapped, due to emotional disturbance, in one, more, or all the basic skills. Their attitudes toward school, its personnel, and the learning procedures are often affected adversely. This may carry over to peer and family relationships as well. They need to learn what they are capable of learning, to succeed and be pleased with their own performance.

*Educationally Handicapped.* A child who appears to be within the average or above mental ability range but manifests persistent irregularities in learning may be so classified. This can be determined from achievement and psychological tests, observation, and interviews (Fuson, 1970).

The effects of failure, retardation, ostracism, criticism, even punishment have so invaded the child's self-concept, that the educationally handicapped child, with little positive and effective initiative and incentive, is reduced to continual discouragement. The interplay of emotional disturbance and educational handicap may in time be devastating (Thompson, 1966).

*Science Education.* By this term will be meant the learning of scientific thinking, concepts and basic terminology of science, and general background information, all of which apply to those areas of interest to the individual student or which relate to group activities the class has chosen to pursue.

All learning will be through largely unstructed, informal individual and group activities, experiments, and projects. They will hopefully evolve from felt needs, expressed interests, and otherwise self-motivation factors.

The teacher needs a good background in both physical and biological sciences, as well as experience with special education pupils, including the gifted.

## Pupil Motivation

The key to any type of learning experience is motivation. Glasser comments on current practice:

> Traditional educators. . .give lack of motivation as the reason that so many children fail in school, although they cannot explain this widespread lack of motivation. Their attempts to apply external pressure upon students to try to motivate them generally fail. Direct motivation. . .can be produced only with a "gun" or some other forceful method. But guns, force, threats, shame, or punishment are historically poor motivators and work only as long as they are pointed and as long as the person is afraid. If he loses his fear, or if the gun is put down, the motivation ceases. . .Although guns have never worked, the schools, struggling to solve their problems, resort to using bigger and bigger guns—more restrictions and rules, more threats and punishments (Glasser, 1969).

Relevance is the key to motivation. Whatever is taught must be related, in the pupil's mind, to everyday experiences and needs. It must be practical, useful, with evident intrinsic values.

Subject content and teaching procedures can never be static. Everything around the child impinges on his world. Hence, what is attempted in the classroom must show relationship to his world at this specific time and place in history. The teacher must not only seek to understand the modern scene but see it through his eyes, as he perceives it—its demands on him, his ability to respond, and his accepted place or role. Then the effort can be made to organize the curriculum and learning experiences around his interests of the moment, ever alert to their transitory nature, which is characteristic of this syndrome.

Teachers must not only agonize to discover the real interests of their very special pupils but they must be clever enough to make them the innovators of the science program, the real curriculum writers for the class.

This is an important facet of discovery teaching. Teachers do not trick the pupils into following a preconceived science curriculum. They not only encourage pupils to develop their own interests but they try to prick their curiosity into finding new interests to follow. It is not an easy task. But the rewards may be an amelioration in the area of emotional disturbance, remediation in the basic skills, and the development of moral and spiritual values.

In this classroom, science would be the base, or core, of the teaching-learning strategy. All subjects and activities would be related to or integrated with science. This program would be set in a class environment of decreasing structure and teacher direction, and increasing pupil participation and planning. Both individual and group learning activities, projects and experiments would co-exist, leading hopefully to more social interaction and improved peer relationships.

For these emotionally disturbed pupils the educational treatment is more a matter of degree or intensity. Good teaching practices are exaggerated in order to bring the troubled child back into the productive stream of learning—pupil motivation and interest, tolerance for pupil expression and feeling, development of self-concept and self-worth, pupil participation, pupil planning, discovery learning, process approach, personality growth, and growing self-confidence through increasing success experiences.

While this type of class requires limited size, special facilities and equipment, and complete freedom from the administration for the teacher and pupils to innovate, create, discover, and plan, other educationally handicapped children can be helped with imaginative adaptations of this method of teaching in the regular classroom. A review of the literature and research points up the high correlation between learning disabilities and emotional disturbance. Which is the initiating factor is not always clear. But it seems to most educators that educationally handicapped students are to some degree emotionally disturbed, and this condition has prior causality.

## Christian Moral and Spiritual Values

Children natually tend to be empirical in their view of life. What they cannot observe or experience for themselves is often rejected, or at least avoided. This is even more true of the emotionally disturbed. Coupled with the comments already made regarding relevance in teaching materials and techniques, a road block on the way to belief in God may be discerned.

Since it is illegal, and justifiably so, to teach religious faith and practices *per se* in the public school systems of this country, a teleological approach as a basic assumption on the part of the teacher can be attempted, with caution! It is a simple thing to substitute the word "God" for the popular but nebulous concept "Nature." In discussions with the pupils regarding their science learnings, design and order which they come to observe in all their science activities can be traced to God as the Prime Mover, the Ultimate Cause and Sustainer. This is especially true regarding the "Big Bang" theory of cosmology. The writer has often been asked by pupils, both special and "normal," about the origin of the original mass. The reasonable answer, which most often they themselves supply, is God.

As the students begin to progress in their basic skills, as the medium and by-product of an exciting, discovery type science program, they will develop improved self-concept, better peer relationships, and adjunctive personality qualities. Within the classroom, with its limited structure and the stress on pupil participation and planning, the children will recognize the necessity of working together with the requisite tolerance of others and interdependence on each other. In this type of class the members will begin to see the need for each to become responsible, helpful, and productive. They will construct their own little society, with its mores and life style.

Teachers try to stay in the background as much as possible, both in the learning experiences and the social development. They remain as resource persons, the ones who in subtle ways confirm or reject the choices and decisions that are made. They must resist the role of manipulator. They are not pulling strings for a puppet show. Most important, their example and daily life as Christians is a constant witness to their pupils, often the first and only one they have ever known.

It is not difficult to see how a gifted person can work in this special education class, inspiring and leading the students to first see the hand of God in the wonder-world of science which they eagerly seek to explore. Then, as the Master-Designer, He can become for them the Ground of all human experience. Their emerging moral and spiritual values can be directed to a Christian interpretation. Their feelings of self-worth and growing respect for each other may come to mirror, at least in part, the life of Him who said:

> Love the Lord your God with all your heart, with all your soul, and with all your mind. . .Love your neighbor as you love yourself (Matthew 22:37, 39. TEV).

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# Good and Evil in Technology as a Question of Christian Values


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*For many years technological progress was perceived as intrinsically good and necessary. Yet more and more people begin to question whether technology and the notion of progress can actually be called good. Some people even wish to do away with the idea of progress altogether and return to a lifestyle of simplicity. Indeed, what is good or evil in technology can neither be discerned in a piecemeal fashion nor can it be defined a priori. It must rather come to focus from the most universal perspective available to us as that which furthers the whole of humanity or detracts from this goal. Since humanity in its fullest sense can be viewed only in the horizon of eschatological perfection provided by Judeo-Christian tradition, good or evil is that which furthers or hinders the realization of the kingdom of God. Technology can then even be an expression of our attempt to respond to the promise of God's kingdom.*


Lynn White in his provocative essay, "The Historical Roots of Our Ecological Crisis," has voiced the opinion that Christianity is the most anthropocentric religion on earth and largely responsible for our present exploitative attitude toward nature.[1] Many have followed his path in advocating alternative value systems in order to overcome the dangers inherent in Christian faith. Yet we wonder why an effective remedy in our attitude toward nature should not come primarily from the Judeo-Christian tradition. If this tradition made it possible for our present technological age to develop, it might also be able to provide helpful guidelines for avoiding the adverse side-effects of technology as they show themselves, for instance, in the ecological crisis. Pursuing this idea, we investigate whether

any conclusive statements can be made from the Christian tradition concerning good and evil in technology.

## The Impact of Modern Technology

According to a dictionary, technology is "the branch of knowledge that deals with the industrial arts." This branch of knowledge has enjoyed an unprecedented expansion. The evolution and refinement of machines within the last 100 years alone is comparable to a biological and behavioral evolution extending over one billion years.[2] With the help of technology more natural resources have been used since World War II than since the beginning of human history altogether. This rapidly accelerating potential and application of human possibilities have led to an ever increasing interdependence between us and our environment.

*Increasing Interdependence between Humanity and Environment.* Pre-technological humanity could afford a fairly casual attitude toward its environment. The environment was the shelter and home in which people lived. If the present environment no longer sufficed for their needs, they could move on to better quarters, leaving the exploited land behind. Similarly, waste products could be left behind or channelled into river systems that served as natural sewers. Due to the urbanization process and the increase in population these methods no longer suffice. The plight of many inner cities in American metropolitan areas shows us that at least the less prosperous segments of the population have to live with the garbage and the dilapidating houses that the affluent leave behind when they escape to suburbia.

Even the affluent can escape the impact of their neighbor's behavior in only relatively few instances and in small numbers. Unless they live in solitary isolation, their neighbors' lawn mowers contribute to the noise pollution, effectively disturbing a Sunday afternoon nap, and the teenagers' junkyards of old cars obliterate the view from the living room window. Increasing population and demands on the environment in terms of natural resources and recreational areas turn our environment into everyone else's environment. The way I treat my environment immediately affects my neighbors and their environment. Thus the quality of life can no longer be solved on an individual basis. Here lies the fallacy of rejecting the ethics of a spaceship and instead calling for those of a lifeboat.[3]

While it is certainly true that we can divide the world into a luxury club of roughly 400 million people and a poor peoples' club of more than 3 billion, none of the nations that have members in the luxury club is self-sufficient. The present dilemma of an adequate oil supply at a price that does not strain our balance of payments shows exactly that we are no longer, and perhaps never will be, independent. That the scientific laws we used for our first moon flight did not come from an all-American team, but from Galileo, Newton, Einstein, and von Braun should have told us this lesson years ago. A young and sparsely populated country such as the USA could never have reached its present level of technology without the help of millions of immigrants. However, now, having attained this level, we are in the same boat as most other industrialized nations. We can no longer do without continuous imports of raw materials. The industrialized nations depend on the resources of developing nations as much as or even more than the latter depend on the industrial goods and technological knowhow of the former. To assume that we can be our own neighbors neglects the fact of an ever increasing interdependence among nations, regardless of how far apart they may be geographically. Yet modern technology not only necessitates our dependence on larger and larger areas of our ecosphere, but also has become so ambiguous that it oscillates between the symbols of a sheep in wolf's clothes and a wolf in sheep's clothes.

*Increasing Ambiguity of Technology.* It was fairly easy to discern between the blessings and curses of the 19th century industrial revolution. Mass production, easy accessibility of goods, accelerated forms of communications, and improvement of the quality of life on all levels for those who could afford it stand out as typical 19th century achievements. On the other hand we see a bleak world of the underprivileged vividly described by Charles Dickens with cities blackened by industrial soot, child labor, widespread poverty and unemployment, and an ever widening gap between the newly rich and the powerless and exploited factory workers. Our present technological evolution does not lend itself as easily to a clearcut description. Of course, we could refer to Jaques Ellul's *Technological Society,* to Leroy Augenstein's *Come, Let Us Play God,* or to Albert Rosenfeld's *The Second Genesis,* all of which eloquently point out the total grasp of technology on our lives. But none of these men is a doomsday prophet. They know too well that technology wears a Janus face, and that it is difficult at any time to be sure whether its newest phase is a boon or a disaster. Even such sobering predictions as Friedrich Jünger's *Failure of Technology,* Alvin Toffler's *Future Shock,* and the Reports to the Club of Rome do not leave us with a totally bleak picture. They show us the urgency of our present situation, pointing out that we are at the crossroads of history, either leading toward destruction or averting it. Even on the basis of their analyses it is rather difficult to decide which way to turn. One thing becomes clear, however. We cannot turn the wheel of history back, aborting our technological advancements. Our civilization is much too complex and we are much too removed from "a natural way of life" to be able to do without technology. Just imagine for one moment what our life would be like if we were not allowed to resort to pills when we are sick or to wear eyeglasses when our vision deteriorates. For better and for worse we cannot rid ourselves from the spirits we have called. But can we at least discern the spirits and avoid some of the more dangerous ones? Again there is no simple answer.

There is a tendency in new technologies to spiral toward increasingly ambivalent effects. With television, for instance, the polarization process not only occurs at more levels of involvement but tends to be less visible. Television programming is accused of filling minds with tripe even as it provides new and broader experiences for those watching it. Regardless how high our hopes are for educational TV, in general a mass medium such as TV creates its audience by its average. TV is able to shape the tastes of its audience. As a TV programmer freely admits, if the sports promoters prove uncooperative the TV networks "can create their own events, and the engines of publicity at their disposal will go into high gear to make sports created by broad-

casters more popular than those withheld from transmission." The TV broadcasters always "have in their power to undermine any uncooperative sport by filling the air with other entertainments calculated to keep the customers looking at the screen instead of going to the field or the arena."[4] That soccer, for instance, does not make more inroads in the USA, and this means on TV, may be largely attributed to its continuous flow of action that does not lend itself to calculated interruptions by commercials.

Another example for the ambiguity of the new technology is the story of the Tennessee Valley Authority. With its control of disastrous floods and its cheap power for the multitudes it was one of the great achievements of the New Deal. But TVA has two faces:

> One is composed of the green hills around Knoxville, enriched with cheap government fertilizer and green with pines planted with government subsidy. It sparkles with TVA lakes and hums with profits from a multitude of new industries attracted by a pleasant climate, abundant work, flood control, and dirt-cheap electricity. But TVA's other face is less pleasing to contemplate. The agency generates much more electricity from coal than from its hydroelectric dams, and fuel-buying policies have long been the subject of bitter controversy. By insisting on rock-bottom coal prices for its growing string of huge steam plants, it has stimulated strip mining enormously,

since only strip mines have been able to hold the price line and meet TVA's bid requirements.[5] On moral, social, psychological, and economical levels the new technologies not only generate new benefits but counter those by breeding their own evils.[6]

Of course, we could say that this is the price we have to pay for technological progress. As there is no work without sweat, there is no benefit without threat. Yet what troubles more and more people is not that we have to pay a price, but that the threats are becoming bigger and bigger. The question that emerges here is: Can we afford the threats of tomorrow? Is it not too late once we detect some of the dangerous side-effects of technological evolution? Do we still have time to correct some of the dangerous aspects of technology that we have already discovered, such as diminishing natural resources and increasing pollution of our environment? What happens, for instance, if we find that the present crash program of building atomic power plants presents unforeseen problems in terms of nuclear and thermal wastes and production safety? These are not just questions of technological know-how. They are also and primarily questiong of values, or briefly, ethical questions. In addressing the ethical aspect of our topic I am not pretending that Christianity has all the answers. I am deeply aware of Lynn White's observation that the doctrine of human dominion over nature is responsible for our present crisis. Yet I would side here with Ian Barbour and others who claim that there are other biblical doctrines that hold in check the mere pursuit of dominion.[7] In striving for a Christian ethics of technology, however, one of our first tasks must be to discern between good and evil.

## Towards a Chistian Ethics of Technology

*Discerning the Good and Evil.* According to Greek thought the good is something to be attained through education and insight. In the Judeo-Christian tradition, however, the good is not an ideal to be aspired to. Adam and Eve's autonomous knowledge of good and evil led to disaster. In most instances the Old Testament term good is closely connected with the understanding of a personal God. "Give thanks to the Lord, for he is good" (I Chron. 16:34), is one of the basic confessions of the Old Testament. God's goodness shows in his benevolence, in his wanting and doing the good for his people. This is true both for salvation experienced in history and for the eschatological salvation promised as the end of history (Ex. 18:9, Isa. 52:7).[8] Since God is good and working in goodness, we are supposed to respond to him by showing an analogous way of conduct. Thus the prophet Micah can remind the Israelites: "He (Yahweh) has showed you, O man, what is good; and what does the Lord require of you but to do justice, and to love kindness, and to walk humbly with your God?" (Micah 6:8).

*Judeo-Christian tradition has no reason to reject modern technology as the result of human pride and sinfulness. We could even venture to say that it is part of our attempt to spiritualize the world in penetrating the material with the human spirit.*

In the New Testament these tendencies are reaffirmed. We hear Jesus say that "no one is good but God alone" (Mk. 10:18). We also notice Paul saying that our natural existence is excluded from the good. Regardless of our longing for the good, we cannot realize it as humanists would make us believe (Rom. 13:4). But only in discerning the will of God can we attain a notion and a realization of what is good (Rom. 12:2). The question which now emerges is: How can we reach such discernment? The answer we obtain in the New Testament is that we are able to discern the good and even accomplish it if we identify ourselves with Christ. However, in the New Testament the good is always spoken of in imperative clauses, indicating both the urgency of doing the good and also conceding that not everybody does it.

Concluding our short survey we notice that good is neither something that is located within us or outside us in nature. It is neither a human phenomenon nor does it reflect some kind of naturalness. Good is whatever is in conformity with God's will. Yet good is not an attribute of God unrelated to our experience of him. God's goodness expresses itself in benevolent action and is witnessed by the Judeo-Christian community through God's saving action in history, including the life and destiny of Jesus the Christ. Especially in the life and destiny of Jesus the Christ it becomes clear that God's goodness is not reserved for a privileged ethnic or geographical minority. All people are invited to participate in it and respond to it. God's saving action, however, should not be misconstrued as an intervening action from outside, with God acting like a *deus ex machina.* His saving actions have eschatological significance in being directed toward a goal, the re-creation and perfection of his creation. The events of this world and our participation in them obtain their meaning and significance from this final goal toward which all history is

moved through God's goodness. In many instances, the adoption of such an eschatologically focussed universal historical understanding of the good would eliminate many prevalent notions of the good. What is good could no longer be decided by considering solely individual, group, or national interests.

According to Judeo-Christian tradition an understanding of good that neglects its eschatological universal historical horizon would rather be termed evil. Already Israelite history tells of people closing themselves off from this universal horizon. Consequently evil descends upon them. For instance, in Jeremiah 6:19 we hear Yahweh say: "Hear, O earth; behold, I am bringing evil upon this people, the fruit of their devices, because they have not given heed to my words; and as for my law, they have rejected it." Yet evil does not descend upon the people like a primordially decreed fate. Both Old and New Testament witness to the evil which is located in the heart or in the midst of human existence (Jer. 7:24; Mk. 7:22f.). Evil is not something that stems from God or is associated with him so that we might find an excuse for our evil inclinations (James 1:13). Evil is narrowing down the world to our own sphere and asserting that a *partial* good is *the* good. An illustration of this perversion can be found in the phrase: "What is good for General Motors is good for the U.S.A." The good for individuals, even corporate individuals, must always be envisioned contextually without neglecting the ultimate historical horizon which is at the same time the eschatological horizon. It is exactly the neglect of this ultimate horizon, the assumption that technology is for the good of humanity, individually or corporately conceived, that brought upon us the present crisis.

*Dynamic and Re-evaluative Ethics.* Judeo-Christian tradition has no reason to reject modern technology as the result of human pride and sinfulness. Modern technology does not exhibit a greater degree of human sinfulness than did the mallet which Cain lifted to slay his brother Abel. Modern technology can be understood as responding to the command to subdue the earth. We could even venture to say that it is part of our attempt to spiritualize the world in penetrating the material with the human spirit, uncovering the orders by which it is held together and rearranging them anew.[9] Thus our world is becoming more spiritualized and more humanized.

Technology is an intrinsically human phenomenon. Corresponding to our own historical and spiritual evolvement, technology is evolving too. Especially in the present North-South and East-West dichotomy we notice a close relationship between a cultural, intellectual, and spiritual level and a certain level of technology. Of course, a more sophisticated technology does not imply a better technology in a moral sense. For instance, the export of sophisticated technology, especially in terms of arms, to the Near East and the Far East has not contributed to the ethical advancement of the people in these regions. If modern technology is a human phenomenon, it is neither conducive to a morally good or a morally evil behavior, nor is its application ethically neutral. Modern technology always reflects the spirit of the people by whom it is developed and administered. Does this mean that everything depends on our control and that good and evil in technology are simply a matter of controlling the controllers? Again, we cannot answer with an unqualified yes.

If the demand for stringent controls that is voiced more and more often these days would be met, it would not automatically result in benevolent action. In some dimensions control is impossible or futile since the results of technology are to some extent unpredictable. For instance, when many people moved out to new and pleasant homes in suburbia, who could then foresee that this would put us into a terrible bind in terms of our dwindling fuel resources? Given new circumstances and new data, something that has been advocated as good may suddenly be considered as evil. If something previously labeled good now turns out to be evil, what standards or procedures should the controllers employ to determine what should be done and what should be avoided?

It is perhaps good here to remember that in the Judeo-Christian tradition good is envisioned contextually in considering the universal historical horizon in which a decision is made. Terming something evil that was once considered good would only lead to arbitrary and relativistic ethics, if the decision to call it evil resulted from the volition of the controller. However, if new data and circumstances necessitate such change, the basic perspective of a universal historical horizon for ethics need not be changed. Yet what needs to be changed continuously, or rather enlarged, is the horizon in which the ethical situation arises. Taking seriously how the good is envisioned in the Judeo-Christian tradition, we notice three items:

1. An ethical judgment can no longer be rendered by exclusively resorting either to religious values or to scientific data. The sciences, researching the world of phenomena, and religion, giving account of ultimate values, must cooperate to answer the basic questions of humanity. The simple call for controllers of technology is too simplistic. If science dominates at the expense of religion, we get a picture of human life void of ultimate values. And if religion rules supreme to the exclusion of science, our understanding of human life lacks verifiable data. Only through cooperation between science which provides data, philosophy which provides conceptual forms, and theology which provides values, can the perplexing questions raised by technology be answered with clarity, authority, and confidence.

2. Since our historical, conceptual, and technological horizon is constantly expanding, ethical judgments have to be re-evaluated constantly in close and continual cooperation between Christian ethical theorists and data-providing scientists to assure a truly universal historical horizon in which the ethical situation can be properly perceived. Since new technologies have an increasingly profounder impact on their areas of application and on ever wider tangential areas in shorter and shorter timespans, the prophylactic

aspect of this cooperation is at least as important as the remedial aspect.

3. An ethical decision cannot be termed good unless it considers the total and universal horizon of history. Since such complete contextualization of ethical decisions is possible only considering the proleptic anticipation of the goal of history in Jesus the Christ, humanity apart from Christ will always close itself off from part of the good. As the Pauline imperatives indicate, even Christians succumb to the temptation of reducing the universal good to their own good. They too can live as justified only by accepting God's forgiveness. All things considered, this means that our decision for what is good in technology is a decision made in trepidation. It is done in hope that we are doing the right thing and in the assumption that even with the application of modern technology we are not to save the world, or even spare it from destruction. Yet allowing for a total universal eschatological horizon and not closing ourselves off from it, we are able to contribute to a greater contextualization of technology and thereby we are in a position of better distinguishing between its good and evil features.

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# Dooyeweerd's Doctrine of Science


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*Dooyeweerd's thought always embraces a transcendental critique, in (1) the negative sense of tracking down the presuppositions of apostate or synthesis thinking; and (2) the positive sense of showing, by way of argumentation, the religious character of all thought. With variations, these two directions are always present in his philosophy.*


Herman Dooyeweerd, the late professor emeritus of jurisprudence at the Free University of Amsterdam, believed that there is a legitimate place for science in the way God has ordered things. He understood science to be a God-given means for disclosing the potentialities of the cosmos. In this conviction he echoed the views of the great Reformer of the sixteenth century, John Calvin, and the lesser known but also great Reformer of the end of the nineteenth and the beginning of the twentieth century, Abraham Kuyper.[1]

Abraham Kuyper, the founder in 1880 of the Free University, argued that science has its own domain, free from the constraints of ecclesiastical decisions. Indeed, upon occasion, the church had attempted to curtail science by making pronouncements and by imposing sanctions. This, Kuyper said, was unfruitful. Science is a good gift of God and should be used to his glory. In spite of the fact that he rejected its spirit entirely, Kuyper was able, therefore, to acknowledge that there were some positive fruits of the emancipation, called "secularization," both of economic life and of science that accompanied the Renaissance and the rise of bourgeois culture.[2]

In this regard, Kuyper was, in turn, a follower of John Calvin. The latter, trained as a lawyer, schooled in the liberal arts, had an open attitude towards the sciences.[3] For him science was a noble enterprise. Together with its fruits it was a benefit bestowed by God, which Christians could despise only out of ingratitude.[4]

## Sphere Sovereignty

It was with this spirit of gratefulness that Kuyper developed his view of the sovereignty in its own sphere (or "orbit") of science. For him science is one of various spheres ordained by God, possessing a derived sovereignty within its own sphere and forming thus a terrain of legitimate, divinely ordained activity. Laboring within the sphere of science, he said, one has the obligation to submit it, together with all other spheres of life, to the kingship of Jesus Christ.[5]

In the line of Abraham Kuyper, consciously drawing on his legacy, Herman Dooyeweerd also held to the sovereignty in its own sphere of science. Science has its own, divinely established meaning, its own sense. Its meaning does not derive from that of any other created sphere of life, whether it be the church, the educational or business world, or any other temporal association.

That science has its own sense and possesses sovereignty in its own sphere does not mean, however, that it has its meaning *of* itself. It does not have meaning of itself any more than any other sphere does. Every sphere has meaning only as a creation of God, and its sovereignty is one that is subject to the absolutely sovereign God and the bounds he has set for it. The being of everything, including science, is to be in the service of God.

Dooyeweerd was particularly strict as to the last point. Everything has its meaning in its relation to God, who is the true source of meaning. That is not to say, however, that a thing, including science, first is and then must be brought into relation to God. Everything *is* in relation to God, either in relation to the true God or a pretended substitute for him, an idol. Dooyeweerd expressed this religious relationship in his philosophy by saying that everthing not only *has* meaning but *is* meaning.[6]

Dooyeweerd, therefore, was able to say that the cosmos is a structure of meaning without holding that this structure is self-sufficient, as he said, "substance." All structure is created structure, created meaning-structure, whose being is in its dependence upon God. Thus, it is possible to speak of science *itself*, possessing its own structure and its own sense without implying that science is *of* itself.

To deny this, as some have done recently, leads into an impasse in relating God to the cosmos. If one refuses to link meaning to the cosmos in such a way that the cosmos *is* meaning and insists that the cosmos *has* meaning in-relation, let us say, in relation to God, he is faced with difficulties at both termini. It is difficult for him, on the one hand, to avoid the view that to allow for structure is in some sense to allow for something that is in isolation from God. It is also difficult for him, on the other hand, to avoid isolating the God-relationship from what a thing is *itself*, some might even say, from what it *really* is. Analogously, he has difficulty avoiding the view that to refer to a thing *itself* is to imply that it is *of* itself, and having located the source of meaning in the God-relationship, to avoid the view that what *in itself* has no meaning obtains its meaning *in relationship* to God.

Dooyeweerd's own position is clear, however, with respect to the meaning of science. Science has its own sense, its own meaning *of itself*.

Put somewhat differently, that something, including science, has sovereignty in its own sphere, does not mean that it establishes its own law, that it is, in this sense, a *law unto itself*. It is subject to God and the law that he has given for the cosmos. In being *subject*, a thing has its *being;* its *being* is in its being *subject* to God.

## Doing Science

If it indeed pertains, as Dooyeweerd says it does, to one sphere among others, science is one activity among others a person can do. A person can form a family, go to church, vote, etc. He may also "do science," if that is his calling. One may do science, among other things, according to the sense establishing the meaning of its sphere.

"Doing science" is, therefore, a typically qualified activity, typical indeed, in that it involves a number of traits drawn together in a particular pattern. It is one among other such typically qualified activities that people can do. When they are doing science, they act in accordance with the typical qualification of the sphere in which they are acting.

The meaning of science, however, is never apart from the activity of the one who "does" it and whose act transcends the scope of any of its typical qualifications. Dooyeweerd taught, particularly later in his career, that the structure of human act-life, unlike those of other creatures, is not qualified typically. Particular human acts, like painting a watercolor, presenting a gift to a friend, or giving an after-dinner speech, are indeed qualified, the first aesthetically, the second ethically, and the third socially. Human act-life, however, is not qualified in any typical fashion; it cannot be typified in terms of any of its expressions, even that of faith, but stands open before God. As one may put it, human act-life is "convenantal."

As covenantal, religious, in character, human life is life in which man is expected to subdue himself and his every act to the sovereign God. It must be clearly established, however, what is meant here by religion. It is the concentrating of all of life on its absolute origin, God, according to his command that one love him with all of his heart, soul, mind, and his neighbor as himself. Religion is, therefore, that which underlies and gives direction to every terrain of life without exception.

## Science as Religiously Conditioned

Such a view that science is religiously conditioned does not mean that it is conditioned by something that must be set up against or in competition with science, so that, for instance, one is obliged to be less than scientific in order to allow the religious character of science to come to expression. Dooyeweerd's position, on the contrary, is that science is religious in an inner way, i.e., with respect to what characterizes science as science, namely, the forming of *theoretical concepts*.

Thus, the relevance of religion to science does not appear

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*Somewhat revised form of a lecture delivered at the 32nd annual meeting of the American Scientific Affiliation, Nyack College, Nyack, N. Y. Cf. Robert D. Knudsen, "The Idea of Christian Scientific Endeavor in the Thought of Herman Dooyeweerd,"* Journal of the American Scientific Affiliation, *Vol. 6, No. 2 (June, 1954), pp. 8-12.*

in a practical in contrast to a theoretical, an ethical in contrast to a metaphysical realm, or in naive in contrast to systematic thinking. Nor does it first appear as one comes up against ultimate, sometimes called "existential," questions, or as one's statements attain rapport with theological truth.

From the first, Dooyeweerd held that theoretical concepts themselves are not self-sufficient. Theoretical thinking, indeed, has its own domain, the area that is proper to it; nevertheless, theoretical thinking is not autonomous, a law unto itself.

Dooyeweerd held that theoretical thinking is a human activity, one which is logically qualified. Logic is indeed present in everyday relationships. Even a simple conversation has its logical side. In theorizing, however, the logical is abstracted out from the other aspects of reality with which it is integrally related and is set over against one of them. A psychologist, for instance, works with logically qualified concepts; but these are in turn qualified by the sense of his field of investigation. In a theoretical concept, therefore, there is at once an opposition and a conjoining of the logical and non-logical aspect.

From the first, Dooyeweerd held that a logical concept is more than logical in character. It involves, he said, a synthesis of what is logical and what is non-logical. In the concepts with which he is working, a theoretician will discover that there has *already* been a *synthesis* of the logical and the non-logical. It is impossible to think, therefore, that the general-logical concepts with which one works in science are sufficient to themselves. One must understand that a theoretical synthesis is already present in them. It is necessary, then, to sort out the concepts, and this can be accomplished only in terms of a concept of one's field of investigation.

We ourselves are acquainted with certain theoretical concepts and with lines of theoretical argumentation. Among others we are confronted with the following terms: "conscience," "emic," "etic." We have also been presented a line of argument: Inevitably one will express moral disapprobation (anger) and himself will inevitably fall short of his own moral judgment (conscience). God will judge him for not having universalized his own moral judgment.

Dooyeweerd maintained that any such forming and conjoining of concepts is possible only as it is led by an idea of an order of "modal aspects," which inhere in divinely created reality. In our discussion to this point, we have already referred to a *logical,* a *psychical,* a *social,* an *aesthetic* and an *ethical* aspect.

Dooyeweerd's conviction in this regard came to a refined systematic expression in an important monograph published in 1954.[7] Every *general-logical* concept, he argued, is multivocal, or "analogical." This multivocality cannot be eliminated by means of further logical clarification, as if it were simple logical ambiguity. If there is to be clarity in theoretical concept-formation, the general-logical concepts, the analogical concepts, must be related to an order of modal aspects, which, themselves not definable, because they are ultimately generic concepts, lie at the foundation of the possibility of all conceptualization.[8]

That the general-logical concepts used in theory are in need of modal qualification shows that they are not sufficient to themselves. They are dependent upon an order of reality—Dooyeweerd said, a divinely ordained order of reality—in terms of which they have their meaning. Theoretical thought depends in its execution on a created order of reality which is itself not of the nature of theory and not even of the nature of logic.

*Religion is the concentration of all of life on its absolute origin, God, according to His command that one love Him with all of his heart, soul, mind, and his neighbor as himself. Religion is, therefore, that which underlies and gives direction to every terrain of life without exception.*

A major portion of the original inspiration that led to the formation of his philosophy was that this concept-formation was led by an idea, what he called a "law idea." And a law-idea is founded, not in theoretical thinking itself, but in a true or supposed origin of truth, to which one is related religiously, in an ultimate commitment.

According to Dooyeweerd, however, as we have already pointed out, that science is religiously determined does not mean that it is any less science. An objection voiced against such a position as his, of course, is that it hands over science to a limitless arbitrariness. That is not at all the effect of Dooyeweerd's position. Science, he insists, must answer to the strictest canons as to method, etc.

It is characteristic of the idea of sphere-sovereignty, that a sphere (the state, the home, science, etc.) has its own character, its own structure, but is nevertheless completely dependent religiously. Thus, whoever is active within a particular sphere is obliged, to God's glory, to serve him according to the law he has ordained for that sphere.

The religious determination of science, therefore, is not manifest only as one departs science for something else; it is manifest within science, in its actual practice. Dooyeweerd always sought for an *inner* connection between science and religion.

## The Triadic Idea

Reflection on the religious impulse at work in science is , as we have pointed out, a reflection on what is actually going on in the process of the formation of concepts in scientific activity. From the first, Dooyeweerd claimed that theoretical thought is led by an *idea.* Early in his career he said that this is an idea of the *coherence* and *origin* of the cosmos. Soon, however, he added a third term. All theoretical conceptualization is led by an idea of the coherence, *deeper unity,* and origin of the cosmos. In all theoretical thinking one or another such triadic idea will be present. It is necessary to bring it to awareness, because apart from the true one theory cannot embark on a proper course.

We have to this point given some attention to the dependence of concept-formation on the idea of the coherence of meaning of the cosmos, the first term of the triadic idea. Now, drawing on an observation we made

*Dooyeweerd always insisted that his philosophy was incapable of popular expression.*

earlier, we may direct our attention to the second term of the triad. We already observed that, according to Dooyeweerd, a person in his act-life is more than any of his typically qualified acts.

In theoretical concept-formation there is always an implicit or explicit reflecting on humanity. That is to say, theorizing is always led, whether one is aware of it or not, by an idea of who the human being is. Reflection upon the religious foundation of science proceeds, therefore, by way of a reflection on the human being in his integrality and wholeness, on the one who acts in ways that are variously qualified.

In addition, Dooyeweerd claimed, it is always the case that the idea of humanity is correlate with an idea of God. Thus, in every theoretical judgment, in the activity of forming concepts itself, there will already be a triadic idea at work that can be obtained only by way of taking position religiously.

### Life Is Religion

Dooyeweerd's view, like that of Abraham Kuyper, was that *life is religion*. This religiousness manifests itself according to the specific sphere in which a person acts. It is manifest, for example, in *worship,* in *play,* in *conversation,* and in the *communion of husband and wife.* In science this religious orientation becomes manifest in reflection on what itself is a process of thought, namely, the process of theoretical concept-formation.

The above statement reflects the *transcendental* character of Dooyeweerd's thinking. The presuppositions of science are not discovered by stepping out of science, by appealing, e.g., to a set of metaphysical postulates; they are discovered by giving attention to what is already at the background of the actual course of scientific inquiry. It is only by way of such a critique of thought that the inner connection between theory and science can be found.

In this connection, we may observe how central the transcendental direction is in Dooyeweerd's thinking and how important it was to him even from the first. Transcendental criticism, for instance, was not, as some think, a later development. As we have already suggested, the transcendental direction of thought and a kind of transcendental criticism lay at the heart of his thinking, as he concluded that all theorizing is led by a tripartite idea, which itself is religiously conditioned.

His thought always embraced transcendental critique, in the sense of tracking down the presuppositions of apostate or synthesis thinking. It always embraced this criticism, too, in the positive sense of showing, by way of argumentation, the religious character of all thought.

Soon after the publication in 1935-1936 of his *Philosophy of the Idea of Law,*[9] however, Dooyeweerd began to develop his transcendental critique in a more formal way, in the step-by-step form in which it is now for the most part known. This kind of presentation first appeared in an article of 1939, in the periodical *Synthese.*[10] This formalized version he sets forth in a series of three or four questions, answers to which any theorizing must assume. Every line of theoretical thinking must assume an answer to the question as to the kind of abstraction that characterizes theory: theory abstracts from the coherence of meaning of the cosmos, articulating its various aspects. It must assume an answer to the question as to how these aspects are again unified in a theoretical synthesis (every concept, as we say, involves one): it is possible to sort out the aspects correctly only when there is a reflection on the concentration of meaning of the cosmos in the self. It must assume an answer, finally, to the question as to whence this true understanding of the self may be obtained: it is gotten as one is carried along in the religious community in the grip of the revelation of God, that he is creator, that the human being, created in his image, has fallen into sin, and that redemption is in Christ Jesus.

A cornerstone of the critique, Dooyeweerd claimed, particularly in his later development, is that these questions are forced upon one by the structure itself of theoretical thought.[11] It has become widespread, even fashionable, among some who believe themselves to stand within the tradition of Dooyeweerd, to minimize, or even to eliminate, the transcendental critique of thought. One view contributing to such a rejection is that religious involvement is a practical matter, a matter of practical, or "existential," concern. Theoretical thinking, then, is regarded to be, e.g., an articulation or systematization of what are sometimes called "gut reactions." It is, therefore, only as we move from theoretical expression to pre-theoretical involvement that we again enter the domain of religious conviction. On this view, some are claiming that we must depart theory and resort to popular expression if we are to see the religious thrust of Dooyeweerd's philosophy.

It must be observed, in contrast, that Dooyeweerd always insisted that his philosophy was incapable of popular expression. He also continually emphasized the central place in his philosophizing of transcendental criticism.

On February 12, 1977, Herman Dooyeweerd went to be with his Lord, full, I am led to understand, of trust and peace. I am confident that his works will live after him.

## REFERENCES


[1]1837-1920. A recognized biography of Kuyper is that of P. Kasteel, *Abraham Kuyper* (Kampen: J. H. Kok, 1938).

[2]Cf. Abraham Kuyper, *Calvinism* (Grand Rapids: Wm. B. Eerdmans Publishing Co., 1931; 1943); cf. also William Young, *Toward a Reformed Philosophy* (Grand Rapids: Piet Hein Publishers, 1952), especially chapter I.

[3]Note the extensive discussion in Josef Bohatec, *Budé und Calvin: Studien zur Gedankenwelt des französischen Frühhumanismus* (Graz: Hermann Böhlaus, 1950).

[4]Calvin, *Institutes* II: 2: 16.

[5]There is the famous, oft-quoted saying of Kuyper, "There is not a square inch of life, of which Christ does not say, 'It is mine'."

[6]"*Meaning* is the *being* of all that has been *created* and the nature even of our selfhood. . ." Herman Dooyeweerd, *A New Critique of Theoretical Thought* (Amsterdam: H. J. Paris and Philadelphia: Presbyterian and Reformed Publishing Co.), I (1953), 4.

[7]Herman Dooyeweerd, *De analogische grondbegrippen der vakwetenschappen en hun betrekking tot de structuur van den menselijken ervaringshorizon* (Amsterdam: Noord-Hollandsche

Uitgevers Maatschappij, 1954). Tr., Robert D. Kundsen, "The Analogical Concepts" (mimeographed, 1968).

[8]Cf. Dooyeweerd, *A New Critique*, II (1955, 55 ff.

[9]*De wijsbegeerte der wetsidee* (3 vols.; Amsterdam: H. J. Paris 1935-1936). The *New Critique* is a revised and enlarged edition of this work in English translation.

[10]Herman Dooyeweerd, "De transcendentale critiek van het wijsgerig denken," *Synthese*, IV, 314-339.

[11]Herman Dooeweerd, *Transcendental Problems of Philosophic Thought* (Grand Rapids: Wm. B. Eerdmans Publishing Co., 1948), pp. vi-viii, 19, 22, 25.


**THE HUMAN PUZZLE: PSYCHOLOGICAL RESEARCH & CHRISTIAN BELIEF,** by David G. Myers. New York: Harper & Row, 1978, 278 pp., $5.95

A most auspicious beginning to the series "Christian Perspectives in Counseling and the Behavior Sciences," to be published Harper & Row in association with The Christian Association for Psychological Studies, comes to us in the form of this scholarly work by research psychologist and author David G. Myers. After using the book in an undergraduate psychology seminar, we two reviewers have pooled our experiences and now join in chorus to praise author, publisher and sponsor for contributing something new and significant toward the integration of psychology and Christian belief.

A telling reflection on Myers' approach, in contrast with that of most other psychological integrators with whom we are familiar, is that we both learned psychology from reading the work. We did so because an essential part of the book consists of coherent syntheses of current research in several diverse areas of psychology. Myers' radical openness to the current knowledge explosion in psychology makes good his prefatory argument that the interaction between psychology and theology must work in both directions. Myers the theologically interested Christian and Myers the professional research psychologist are not dual personalities, but one person struggling to find the essential unity underlying both the discipline and the faith. We found a willingness to explore areas of apparent tension and some suggestions for taking a "second look" at traditional interpretations of Scripture in the light of psychological research. Overall, a view was reflected of both theology and psychology as human activities subject to the distortions and biases to which both Scripture and psychological research reveal that man is susceptible.

In this review we can only suggest the richness and depth of scholarship we found in the book. We learned early that Myers is skeptical of all kinds of dichotomies: mind/brain, soul/body, faith/reason, etc. One chapter synthesizes a vast body of research in the field of bio-psychology pointing to an intimate, complex interrelationship between brain states and man's behavior and mental life. The following chapter suggests many ways in which the holistic image of man conveyed by current psychology is essentially the image of man in the Bible. We sometimes encountered startling conclusions in Myers' "second looks" at traditional views of Scripture concerning the resurrection of the body, the nature of faith, and the efficacy of prayer. Although not necessarily persuaded to adopt all of these perspectives, we were continually challenged and impressed with the author's intellectual fairness. His copious notes at the end of each chapter also helped us to follow through on points which challenged us. There is grist aplenty for the mills of both psychological and theological scholars.

But equally so, the book should be helpful for Myers' "other audience," undergraduate psychology students. We found the book useful in breaking down the persistent dichotomy in our experience between intellectual activity and Christian commitment. One of us found help in overcoming a paralysis of faith occasioned by intellectual challenges to our faith. We can hardly think of a better reason for recommending the book for advanced undergradute psychology classes.

*Reviewed by Dennis R. Ridley and Susan M. Grippo, Department of Psychology, Houghton College, Houghton, New York 14744*

**ETHICAL REFLECTIONS** by Henry Stob, William B. Eerdmans Publishing Company, Grand Rapids, Michigan, 1978, 255 pp. and xii. $6.95.

Stob's essays make a compelling case for an ethic of principle. His arguments advance rigorously from one point to the next, carefully bolstering the position presented. The author is a Calvinist scholar, rooted in the best moral thought of the medieval and reformation periods of Christian history. As a consequence, the book's strength is its

clear, almost painfully precise presentation of principles.

However, moral principles are not works of art to be admired for their proportions, nor even their depth of insight. Human beings test them in their daily lives, struggling to know and to do what is right and good while avoiding what is evil. The author believes solid ethical principles should permit men and women of conscience to live the good life. For that reason, it is surprising that less than one-third of the book applies those carefully hewn principles to the problems of society. The reviewer found that portion of the book to be the weakest and, hence, believes the principles are less polished than they first appear to be.

For example, Calvin, according to Stob did not "absolutely proscribe" revolution. However, he did teach that "private persons may never revolt." Stob endorses Calvin's solution that "representative functionaries or subordinate officials" are to protect the people from the license of tyrants. Contemporary crises in Uganda, South Africa, and Iran testify to the inadequacy of such a thesis, even though it is the sort of principle civilized people would want to be true.

It may well be, as Stob states, "that everybody holds his possessions by a dispensation of God." However, if God is the one who despenses property, one must seriously ponder why those with whom God has been so generous have been so penurious with the abundance so graciously received. Even more perplexing is the bloody way in which God has taken wealth from the Indian, the Inca, and the Jew and confided it to others. Those who have much are too often ready to believe what those who have nothing find absurd. After all, our God "executeth judgment for the oppressed; giveth food to the hungry." (Ps. 146: 7).

Finally the author's treatment of abortion is to be noted because here he softens priniciples by applying them to selected situations. Liberals will criticize him for not going nearly far enough; conservatives will fault him for endorsing abortion in any way. However, what is striking is that the absolute principles which governed his treatment of both private property and revolution are here abandoned in favor of a sliding scale.

Reality cannot always be made to fit into even the most carefully reasoned moral synthesis. The major weakness of this book is the author's failure to test theory with fact. The failure is more serious in that the author stated that a moral principle must "face the static structures of the cosmos and describe them, and it must face the flowing life at the surface of existence and prescribe for it. . .A principle which fails in either one of these functions is. . .a pseudo-principle." The judgment is admittedly harsh and softened only by the fact that the author himself had the insight to make it.

Finally, a non-Reformed Christian hesitates to make this sort of criticism but must nonetheless. Stob's ethic too often ignores the Word of God for human insight. Those insights lack the cold pragmatism of the secular mind without challenging human mediocrity with the written and incarnate Word of God.

*Reviewed by William J. Sullivan, S.T.D., Associate Professor, Religious Studies, St. John Fisher College, Rochester, New York 14618*

**ETHICS IN SOCIETY AND BEHAVIORAL RESEARCH,** by E. Diener and Richard Crandall, Chicago: U. of Chicago Press, 1978, 266 pp. $17.00

Diener is Assistant Professor of Psychology, University of Illinois, Champaign and Crandall is Associate Professor, Institute of Behavioral Research, Texas Christian University.

Ethical issues in behavioral and social science research have become of increasing concern to the community, but especially to the sensitive scientist. As more knowledge about life is obtained, the methods of gaining further information impinge more intimately on the personal lives of our populations and thus get involved in ethics. Biological, psychological, and social sciences reach into the family and/or personality of the individual in intimate and self-revealing ways.

It behooves each researcher to investigate the *effects* of his study on the personhood of those being studied. Hidden effects created in the ones experimented on may become unintended disturbing factors involving ethics. Diener and Crandall have done an exceptional job of reviewing the ethics of research, including the obvious as well as the less obvious factors. Many cases of research are cited which give direct and practical reference to the matter under consideration.

The book is divided into five section: I. Ethical Treatment of Participants; II. Ethics Related to Non Laboratory Approaches; III. Professional Issues; IV. Science and Society; and V. Ethical Suggestions.

The book is an excellent introduction and its applications cover the whole scientific areas of research though written by psychologists. The authors offer guidelines which allow the researcher to extrapolate the effects of his study rather than offering rigid and solely moralistic rules of conduct. This approach allows the scientist more flexibility, but also places more responsibility directly on the researcher.

The area of deception in research serves as an example. On pages 87-88, the authors discuss the effect of deception on the researchers themselves, an effect not often considered. Some effects are: seeing people as objects to be manipulated, guilt feelings about misrepresenting themselves and the materials, the tendency to view the research as a game, etc.

Protection of subjects should be of great ethical concern to all researchers. This topic is presented thoroughly and well, with attention paid to the hidden effects and the debriefing of the subjects after an experiment.

Informed consent is also a factor in ethical research. The hue and cry against manipulation, and the answer that deception is necessary for a study somehow has to be balanced. This matter with all of its ramifications, is discussed in the differing parameters of research. The final answers to specific research methodology may have to be left to a panel of expert peers who could render judgment as to the ethical usefulness and reliability of the study.

An interesting addition to the book are the appendices which give the codes of ethics of the American Anthropological Association, the American Psychological Association, and the American Sociological Association.

Although the price of this relatively short book seems high, its value as a reference book cannot be underestimated. Anyone doing research in social and

behavioral areas would appreciate a copy for reference and as a guide to responsible ethical research.

Obviously, such a book does not cover any distinctively Christian applications. Is the Christian researcher guided by a different set of ethical principles—perhaps more specific? If so, we may need another book or addition to this book for further clarification. The primary difference may be the presuppositions on which the ethical principles are based and not the principles themselves.

*Reviewed by Stanley E. Lindquist, Ph.D., Professor of Psychology, California State University, Fresno, and President, Link Care Foundation.*

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**ON BEING HUMAN: PRINCIPLES OF ETHICS,** by Andrew C. Varga, S. J., New York: Paulist Press, 1978, viii & 151 pp. $2.95.

Varga's work blows a refreshing breeze into the sultry air of relativistic pluralism, mindless determinism, and behaviorism extant in considerable portions of our contemporary ethical theoretic atmosphere. He writes not only for students but for the educated general reader as well, and does not leave his readers without guidance in the structuring of an ethical system. Accept or reject the principles by weighing the arguments pro and con, he urges. But he leaves no one wondering about the foundations of morality. For him, they are natural law foundations residing in human nature. "The main objective of the book is to show that morality is based on human nature." (p.viii)

The Fordham professor sacrifices but little as he takes the reader through concise discussions of principal themes including meanings of "good," the notion of rights, the nature of free will, etc. In his search among the major ethical systems from the times of Plato to our own times he examines "the different criteria or norms" applied to the question, "What is the perfection of man?" Apparently, for Varga, the search itself is an ethical matter.

> It is our personal duty to search rationally for that factor in an action that makes it good or bad, and to establish our own well reasoned norm of morality. We can be helped in this task, but ultimately it is a personal rational judgment for which we bear the responsibility as we have to be intellectually honest in this search. (p. 31)

Thus he leads the reader into the longest chapter in his book, a cursory but nevertheless significant historical and evaluative overview of major positions. If this were the whole of the book it would justify the price of this paperback, especially for those who have read little or no ethical theory. Varga claims to find a common thread running through the fabric of various theories—the promotion of human well-being. "Morality, then, seems to mean that man ought to be what he is by reason of his nature." (p. 79)

His theory of natural law morality is spun out without dodging basic concerns about changes in human nature, about changes among human relations, about the relation of means to ends, about rights and truth-telling, and other issues central to a responsibly stated position. Natural law precedes any positive law, and our knowledge of natural law depends on our ability to know our own changing natures in the light of the basic unchanging characteristics we have as rational, free, and responsible beings. (pp. 110, 111)

For all its strengths, Varga's book seems weaker than it would be if he had more clearly marked off his position from natural law advocacy as found in some forms of Utilitarianism, Marxism, and Social Darwinism. He leaves this reviewer wondering whether or not he wishes to couch his position in a theologically neutral humanism. It seems that he might wish to do so because of the omission of any reference to biblical passages that set forth human nature as containing certain moral deficiency resulting from the fall. And in the concluding chapters as he discusses the role of conscience, he omits any reference to the possibility that moral judgment made out of conscience might not promote human well-being as it is understood biblically. Paul's letter to the Romans (2:12-16) indicates that the requirements of God's law "written on their hearts" may have a conscience-bearing witness but that human thoughts may either accuse or *excuse* one from God's law.

Nevertheless, Varga's book is worth the money and the time it would take to read it carefully. The bibliography increases its value.

*Reviewed by William J. Kinnaman, Associate Professor of Philosophy, Rhode Island Junior College, Warwick, Rhode Island 02886*

### *Books Received and Available for Review*

*(Please contact the Book Review Editor if you would like to review one of these books.)*

Burks, *Chance, Cause, Reason,* Univ. of Chicago

Curran and McCormick, eds., *Readings in Moral Theology, No. 1,* Paulist

Gaffney, *Newness of Life: A Modern Introduction to Catholic Ethics,* Paulist

Gillespie, *Charles Darwin and the Problem of Creation,* Univ. of Chicago

Guenther and Kawamura, *Mind in Buddhist Psychology,* Dharma

Greenleaf, *Teacher as Servant, a Parable,* Paulist

Hammond, Macinko and Fairchild, *Sourcebook on the Environment,* Univ. of Chicago

Haughey, *Personal Values in Public Policy: Conversations on Government Decision Making,* Paulist

Holton, *The Scientific Imagination: Case Studies,* Cambridge Univ.

Hollenbach, *Claims in Conflict: Retrieving and Renewing the Catholic Human Right Tradition,* Paulist

Judson, *The Eighth Day of Creation,* Simon and Schuster

Lefever, *Amsterdam to Nairobi: The World Council of Churches and the Third World,* Georgetown University

Lovelace, *Dynamics of Spiritual Life,* InterVarsity

Livingston, *The Master of Light: A Biography of Albert A. Michelson,* Univ. of Chicago

Malony, *Living the Answers,* Abingdon

Merton, *The Sociology of Science,* Univ. of Chicago

Moberg, *Spiritual Well-Being, Sociological Perspectives,* Univ. Press of America

Ruse, *The Darwinian Revolution,* Univ. of Chicago

Sloyan, *Is Christ the End of the Law?* Westminster

Sotirovich, *Grotius Universe: Divine Law and A Quest for Harmony,* Vantage

Tulku, *Time, Space and Knowlege: A New Vision of Reality,* Dharma

Vitz, *Psychology as Religion: the Cult of Self-Worship,* Eerdmans

White, *Parents and Pain,* InterVarsity

Ziman, *The Force of Knowledge: The Scientific Dimension of Society,* Cambridge Univ.

**COLORS OF THE MIND,** by Fred R. Skaggs and William L. Trimyer. Richmond, Virginia: Skipworth Press, 1978. 179 p.p., $3.95, paperback.

Colors of the mind are emotions. A variety of emotions are displayed throughout this book for the viewing of the reader. Drs. Skaggs and Trimyer, Baptist pastors, intend the book as a devotional resource for ministers and lay persons. They say that in their "devotional lives they have often found refreshment for (their) spiritual and emotional needs through reading what others have experienced and shared through writing." Through sharing some of their personal experiences, Skaggs and Trimyer seek to become "transparent selves" in the manner of Sidney Jourard (*The Healthy Personality,* 1971) who wrote, "When a man does not acknowledge to himself who, what, and how he is, he is out of touch with reality and he will sicken. . .And it seems to be another fact that no man can come to know himself except as an outcome of disclosing himself to another person." This quote from Jourard seems to embody the authors' two main assumptions—that all emotions are valid and that emotions are best handled by recognizing and expressing them. These assumptions trouble me.

First, are all emotions valid? The authors seek to legitimize, sometimes even illogically, the open expression of all emotions. For example, in Trimyer's treatment of anxiety he writes, "Jesus said, 'Take no anxious thought.'"Yet, in the next paragraph Trimyer says, "There's nothing wrong in feeling anxious; we must own our feeling!" To experience anxiety is certainly *human.* But recognizing the universal existence of anxiety does not mean there is nothing *wrong* with feeling anxious especially in light of the biblical directives to exercise faith in God as an alternative to anxiety (Mark 4:40; Mark 5:36 b; Phil. 4:6-7).

Second, is self-disclosure the best way to handle anxiety? Apparently the authors think so. This is conveyed both by their choice of counseling excerpts (in which they rely on the non-directive listening of humanistic psychologist, Carl Rogers) and by the structure of the book. The authors discuss one emotion per chapter. Skaggs begins each chapter by relating a personal experience involving the emotion, spiced occasionally with "inspirational" quotes and sermonettes. Trimyer relates a similarly formatted experience. Then, the authors give a prayer that someone feeling the emotion might pray. The one who prays generally expresses the emotion openly to God and recognizes that God is with him or her, even in the midst of emotional turmoil. Sometimes, God is asked to help rectify the situation leading to the emotion. The authors conclude each chapter with two or three quotations in which a biblical author expresses the emotion.

There are at least two dangers to this approach to emotion management. The first danger is that when self-disclosure to God, to others, and to ourselves is our primary focus, the real healing power of God may not be invoked. The second danger is that viewing awareness and expression as the ways to handle emotion may hinder the use of cognitive and behavioral emotion management methods which are consistent with Scripture. Emotional self-disclosure is important, but it is not everything.

*Reviewed by Everett L. Worthington, Jr., Assistant Professor of Psychology, Virginia Commonwealth University, Richmond, Virginia 23284*

**THE EVANGELICAL CHALLENGE,** by Morris A. Inch, Philadelphia, Pa: Westminster Press, 1978, 153 pp., $4.95

In the Preface and first chapter of his book, Inch tries to lay out some of the scope of his subject and some historical background of the term "evangelical." Using Karl Barth's definition, he states that the Reformation was an "evangelical event" from which the contemporary evangelical traces his roots. In addition the modern movement is a direct reaction to the influences of the Enlightment, but a different reaction from that of the fundamentalist (one who believes "that in a particular period in the past the full revelation of truth was completed") or the liberal (one who "closed the book on seventeen centuries of conviction. . .and then attempted to make peace with the contemporary era").

In a chapter on the theological definition of "evangelical" Inch stresses the necessity for adhering to orthodox Christian positions on key doctrines (as summarized for him by the Apostles' Creed) in order to be considered a member of the evangelical circle. These orthodox beliefs must be supplemented by a view of the Scriptures as infallible and normative for living, and by a burden for evangelism and missions. Finally, the modern evangelical has a concern for regenerative social action, action always preceded by learned understanding and conditioned by expected limited results.

Each chapter conveniently concludes with a summary listing the points covered in it. Each paragraph of the typical summary is numbered, and is a concise statement of what the theses of the chapter have been. Such clarity, however, is not always true of the chapters themselves. Especially the opening theological chapters seem to be rhapsodies on evangelical doctrines rather than documentaries on the validity of his contention that "evangelical" and "orthodox" are synonomous. The reader is left with the uneasy feeling that he has seen the writer's personal beliefs but not advanced his own understanding of the modern evangelical movement.

This feeling is further intensified by a look at the scholarship which underlies the book. Most of the material seems to be drawn from histories rather than from primary sources written by those who would be called evangelicals. The notable exceptions are the quotations from such men as Carl Henry and Kenneth Kantzer and the long discussion of Senator Mark Hatfield's political position. But the conspicuous absence of Francis Schaeffer and others in Inter-Varsity, Campus Crusade, and Youth for Christ movements seem to indicate a lack of investigation of the evangelical himself and a greater concentration on what others say about him.

Finally, the first chapter's opening promise of an increased understanding of the historical background of the movement is limited to a sprinkling of allusions to the fundamental/liberal controversy. There is no further elaboration on the Enlightenment's influence or on actual roots of evangelical beliefs.

In short, the book is more of a composite than an original study, more of the author's personal confession of faith than a piece of scholarship.

*Reviewed by Carol L. Veldman Rudie, Logos Book Store, Co-Manager, 1005 Walnut Street, Elmira, New York 14901*

**HOW TO THINK ABOUT EVOLUTION AND OTHER BIBLE-SCIENCE CONTROVERSIES** by L. Duane Thurman. Downers Grove, Ill., InterVarsity Press. 1978. 144 pp. $3.50

This is a paperback written by a botanist on a difficult subject. The famous botanist Stebbins has also written books dealing with evolution, so from this point of view Thurman is in good company. There are so many books in this area that one wonders why another one is needed. This book is different, however, because one is continually admonished to read, get the facts and then make a judgment. Some quotes illustrate this: "I make no firm choice of any of the popular models for origins;" "It is good religious practice but poor scientific method, to insist upon only one alternative;" quoting Dr. J.D. Thomas, "Any faith that constantly fears its destruction by new discoveries—is not satisfactory because it can be overthrown by mere enlightenment;" "Christian Theism does not stand or fall on whether one can prove that the Bible is right about origins."

Interesting quotes here and there in the book also illustrate the dogmatism of both scientists and religious folk. There are also quotes showing that many in these categories are *not* dogmatic but understand our lack of knowledge.

A few points of contention: on page 95 it is stated that new characteristics do not appear in hybridization, but my studies have shown that new ones do appear, probably due to the formation of new enzymes in the recombinants. On page 103, the implication is made that there are no fossils in the Pre-cambrian, but bacteria and algae are certainly found there. Transitional forms are not there, it is true. On page 133 it is stated that those who believe in macroevolution have faith in natural laws but lack faith in God. This to me is an oversimplification of the problem. There are atheists who hold to law but deny God; there are some Theists who hold to law but who believe in a God who can exercise Divine Providence should He so choose; then there are Deists who welcome the workings of God's laws but who deny special interventions. It is said that Deists have no personal God but this is erroneous because at least some Deists pray to a personal God for forgiveness of sins and also thank God for the wonderful work of creation. This type of Deism is certainly more satisfying to a scientist than is Theism.

Just what does Dr. Thurman believe? Not everything is clear on this point, but I gather that he is definitely a Theist, that he holds an open mind on many scientific subjects, that he sees a difference between what the Bible says and what clergymen say it says, and lastly that he believes in microevolution but he has great reservations about macroevolution.

I do believe that the book is worth reading and I recommend it to our readers.

*Reviewed by Irving W. Knobloch, Department of Botany and Plant Pathology, Michigan State University, East Lansing, Michigan.*

Each generation of students reads differing viewpoints on the relation of science to the Scriptures. This book does not tell a student what he should believe but rather gives him methods of evaluating the ideas he encounters. One chapter deals with the analytic approach, how to define the problem and the terms and recognize assumptions. Another treats science and its methods, including logic and faith in science and the limits of science.

The book begins with a comprehensive review of the renewed controversy that has occurred because pressure groups have convinced some states to teach creation as well as evolution or at least include creation in textbooks. A comparison is made with former controversies, such as the Scopes trial, and an analysis of the responses of the scientific community is given.

The author, L. Duane Thurman, had his graduate work at Berkeley and teaches at Oral Roberts University. He treats microevolution as the type which is factual and considers macroevolution as theoretical. Sections are devoted to the origin of the universe, origin of life, and origin of groups above the species level. Interpretation of fossil evidence by both creationists and evolutionists is presented. The author has read widely to give the reader insights into why people differ in their beliefs regarding origins.

The concluding chapters on "Creation" and "Your Approach to Controversy" not only show a student what has been believed about such topics as the age of the earth but also give guidelines for dealing with Bible-Science conflicts. In conclusion the author writes, "We should listen to others, Christian and non-Christian alike. We should be wary of those who make one theory the test of whether one is truly a biblical Christian. It is important to know how to discuss the creation-evolution issue intelligently, but it is not the most important issue in a Christian's life."

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## Cultic Conversion: Analysis and Response

The past decade has witnessed a startling increase in cult membership. While estimates vary on the actual number of people involved, extensive research conducted in connection with the Berkeley Religious Consciousness Project suggests that the phenomenon is quite widespread with fully one out of four persons interviewed in the San Francisco Bay Area indicating attraction to the "new faiths."[1] Although far fewer were actively involved, the fact that so many were attracted says a great deal about the extent of their influence. Add to this the fact that many of those who are caught up in the cults have defected from mainline religious institutions, and there is plenty of cause for concern by the Christian community.

Before attempting to come to terms with the cultic conversion phenomenon, we must first understand the tactics incorporated by the cults in securing converts. A review of the methods practiced by cults such as The Unification Church, People's Temple, Hare Krishna, Children of God, and The Way reveals many similarities. By abstracting and combining these similarities I have developed a five-stage model of the conversion process. While the model is not wholly descriptive of the procedures employed by any one cult, the model should serve a heuristic purpose by presenting a composite picture of the methods and techniques incorporated by cults in general.

*Phase One: Impression Management*

a. Warm Indulgence

Upon attending a cult meeting—which may be billed as a dinner or lecture or simply a social gathering—visitors and guests soon find themselves in an atmosphere which seems to radiate warmth. In this "love bombing" operation, they are surrounded by devotees with smiling faces who shower their guests with compliments. Images of permeating warmth and unconditional acceptance are fostered by frequent references to the cult as a closely knit family unit bound together by ties of affection and common purpose.

For persons who are suffering from lack of acceptance and self-worth and for those who are longing for understanding and a sense of belonging, this initial encounter may prove overwhelming. . . and disarming.

b. The Promise

In the messages presented reference is made to some basic problem existing in the individual and/or in society which the cult promises to resolve. The problem identified ranges from evil to ignorance and the effects attributed to it encompass the full range of human suffering. The promises are also often vague and general with one cult, The Way, announcing that, "You can have whatever you want." For Jim Jones the promises included health for the sick, hope for the downtrodden, and power for the powerless.

c. Validation of the Promise

During first phase induction, considerable energy is directed toward instilling confidence in the cult's ability to make good on its promise. Members readily provide dramatic and convincing statements about what they have been able to accomplish and become, thanks to the cult or its leader.

The elaborate staging operations conducted by Jim Jones toward this end are now well known. The bussing of members between the San Francisco and Los Angeles temples and, perhaps more noteworthy, the fake healing and resurrection services all served in the interest of impression management.

*Phase Two: "Grooming"*

Following the initial appeal, visitors are encouraged to remain with the cult for a time, possibly overnight but potentially indefinitely. Their decision to stay signals the beginning of the "grooming" phase, a phase designed to prepare the seeker for full immersion into the cult.

During this phase potential converts find themselves separated from family, friends, and community—anything which might serve as a reminder of their identity or compete with the cult for attention or ideology.

While isolated from outside contact, cult "guests" are caught up in intense interaction with the group via praying, chanting, singing, working, and/or travelling. While conforming to a demanding schedule, they find themselves getting less sleep than usual, dining on low protein meals and occasionally skipping meals entirely. Perhaps without fully realizing it, they begin to succumb to exhaustion. All of this contributes to a gradual dulling of the senses and suspension of coherent thought processes. This state of exhaustion, combined with the absence of an alternative support group, make them prime candidates for cultic indoctrination.

*Phase Three: Indoctrination*[1]

During the impression management phase a person is given only a partial idea—and sometimes a totally erroneous idea—of what the cult is really about. However, in the third and subsequent phases, individuals are gradually exposed to certain "inner truths."

In the intensive indoctrination phase potential converts are induced to adopt a new way of viewing themselves, the cult (or "sect" as many prefer to be called), and the outside world. They are bombarded with the idea that the self is nothing, the group and its leader are everything, and the outside world is misguided, unsympathic, hostile, and dangerous. Former acquaintances, even relatives and long-time friends, cannot be trusted. In the process, feelings of personal guilt and insufficiency are nourished and intensified to the point where individuals become alienated from themselves and from former associates. Little by little their willingness to put their fate in the hands of a "perfect" leader increases.

*Phase Four: Action*

Prior to Phase Four potential converts may have remained relatively passive. However with the onset of the action phase, a critical moment arises as they are asked to take some action. This may involve a confession of guilt, a renunciation of past life, a public humiliation rite, and/or a pledge of loyality to the group and particularly to its leader. This verbal response is typically followed by pressure to give a "concrete" expression of commitment. (People's Temple members were induced to sign away property holdings, bank accounts,—even their children—to the cult.) As one former cult member observed, "After you've made a commitment of this magnitude, it's difficult to admit you've made a mistake." Apparently the dissonance is such that converts will go to great lengths to rationalize what they've done. In short, they've become hooked.

*Phase Five: Commitment Maintenance*

After people have joined the cult, a number of measures are incorporated to insure continued loyalty and commitment. . . and to minimize the likelihood of defection. Anything which might detract from their total allegiance to the goals of the cult and its leader is discouraged or blatantly banned. Consequently romantic attachments are discouraged and sexual access is strictly controlled. All contact with the outside world is carefully regulated. Reading material is censored, and what little is approved must be read only in the presence of those who can provide the "correct" interpretation. Visits with former friends and associates are discouraged and correspondence with them is carefully monitored.

Rules designed to insure continued commitment are strictly enforced. Detection of deviance is facilitated by the continual presence of other cult members and any who are caught violating a rule are quickly (and sometimes severely) punished. Meanwhile frequent business meetings, prayer meetings, and/or group discussions insure that converts are continually subjected to the influence of the leader and the ideology of the cult.

Humiliation exercises (rituals) of various forms become the order of the day. In the People's Temple confessions of guilt or weaknesses, interlaced with numerous references to the strength, goodness, and wisdom of the leader became typical. Moreover, parents were encouraged to sign bogus confessions of child molestation and, in at least one instance, a woman was forced to have public sex with a man she detested. Such exercises have the effect of nurturing and maintaining feelings of guilt, inferiority, and nothingness and operate to further increase their openness to influence.

To discourage converts from defecting, stern—often emotion laden—warnings of what would befall converts if they should ever leave the group are typical. Members are told that they will be harassed by evil spirits or placed in mental institutions. Jones liked to play up the dangers of being killed or imprisoned by the CIA, FBI, or KKK. (Just before the mass suicide occurred, he warned the colony that any survivors would be castrated and tortured by the Guyanese Army.) In extreme instances, the cult may resort to threatening to kill or maim members, or persons in their families, should they leave.

*Assessment:*

To determine whether the conversion techniques employed by the cults would best be described as super salesmanship or brainwashing (coercive persuasion) would require a cult-by-cult and case-by-case analysis. However, it is clear that many of the techniques closely parallel those described by Edgar Schein,[3] Robert Lifton,[4] and others who have studied the methods used on captured American soldiers during the Korean War. (Chinese brainwashing techniques included destroying physical resistance, removing all social and emotional support, undermining one's sense of integrity, etc.) Moreover the results are similar insofar as converts experience regression, repression, altered world views, and partial or complete loss of ability to think freely, coherently and abstractly.

*Response:*

Having reviewed the conversion practices employed by many contemporary cults, we can return to our original question. How should the Christian community respond to the cultic conversion phenomenon? At least three responses appear to be in order. First, in remaining true to its mission to be the light of the world, the church is obliged to direct attention to, and forcefully condemn, all tactics of deception, mortification, manipulation, and exploitation as practiced by the cults. And while the level of commitment manifested by cult followers may appear commendable, when it is based on coercion rather than on reasoned reflection, when it is more leader centered than people or God centered, it too must be denounced. Such action will serve to warn potential converts and the rest of society to the dangers posed by the cults. In addition, by contrasting unethical cultic procedures with Christian values, our Lord will be glorified.

A second response necessarily flows from the first. In condemning the unethical or immoral conversion practices of the cults, the church comes under obligation to evaluate its own methods. In the course of such examination certain questions must be raised:

- *In its zeal to win converts, is the church careful to avoid deception or any appearance thereof? Or, does the church occasionally de-emphasize the costs of discipleship while promoting its benefits?*
- *In seeking conversions, is the church careful to encourage reasoned and sober reflection? Or, does the quest for conversions occasionally become a competitive venture in which more stress is placed on securing speedy conversions?*
- *In seeking to cleanse itself from all unrighteousness, is the church careful to avoid withdrawal? Or, does the search for purity occasionally become an excuse for retreating from social involvement to the point where it no longer provides salt to a needy world?*
- *In coping with its critics does the church remain open to feedback? Or, does it become so threatened as to discourage or condemn all evaluation efforts?*
- *Does the church balance its focus on human frailty and sinfulness with an emphasis on God's triumphant grace? Or, does it occasionally highlight personal shortcomings and guilt to the point where members are conquered by a sense of failure and remorse?*

Such questions may be difficult to raise, yet they must be addressed if the church is to forcefully condemn the unethical conversion procedures incorporated by the cults.

Thirdly, the church must do all in its power to prevent its members from being taken in by the cults. In equipping Christians with an appropriate armor of defense, three ingredients are crucial:

*A sound knowledge of Scripture.* Many cults, including those of Asian origin, frequently quote Scripture and liberally incorporate references to God and Jesus in their teachings. For the person not steeped in biblical teaching, such appeals may prove most convincing. A familiarity with Scripture will quickly reveal the inadequacy or errancy of cultic sources of salvation, authority, and wisdom.

*A knowledge of cult conversion techniques and the purposes they serve.* Methods of persuasion and coercion prove most effective on those who fail to recognize them or their intended results. (Prisoners who have successfully resisted intensive brainwashing efforts have attributed much of their success to their knowledge of the techniques of their captors.)

*Active involvement in a Christian support group.* There is evidence to suggest that people tend to become involved in a cult while in a period of stress, sorrow, or uncertainty. Not only does a Christian support group help maintain the vitality of one's faith, but it provides a source of direction and encouragement to its members as they face life's problems.

[1]Glock, Charles Y., & Bellah, Robert N., eds. *The New Religious Consciousness.* Berkeley: University of California Press, 1976.

[2]Indoctrination may have already occurred during the grooming phase such that a clear-cut distinction between Phase II and Phase III does not always exist.

[3]Schein, Edgar H., *Coercive Persuasion.* New York: W. W. Norton, 1961.

[4]Lifton, Robert J., *Thought Reform and the Psychology of Totemism.* W. W. Norton, 1961.

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## The Metallic Sky: A Travesty of Modern Pseudo-Scholarship

In the March 1968 issue of the *Journal of the American Scientific Affiliation* appears an article entitled "Three-Storied Universe" by Paul Seely that presents such a distorted caricature of the Old Testament view of the universe that it calls for a new look at all of the pertinent evidence and an intelligent effort to understand what the Hebrew authors were saying by the terms they used in regard to celestial phenomena. The author of this article has diligently researched the Brown-Driver-Briggs article on *raqia'* (firmament, expanse) and then extrapolated from its utterly misleading etymologism to spin a fantastic theory that forces all of the biblical references to the heavenly bodies and the meteoric phenomena into a mold of blatant absurdity. No ancient Hebrew could ever imagine that an intelligent adult of the modern age would have concocted such a tissue of absurdities as are presented in this article and seriously believe what Paul Seely claims they believed.

Admittedly the lexicon referred to is usually quite trustworthy in most of its definitions, and it is perhaps excusable if a layman with scant acquaintance with Hebrew or knowledge of the comparative literature of the Ancient Near East might have accepted this scholarly absurdity as proven fact. But after thirty-five years of careful study of the Hebrew Bible and of the cognate languages of the Fertile Crescent, I feel I must raise an energetic protest against such a palpable travesty of scholarship and say a word in defense of the intelligence and rationality of the inspired authors of Holy Scripture. Even apart from the question of biblical trustworthiness and reliability—which "Three-Storied Universe" seems to discard with utter scorn—I feel that for the cause of true objectivity in the interpretation of ancient literature I am under obligation to set the record straight.

Seely affirms, first of all, that the Bible "assumes that the universe consists of three stories. The top story consists of a hard firmament which serves to divide a part of the primeval ocean from the other part of that ocean which is on the earth. The middle story, the earth, is where flesh and blood men live. The bottom story, Sheol, is where the souls of the departed live."

As for that middle story, I venture to guess that even Seely believes in its existence, since that is the plane on which he is now living. As far as the whereabouts of the souls of the dead are concerned, I agree that the Bible teaches that the souls of the damned descend to the depths below. I am not sure where Seely feels they go, or where they are now to be found. Up in heaven, perhaps? Or floating around as invisible ghosts here on what he calls "the middle story"? Apparently he disapproves of their going downward. That is his privilege, but in this case a personal preference falls short of objective, scientific proof that Holy Scripture is altogether mistaken on this score. The inspired Apostle John relates to us in Revelation 20:13 the vision Christ gave him concerning the last judgment of the great white throne: "And the sea gave up the dead which were in it; and death and hell delivered up the dead which were in them; and they were judged every man according to their works." A few verses earlier we read that "The devil that deceived them was cast into the lake of fire and brimstone, where the beast and the false prophet are, and shall be tormented day and night forever and ever." The earlier part of this chapter indicates that prior to his final judgment Satan had been cast "into the bottomless pit"—which sounds quite definitely subterranean. It would seem to be a reasonable demand to make of Seely that he adduce his superior source of inspiration that puts him on a better level than the Apostle John, who simply recorded what the risen Christ had revealed to him.

So much for the "middle story" and the "bottom story"—to use Seely's quaint (but quite un-biblical) terminology. We now come to the top *storey* (as I prefer to spell it, lest the term be confused with the other kind—a a fairy story). On the other hand, that might not be altogether inappropriate, since the theory of a metallic sky belongs to the genre of fairy story. Let us first of all examine the Brown-Driver-Briggs article, which started all the mischief, and subject it to a careful critique. It reads: "*Raqia'*—extended surface, (solid) expanse (as if *beaten out,* cf. Job 37:18)." After citing the Greek and Latin equivalents in the Septuagint and Vulgate it differentiates two meanings as follows: "1. (flat) expanse (as if of ice, cf. *ke'eyn haqqerah*—which would mean "like the appearance of crustal," or possibly "ice") as base support." The second definition is: "2. the vault of heaven, or 'firmament', regarded by the Hebrews as solid, and supporting 'waters' above it, Gen. 1:6,7,8." Here we have a grotesque notion, entertained by no other culture of the Ancient Near East—whether Egyptian or Mesopotamian or Syrian—and never proposed by any literature or culture of more recent times, as far as this writer is aware. The Egyptians regarded the sky as composed of the body of the goddess Nut, who is sometimes represented as supporting herself by her long arms and legs as she holds her body in an arched position over the surface of the earth. So far as the Sumerians, Babylonians and Assyrians are concerned, there is never a hint or suggestion of any sort concerning a metallic-plate sky. The same is true of the religious literature of Ugarit, dating back to the time of Moses.

The grounds for deducing this absurd notion are found in the etymology of the root from which *raqia'* is derived. The related verb *raqa'* means, according to B.D.B., "beat, stamp, beat out, spread out." In the subsequent discussion of its usage in the *qal* stem we read: "2 Sam. 22:43—I will stamp them down. . .Ezek. 6:11—beat (stamp) with thy foot, in token of contemptuous pleasure. .Participle active, as a substantive in the construct state: *roqa' ha'ares*—he that (beateth out) spreadeth out the earth; likewise in Is. 44:24 and Ps. 136:6. "Then it gives the following for the one occurrence in the *hiphil* stem: *tarqia' 'immow lishehaqim* (Job 37:18) canst thou make with (= like) him a spreading for clouds (spread out clouds; cf. *raqia'*)?"

Now it should be observed that this type of interpretation violates proper lexical procedure. It is true enough that the verb *raqa;* originally meant, and often does mean, "stamp down, beat out" as into thin metal plates. In the *piel* stem it is used of a goldsmith overlaying a wooden idol with gold plating. However it should also be observed that words are not necessarily confined to their original root meaning. Take our English word "beat." True enough, it primarily means "hit" or "strike." But when a person exclaims at the end of a long and exhausting day, "Boy, do I feel beat!", he does not necessarily mean that he has been subjected to a thorough drubbing with sticks or stones. So also in the case of *raqa'*, there is a figurative meaning which has nothing whatever to do with beating or stamping out a metallic plate, and that is "stretch out" or "extend." This occurs in contexts in which no hammer action is involved, such as Is. 42:5: "Thus says the God Yahweh, the Creator of the heavens, and the one who stretched them out (the verb here is *natah,* which is often used of extending curtains or tents), the one who extended (*roqa'*) the earth and that which it produces (the noun *se'ese'* refers to the plants and animals that grow in earth)." B.D.B. absurdly suggests that *raqa'* here is tantamount to, or suggestive of, beating out. But if God had beaten out the animals and plants growing on the earth, there would not have been much left of them except pulverized fragments. This, therefore, is a completely unjustified attempt to force a doctrinnaire, stereotyped interpretation upon a context which will not admit of it. Or again, take the citation in Psalm 136:6, which offers praise "to Him who stretched out (*roqa'*) the earth above/upon the waters." It is perfectly evident that if God had beaten out or stamped out the earth upon the waters, there would have been a very great splashing to muddy up the scene! No, quite obviously this usage implies extending out, without any reference to stamping with hammer or foot. Both Aramaic and Syriac preserve the same derived meaning ("extenders," "ausbreiten") in their use of this root. In Jastrows Dictionary of Post-Biblical Hebrew the only meaning he cites is "stretch, spread"—without any reference to beating or stamping. And as far as the Isaianic usage is concerned, it is highly significant that in

40:22, where Isaiah expounds the same sentiment as those previously cited, he glorifies Yahweh as "the one who sits above the circle of the earth. .who stretches out (*noteh*—the same synonymn as in 42:5) the heavens like a cloud (*doq*), and spreads them out (*matah*) like a tent for a dwelling." Quite clearly the prophet thought of God's stretching out the sky in the form of a cloudbank or a garment, without any connotation of metallic plating. That effectively disposes of the whole notion of a metallic sky, and undercuts Seely's entire argument.

A more comprehensive examination of the biblical reference to meteoric phenomena would surely have alerted Seely to the unfeasibility of the theory of a metallic sky. *Raqi'* simply means "expanse," without any connotations of solidity; it is properly rendered that way in the New American Standard and in the New International Version. Psalm 19:5 speaks of the sun as resembling a bridegroom coming out of his marriage chamber, rejoicing like a strong man to run a race. On the metallic sky theory, alas, he would have to run it upside down, or else he would not be visible to us earthlings at all! Nor is there any suggestion of a metallic heaven in the language of Job 36:27-28: "For He draws up the drops of water,/They distill rain from the mist,/Which the clouds pour down,/They drip upon man abundantly." Seely suggests that the biblical writers accounted for rain by supposing there were windows or cracks in their metallic sky, allowing the superterrestrial ocean to gush down through to earth. The opening of the windows of heaven are poetically referred to in describing the Deluge of Noah (Gen. 7:11), or figuratively of the blessing of an abundant crop resulting from generous rainfall (Mal. 3:10), but no Hebrew would ever have supposed that literal windows were opening in a metallic vault—any more than we would take it literally if we were told, "It really rained buckets yesterday," or, "Boy, it's raining cats and dogs outside." Let us urge upon Seely that the Hebrews had fully as much right to the use of figurative language as we do. And that in the light of Job 36:27-28 they had their facts straight in regard to the precipitation cycle—quite as straight as we enlightened Americans of the 20th century!

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## C. S. Lewis on Science

When the distinguished medieval scholar, C. S. Lewis, came to the realization that not atheism, but only "mere Christianity" was capable of truly resolving life's ultimate dilemmas, he committed his whole being, his great intellect as well as his heart, to the lordship of Jesus Christ. Out of such a perspective of commitment, armed with a deep understanding of both human nature in its frailty and greatness and the intellectual climate of the modern world, Lewis challenged in his writings as a Christian layman (as he thought of himself) modern man's indifference and hostility toward the Christian Gospel with its ability to heal, reconcile and integrate into a whole the moral, intellectual and spiritual dimensions of existence. Lewis, while not a scientist himself, was a well-read and thorough student of all human endeavor; accordingly his thoughts on science are well informed and make a distinctive contribution toward integrating scientific understanding into a unified, Christian perspective.

In May, 1971 the Metropolitan New York Chapter of ASA was extremely fortunate to have Mr. Henry Noel, a founder of the New York C. S. Lewis Society, present a talk in which he ably synthesized Lewis' major thoughts on science. As I have not seen this material collected elsewhere and know that it will be of great value to all in the scientific community interested in C. S. Lewis' unique contributions to Christian thought, I have received Mr. Noel's permission to allow the following summary of his May, 1971 talk to be reprinted now.

As Mr. Noel pointed out, the central insights of C. S. Lewis on the nature of scientific understanding are contained in the epilogue of *The Discarded Image*, a classic study on the image of the world that Medieval people had and which now has been discarded. A brief summary of these key ideas is now presented.

In the 19th century scientists still believed that by inferences from sensory observations (and instrumental extensions thereof) one could know ultimate physical reality in the same way as by a map a stranger to a country, skilled in the art of map reading, could know the actual hills, rocky ascents, and pleasant valleys of the country itself. In both cases, the truth would be a sort of mental replica of the thing itself. Mathematics was already becoming the language of the physical sciences. But it was not doubted by most scientists that there was a concrete reality clearly distinguishable from the math symbols and operations. The mathematics was a symbolic description of physical reality itself. Through mathematics we can gain knowledge of the physical world, not merely mathematical. Scientific theories in their statements are analogous to the contour lines of a map which symbolically point to real hills, rocky regions, and flowered valleys; these map symbols enable us to get nearer to actual reality.

Physicists of the 20th century in their detailed study of both the very small and the very large in the universe have found that concepts developed by the human imagination from ordinary sensory experiences, represented in mathematical language, are no longer adequate. With respect to the analogy of a scientific theory as representing a map of reality many scientists now believe that the map's contour lines are the nearest to reality you can get. All the ideas about "real" rocks, hills, etc., are taking one farther away from rather than nearer to the fullest understanding of reality possible. The ideal of a real rock (in analogy to scientific statements) is really a metaphor or parable permissable to help those who cannot understand the contour lines themselves (the math symbols and operations thereof); it is misleading to take the parable literally. The mathematical symbols and operations that the physicist uses in describing the properties of an electron are reality *itself* and the picture of a spinning ball or a wave-packet a non-literal representation, a concession to the fact that the world of our common sensory experiences is one of baseballs, ocean waves, etc. Modern physics often speaks in terms of mathematical models but such models are no longer to be thought of as "small-scale" replicas of reality (like a model ship) but they are at best analogies and often only suggestive of aspects of the physical world. In a similar manner, the sayings of mystics are suggestive of the nature of God. In summary, many physicists of the 20th century believe that the mathematical description is the nearest to the actual reality we can get; anything we can imagine based solely on ordinary non-mathematical conceptions is misleading in describing physical reality. Mathematics, far from being the avenue by which we can approach physical reality, is all we can know of physical reality itself.

Biological science has also undergone a revolution in the way it views reality; the biological model of reality which pictures life in terms of all perfect things preceding all imperfect ones has been replaced by an evolutionary model in which the starting point is always lower than what is developed. Lewis argued that this revolution was brought about not by the discovery of new facts but by the whole cultural climate being conducive to a new interpretation of biological facts. As a boy, he believed that Darwin discovered evolution and that the radical and even cosmic developmentism now present in all popular thought came about as a superstructure resulting from the implications of a purely biological model. He later came to realize that almost the reverse was the case: the whole cultural climate of the 100 years before Darwin in its revolutionary and romantic temper was conducive to an evolutionary world-view and this led to the seeking of purely biological evidence to support an evolutionary rather than a devolutionary model of the origins and complexity of living organisms. Lewis examined the historical setting in detail to sup-

port this thesis. In the biological revolution that has occurred the old models were not shattered by the discovery of new phenomena; almost the reverse is true. When changes in the human mind were sufficient to be incompatible with the existing model, the scientific community began to ask new and different types of questions than before of Nature. In such a way supporting phenomena for the biological model were discovered. Nature has ample phenomena "in stock"; the questions scientists put to her determine much of what they discover. The kinds of questions they ask are, in turn, certainly affected by the over-all cultural climate the scientific community is immersed in. Lewis concludes that it is possible that new facts could cause us to modify the present evolutionary scheme for biology but he believed it is more likely that massive and far-reaching changes in the cultural climate will lead to new questions being asked and answers received; thus, leading the scientific community to adopt a new biological model. To directly quote from Lewis:

> ". . .The new model will not be set up without evidence but the evidence will turn up when the inner need for it becomes sufficiently great. It will be true evidence, but Nature gives most of her evidence in answer to the questions we ask her. Here, as in the courts, the character of the evidence depends upon the examination, and a good cross-examiner can do wonders. He will not indeed solicit falsehoods from an honest witness but in relation to the total truth in the witness' mind the structure of the examination is like a stencil, it determines how much of that total truth will appear and what pattern it will suggest."

As scientists, we may not entirely agree with this somewhat unflattering view of the nature of science. But before we dismiss his views, we would do well to remember that Lewis was a scholar with abiding interests in history and philosophy as well as a Christian with deep personal involvements. He therefore understood human nature and was well-qualified to judge how science actually comes about as a human activity.

The current relevance of C. S. Lewis' thought on science is now considered by commenting briefly on some areas of current concern.

The 1972 Annual Meeting of the American Scientific Affiliation, August 21 - 24, at York University, Downsview, Ontario, had as its theme "Presuppostions of Science: A Christian Response." One common insight of many of the talks and responses was that embedded in scientific activity are beliefs or presuppositions that cannot be proven by science but which guide and motivate scientists in their work. These presuppositions were argued to be dependent on the historical development and general cultural climate in which scientists live. It was also pointed out at that convention by Richard Bube that science is ambivalent: it is characteristic of not only science but all human endeavor that as we strive to accomplish something, it is inevitable that we should produce both good and bad, desirable and undesirable results. This is true both when we fail upon acting from bad motives and when we have good motives and succeed. Both insights of the meeting were clearly recognized by and of great interest to C. S. Lewis.

In an article entitled "The New Biology: What Price Relieving Man's Estate?" (*Science,* 19 November 1971, Vol. 174, No. 4011) the biologist, Leon R. Kass, argues that the possibility of "human engineering" and manipulation made likely by the biological revolution forces us to reconsider the nature of the scientific enterprise. Whereas science was once thought of as purely the *understanding* of Nature, moderns view science as power, as *control* over Nature. We like to speak "figuratively about 'Man's power over Nature' because it obscures an upleasant reality about human affairs. It is in fact particular men who wield power, not Man. What we really mean by 'Man's power over Nature' is a power exercised by some men over other men, with a knowledge of Nature as their intrument." Note that the misuse or the abuse of power is not an issue. Power grows and is unavoidably the power of only some, and the number of powerful persons decreases as power decreases. Kass credits C. S. Lewis in *The Abolition of Man* for clearly calling attention to the significance of this issue and developing the arguments that Kass uses.

Lastly, let me point out that Lewis in *The Abolition of Man* saw the great dilemmas of modern man stemming from his rejection of absolute values. He pointed out that:

> "Until quite modern times all teachers and even all men believed the Universe to be such that certain emotional reactions on our part could be either congruous to it - believed, in fact, that objects did not merely receive, but could *merit,* our approval or disapproval, our reverence, or our contempt. . . St. Augustine defines virtue as *ordo amoris,* the ordinate condition of the affections to which every object is accorded that kind and degree of love which is appropriate to it."

Moderns have rejected the objective nature of such sentiments. Traditional value judgments are merely a consequence of subjective, emotional states. Lewis defended the validity of objective values and argued that there is a sole source of all value judgments whose basic principles can be found in what was taught by the great teachers of all human cultures. This set of principles he labeled the *Tao* from the Chinese, who saw the *Tao* as "the Way in which the universe goes on, the Way in which things everlastingly emerge, stilly and tranquilly, into space and time. It is also the Way which every man should tread in imitation of that cosmic and supercosmic progression, conforming all activities to that great exemplar." Common to all cultural forms of the *Tao* is something we cannot neglect.

> "It is the doctrine of objective value, the belief that certain attitudes are really true, and others really false, to the kind of thing the universe is and the kind of things we are. Those who know the Tao can hold that to call children delightful or old men venerable is not simply to record a psychological fact about our own parental or filial emotions at the moment, but to recognize a quality which *demands* a certain response from us whether we make it or not. . .And because our approvals and disapprovals are thus recognition of objective value or responses to an objective order, there emotional states can be in harmony with reason (when we feel liking for what ought to be approved) or out of harmony with reason (when we perceive that liking but cannot feel it)."

The *Tao* is furthermore the sole source of all value judgments.

> "If it is rejected, all value is rejected. If any value is retained, it is retained. The effort to refute it and raise a new system of value in its place is self-contradictory. There never has been, and never will be, a radical new judgment of value in the history of the world. What purport to be new systems or (as they call them) 'ideologies,' all consist of fragments from the *Tao* itself, arbitrarily wrenched from their context in the whole and then swollen to madness in their isolation, yet still owing to the *Tao* and it alone such validity as they possess. . .If justice is a virtue, then so is my duty to my country or my race. If the pursuit of scientific knowledge is a real value, then so is conjugal fidelity. The rebellion of new ideologies against the *Tao* is a rebellion of the branches against the tree; if the rebels could succeed they would find that they had destroyed themselves (It should be pointed out here that Lewis does believe that further development and modification of values is possible from within the framework of the *Tao*—parenthesis mine)."

*(Concluded on inside back cover.)*

# Letters

## Some Were Pleased. . .

Thank you for printing in the June 1979 issue of the *Journal ASA* (an excellent issue in terms of the things I am interested in) the Pew Lecture given at Grove City College on "The Relationship Between Christian Truth and the Natural Sciences." I like very much the approach, and especially the kind of emphasis on the partial nature of truth as we are able to deal with it.

While recognizing that in a single lecture it is impossible to deal with all facets of this important subject, nevertheless I'd like to call attention to two biblical aspects of "truth" that I believe have bearing on the topic.

One is the biblical teaching that Jesus himself is the truth. That can be taken together with the statement of John 8:32, in which Jesus says that the truth shall make us free, in which the truth means continuing in Jesus's way. An implication of this for scientific truth seems to be that a person cannot in any proper sense speak of knowing the truth unless he understands that truth in relation to Jesus Christ and subject to Him. This is a biblical response to the positivistic stance that one can and even must know scientific truth apart from any religious commitments. There are states of affairs that a person may accurately know apart from submitting his knowledge to Christ, but it is not appropriate to speak of such knowledge as partial "truth."

Second is the biblical teaching that a person must not only know the truth but also do the truth. It seems strange to speak of *doing* the truth because we have grown to believe that truth is something logical and cognitive. I think the Bible says that truth is *more* than that, and that this is something important for us as scientists to remember.

Thank you again for the article which I thoroughly enjoyed. May God continue to give you much strength and blessing in the important work you are doing for us as editor of JASA.

Robert E. VanderVennen
Association for the Advancement of Christian Scholarship
Toronto, Ontario, Canada M5T I R4

I want to congratulate you on the June 1979 issue of the *Journal ASA:* a superb blend of articles which should inform and I suspect shake up your readers. Keep up the good work.

John W. Haas, Jr.
Gordon College
Wenham, Massachusetts 01989

Just a note to express my appreciation for your "open" approach to theological issues. I thought the issues on miracles *(Journal ASA,* December 1978) and inerrancy *(Journal ASA,* June 1979) were especially excellent. Keep up the good work.

David Basinger
Professor of Philosophy
Roberts Wesleyan College
Rochester, New York 14624

I should like to express to you my appreciation of the March 1979 issue of the *Journal of the American Scientific Affiliation* and particularly of the article "The Significance of Being Human," which I have found very helpful. I also enjoyed the article on Behaviourism and the article by Dr. Pike.

I must say that I am delighted to have made the acquaintance of the *Journal* and I hope to become a regular subscriber.

For your part you may be interested to have this echo from an academic engineer in a distant country.

P. Hammond
Head of Department
Professor of Electrical Power Engineering
Department of Electrical Engineering
The University, Southampton, England

The June 1979 issue of the *Journal ASA* contained many articles of interest to me. I definitely will save this issue for future references.

I particularly liked your article entitled "The Relationship Between Christian Truth and the Natural Sciences." I think this would be valuable reading for our General Physics classes. Thus, I am asking for your permission to make copies of this article and distribute them to our physics students.

Harry Tomaschke
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## . . . Others Were Not

I received the June 1979 issue of the *Journal ASA* a few days ago and am commenting on the articles on the inerrancy of the Bible.

The statement of faith of the ASA reads: (1) The Holy Scriptures are the inspired Word of God, the only unerring guide of faith and conduct. For all practical purposes unerring and inerrant mean the same thing: making no mistakes, not erring, accurate, infallible (Britannica Dictionary). Members of the ASA endorse the inerrancy of the Bible, or are supposed to.

Attacks on the inerrancy of the Bible are not new. Fifty years ago Bible scholars ridiculed the inerrancy of the Scriptures with teachings that the book of Jonah was a fable, the Hittite people did not exist, Isaiah and the Pentateuch had multiple authors, Jesus was only a man and divine to the same extent that man is divine and has a spark of God in him, all religions lead to God and salvation, the world is getting better and all men will some day be good, God is a loving God and all men will reach heaven and there is no hell, etc. I was confronted by these teachings and influenced by them as were the other young people of my day. I praise the Lord that He was with me during this confrontation and that He helped me to reject these false teachings and commit myself more strongly to the fundamental doctrines of the Bible including the Trinity, the Virgin Birth, the Resurrection of the Dead, Salvation through Christ alone, the inerrancy of the Bible, and the Second Coming of Christ.

If you do away with the inerrancy of the Bible, you are free to throw out any portion or teaching of the Bible that you do not like. I feel that the ASA should strongly support the inerrancy of the Bible which is part of the doctrinal statement of the ASA. I believe that this was the intent of the founders of the ASA. I think that it is an error to publish articles in the *Journal* in a favorable light that

are opposed to the doctrinal statement of the ASA.

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I am wondering how far we should go in our eagerness to be scientific to start to undermine the authority of Scripture. When we think of the Bible as non-inerrant, I wonder just how far this will take us. In our doctrinal statement we state that the Bible is "the only unerring guide of faith and conduct." We also state that "the Holy Scriptures are the inspired Word of God." To me this has meant that the Bible is always reliable and that it contains no errors in the autographs. However by the June issue of the *Journal* I see a quite different position.

I am asking what this may lead to in the long run. Is this not the beginning of a departure from the faith? I know that you have done a fine job in defending your position but it does not satisfy me. I believe that there are others who will agree with me. You have properly emphasized the fact that we may have only partial truth. However when it comes to the Word of God, this is not partial truth. When Jesus says, "I am the way, the truth and the life," he is not stating a partial truth, if I understand the meaning.

As I see your position, it leads to more and more departure from the truth that we do have in the Bible. If the Bible contains errors, where do we stop. Perhaps the Bible is in error in many areas which are important in the matter of salvation. Was Jesus truly human and truly divine? I know many so-called Christians who declare that he was only human. And so it goes from one bad thing to another. So I am wondering what is our guide. Do you have an infallible guide as to which part of the Bible is in error and which is perfect?

This is a matter of deep concern to me and I think that it should be of concern to all.

H. Harold Hartzler
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(Ed. Note - *In subsequent correspondence, Dr. Hartzler has graciously responded as follows, "I feel well now that you have explained your point of view with regard to errors in the Bible. I agree with you that we need to understand the real meaning of the term 'inerrancy' and I now am satisfied with your interpretation of that word. I have read and reread your article in the September 1963 issue of the* Journal ASA, *"A Perspective on Scriptural Inerrancy," and now feel that I can agree with most of what you have said."*)

As Editor of the International Council on Biblical Inerrancy I would like the privilege of equal space to reply to your attack on inerrancy in the June issue of the *Journal ASA*. I assume you are open to all sides.

Norman L. Geisler
Director, Publications Division
International Council on Biblical Inerrancy
P.O. Box 13261, Oakland, California 94661

(Ed. Note - *See March 1980 issue.*)



(Ed. Note - *To interpret the articles in the June 1979 issue of the* Journal ASA *as any kind of departure from Christian orthodoxy, or to suppose that any of the authors would advocate a position in which there were errors in the Bible, can be the result only of a serious misunderstanding. To challenge a particular interpretation of what inerrancy means, is not to challenge the real meaning of inerrancy. The question raised by the authors of the June issue is not the question of whether the Bible is inerrant, but what it means to assert that the Bible is inerrant. Our desire is to be faithful to the Bible itself, not to some relatively modern interpretation of what inerrancy ought to mean. We maintain that the difficulty with the word "inerrancy" is that we cannot know what we mean unless we are able to define an "error." This rapidly gets to be a problem in philosophical nit-picking. We don't want the authority and reliability of the Bible to rest on philosophical nit-picking. What the authors of the June issue say is not very different from the statements in the Chicago Statement on Biblical Inerrancy of the International Council on Biblical Inerrancy in Article XIII and in the Expositions portion, as quoted in the June issue. Readers will do the ASA a serious disservice if they represent these papers as an attack on the concept of inerrancy, or as advocating a position in which errors exist in the Bible. On the other hand, if they can see the distinctions that are being made by many evangelicals in an effort to remain truly biblical instead of being boxed in by a non-biblical philosophical insistence on some kind of "absolute inerrancy," they will do the Christian position and the ASA a great service in making this known.)*

Founded in 1941 out of a concern for the relationship between science and Christian faith, the **American Scientific Affiliation** is an association of men and women who have made a personal commitment of themselves and their lives to Jesus Christ as Lord and Savior, and who have made a personal commitment of themselves and their lives to a scientific description of the world. The purpose of the Affiliation is to explore any and every area relating Christian faith and science. The *Journal ASA* is one of the means by which the results of such exploration are made known for the benefit and criticism of the Christian community and of the scientific community.

Members of the **American Scientific Affiliation** endorse the following statement of faith: (1) *The Holy Scriptures are the inspired Word of God, the only unerring guide of faith and conduct.* (2) *Jesus Christ is the Son of God and through His Atonement is the one and only Mediator between God and man.* (3) *God is the Creator of the physical universe. Certain laws are discernible in the manner in which God upholds the universe. The scientific approach is capable of giving reliable information about the natural world.*

*Associate Membership* is open to anyone with an active interest in the purpose of the ASA. *Members* hold a degree from a university or college in one of the natural or social sciences, and are currently engaged in scientific work. *Fellows* have a doctoral degree in one of the natural or social sciences, are currently engaged in scientific work, and are elected by the membership. *Dues*: Associate $15.00, Member $20.00, and Fellow $27.00 per year. A member in any of these three categories can take the *special student rate* of $7.50 per year as long as he is a full time student.



**PUBLICATIONS** include the *ASA News* (sent to all members four to six times each year); four symposia: *Modern Science and Christian Faith*, F. Alton Everest, Editor, Van Kampen, Wheaton, Illinois (1950) (out of print), *Evolution and Christian Thought Today*, Russell L. Mixter, Editor, Eerdmans, Grand Rapids, Michigan (1960), *Our Society in Turmoil*, G. Collins, Editor, Creation House, Carol Stream, Illinois (1970), and *People, Power and Protein, Journal ASA Supplement* 1 (1976). Individual authors are also encouraged to publish independently.

INDICES to back issues of the *Journal ASA* are published as follows: Vol. 1-15 (1949-1963), *Journal ASA* 15, 126-132 (1963); Vol. 16-19 (1964-1967), *Journal ASA* 19, 126-128 (1967); Vol. 20-22 (1968-1970), *Journal ASA* 22, 157-160 (1970); Vol. 23-25 (1971-1973), *Journal ASA* 25, 173-176 (1973); Vol. 26-28 (1974-1976), *Journal ASA* 28, 189-192 (1976). *The Journal ASA* is indexed in the CHRISTIAN PERIODICAL INDEX. Present and past issues of the *Journal ASA* are available in microfilm at nominal cost. For information write University Microfilms, Inc. 300 North Zeeb Road, Ann Arbor, Michigan 48106.

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## *C.S. Lewis on Science. . .* *(from p. 222)*

The unity of wholeness of the *Tao* can be seen from the elements Lewis sees it to be composed of. They are rules of general and special beneficence; duties to parents, elders, ancestors; duties to children and posterity; the laws of justice; the laws of good faith and veracity; the laws of mercy; and the laws of magnanimity. He gives examples of these elements from a wide spectrum of cultural teachings. It would seem appropriate to reconsider the validity of these concepts in the light of the anthropological data that have been collected since Lewis wrote on the *Tao*. Can, as an example, a concern for justice be found in all human cultures? If evidence is found to substantiate that such a concern exists, would it not be worthwhile to work out the consequences of accepting it as a "given of Nature" rather than as something to be reduced to a psychological or physico-chemical explanation?

> "It is no use trying to 'see through' first principles. If you see through everything, then everything is transparent. But a wholly transparent world is an invisible world. To 'see through' all things is the same as not to see."

(All quotes of last paragraph are from *The Abolition of Man.*)


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"Upholding the Universe by His Word of Power" Hebrews 1:3

VOLUME 31, NUMBER 4 DECEMBER 1979